

Anant Z Bellary

From: Anant Z Bellary
Sent: Thursday, 5 April 2018 10:59 AM
To: Vehicle Standards; Adam Shaw
Cc: Scott G Notley
Subject: RE: Towing capacities

Yes Shane.

And it so happens that towing capacity upgrade by way of GCM or Tow Capacity rating is not there in any SSM.

That particular clause in LS11 is superfluous and needs to be removed, as I mentioned to Scott.

Regards

Anant Bellary
Vehicle Standards & Accreditation
Transport & Main Roads

From: Vehicle Standards
Sent: Thursday, 5 April 2018 10:52 AM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>
Cc: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Subject: FW: Towing capacities

Good morning

Please see the email from Not relevant in regards to towing capacity increases. My thoughts are the LS11 covers it well and can only be done if it is part of a SSM.

Kind regards,
Shane Lonsdale
Vehicle Standards | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
PO Box 673 | Fortitude Valley Qld 4006
P: 3066 3469
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au



From: Not relevant [[Not relevant@atozimports.net">mailto:Not relevant@atozimports.net](mailto:<span style=)]
Sent: Thursday, 5 April 2018 10:19 AM

To: Vehicle Standards <vehiclestandards@tmr.qld.gov.au>

Subject: Towing capacities

Hi Vehicle standards team

Over the past several months we have had an increasing number of people enquiring about towing capacity upgrades, It seems as if many people are under the impression that if they have their GVM upgraded they also increase the towing capacity of the vehicle.

Whilst I understand this is not the case I am not sure everyone carrying out the LS11 codes actually do ? As some of our potential customers reject our services for others that can supposedly increase not only the GVM but also the towing capacity.

Is there any intention to add a code that will in fact address the possibility of increasing the towing capacity on light vehicles ? As I am quite confident in saying that many of the vehicles being modified, especially the ones that have an extra axles added would easily qualify to have the towing capacity increased.

If transport where to address this by way of a specific code with strict parameters and guidelines it would then ensure people are not mistakenly re rating towing capacities under the LS11 code and with companies like Creative conversions turning out Landcruisers with 4200kg GVM and a 4220kg towing capacity on second stage vehicles then I think you will see an increase in people wanting similar things with used vehicle.

I don't think that sort of increase is warranted but I do think that some type of allowable increase needs to be considered for some vehicles ?

Thanks for your time and possible consideration of this matter

Regards

Not relevant

Eng Aust 4179060

SAE Aust 14482

NSW VSCCS Certifier 130016

Approved person Qld 2791

Approved inspector QLD 15653

A to Z Imports

**12 Leonard Parade
Currumbin QLD 4223**

Ph# 617 55345957

Mob# Not relevant

atozimports.com

Anant Z Bellary

From: Anant Z Bellary
Sent: Friday, 13 April 2018 12:24 PM
To: Scott G Notley
Subject: RE: Type Approval issues - ARB

Hello Scott,

Some suggested changes in red for your consideration please.

Regards

Anant Bellary
Vehicle Standards & Accreditation
Transport & Main Roads

From: Scott G Notley
Sent: Thursday, 12 April 2018 11:33 AM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: Type Approval issues - ARB

This email might need a bit more polish from you Anant?

A quick summary of issue and plan of attack.

Background

S&A has, for over ten years, been issuing Type Approvals to some businesses for series modifications, including GVM upgrades on in-service light vehicles. This was done at a time when there was no standard code in the Queensland Code of Practice (QCOP) for doing so. These Type Approvals are conditional on the business holding a current Second Stage of Manufacture (SSM) approval issued by DIRDC for the same make/model new vehicles.

As it was discovered that these Type Approvals do not meet the regulatory requirements for vehicle inspection and certification, S&A have taken steps to transition these approvals to certification under the QCoP.

Initially, in March 2017, TMR issued the LS11 (GVM upgrade) code as part of the Queensland Code of Practice (QCOP). As a result, businesses can now rerate GVM of eligible in-service vehicles and certify the same using the LS11 code. Effectively the code LS11 has made it not necessary to issue type approvals to this type of modifications in future. Because of the technical nature of the LS11 code, engineering qualifications are required.

However action is also required to smoothly transition the existing Type Approvals into QCoP. To that end, earlier this year, TMR introduced a new code LX1 code and wrote to all Type Approval holders to confirm that signatories needed to obtain this code (and the supporting trade-based code LS10) to continue providing GVM upgrades in accordance with their Type Approval. This process of transitioning to QCoP has been in place since 1 April 2018. So far no Type Approval holder has raised any difficulty in adopting the LX1 code.

It is expected that GVM upgrades to in-service vehicles based on new SSM approvals (for which no Type Approval was ever issued by TMR) would be certified using the dedicated LS11 code. This is considered as the best approach to eventually phase out the Type Approvals as they do not meet the regulatory requirements.

Representation by ARB

ARB is a business that holds several SSM approvals and a Type Approval TA.030 based on those SSM approvals for GVM upgrade on various make/model light vehicles. Just before the introduction of LX1 code in April 2018, ARB had applied to TMR requesting update to its Type Approval TA.030 in line with the updates to its underlying SSM approvals. The request also contained one new SSM approval which was never part of ARB's current Type Approval TA.030.

With the imminent introduction of LX1 code to transition all Type Approvals, the ARB's request to update its Type Approval TA.030 has been kept pending. [Not relevant] and [Not relevant] from ARB recently met with S&A team to convey that if the Type Approval TA.030 is not updated, as requested, ARB is likely to face difficulties including:

- [Redacted]
- [Redacted]
- Both [Not relevant] and [Not relevant] believe that the involvement of an LS11 AP does not add value to the process as, in their observation, the LS11 AP conducts only a cursory inspection before fitting the mod plate.

The Analysis

S&A team agreed to analyse ARB's above concerns and develop solution(s) to address them, if possible. The rest of this message outlines the outcome of that analysis and the potential solution.

S&A is conscious that any potential solution needs to satisfy the following essential criteria:

- The solution must be based on the QCoP codes and must lead to eventual phasing out of the current Type Approval TA.030
- The solution must be equitable to other Type Approval holders in similar situation and must not result in selective commercial advantage to ARB.
- The solution must not result in certifications that are not based on physical inspection of the modified vehicle. In other words, certification must not be done remotely.

Though the LX1 code was developed to address the remoteness of some of the Type Approval holders' shop fronts, TMR understands that some Type Approval holders have transitioned to using the LS11 Engineering code in all areas, rather than the LX1 code, particularly in remote areas. A secret shopper approach revealed (as was suspected) that the LS11 plate may be getting mailed out to remote shop fronts where the local business owner doing the work is attaching the plate. This is contrary to the AP business rules and the intentions underlying the code LS11. This revelation also needs to be considered when developing solution to address ARB's concerns.

The Solution

After due deliberations, the following solution is proposed for ARB (and any other Type Approval holder in similar situation):

- TMR to update the current Type Approval TA.030 held by ARB to reflect the updates in the underlying SSM approvals, as requested by ARB
- TMR to advise ARB that GVM upgrades to in-service vehicles based on any new SSM approval (for which no Type Approval was ever issued) may be performed using the LS11 code. This applies to one new SSM approval in ARB's current pending list .
- LS11 (GVM upgrade) and LS12 (trailer modifications including ATM upgrade) are currently combined design and modification codes, meaning (a) they require engineering qualifications and (b) the same code can be used to provide model design certification and also to certify an individual vehicle modified according to that model design certification. Note that recently code LS14 has been introduced for light trailers to compliment LS12. The new LS14 code, among other things, provides for certification of a trailer modified according to model design provided in LS12. Thus LS12 (model design certification) and LS14 (certification of modification on individual vehicle) work in a complimentary way. Consider adopting similar approach with LS11 code by developing a complimentary LS15 code. Unlike LS11, trade based qualification will be adequate for the new LS15 code. This solves the difficulty of remoteness when obtaining proper certification.
- Make suitable changes to LS11 code to reflect the provision of new LS15 code.
- Meet with ARB to inform and explain the proposed solution.

Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial affairs

- Note that the LS11 model design certification is one off requirement for each make/model, can be performed where suitably qualified person is available and is not a recurring cost for the business.
- Note also the LS15 modification certification will be done on each vehicle after physical inspection, which can be performed by suitably trade-qualified person likely to be available in remote areas.
- Institute audit framework to ensure that the twin codes LS11+LS15 and LS12+LS14 function properly as intended.
- Consult further with all Type Approval and LS11 holders prior to implementing the new code.
- TMR to advise all Type Approval Holders and APs holding LS11 code that if GVM upgrade is provided using LS11 code, vehicles must be physically inspected by the person providing the LS11 certification.

This approach would also mean that others businesses providing GVM upgrades in remote locations would no longer need to distort or circumvent requirements by certifying vehicles remotely.

Regards

Scott Notley

A/Director (Standards and Accreditation)

Transport Regulation Branch

Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006

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e Scott.G.Notley@tmr.qld.gov.au

w www.tmr.qld.gov.au

Anant Z Bellary

From: Anant Z Bellary
Sent: Monday, 23 April 2018 3:32 PM
To: Scott G Notley
Subject: Re: Type Approvals

Okay. Thanks.

Regards
Anant

From: Scott G Notley
Sent: Monday, 23 April 2018 12:39 PM
To: Anant Z Bellary
Subject: Re: Type Approvals

Yes! He read my email which you had input to and discussed with me.

Happy days!

Regards

Scott Notley
A/Director (Industry Accreditation and Authorisation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division

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w www.tmr.qld.gov.au

On 23 Apr 2018, at 11:07 am, Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au> wrote:

And may I ask what was it that was discussed on last Friday that Nigel found "practical, balanced, reasoned" and all that sort of things?

Does this means we don't need any meeting to convince Nigel of anything?

Regards
Anant

From: Nigel G Ellis
Sent: Monday, 23 April 2018 8:08 AM
To: Scott G Notley
Cc: Anant Z Bellary; Adam Shaw
Subject: FW: Type Approvals

Scott, as mentioned Friday afternoon, the proposed solution seems practical to me, and provides a balanced and reasoned solution to the business needs of the industry. Thanks, Nigel.

Kind regards,

Nigel Ellis

A/Executive Director (Transport Access & Use) | Transport Regulation Branch
Customer Services, Safety and Regulation Division | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000

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M: Not relevant

E: nigel.g.ellis@tmr.qld.gov.au

W: www.tmr.qld.gov.au

From: Scott G Notley

Sent: Monday, 16 April 2018 10:04 AM

To: Nigel G Ellis <nigel.g.ellis@tmr.qld.gov.au>

Cc: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>

Subject: Type Approvals

Nige,

When you get a chance, I would like to discuss the plan of attack for Type Approvals as well. See details below.

Background

S&A has, for over ten years, been issuing Type Approvals to some businesses for modifications, including GVM upgrades on in-service light vehicles. This was (and continues to be) done at a time when there was no standard code in the Queensland Code of Practice (QCOP) for doing so. These Type Approvals are conditional on the business holding a current Second Stage of Manufacture (SSM) approval issued by DIRDC for the same make/model new vehicles.

Type Approvals do not meet the regulatory requirements for vehicle inspection and certification, S&A have taken steps to transition these approvals to certification under the QCoP.

Initially, in March 2017, TMR issued the LS11 (GVM upgrade) code as part of the Queensland Code of Practice (QCOP). As a result, businesses can now rerate GVM of eligible in-service vehicles and certify the same using the LS11 code. Effectively the code LS11 has made it not necessary to issue type approvals to this type of modifications in future. Because of the technical nature of the LS11 code, engineering qualifications are required.

However action is also required to smoothly transition the existing Type Approvals into QCoP. To that end, earlier this year, TMR introduced a new code LX1 code and wrote to all Type Approval holders to confirm that signatories needed to obtain this code (and the supporting trade-based code LS10) to continue providing GVM upgrades in accordance with their Type Approval. This process of transitioning to QCoP has been in place since 1 April 2018. So far no Type Approval holder has raised any difficulty in adopting the LX1 code.

It is expected that GVM upgrades to in-service vehicles based on new SSM approvals (for which no Type Approval was ever issued by TMR) would be certified using the dedicated LS11 code. This is considered as the best approach to eventually phase out the Type Approvals as they do not meet the regulatory requirements.

Representation by ARB

ARB is a business that holds several SSM approvals and a Type Approval TA.030 based on those SSM approvals for GVM upgrade on various make/model light vehicles. Just before the introduction of LX1 code in April 2018, ARB had applied to TMR requesting update to its Type Approval TA.030 in line with the updates to its underlying SSM approvals. The request also contained one new SSM approval which was never part of ARB's current Type Approval TA.030.

With the imminent introduction of LX1 code to transition all Type Approvals, the ARB's request to update its Type Approval TA.030 has been kept pending [Not relevant] and [Not relevant] from ARB recently met with S&A team to convey that if the Type Approval TA.030 is not updated, as requested, ARB is likely to face difficulties including:

- Both Not relevant and Not relevant believe that the involvement of an LS11 AP does not add value to the process as, in their observation, the LS11 AP conducts only a cursory inspection before fitting the mod plate.

The Analysis

S&A team agreed to analyse ARB's above concerns and develop solution(s) to address them, if possible. The rest of this message outlines the outcome of that analysis and the potential solution.

S&A is conscious that any potential solution needs to satisfy the following essential criteria:

The solution must be based on the QCoP codes and must lead to eventual phasing out of the current Type Approval TA.030

The solution must be equitable to other Type Approval holders in similar situation and must not result in selective commercial advantage to ARB.

The solution must not result in certifications that are not based on physical inspection of the modified vehicle. In other words, certification must not be done remotely.

Though the LX1 code was developed to address the remoteness of some of the Type Approval holders' shop fronts, TMR understands that some Type Approval holders have transitioned to using the LS11 Engineering code in all areas, rather than the LX1 code, particularly in remote areas. A secret shopper approach revealed (as was suspected) that the LS11 plate may be getting mailed out to remote shop fronts where the local business owner doing the work is attaching the plate. This is contrary to the AP business rules and the intentions underlying the code LS11. This revelation also needs to be considered when developing solution to address ARB's concerns.

The Solution

After due deliberations, the following solution is proposed for ARB (and any other Type Approval holder in similar situation):

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- Make suitable changes to LS11 code to reflect the provision of new LS15 code.
- Meet with ARB to inform and explain the proposed solution.

Part Refuse Sch.4 Part 4 s.7(1)(c) Business

Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial affairs

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This approach would also mean that others businesses providing GVM upgrades in remote locations would no longer need to distort or circumvent requirements by certifying vehicles remotely.

Regards

Scott Notley
A/Director (Standards and Accreditation)

Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main
Roads

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Released under RTI - DTMR

Anant Z Bellary

From: Anant Z Bellary
Sent: Monday, 23 April 2018 3:35 PM
To: Peter N Twining
Subject: Fw: Type Approvals

Hello Peter,

Welcome back (in one piece, I hope).

I am forwarding the below message for your info.

You are the kingpin in these matters and should stay in the loop.

Regards
Anant

From: Scott G Notley
Sent: Monday, 16 April 2018 10:03 AM
To: Nigel G Ellis
Cc: Anant Z Bellary; Adam Shaw
Subject: Type Approvals

Nige,

When you get a chance, I would like to discuss the plan of attack for Type Approvals as well. See details below.

Background

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- [Redacted: Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial affairs]
- [Redacted]
- Both [Not relevant] and [Not relevant] believe that the involvement of an LS11 AP does not add value to the process as, in their observation, the LS11 AP conducts only a cursory inspection before fitting the mod plate.

The Analysis

S&A team agreed to analyse ARB's above concerns and develop solution(s) to address them, if possible. The rest of this message outlines the outcome of that analysis and the potential solution.

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The solution must be based on the QCoP codes and must lead to eventual phasing out of the current Type Approval TA.030

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The Solution

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Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial affairs

Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial

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This approach would also mean that others businesses providing GVM upgrades in remote locations would no longer need to distort or circumvent requirements by certifying vehicles remotely.

Regards

Scott Notley

A/Director (Standards and Accreditation)

Transport Regulation Branch

Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

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e Scott.G.Notley@tmr.qld.gov.au

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Anant Z Bellary

From: Anant Z Bellary
Sent: Friday, 11 May 2018 2:12 PM
To: Not relevant (TfN); Not relevant
 Not relevant @stategrowth.tas.gov.au; Not relevant (VicRoads); Not relevant (TfN); Not relevant @stategrowth.tas.gov.au; Not relevant (DPTI); Not relevant @act.gov.au; Not relevant (RMS NSW); Not relevant (DPTI); Not relevant (DPTI); Not relevant (NZTA); Not relevant
Subject: RE: GCM upgrades by SSM

In Queensland regulation, GCM/towing capacity of an in-service light vehicle can be set by only two authorities (1) vehicle's original manufacturer which is the first stage compliance plate approval holder or (2) the chief executive of TMR.

For in-service vehicles, SSM holder or his nominee is not the vehicle manufacturer.

Here we do not accept any upgrade to GCM / rated towing capacity / maximum braked towing mass on in-service vehicles even if they are modified according to an SSM.

Regards

Anant Bellary
 Vehicle Standards & Accreditation
 Transport & Main Roads

From: Not relevant @transport.wa.gov.au]
Sent: Friday, 11 May 2018 1:39 PM
To: Not relevant @act.gov.au; Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>; Not relevant @transport.nsw.gov.au; Not relevant @stategrowth.tas.gov.au; Not relevant @stategrowth.tas.gov.au; (VicRoads) Not relevant @roads.vic.gov.au; Not relevant (TfN) <Not relevant @transport.nsw.gov.au>; Not relevant @stategrowth.tas.gov.au; Not relevant @stategrowth.tas.gov.au; (DPTI) <Not relevant @sa.gov.au>; Not relevant @act.gov.au; Not relevant (RMS NSW) <Not relevant @rms.nsw.gov.au>; Not relevant (DPTI) <Not relevant @sa.gov.au>; Not relevant (NZTA) <Not relevant @nzta.govt.nz>; Not relevant @nt.gov.au; Not relevant @infrastructure.gov.au; Not relevant @infrastructure.gov.au
Subject: GCM upgrades by SSM

Hi all,

In light of AMVCB 226 what do we think of a LandCruiser with a 9500kg GCM. There is an RVD 48867 showing the Commonwealth has approved it.

I have an in-service application before us right now. You guessed it, claiming SSM equivalent.

Not relevant
Technical Policy and Services Coordinator | Driver and Vehicle Services | Department of Transport
 21 Murray Road South, Welshpool WA 6106



Clear Direction • Fresh Thinking • Excellent Service • Great People

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Released under RTI - DMR

Anant Z Bellary

From: Anant Z Bellary
Sent: Friday, 11 May 2018 3:33 PM
To: 'Shane F Lonsdale'
Cc: Peter N Twining; 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'
Subject: Revised LS11 Code readied for implementation of new LS15 Code
Attachments: LS 11 Version May 2018 V1.docx

Hello Shane,

As promised, see attached extensively revised LS11 code for internal stakeholder engagement:

Key features are:

1. GCM/towing capacity changes are removed, irrespective of SSM provisions for the same
2. Code has been readied for design certification, in anticipation of LS15 to take care of modification certification
3. Loading beyond axle rating of OE manufacturer is prohibited

Next week is set for a draft of LS15.

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

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Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies requirements for rerating of the gross vehicle mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceeding 4 500 kg.

Rerating of GVM under code LS11 is permissible only on following type of light vehicles:

- (a) a truck like light vehicle that is constructed on a ladder type chassis frame on which a cabin and/or body is mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction are not eligible.
- (b) A light vehicle that is not previously rerated from the original manufacturer's GVM rating.

For the purpose of this code, the original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA) first stage manufacturer. Any entity holding the Second Stage Manufacturers (SSM) such as SSM Approval or RAWS Approval holders are not considered deemed as the original vehicle manufacturer.

In cases where a the original vehicle manufacturer does not specify an original has not specified the GVM rating for a vehicle the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) compliance is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 Modifications allowed under Code LS11

Modifications that may be certified under Code LS11 are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacture
- Exceptions to the limit of 10% apply in following cases:
 - Increase in (i) GVM rating of an in-service vehicle that is same the make/model/variant/chassis series as a vehicle having Second Stage of Manufacture (SSM) approval for GVM rerating AND is modified in accordance with a the SSM Approval approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM rerating. same make/model/variant/chassis series (where the SSM Approval holder has permitted use of that SSM Approval as the basis)
 - Increase in GVM where an additional axle has been installed
 - Alteration of a vehicle's GVM rating to match a the manufacturer's alternative rating for a particular variant of that vehicle's make/model
 - Up to 10% increase in GVM outside of a manufacturer's GVM rating

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1.2 Modifications not allowed under Code LS11 What is not permitted...

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Modifications that must not be certified under Code LS11 code are:

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- Modifications other than those described in 1.1 above
- Increase in GVM greater than 10% of a manufacturer's rating (except where an additional axle has been fitted or modified in accordance with an SSM approval)
- Increase in GVM rating of vehicles having unitary/monocoque construction
- Increase in GVM rating where no physical modifications (i.e. reinforced suspension, beams, brakes, etc) are performed (replacement tyres and rim sizes, with different ratings are not deemed as physical modification).
Please note, this does not apply when upgrading to a manufacturer's optional GVM where the vehicle specifications of both GVM options are identical.
- Reduction in GVM rating (apart to other than the re-rating a vehicle's GVM to a manufacturer's optional GVM for that particular make/model of vehicle).
- Re-rating of GVM increase to a vehicle which has previously received a GVM increase re-rating (i.e. by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval.)
- Increase in GVM re-rating of an in-service vehicle that is modified in accordance with an SSM Approval where but the SSM Approval approval holder has NOT provided approval explicit permission to use the SSM Approval approval as the basis.
- Increase in GVM re-rating of an in-service vehicle that is modified in accordance with a Low Volume on the basis of a concessional SSM Approval approval (for example, Low Volume or RAWS) but where the number of vehicles is capped in the SSM approval exceeded the SSM Approval limit.
- Increase in Gross Combination Mass (GCM) rating (unless in accordance with an SSM approval)
- Increase in the maximum towing mass rating (unless in accordance with an SSM approval)
- Increase in vehicle's rated towing capacity (unless in accordance with an SSM approval)
- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating by the original vehicle manufacturer
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

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1.3 Towing Capacity and LS11 Code

- GVM re-rating under LS11 code must not result in any increase in the towing capacity of the vehicle beyond that specified by the original vehicle manufacturer. This requirement must

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be met irrespective of how the towing capacity is specified or calculated and includes the terms gross combination mass rating, the rated towing capacity and the maximum braked towing mass rating.

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2.0 General Requirements

For a vehicle to qualify for an increase in GVM, the vehicle must be able to safely operate at the increased-erated GVM. The critical components including the The chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres are all critical components which must be assessed individually to ensure that each is they are suitable to operate under the increased-loads resulting from increased-the rerated GVM.

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All work must also comply with the requirements contained in sub-section 2 General Requirements of the NCOP.

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the rerated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and Approved Person to consider any effect on warranty that the modification may have.

2.1 Compliance with applicable vehicle standards

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Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

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- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle
- as allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation)*
- Modified vehicles must also comply with the applicable in-service requirements of the regulation.

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Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other modifications-ADRs may also be affected. ADR-compliance.

Table LS11 Summary of items that, if modified or altered, may detrimentally affect compliance with applicable ADRs. List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

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To determine the ADRs that apply to the vehicle in question, refer to the Applicability Tables in Section 10 of VSB 14. Vehicles manufactured between 1 January 1990 and 1 July 1998

Both new vehicles need to comply with the Second Edition ADRs whilst vehicles manufactured after 1 July 1999 need to comply with the Third Edition ADRs. Section LO has separate applicability tables for each edition.

Alternatively, ADR applicability tables for individual vehicle categories may be referenced on the website of Road Vehicle Certification System (RVCS) of the C-Weight Department of Infrastructure and Regional Development (DIRD).

<http://rvcs.data.gov.au/>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the statutory certifying Approved Person to refer to the appropriate ADR applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options of upgrading the vehicle's GVM.

2.2 GVM alteration based on Manufacturer's Option

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The change to the vehicle's GVM must replicate the manufacture's optional GVM for that particular make, model and variant of vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

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2.3 GVM Upgrade based on SSM Approval

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The increase in vehicle rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc must be fitted and be identical to those specified on the SSM approved vehicle.

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In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM must also be met. These requirements can include but are not limited to the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the SSM approval holder must ensure that the same restriction is applied to the number of vehicles permitted to be modified under this code.
- GVM rerating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When upgrading GVM in accordance with an SSM approval the certifier-certifying AP must ensure the SSM approval holder has provided written permission for use of the SSM design as the basis.
- Additionally, if upgrading a GVM in accordance with a Low Volume SSM a statutory declaration must be obtained from the SSM holder stating no more approvals than the limit stipulated on the SSM have been provided. For example, if the Low Volume SSM restricts the number of vehicles to 25 per annum then the SSM approval holder cannot provide permission for more than 25 in-service vehicles to be modified in that year (in addition to the 25 new vehicles certified in accordance with their SSM approval).

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- Note: Both the written permission and statutory declaration from the SSM holder must be retained by the Approved Person as evidence for certifying the re-rating of GVM upgrade under this code.

2.4 GVM Upgrade by installation of an additional axle

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If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with adjacent axle in the group then the 10% limit on increase in GVM increase may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code.

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2.5 GVM Upgrade-re-rating Outside-outside of Manufacturer's Option

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An increase in a re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer. In these cases the maximum allowable increase to the vehicle's GVM provided the change is no more than 10% above the vehicle's from the original manufacturer's GVM. However, the actual increase in GVM (not exceeding 10%) While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

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3.0 Specific Requirements

The GVM upgrade must address the compatibility of the entire vehicle for the revised GVM. In particular it must be checked that when re-rating GVM the chassis, suspension, axles and drive train components are must be used within their the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved with increasing-re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- combination of replacement engine, transmission, axles or suspension components and upgraded brake components

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The following specific requirements must be met. to receive a GVM increase on a light vehicle in accordance with this code.

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3.1 Chassis

Chassis modifications must be performed in accordance with section H of Vehicle Standards Bulletin 6 – Heavy Vehicle Modification, as far as possible and appropriate.

When modifications such as fitting of additional or replacement axles with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to accommodate the increase in GVM. As Vehicle Standards Bulletin #1 – National Code of Practice for Light Vehicle Construction and Modification does not provide information regarding calculating chassis strength, Vehicle Standards Bulletin 6 – Heavy Vehicle Modification may be consulted.

A simplified way to look at the frame requirements for GVM upgrade-re-rating, is to associate

the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturers for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. Vehicle's axle ratings must not only be adequate for the revised GVM but must also be able to accommodate the axle loads resulting from normal and practical loading patterns. The original vehicle manufacturer's axle ratings must not be exceeded in normal and practical loading resulting after the GVM is rerated, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Modifications-Changes associated with increasing a vehicle's rerated GVM can may place greater demands additional load on a vehicle's tailshaft. These may include but are not limited to the following For example:

- changes to vehicle ride height which may alter the tailshaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tailshaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tailshaft.

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The vehicle's tailshaft strength and its installation must be suitable for at the vehicle's increased-rerated GVM.

3.5 Suspension

With increase in GVMgross mass, additional loads are placed on suspension. Vehicle's suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from normal and practical loading patterns. Effects of changes in ride height must be carefully considered. FOR EXAMPLE, bump and rebound travel, hydraulic brake hose length, handling & roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to the vehicle's GVMgross load. Therefore, the vehicle's braking system must be tested-assessed to determine if the original system is adequate for the proposed GVM or if it requires to be upgraded.

3.7 Steering

The entire steering system must be identical to that fitted by the manufacturer to the original or reference vehicle as appropriate. If the steering system is modified or a new steering system is fitted it must be approved under the LS section of Vehicle Standards Bulletin 14 – National Code of Practice for Light Vehicle Construction and Modification.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the revised GVM rating and the load is distributed in a practical and uniform way.

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the revised GVM rating.

If required, an amending tyre placard must be fitted to indicate the correct tyre specifications for the vehicle at the revised GVM rating. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

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4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes such as the vehicle's towing capacity and tyre requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any variation in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicle's handbook is not available this information must be provided in written form to the owner of the vehicle owner. ~~Optionally~~ In addition this information may be included on the load capacity label discussed below.

A label containing important information about the vehicle's load capacity must also be fitted. The label must be identical to follow the below label as an example below and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Upgraded-Rerated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Allowed-Front Axle/s Mass Weight Permitted	kg
Maximum Allowed-Rear Axle/s Weight Mass Permitted	kg
Total Vehicle Load Capacity	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicle's handbook.	

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5.0 Limitations

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For modifications not permitted under Code-LS11 code see Section 1.2. In addition, the following limitations stipulated-mentioned in sections 5.1 and 5.2 apply.

5.1 Electronic Stability Control

Changes to a vehicle's GVM can have a direct effect on electronic stability control (ESC) performance. Therefore, for vehicles fitted with ESC the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being rerated to a manufacture's alternative variant or by SSM approval such that the system's compliance has been demonstrated.

5.2 Gross Combination Mass Rating & Towing Capacity Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating (unless in accordance with an SSM approval). For some many light vehicles rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases the limit mentioned in the Safe Towing Guide applies. When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, please note that the maximum towing mass that can be legally towed when the vehicle is loaded at the rerated GVM must be proportionately reduced to ensure that

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the sum of GVM and maximum towing mass at GVM before and after GVM upgrading remains unchanged.

6.0 Additional Modifications and Changes to Vehicle Category Changes

Where additional modifications have been performed or a change in vehicle category has occurred due to the increase in GVM, certification using the appropriate additional codes must be used provided.

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7.0 Use of LS11 code to provide design certification for GVM Rerating

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LS11 code may now be used to provide design certification for GVM rerating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the rerating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited Approved Person holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the Approved Person providing the design certification may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the design certification may not refer to any particular VIN.

The outputs of a Design Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All these outputs must be preserved as records and must be made available, on request, for audit and enforcement purpose.

7.1 Design Package

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This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

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Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the rerating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the rerating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to decide that the vehicle is safe to modify and receive rerating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

Design certification package must include a template of checklist that needs be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

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Integral to the design package output is the collection of various test reports and engineering calculations that validate the rerating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and

dated. Test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifier to not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

The work instruction must also include contact detail for querying or seeking clarification, should that be required during modification.

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists one each for the vehicle modifier and the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

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For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

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For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

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Checklist LS11

Gross Vehicle Mass Increase
CODE LS11

Form No: LS11

(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicle's suspension suitable for the increased GVM?		Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?		Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?		Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?		Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/..., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicle's brake system suitable for the increased GVM?		Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?		Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?		Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?		Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's new GVM?		Y	N
7	Electronic Stability Control			
7.1	Has the vehicle's ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity information			
8.1	Is the Load Capacity Label attached to the vehicle?		Y	N
8.2	Has the vehicle's handbook been amended or additional information been included on the Load Capacity Label?		Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM rerating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM/GCM			
10.1	Has the SSM Approval holder provided written approval to use their that SSM design?	N/A	Y	N
10.2	If certifying the GVM/GCM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the rerated GVM/GCM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM/GCM rerating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicle's GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?			
12.2	Does the design package have a unique identification number?			
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for rerating?			
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?			
12.5	Does the design package include a complete Evidence Package on which the GVM rerating is based?			
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?			
12.7	Does the design package include a checklist for the modifier of the vehicle?			
12.8	Does the design package include a checklist for the certifier of the modified vehicle?			

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12.9	Does the design package address all the requirements of this code?			
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Note: If the answer to any question is **N (No)** the design cannot be certified under Code LS11.

CERTIFICATION DETAILS											
Make		Model		Year of Manufacture							
VIN											
Chassis Number (If applicable)											
Brief Description of Modification/s											
Vehicle Modified By											
Certificate Number (If applicable)											
Vehicle Certified By (Print)											
Signatory's Employer (If applicable)											
Signatory's Signature										Date	

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Anant Z Bellary

From: Anant Z Bellary
Sent: Tuesday, 15 May 2018 4:04 PM
To: 'Shane F Lonsdale'
Cc: Peter N Twining; 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'
Subject: New LS15 Code for GVM rerating modification according to LS11 design certification
Attachments: LS15 Version May 2018 V1.doc

Hello Shane,

As promised, see attached new LS15 code for internal stakeholder engagement.

Key features are:

1. Allows GVM rerating to the LS11 design certification with modifications (relatively common)
2. Allows GVM rerating according to the original vehicle manufacturer's letter with or without modifications (very rare)
3. It is a trade based code as against the engineering based LS11 code, making it possible to certify the GVM rerating modifications in the remote & regional areas, thus paving way for the eventual extinction of the Type Approvals.

The revised LS11 code necessary to compliment the new LS15 code has already been supplied to you last week.

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
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Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle to LS11 Design Certification

Code LS15

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement chassis frame.

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is

issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires.

3.0 Specific Requirements

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternate model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1 To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2 To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information)
- Make/model/variant of the vehicle
- Vehicle Identification Number (VIN) of the particular vehicle being modified
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted)
- Revised GVM rating
- Signed and dated by the delegate of the original vehicle manufacturer

Checklist LS15

Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
1.1	Have all details of the design package of LS11 design certification or a letter from the original vehicle manufacturer been retained for future audit?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims		
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are the checklists required in the LS11 design certification completed?	Y	N
7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N
7.4	Is the GVM rerating plate/label as specified in the LS11 design certification fitted?	Y	N

Note: If the answer to any question is **N (No)** the modification cannot be certified under Code LS14.

CERTIFICATION DETAILS																					
Make											Model								Year of Manufacture		
VIN																					
Chassis Number (If applicable)																					
Brief Description of Modification/s																					
Vehicle Modified By																					
TMR In-Principle Approval Number																					
Vehicle Certified By (Print)																					
Signatory's Employer (If applicable)																					
Signatory's Signature																Date					

Released under RTI - DTMR

Anant Z Bellary

From: Anant Z Bellary
Sent: Wednesday, 16 May 2018 2:51 PM
To: 'Shane F Lonsdale'
Cc: Peter N Twining; 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'
Subject: Additional external stakeholders for LS11 and LS15...

Additional stakeholders to include:

1. Not relevant

Technical Officer
Truck Industry Council

M: Not relevant
E: Not relevant@truck-industry-council.org

2. Not relevant

Chief Technical Officer
Heavy Vehicle Industry Australia

m: Not relevant
f: 07 3376 7166
e: Not relevant@hvia.asn.au
w: www.hvia.asn.au

3.

Not relevant

B.Eng(Mech). FIEAust. CPEng. RPEQ. NPER.

General Manager / Chief Engineer
Truck Engineering Australia

ABN 35 209 344 501



P: (07) 3390 3588
M: Not relevant
E: Not relevant@truckengineering.com.au
A: Unit 14, 42 Smith Street
Capalaba, QLD, 4157

4. TMR Approved Persons

Regards

Anant Bellary
Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

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Anant Z Bellary

From: Anant Z Bellary
Sent: Friday, 25 May 2018 9:55 AM
To: Peter N Twining
Subject: FW: GVM, GCM Upgrade

Peter,

Can you please urge Liz to find out from Lovells if or not they are abiding by the TMR Accreditation instruction to not show GCM rating on their blue mod plate? Thanks.

regards

Anant Bellary
Vehicle Standards & Accreditation
Transport & Main Roads

From: Scott G Notley
Sent: Thursday, 24 May 2018 10:49 AM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>; Peter N Twining <peter.n.twining@tmr.qld.gov.au>
Subject: RE: GVM, GCM Upgrade

Anant/Pete,

The enquiry indicates Lovells have ignored our previous requests in relation to GCM?

Maybe we should check with Liz to see if we have any evidence of this recalcitrant behaviour?

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3338 4082 | f 3253 4453 | m Not relevant
e Scott.G.Notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Anant Z Bellary
Sent: Thursday, 24 May 2018 10:41 AM
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Subject: FW: GVM, GCM Upgrade

FYI Only.

Anant Bellary

Vehicle Standards & Accreditation

Transport & Main Roads

From: Anant Z Bellary
Sent: Thursday, 24 May 2018 10:30 AM
To: Peter N Twining <peter.n.twining@tmr.qld.gov.au>
Cc: 'Vehicle Standards' <vehiclestandards@tmr.qld.gov.au>
Subject: RE: GVM, GCM Upgrade

Suggested draft response:

On new vehicle, GVM can be upgraded if SSM plate is fitted. TMR understands from DIRDC that SSM approval holder cannot change the GCM. It remains same as given by ISUZU. You may want to confirm this with DIRDC.

On in-service vehicle in QLD, GVM can be upgraded if (a) LS11 mod plate is fitted or (b) a Type Approval is issued AND a LX1+LG2+LS10 mod plate is fitted by that Type Approval Holder. GCM cannot change and remains same as ISUZU.

I hope this helps.

Regards

Anant Bellary

Vehicle Standards & Accreditation

Transport & Main Roads

From: Vehicle Standards
Sent: Thursday, 24 May 2018 9:02 AM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: RE: GVM, GCM Upgrade

Hi Anant

Could you please look at the email chain below and I am looking at responding to the last email. I have attached a suggested response but I am weary of the implications. Your Thoughts please.

Hi Not relevant

The SSM is a federal modification plate fitted prior to the first registration (Second Stage of Manufacture) and I have checked the documents on the federal website (CPA 48580) and there is no mention of a GCM for this vehicle.

The Blue Plate should not reflect an increase in the GCM away from the original manufacturers rating for the reasons stated below in my previous response.

I would suggest that you ask the company offering the upgrade to supply the information required below otherwise the modification would not be recognised..

Kind regards,

Peter Twining | Standards & Accreditation
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30666537
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au

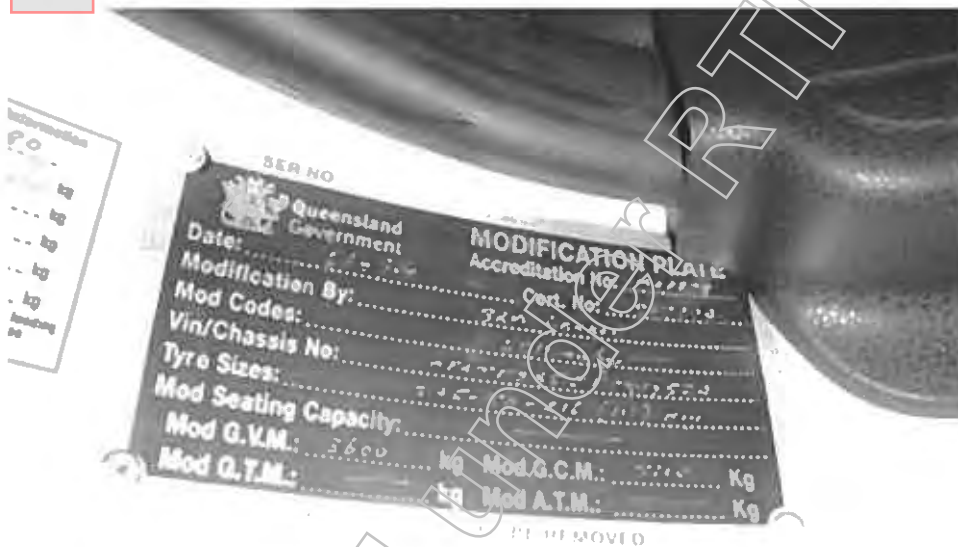
From: [Not relevant] [mailto:[Not relevant]@gmail.com]
Sent: Thursday, 24 May 2018 6:55 AM
To: Vehicle Standards <vehiclestandards@tmr.qld.gov.au>
Subject: Re: GVM, GCM Upgrade

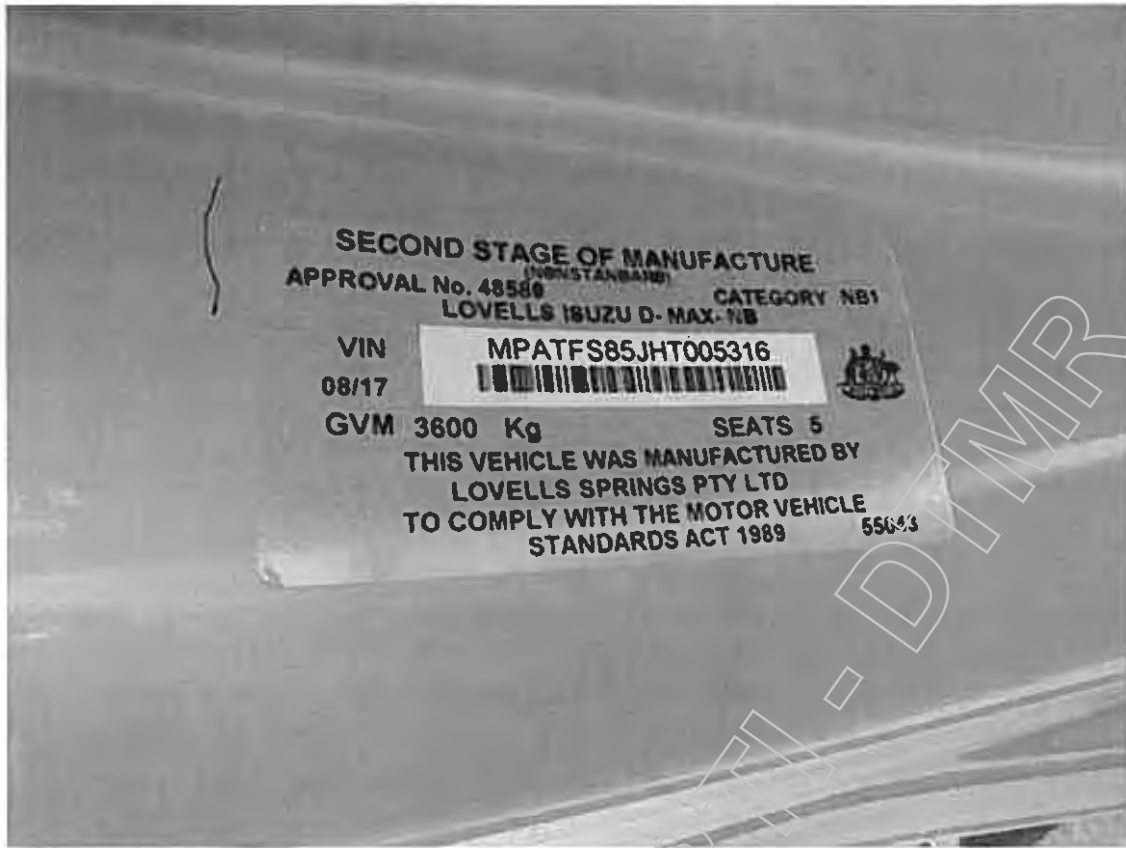
Hi Peter

Thank you for your reply. I have attached the pictures supplied from a Queensland company which are offering a GVM and GCM upgrade. From the information you provided I gather the GCM cannot be change from what is on the vehicle now.

Regards

[Not relevant]





On Thu, May 24, 2018 at 4:35 AM, Vehicle Standards <vehiclestandards@tmr.qld.gov.au> wrote:

Hi Not relevant

In Queensland the following applies:

Current requirements in Queensland under the LS11 Code allow for a GCM upgrade on the following basis;

“Increase in Gross Combination Mass (GCM) rating (unless in accordance with an SSM approval)”

At this point in time, I note that no company operating in Queensland has provided documentation from the Department of Infrastructure and Regional Development and Cities (DIRDC) that supports a claim that their SSM actually includes the upgraded GCM. In fact, one such company has previously provided documentation that states that a GCM does not form part of their SSM approval.

Please see the following requirements:

Without documentation to confirm that any companies SSM approval from DIRDC includes reference to a GCM upgrade, any certifications by an Approved Person (AP) acting on behalf of these companies cannot include any reference to an increased GCM.

I trust this answers your inquiry.

Kind regards,

Peter Twining | Standards & Accreditation
Transport Regulation Branch | Department of Transport and Main Roads

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PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30666537
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au

From: [Not relevant] [mailto:[Not relevant]@gmail.com]
Sent: Wednesday, 23 May 2018 4:43 PM
To: Vehicle Standards <vehiclestandards@tmr.qld.gov.au>
Subject: GVM, GCM Upgrade

Hi

I am enquiring if it is legal in QLD to get a GCM upgrade. I have been chasing up getting a GVM, GCM upgrade and have received a quote to have this done. They are saying they can do:-

VEHICLE GVM UPGRADE TO 3600KG

Factory GVM 2950kg

Upgraded GVM 3600kg

Factory GCM 5950kg

Upgraded GCM 7000kg

Other companies I have requested quotes from have said I can't do a GCM upgrade only GVM. I have a 2016 D Max LSM

Regards

Not relevant

Not relevant

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Released under the
Information Privacy Act 2009
and the Freedom of Information Act 2009

Anant Z Bellary

From: Anant Z Bellary
Sent: Thursday, 31 May 2018 3:33 PM
To: Peter N Twining; 'Shane F Lonsdale'; Patricia L Bailey
Cc: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'; Tracey L Dreier; Christina T Myers; Adam Shaw
Subject: Covering Message for new LS15 and revised LS11...

Draft covering note for our key institutional stakeholders...

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to vehiclestandards@tmr.qld.gov.au. The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Regards
Peter Twining

Draft covering note for Accreditation Unit for broadcast to LS11 APs...

Dear Deann,

Please circulate the following message to all the Approved Persons currently holding LS11 modification code. A similar message is being sent to our key institutional stakeholders including the businesses holding type approvals.

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design

certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

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Regards
Peter Twining

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000

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W: www.tmr.qld.gov.au

Released under RTI - DTMR

Anant Z Bellary

From: Anant Z Bellary
Sent: Friday, 1 June 2018 9:53 AM
To: Peter N Twining; Patricia L Bailey
Cc: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'; Tracey L Dreier; Christina T Myers; Adam Shaw
Subject: Covering Message for new LS15 and revised LS11...

On second thought...

APs currently holding LS11 code should be given a chance to comment on the amended LS11 code.

APs who have qualifications that are appropriate for LS15 code should be given a chance to comment on the new LS15 code.

The institutional stakeholders should be given a chance to comment on both the proposed codes.

Regards

Anant Bellary

Vehicle Standards & Accreditation

Transport & Main Roads

From: Anant Z Bellary
Sent: Thursday, 31 May 2018 3:33 PM
To: Peter N Twining <peter.n.twining@tmr.qld.gov.au>; 'Shane F Lonsdale' <Shane.F.Lonsdale@tmr.qld.gov.au>; Patricia L Bailey <Patricia.L.Bailey@tmr.qld.gov.au>
Cc: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)' <Scott.G.Notley@tmr.qld.gov.au>; Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Christina T Myers <christina.t.myers@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>
Subject: Covering Message for new LS15 and revised LS11...

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Dear Stakeholders

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The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11

code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

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Regards
Peter Twining

Draft covering note for Accreditation Unit for broadcast to LS11 APs...

Dear Deann.

Please circulate the following message to all the Approved Persons currently holding LS11 modification code. A similar message is being sent to our key institutional stakeholders including the businesses holding type approvals.

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The **new** LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

The amended LS11 code is now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to vehiclestandards@tmr.qld.gov.au. The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Regards
Peter Twining

Draft covering note for Accreditation Unit for broadcast to the potential LS15 APs...

Dear Deann.

Please circulate the following message to all the Approved Persons currently holding LS11 modification code. A similar message is being sent to our key institutional stakeholders including the businesses holding type approvals.

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

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Regards
Peter Twining

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

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Anant Z Bellary

From: Anant Z Bellary
Sent: Wednesday, 6 June 2018 12:03 PM
To: Patricia L Bailey
Subject: Please compare and merge these documents...
Attachments: LS 11 Version May 2018 V2.1 (002) V3 AS changes.docx, LS 11 Version May 2018 V2.1 (002) V3 OAA comments.docx

As discussed Trish.

Anant Bellary
Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

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W: www.tmr.qld.gov.au

Released under RTI - DTMR

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles: A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously rerated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same the make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicles GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).

- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.
- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, GCM rating or maximum braked towing mass of the vehicle. These ratings must remain same as that provided by the original vehicle manufacturer.
- When the vehicle is loaded to the gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the re-rated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have.

2.0 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle.
- As allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation)*.
- Modified vehicles must also comply with the applicable in-service requirements of the Regulation.

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicles category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.1 GVM re-rating based on Manufacturer's Option

The change to the vehicles GVM must replicate the manufacture's optional GVM for that particular make, model and variant of the vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

2.2 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc. must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicles first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of vehicles supplied to market as new plus modified under this code remain within the limit of the SSM approval.
- GVM re-rating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- If re-rating a GVM in accordance with a Low Volume SSM approval, a statutory declaration must be obtained from the SSM holder stating that the number limit has not been exceeded as of that date.
- Any low volume SSM restrictions must be noted on the modification certificate (for example vehicle #2 of 25).
- The SSM approval number must be recorded on the modification certificate.
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.3 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.4 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original manufacturer's GVM. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or the combination of these

The following specific requirements must be met.

3.1 Chassis

Chassis modifications must be performed in accordance with section LH5 of Vehicle Standards Bulletin 14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. The original vehicle manufacturer's axle ratings must not be exceeded when loaded in a practical way to the re-rated GVM, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on a vehicle's tail shaft. For example:

- changes to vehicle ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicle's re-rated GVM.

3.5 Suspension

With an increase in GVM, additional loads are placed on suspension. Vehicle suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from the normal and practical loading patterns. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to the vehicle's GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the proposed GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM.

If required, an amending tyre placard must be fitted to indicate the revised tyre specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes, such as the vehicle's towing capacity and tyre requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any reduction in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicle's handbook is not available, this information must be provided in written form to the owner of the vehicle. This information must also be displayed on the Load Capacity Label discussed below.

The Load Capacity Label must follow the below format and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Rated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Front Axle/s Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2. In addition, the following limitations mentioned in sections 5.1 and 5.2 apply.

5.1 Electronic Stability Control

Changes to a vehicle's GVM rating can have a direct effect on Electronic Stability Control (ESC) performance. Therefore, for vehicles fitted with ESC, the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. For many light vehicles rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases, the limit mentioned in the Safe Towing Guide published by TMR applies. When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, note that the maximum mass that can be legally and safely towed when the vehicle is loaded to the re-rated GVM, must be proportionately adjusted to ensure that the sum of the gross vehicle mass and the trailer mass remain within the ratings specified by the original manufacturer.

6.0 Additional Modifications and Changes to Vehicle Category

Where additional modifications have been performed or a change in vehicle category has occurred due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited Approved Person holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the AP providing the design certification, may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the design certification may not refer to any particular VIN.

The outputs of a Design Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All these outputs must be preserved as records and must be made available, on request, for audit and enforcement purpose.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the re-rating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to decide that the vehicle is safe to modify and receive re-rating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

The design certification package must include a template of checklist that needs be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

Integral to the design package output is the collection of various test reports and engineering calculations that validate the re-rating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and dated. Test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifier to not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

The work instruction must also include contact detail for querying or seeking clarification, should that be required during modification.

All details must be recorded in the modification certificate including details of any SSM approvals or conditions.

The load capacity label must be affixed to indicate revised GVM and other relevant loading conditions.

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists one of each for the vehicle modifier and the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

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Checklist LS11
Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/... or 35/..., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?	----	Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicles new GVM?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Information			
8.1	Is the Load Capacity Label attached to the vehicle?	----	Y	N
8.2	Has the vehicles handbook been amended or additional information been included on the Load Capacity Label?	----	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM Approval holder provided written approval to use that SSM design?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS																		
Make											Model						Year of Manufacture	
VIN																		
Chassis Number (If applicable)																		
Brief Description of Modification/s																		
Vehicle Modified By																		
Certificate Number (If applicable)																		
Vehicle Certified By (Print)																		
Signatory's Employer (If applicable)																		
Signatory's Signature															Date			

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Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles: A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

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The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWs Approval is not deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same the make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicles GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).

- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.
- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the GVM, the vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total GCM does not exceed the rating or the limit specified by the original vehicle manufacturer.

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General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the re-rated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have.

2.0 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle.
- As allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010* (the Regulation).
- Modified vehicles must also comply with the applicable in-service requirements of the Regulation.

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Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in the table below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

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Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.1 GVM re-rating based on Manufacturer's Option

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The change to the vehicle's GVM must replicate the manufacturer's optional GVM for that particular make, model and variant of the vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

2.2 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc. must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of vehicles supplied to market as new plus modified under this code remain within the limit of the SSM approval.
- GVM re-rating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- If re-rating a GVM in accordance with a Low Volume SSM approval, a statutory declaration must be obtained from the SSM holder stating that the number limit has not been exceeded as of that date.
- Any low volume SSM restrictions must be noted on the modification certificate (for example vehicle #2 of 25).
- The SSM approval number must be recorded on the modification certificate.
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.3 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.4 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original manufacturer's GVM. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or the combination of these

The following specific requirements must be met.

3.1 Chassis

Chassis modifications must be performed in accordance with section LH5 of VSB14 ~~vehicle Standards Bulletin 14~~. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. The original vehicle manufacturer's axle ratings must not be exceeded when loaded in a practical way to the re-rated GVM, unless reinforced replacement axles are fitted; if reinforced replacement axles are fitted, ~~in that case~~ their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on a vehicles tail shaft. For example:

- changes to vehicle ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

Commented [TLD6]: Suggested wording to clarify

Commented [DGC7]: I'm a bit confused by this statement. It says it must not be exceeded, unless reinforced replacement axles are fitted (so it can be exceeded in those circumstances) but then it says in that their ratings must not be exceeded. Can this be re-worded to clarify this point?

3.5 Suspension

With an increase in GVM, additional loads are placed on suspension. Vehicle suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from the normal and practical loading patterns. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its the vehicle's GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the proposed GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

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The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM.

If required, an amending tyre placard must be fitted to indicate the revised tyre specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes, such as the vehicle's towing capacity and tyre requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any reduction in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicle's handbook is not available, this information must be provided in written form to the owner of the vehicle. This information must also be displayed on the Load Capacity Label discussed below.

The Load Capacity Label must follow the below format and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Re-rated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Front Axle/s Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Changes to a vehicle's GVM rating can have a direct effect on Electronic Stability Control (ESC) performance. Therefore, for vehicles fitted with ESC, the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. For many light vehicles, rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases, the limit mentioned in the Safe Towing Guide published by TMR applies.

Commented [DGC8]: Be consistent with capital letter when talking about Rated Towing Capacity, Maximum Braked Towing Mass, and so on throughout this section and the whole document

When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, note that the maximum mass that can be legally and safely towed when the vehicle is loaded to the re-rated GVM, must be proportionately adjusted to ensure that the sum of the GVM~~gross vehicle mass~~ and the trailer mass remain within the ratings specified by the original manufacturer.

Commented [DGC9]: Is this ATM? If so, spell it out and use ATM

6.0 Additional Modifications and Changes to Vehicle Category

Where additional modifications have been performed or a change in vehicle category has occurred due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited ~~Approved Person~~ holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the AP providing the design certification, may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the design certification ~~may~~ must not refer to any particular VIN.

The outputs of a ~~d~~Design ~~c~~ertification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All of these outputs must be preserved as records and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design certification must ~~lightly describe~~ clearly identify to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

Commented [DGC10]: Can this word be changed? What do you mean by tightly? Specifically? Might be misconstrued

Since the modification and the re-rating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the re-rating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to ~~determine~~ that the vehicle is safe to modify and receive re-rating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

The design certification package must include a ~~checklist~~ template ~~of checklist~~ that needs to be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

Integral to the design package output is the collection of various test reports and engineering calculations that validate the re-rating when modified as prescribed. Test reports must be from reputed test laboratories, ~~must~~ have unique identification number and ~~must be~~ signed and dated. Test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifiers to ~~exclude~~ ~~not include~~ the entire evidence package in the design package output being given to the customer. Where this is the case ~~however~~, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, ~~the~~ ~~what~~ sequence of actions to be performed, ~~what~~ precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

Commented [DGC11]: DO you mean photos? If so, say photos.

The work instruction must also include contact ~~information~~ ~~detail~~ ~~enquiries~~ or ~~further~~ ~~clarification~~ ~~is~~ ~~required~~ ~~or~~ ~~querying~~ ~~or~~ ~~seeking~~ ~~clarification~~ ~~should~~ that be required during modification.

All details must be recorded in the modification certificate including details of any SSM approvals or conditions.

The load capacity label must be affixed to indicate revised GVM and other relevant loading conditions.

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists, one of each for the vehicle modifier and ~~one~~ for the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Commented [DGC12]: This was discussed last time. Is it 1 checklist for modifier and another separate checklist for the certifier? This needs to be clear.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

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Checklist LS11
Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?	----	Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicles new GVM?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Information			
8.1	Is the Load Capacity Label attached to the vehicle?	----	Y	N
8.2	Has the vehicles handbook been amended or additional information been included on the Load Capacity Label?	----	Y	N
9	Manufacturer's Optional GVM			

Commented [EPA13]: What if they have to replace as it says it might in 3.1 – do they have to record anywhere that the tyre placard has actually been replaced and if so can keeping a photo of the placard with their records be made mandatory

Commented [EPA14]: Is this what is referred to in the LS15 checklist as GVM rerating plate/label and if so why is it called something different

Commented [EPA15]: 1. Why is this not included in the LS15 checklist
2. Can it be mandatory that a photo of the amended handbook be kept with the records

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM Approval holder provided written approval to use that SSM design?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Commented [EPA16]: Can we include that they must keep a photo of the written approval included in the records

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS												
Make					Model					Year of Manufacture		
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
Certificate Number (If applicable)												
Vehicle Certified By (<i>Print</i>)												
Signatory's Employer (If applicable)												
Signatory's Signature										Date		

Anant Z Bellary

From: Anant Z Bellary
Sent: Wednesday, 6 June 2018 12:03 PM
To: Patricia L Bailey
Subject: Please compare and merge these documents...
Attachments: LS 15 Version May 2018 V1 AS comments.docx; LS 15 Version May 2018 V1 OAA comments.docx

And this set too Trish.

Thanks.

Anant Bellary
Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

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Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the defined modification process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement of the chassis frame.

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing vehicles/components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires.

3.0 Specific Requirements

When rerating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Specific instructions provided in LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternative model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

The load capacity label must be fitted as close to the tyre placard as possible.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1: To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being modified.
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted).
- Revised GVM rating.
- Signed and dated by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
	Do you have: a copy of the LS11 design certification package with all instructions to certify this modification. Design Cert No. OR a copy of a letter from the original vehicle manufacturer Note: If you do not have one of the above you are unable to modify/certify this vehicle.		
	Are you accredited to certify the additional modification codes required by the LS11 design certification package or the vehicle manufacturer's letter?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims		
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are the checklists required in the LS11 design certification completed?	Y	N

7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N
7.4	Is the GVM rerating plate/label as specified in the LS11 design certification fitted?	Y	N
7.5	Have you kept all supporting documents relied on by you to certify this modification and photos of the modified vehicle for future audit?	Y	N

CERTIFICATION DETAILS												
Make												
Model												
Year of Manufacture												
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
TMR In-Principle Approval Number												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature												
											Date	

Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the defined modification process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. In this instance, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement of the chassis frame.

2.2 Rerating without Modifications

In some cases, rerating of GVM may not involve physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing vehicles/components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires.

3.0 Specific Requirements

When rating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Specific instructions provided in LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/01 or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may need to be replaced with a new placard replicating the manufacturer's alternate model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

The load capacity label must be fitted as close to the tyre placard as possible.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1: To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter. :
In this option, a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being modified.
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted).
- Revised GVM rating.
- Signed and dated by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
	Do you have: a copy of the LS11 design certification package with all instructions to certify this modification. Design Cert No. OR a copy of a letter from the original vehicle manufacturer Note: If you do not have one of the above you are unable to modify/certify this vehicle.	Y	N
	Are you accredited to certify the additional modification codes required by the LS11 design certification package or the vehicle manufacturer's letter?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims		
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are the checklists required in the LS11 design certification completed?	Y	N
7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N

Commented [EPA1]: What if they have to replace as it says it might in 3.1 – do they have to record anywhere that the tyre placard has actually been replaced and if so can keeping a photo of the placard with their records be made mandatory

7.4	Is the GVM rating plate/label as specified in the LS11 design certification fitted?	Y	N
7.5	Have you kept all supporting documents relied on by you to certify this modification and photos of the modified vehicle for future audit?	Y	N

Commented [EPA2]: Can we include that they must keep a photo of the plate/label included in the records

CERTIFICATION DETAILS			
Make	Model	Year of Manufacture	
VIN			
Chassis Number (If applicable)			
Brief Description of Modification/s			
Vehicle Modified By			
TMR In-Principle Approval Number			
Vehicle Certified By (Print)			
Signatory's Employer (If applicable)			
Signatory's Signature			Date

Anant Z Bellary

From: Anant Z Bellary
Sent: Friday, 8 June 2018 1:22 PM
To: Peter N Twining
Subject: Please arrange a meeting for LS15...

Hello Peter,

Please arrange a meeting to discuss Qual requirements for LS15 and invite Deann, Liz, Tracey Drier, Adam and myself.

Tue, 12/6 will be good as that is when Trump meets Kim.

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000

P: (07) 3066 3468

E: anant.z.bellary@tmr.qld.gov.au

W: www.tmr.qld.gov.au

Released under RTI - DTMR

Anant Z Bellary

From: Anant Z Bellary
Sent: Wednesday, 13 June 2018 10:03 AM
To: Scott G Notley; Peter N Twining
Subject: RE: Covering Message for new LS15 and revised LS11...
Attachments: Form for Feedback on Draft Modification Code LS11.docx; Form for Feedback on Draft Modification Code LS15.docx

Thanks Scott.

I have settled the message as below:

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of an in-service light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes sometime between late August and early September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Regards
Peter Twining

Regards

Anant Bellary

Vehicle Standards & Accreditation

Transport & Main Roads

From: Scott G Notley
Sent: Tuesday, 12 June 2018 4:48 PM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: FW: Covering Message for new LS15 and revised LS11...

Anant,

For your consideration.

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3338 4082 | f 3253 4453 | m Not relevant
e Scott.G.Notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Peter N Twining
Sent: Tuesday, 12 June 2018 1:54 PM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Cc: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Subject: FW: Covering Message for new LS15 and revised LS11...

Hi Anant

I made a few changes for comment

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM

4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to provide greater clarity about the intent of the LS11 code.

Note 1: the revised LS11 code does not have any reference to a Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating, which is in line with the recently released federal circular 0-4-5 (copy attached) which states that these values must not exceed the value set by the first stage manufacturer. Second stage manufacturers (SSM) are not permitted to increase the towing capacity as part of an SSM Identification Plate Approval that results in a GVM upgrade.

Note 2: that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, ~~in the attached feedback~~ via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday 20th July 2018. These codes are intended to be implemented from 3 September 2018.

The qualifications for the revised LS11 modification code will remain unchanged (Qualification No 1) and the LS15 modification code qualifications will be trade based (Qualification No 1 or No 2) which is in line with the redundant Type Approval scheme qualifications for similar types of modifications. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Regards
Peter Twining

Feedback on Draft Modification Code

Your Details

Name	Organisation	Contact Phone	Contact Email Address

Code Details

Code Name	Title	Date Submitted
LS15	GVM Re-rating in accordance LS11 Design	

Your Specific Comments

Section #	Clause #	Your Comment

Your General Comments

Please use additional sheets, if required, for more feedback.

Anant Z Bellary

From: Anant Z Bellary
Sent: Monday, 18 June 2018 2:36 PM
To: Peter N Twining
Cc: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'; Tracey L Dreier; Patricia L Bailey
Subject: FW: New and amended modification codes
Attachments: Form for Feedback on Draft Modification Code LS11.docx; Form for Feedback on Draft Modification Code LS15.docx; LS11 Code Jun 2018 V-1.0 final format.docx; LS15 Code Jun 2018 V-1.0 final format.docx

The most current versions of the documents are attached.

Ready to go, if you are.

Regards

Anant Bellary
Vehicle Standards & Accreditation
Transport & Main Roads

From: Peter N Twining
Sent: Monday, 18 June 2018 8:03 AM
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Cc: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: New and amended modification codes

Hi Scott

This is already to go just a final check please.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of an in-service light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes sometime between late August and early September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Kind regards

Peter Twining

Senior Policy Advisor (Standards and Accreditation)

Transport Regulation Branch | Department of Transport and Main Roads

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Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles:

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWs Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicles GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.

- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass (MBTM) of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

2.0 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have. Any effect this modification may have on the product warranty provided by the original vehicle manufacturer is outside the scope of this code. The certifying officer must clarify this point to the modifier and the vehicle operator.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs that apply to them.

If different ADRs apply due to the modified vehicles, they must comply to those ADRs that are relevant to them.

Modified vehicles must also comply with the applicable in-service requirements of Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation).

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Braking Systems	ADR 31/...or ADR 35/...
Brake Performance (for non-ADR vehicles)	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.2 GVM re-rating based on Original Vehicle Manufacturer's Option

The change to the vehicle's GVM must replicate the original vehicle manufacturer's optional GVM for that particular make, model and variant. All components, including suspension, transmission, engine, brakes, tyre and rims must be fitted same as those specified for that particular vehicle's alternate rated variant.

2.3 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of new vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 or 300 vehicles per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of in-service vehicles modified per annum under the combination of the particular SSM approval and this code do not exceed the limit specified for that low volume SSM approval.
- GVM re-rating of in-service vehicles using LS11 code must not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- A statutory declaration must be obtained from the low volume SSM holder stating that the number limit has not been exceeded as of that date
- The SSM approval number must be recorded on the modification certificate.
- The low volume SSM restrictions must be noted on the modification certificate (for example vehicle #12 of 300).
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.4 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.5 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original vehicle manufacturer's GVM rating. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the original manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or any combination of these

The following specific requirements must be met.

3.1 Chassis

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

Chassis modifications must be performed in accordance with section LH5 of VSB14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification Code of Practice (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

3.2 Engine/Transmission

The GVM re-rating assigned must not exceed the engine and transmission manufacturer's recommendations, if any, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on vehicle's tail shaft. For example:

- changes to vehicle's ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

3.5 Suspension

When loaded to re-rated GVM, additional loads are placed on suspension. Vehicle suspension ratings must be adequate for the re-rated GVM plus it must be able to accommodate the axle loads resulting from the common and practical load distribution. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the re-rated GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the re-rated GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the potential maximum mass on that axle.

If re-rated GVM and axle masses require different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

If different tyres & rims are specified, their size must be no more than necessary to support the increased axle masses. The effect of alternate tyres on speedometer/odometer accuracy must be considered. It must be ensured that, with the alternate tyres, vehicle's compliance to ESC requirements is not affected.

4.0 Owner's Handbook and Load Capacity Label

The vehicle operator must be adequately informed of the changes.

4.1 Owner's Handbook

To inform the vehicle operator about the vehicle's towing capacity and tyre & rim requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres, rims and the towing capacity. Of particular importance is any sliding reduction in towing capacity of the vehicle as it is loaded to its re-rated GVM and/or vertical load on tow ball (ball weight).

If the vehicles handbook is not available, this information must be provided in written form to the owner of the vehicle.

4.2 Load Capacity Label

Certain information must also be displayed on the Load Capacity Label as discussed below.

The Load Capacity Label must follow the below format. It must be made of durable material and letter size and contrast should be similar to the tyre placard. Label must be fitted to the vehicle, as close as practicable, to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Re-rated GVM	kg
Maximum Braked Towing Mass at re-rated GVM*	kg
Maximum Front Axle Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum braked towing mass depends on the re-rated GVM and trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Re-rated GVM may have direct effect on the performance of Electronic Stability Control (ESC) system. Hence ESC system must be revalidated so it performs satisfactorily at the re-rated GVM. However such revalidation is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated using other agreed methods.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as GCM rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. The scope of code does not include changes to vehicle's towing capacity. If towing capacity is not specified by the original vehicle manufacturer, the limits mentioned in the Safe Towing Guide published by TMR apply.

If the original vehicle manufacturer has specified towing capacity in some form, the gross combination mass formed by adding that towing capacity and the original GVM rating must not be exceeded. Hence, when the GVM is re-rated, the actual towed mass must be proportionately reduced according to the loaded mass of the towing vehicle.

6.0 Additional Modifications and Changes to Vehicle Category

If additional modifications are made or the vehicle's category has changed due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited AP holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that same make/model/variant/chassis series and generate the necessary evidence to show that the requirements of the LS11 design certification are met.

When LS11 code is used to provide design certification, the AP providing the design certification, may not inspect the modified vehicle(s) and is not required to fit LS11 modification plate on the vehicle(s). Also the checklist completed as part of the LS11 design certification will not refer to any particular VIN.

The outputs of a design certification under LS11 code are (a) a comprehensive design package (b) a modification certificate and (c) a completed checklist. All of these outputs must be preserved as records of the LS11 design certification and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design package must clearly identify which make/model/variant/chassis series it applies to. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating of GVM is being done on in-service vehicles, the condition of the vehicle is important to decide which vehicle can be safely modified and re-rated. The design package must include instructions about what is to be inspected and the acceptance criteria. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations, leaks and structural damage due to overloading, accidents or rust is also critical.

The design package must include a checklist template for use by the AP certifying the physical modification. The checklist will be completed by the AP who certifies the physical modification to confirm that the vehicle was inspected and was found in sound condition before commencing the modification.

7.1.2 Evidence package

The design package must include all the test reports and engineering calculations that validate the re-rating, when modified as prescribed. Test reports must be from reputed test laboratories, have unique identification number and be signed and dated. All test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply. Also the test reports must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier document that is dated and signed.

If any evidence is sourced from a third party, the evidence package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, sometimes the LS11 certifier may choose not to include all the test reports in the design package. In such cases the design package must still include a full list of all the test reports and the calculation sheets (using their unique identifiers) and provide written assurance to the client that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package must include comprehensive work instructions on how to modify the vehicle, what parts to be used, the sequence of actions to be performed, precautions to be taken and what process controls to be applied.

The work instructions must include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The work instructions must be easy to understand, unambiguous and should include sufficient pictorials including photos and graphics.

The work instructions must include the contact details of the LS11 certifying AP if enquiries arise needing further clarification during the physical modification and/or its certification.

7.1.4 Checklist for the modifier and the certifier

The design package must include template checklist(s) to be completed by the vehicle modifier and the certifier of the physical modification. These may be separate or one combined checklist. These checklists, when completed, are evidence that the modifier and the certifier of the physical modification have understood and followed the work instructions and the intent of the design package has been met. The LS11 AP may ask for copies of completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice. The completed checklist must also be retained by the AP who certifies the physical modification.

Note that this checklist is different than any checklist that the certifier of the physical modification is required to complete as part his/her certification of the modification under the relevant code.

7.2 Certificate of Modification

The LS11 AP must issue a certificate of modification to his client for the design certification provided. This is similar to any other certificate of modification, except that the certificate may not make reference to any specific modification plate number or VIN. Instead, it must refer to the basis of the design certification (for example, SSM approval number) and the unique identification number of the design package provided.

7.3 Modification Checklist

LS11 AP must complete the modification checklist provided at the end of this code and must retain it as part of his/her records.

Checklist LS11
Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	----	Y	N
6.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Label			
8.1	Is the Load Capacity Label attached to the vehicle?	---	Y	N
8.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	---	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM approval holder provided written approval to use that SSM design and a copy of the same attached to this checklist?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect to decide if the vehicle is fit to receive the re-rated GVM?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS																	
Make						Model						Year of Manufacture					
VIN																	
Chassis Number (If applicable)																	
Brief Description of Modification/s																	
Vehicle Modified By																	
Certificate Number (If applicable)																	
Vehicle Certified By (Print)																	
Signatory's Employer (If applicable)																	
Signatory's Signature											Date						

2.0

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Feedback on Draft Modification Code

Your Details

Name	Organisation	Contact Phone	Contact Email Address

Code Details

Code Name	Title	Date Submitted
LS11	GVM Re-rating of light vehicles	

Your Specific Comments

Section #	Clause #	Your Comment

Your General Comments

Please use additional sheets, if required, for more feedback.

Modifications Leading to Re-rating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification

CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons (AP) to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications are carried out in accordance with instructions in the relevant LS11 design certification. In addition to the requirements in this code, the AP providing LS15 certification must follow the instructions in the design package that came with the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Re-rating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Re-rating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Re-rating of a vehicle which is outside the scope of the relevant LS11 design certification.
- Re-rating of a vehicle, the GVM of which, before modification, is greater than 4,500 kg.
- Re-rating of a vehicle, the GVM of which, after modification, will be greater than 4,500 kg.
- Re-rating of GVM by comparing with an alternative make/model of vehicle.
- Re-rating of GVM by comparing with another vehicle which has been previously re-rated using a modification code.
- Re-rating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Re-rating of GVM prior to first registration anywhere in Australia. In such cases seek a Second Stage of Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications under LS15 may include replacement of axle(s), suspension or braking system with alternative components or reinforced chassis frame which collectively may permit a different rating.

2.2 Re-rating without Modifications

In some cases, re-rating of GVM may involve no physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required for re-rating. Care must be taken when comparing vehicles/ their components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) which are relevant to it. This includes ADRs which applied to it when it was originally constructed and the ADRs that apply to it after it is modified. If there is a conflict, the ADR requirement after modification takes priority.

2.4 Work Instructions from the LS11 Design Package

Modifications must be carried out according to the work instructions that are in the design package that came with the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection specified in the design package must be completed and the evidence of the same must be held by the LS15 certifier. This includes completing the checklist(s) that came with the LS11 design package.

3.0 Specific Requirements

When certifying the re-rated GVM under LS15, the chassis frame, suspension, axles and drive train components must be used within the original vehicle manufacturer's rated capacities. All instructions provided in the LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

If re-rated GVM requires different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

3.2 Chassis Frame

The chassis frame of the modified vehicle must be according to the LS11 design package or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design package or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the details and the in-service condition of the vehicle must be checked, as specified in the LS11 design package, to ensure that the vehicle is eligible for re-rating and its condition is safe and suitable.

Step-1: Confirm that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: Inspect and confirm that the condition of the vehicle is suitable for re-rating. The instructions in the LS11 design package must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition for re-rating. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

If re-rating is based on the original vehicle manufacturer's letter, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being re-rated.
- Details of all physical changes required for re-rating (including the details of the specific upgrade parts to be fitted).
- Re-rated GVM.
- Signature and date by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
1.1	<p>Have you received a copy of and understood: The LS11 design package with all the instructions to modify, test and re-rate vehicle of this make/model/variant/chassis series? LS11 Design Certification No. Date..... OR A letter from the original vehicle manufacturer for re-rating? Manufacturer's Letter Reference _____ date _____ Note: If you do not have one of the above, you are unable to certify this vehicle.</p>	Y	N
1.2	Are you accredited to certify the additional modification codes required by the LS11 design certification or the vehicle manufacturer's letter?	Y	N
2	Chassis Frame		
2.1	Does the chassis frame conform to the detail construction, section properties and cross-members of the LS11 design package or the original vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation? Does it meet the inspection criteria mentioned in the LS11 design package?	Y	N
3	Brake system		
3.1	Is the vehicle's braking system as specified in the LS11 design package or the original vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching? Does it meet the inspection criteria mentioned in the LS11 design package?	Y	N
4	Tyres and Rims		
4.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	Y	N
4.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	Y	N
4.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	Y	N
4.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Load Capacity Label		

6.1	Is the Load Capacity Label attached to the vehicle?	Y	N
6.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are/Is the checklist(s) required in the LS11 design package completed?	Y	N
7.3	Are all the inspections and tests as required in the LS11 design package completed?	Y	N
7.4	Have you kept all supporting documents you used to certify this modification and photos of the modified vehicle for future audit?	Y	N

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CERTIFICATION DETAILS														
Make													Year of Manufacture	
VIN														
Chassis Number (If applicable)														
Brief Description of Modification/s														
Vehicle Modified By														
TMR In-Principle Approval Number														
Vehicle Certified By (<i>Print</i>)														
Signatory's Employer (If applicable)														
Signatory's Signature												Date		

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Anant Z Bellary

From: Anant Z Bellary
Sent: Wednesday, 20 June 2018 9:19 AM
To: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'
Cc: Nigel G Ellis; Tracey L Dreier
Subject: FW: New Modification Code LS15 and Revised Modification Code LS11...
Attachments: Form for Feedback on Draft Modification Code LS11.docx; Form for Feedback on Draft Modification Code LS15.docx; LS11 Code Jun 2018 Consultation Draft.docx; LS15 Code Jun 2018 Consultation Draft.docx

Hello Scott,

FYI.

Regards

Anant Bellary

Vehicle Standards & Accreditation

Transport & Main Roads

From: Anant Z Bellary

Sent: Wednesday, 20 June 2018 9:17 AM

To: Not relevant @infrastructure.gov.au>; Not relevant

Not relevant @infrastructure.gov.au>

Cc: Not relevant @infrastructure.gov.au>; Not relevant @infrastructure.gov.au>;

Not relevant @infrastructure.gov.au>

Subject: New Modification Code LS15 and Revised Modification Code LS11...

FYI.

Anant Bellary

Vehicle Standards & Accreditation

Transport & Main Roads

From: Anant Z Bellary

Sent: Wednesday, 20 June 2018 9:16 AM

To: Not relevant @roads.vic.gov.au>

Cc: Not relevant @nt.gov.au>; Not relevant @nzta.govt.nz>;

Not relevant @transport.nsw.gov.au) <Not relevant @transport.nsw.gov.au>; Not relevant

Not relevant @transport.wa.gov.au>; Not relevant @act.gov.au)

Not relevant @act.gov.au>; Not relevant @rms.nsw.gov.au>; NSW Technical

Enquiries (Technical.Enquiries@rms.nsw.gov.au) <Technical.Enquiries@rms.nsw.gov.au>; Not relevant

Not relevant @sa.gov.au>; Not relevant @sa.gov.au)

Not relevant @sa.gov.au>; Not relevant @nzta.govt.nz>; Not relevant

Not relevant @sa.gov.au) <Not relevant @sa.gov.au>; Not relevant (StateGrowth)

Not relevant @stategrowth.tas.gov.au>; Not relevant @nt.gov.au>

Subject: New Modification Code LS15 and Revised Modification Code LS11...

To

Chair
VSB-14 Single Issue Working Group
AMVCB

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of in-service light vehicles (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued for the vehicles of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes from 3rd September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

TMR invites, urges and welcomes you to include these codes in the VSB-14 National Code of Practice for national uniformity.

Happy to discuss further to assist national adoption of these codes as required.

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

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W: www.tmr.qld.gov.au

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Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles:

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicles GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWS) where the number of vehicles is capped in the SSM approval.

- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass (MBTM) of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

2.0 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have. Any effect this modification may have on the product warranty provided by the original vehicle manufacturer is outside the scope of this code. The certifying officer must clarify this point to the modifier and the vehicle operator.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs that apply to them.

If different ADRs apply due to the modified vehicles, they must comply to those ADRs that are relevant to them.

Modified vehicles must also comply with the applicable in-service requirements of Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation).

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Braking Systems	ADR 31/...or ADR 35/...
Brake Performance (for non-ADR vehicles)	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.2 GVM re-rating based on Original Vehicle Manufacturer's Option

The change to the vehicle's GVM must replicate the original vehicle manufacturer's optional GVM for that particular make, model and variant. All components, including suspension, transmission, engine, brakes, tyre and rims must be fitted same as those specified for that particular vehicle's alternate rated variant.

2.3 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of new vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 or 300 vehicles per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of in-service vehicles modified per annum under the combination of the particular SSM approval and this code do not exceed the limit specified for that low volume SSM approval.
- GVM re-rating of in-service vehicles using LS11 code must not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- A statutory declaration must be obtained from the low volume SSM holder stating that the number limit has not been exceeded as of that date.
- The SSM approval number must be recorded on the modification certificate.
- The low volume SSM restrictions must be noted on the modification certificate (for example vehicle #12 of 300).
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.4 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.5 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original vehicle manufacturer's GVM rating. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the original manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or any combination of these

The following specific requirements must be met.

3.1 Chassis

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

Chassis modifications must be performed in accordance with section LH5 of VSB14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification Code of Practice (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

3.2 Engine/Transmission

The GVM re-rating assigned must not exceed the engine and transmission manufacturer's recommendations, if any, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on vehicle's tail shaft. For example:

- changes to vehicle's ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

3.5 Suspension

When loaded to re-rated GVM, additional loads are placed on suspension. Vehicle suspension ratings must be adequate for the re-rated GVM plus it must be able to accommodate the axle loads resulting from the common and practical load distribution. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the re-rated GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the re-rated GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the potential maximum mass on that axle.

If re-rated GVM and axle masses require different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

If different tyres & rims are specified, their size must be no more than necessary to support the increased axle masses. The effect of alternate tyres on speedometer/odometer accuracy must be considered. It must be ensured that, with the alternate tyres, vehicle's compliance to ESC requirements is not affected.

4.0 Owner's Handbook and Load Capacity Label

The vehicle operator must be adequately informed of the changes.

4.1 Owner's Handbook

To inform the vehicle operator about the vehicle's towing capacity and tyre & rim requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres, rims and the towing capacity. Of particular importance is any sliding reduction in towing capacity of the vehicle as it is loaded to its re-rated GVM and/or vertical load on tow ball (ball weight).

If the vehicles handbook is not available, this information must be provided in written form to the owner of the vehicle.

4.2 Load Capacity Label

Certain information must also be displayed on the Load Capacity Label as discussed below.

The Load Capacity Label must follow the below format. It must be made of durable material and letter size and contrast should be similar to the tyre placard. Label must be fitted to the vehicle, as close as practicable, to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Re-rated GVM	kg
Maximum Braked Towing Mass at re-rated GVM*	kg
Maximum Front Axle Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum braked towing mass depends on the re-rated GVM and trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Re-rated GVM may have direct effect on the performance of Electronic Stability Control (ESC) system. Hence ESC system must be revalidated so it performs satisfactorily at the re-rated GVM. However such revalidation is not required where a vehicle's GVM is being re-rated to the manufacture's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated using other agreed methods.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as GCM rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. The scope of code does not include changes to vehicle's towing capacity. If towing capacity is not specified by the original vehicle manufacturer, the limits mentioned in the Safe Towing Guide published by TMR apply.

If the original vehicle manufacturer has specified towing capacity in some form, the gross combination mass formed by adding that towing capacity and the original GVM rating must not be exceeded. Hence, when the GVM is re-rated, the actual towed mass must be proportionately reduced according to the loaded mass of the towing vehicle.

6.0 Additional Modifications and Changes to Vehicle Category

If additional modifications are made or the vehicle's category has changed due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited AP holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that same make/model/variant/chassis series and generate the necessary evidence to show that the requirements of the LS11 design certification are met.

When LS11 code is used to provide design certification, the AP providing the design certification, may not inspect the modified vehicle(s) and is not required to fit LS11 modification plate on the vehicle(s). Also the checklist completed as part of the LS11 design certification will not refer to any particular VIN.

The outputs of a design certification under LS11 code are (a) a comprehensive design package (b) a modification certificate and (c) a completed checklist. All of these outputs must be preserved as records of the LS11 design certification and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design package must clearly identify which make/model/variant/chassis series it applies to. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating of GVM is being done on in-service vehicles, the condition of the vehicle is important to decide which vehicle can be safely modified and re-rated. The design package must include instructions about what is to be inspected and the acceptance criteria. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations, leaks and structural damage due to overloading, accidents or rust is also critical.

The design package must include a checklist template for use by the AP certifying the physical modification. The checklist will be completed by the AP who certifies the physical modification to confirm that the vehicle was inspected and was found in sound condition before commencing the modification.

7.1.2 Evidence package

The design package must include all the test reports and engineering calculations that validate the re-rating, when modified as prescribed. Test reports must be from reputed test laboratories, have unique identification number and be signed and dated. All test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply. Also the test reports must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier document that is dated and signed.

If any evidence is sourced from a third party, the evidence package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, sometimes the LS11 certifier may choose not to include all the test reports in the design package. In such cases the design package must still include a full list of all the test reports and the calculation sheets (using their unique identifiers) and provide written assurance to the client that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package must include comprehensive work instructions on how to modify the vehicle, what parts to be used, the sequence of actions to be performed, precautions to be taken and what process controls to be applied.

The work instructions must include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The work instructions must be easy to understand, unambiguous and should include sufficient pictorials including photos and graphics.

The work instructions must include the contact details of the LS11 certifying AP if enquiries arise needing further clarification during the physical modification and/or its certification.

7.1.4 Checklist for the modifier and the certifier

The design package must include template checklist(s) to be completed by the vehicle modifier and the certifier of the physical modification. These may be separate or one combined checklist. These checklists, when completed, are evidence that the modifier and the certifier of the physical modification have understood and followed the work instructions and the intent of the design package has been met. The LS11 AP may ask for copies of completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice. The completed checklist must also be retained by the AP who certifies the physical modification.

Note that this checklist is different than any checklist that the certifier of the physical modification is required to complete as part his/her certification of the modification under the relevant code.

7.2 Certificate of Modification

The LS11 AP must issue a certificate of modification to his client for the design certification provided. This is similar to any other certificate of modification, except that the certificate may not make reference to any specific modification plate number or VIN. Instead, it must refer to the basis of the design certification (for example, SSM approval number) and the unique identification number of the design package provided.

7.3 Modification Checklist

LS11 AP must complete the modification checklist provided at the end of this code and must retain it as part of his/her records.

Checklist LS11

Gross Vehicle Mass Increase

CODE LS11

Form No: LS11

(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	----	Y	N
6.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Label			
8.1	Is the Load Capacity Label attached to the vehicle?	---	Y	N
8.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	---	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM approval holder provided written approval to use that SSM design and a copy of the same attached to this checklist?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect to decide if the vehicle is fit to receive the re-rated GVM?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS												
Make												
Model												
Year of Manufacture												
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
Certificate Number (If applicable)												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature										Date		

2.0

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Modifications Leading to Re-rating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification

CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons (AP) to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications are carried out in accordance with instructions in the relevant LS11 design certification. In addition to the requirements in this code, the AP providing LS15 certification must follow the instructions in the design package that came with the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Re-rating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Re-rating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Re-rating of a vehicle which is outside the scope of the relevant LS11 design certification.
- Re-rating of a vehicle, the GVM of which, before modification, is greater than 4,500 kg.
- Re-rating of a vehicle, the GVM of which, after modification, will be greater than 4,500 kg.
- Re-rating of GVM by comparing with an alternative make/model of vehicle.
- Re-rating of GVM by comparing with another vehicle which has been previously re-rated using a modification code.
- Re-rating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Re-rating of GVM prior to first registration anywhere in Australia. In such cases seek a Second Stage of Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications under LS15 may include replacement of axle(s), suspension or braking system with alternative components or reinforced chassis frame which collectively may permit a different rating.

2.2 Re-rating without Modifications

In some cases, re-rating of GVM may involve no physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required for re-rating. Care must be taken when comparing vehicles/ their components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) which are relevant to it. This includes ADRs which applied to it when it was originally constructed and the ADRs that apply to it after it is modified. If there is a conflict, the ADR requirement after modification takes priority.

2.4 Work Instructions from the LS11 Design Package

Modifications must be carried out according to the work instructions that are in the design package that came with the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection specified in the design package must be completed and the evidence of the same must be held by the LS15 certifier. This includes completing the checklist(s) that came with the LS11 design package.

3.0 Specific Requirements

When certifying the re-rated GVM under LS15, the chassis frame, suspension, axles and drive train components must be used within the original vehicle manufacturer's rated capacities. All instructions provided in the LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

If re-rated GVM requires different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

3.2 Chassis Frame

The chassis frame of the modified vehicle must be according to the LS11 design package or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design package or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the details and the in-service condition of the vehicle must be checked, as specified in the LS11 design package, to ensure that the vehicle is eligible for re-rating and its condition is safe and suitable.

Step-1: Confirm that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: Inspect and confirm that the condition of the vehicle is suitable for re-rating. The instructions in the LS11 design package must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition for re-rating. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

If re-rating is based on the original vehicle manufacturer's letter, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being re-rated.
- Details of all physical changes required for re-rating (including the details of the specific upgrade parts to be fitted).
- Re-rated GVM.
- Signature and date by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
1.1	<p>Have you received a copy of and understood: The LS11 design package with all the instructions to modify, test and re-rate vehicle of this make/model/variant/chassis series? LS11 Design Certification No. Date..... OR A letter from the original vehicle manufacturer for re-rating? Manufacturer's Letter Reference _____ date _____ Note: If you do not have one of the above, you are unable to certify this vehicle.</p>	Y	N
1.2	Are you accredited to certify the additional modification codes required by the LS11 design certification or the vehicle manufacturer's letter?	Y	N
2	Chassis Frame		
2.1	Does the chassis frame conform to the detail construction, section properties and cross-members of the LS11 design package or the original vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation? Does it meet the inspection criteria mentioned in the LS11 design package?	Y	N
3	Brake system		
3.1	Is the vehicle's braking system as specified in the LS11 design package or the original vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching? Does it meet the inspection criteria mentioned in the LS11 design package?	Y	N
4	Tyres and Rims		
4.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	Y	N
4.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	Y	N
4.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	Y	N
4.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Load Capacity Label		

6.1	Is the Load Capacity Label attached to the vehicle?	Y	N
6.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are/Is the checklist(s) required in the LS11 design package completed?	Y	N
7.3	Are all the inspections and tests as required in the LS11 design package completed?	Y	N
7.4	Have you kept all supporting documents you used to certify this modification and photos of the modified vehicle for future audit?	Y	N

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CERTIFICATION DETAILS													
Make						Model						Year of Manufacture	
VIN													
Chassis Number (If applicable)													
Brief Description of Modification/s													
Vehicle Modified By													
TMR In-Principle Approval Number													
Vehicle Certified By (<i>Print</i>)													
Signatory's Employer (If applicable)													
Signatory's Signature												Date	

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Anant Z Bellary

From: Anant Z Bellary
Sent: Tuesday, 26 June 2018 1:44 PM
To: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'
Cc: Peter N Twining; Adam Shaw; 'Shane F Lonsdale'
Subject: OVM Product Survey...

Hello Scott,

A quick survey of new vehicle specifications of different brands (Toyota/Nissan/Mitsubishi/Ford/Holden/Isuzu) indicates that:

- Almost all of them specify GCM rating in addition to GVM and braked Towing Capacity.
- The GVM for typical dual cab 4X4 NA category vehicles ranges from 2700 kg to 3500 kg.
- The braked towing capacity also ranges from 2700 kg to 3500 kg.
- The GCM rating ranges from 4800 kg to 6000 kg.
- Almost always the GCM rating is less than the simple addition of GVM and braked Towing Capacity. The difference ranges from 100 kg to 600 kg.
- The official RVDs for these products list GVM and braked Towing Mass but not GCM rating.

Just for your information. No action required.

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000

P: (07) 3066 3468

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Peter N Twining

To: Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)
Cc: Anant Z Bellary
Subject: FW: Covering Message for new LS15 and revised LS11...

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
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E: peter.n.twining@tmr.qld.gov.au
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From: Tracey L Dreier
Sent: Friday, 1 June 2018 9:27 AM
To: Peter N Twining ; Patricia L Bailey
Cc: Scott G Notley ; Adam Shaw ; Benjamin Scanlan ; Elizabeth P Austin ; Deann G Coleman
Subject: FW: Covering Message for new LS15 and revised LS11...

Hi Peter

We've made a couple of suggested changes below in red.

Also, do you think we should mention the quals required for LS11 and LS15 to make it clear that LS11 is an engineering code and LS15 is not. I think they should know this when commenting on the codes.

We will provide you with the email addresses of the LS11 APs soon.

Regards

Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3066 2532 | f 33384640 | m Not relevant
e tracey.l.dreier@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Deann G Coleman
Sent: Friday, 1 June 2018 8:35 AM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Cc: Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>
Subject: FW: Covering Message for new LS15 and revised LS11...

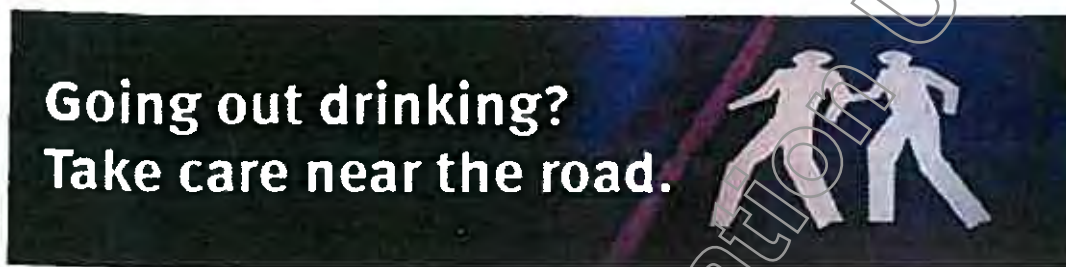
Tracey,

I've just made a few suggested changes.

Kind regards,

Deann Coleman
A/Principal Policy Advisor | Transport Access And Use
Transport Regulation Branch | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30662479 | F: (07) 30662155
E: deann.g.coleman@tmr.qld.gov.au
W: www.tmr.qld.gov.au



From: Tracey L Dreier
Sent: Thursday, 31 May 2018 3:49 PM
To: Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>; Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>
Subject: FW: Covering Message for new LS15 and revised LS11...

For comment back to me please and I will consolidate our feedback.

Regards

Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3066 2532 | f 33384640 | m Not relevant
e tracey.l.dreier@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Anant Z Bellary
Sent: Thursday, 31 May 2018 3:33 PM
To: Peter N Twining <peter.n.twining@tmr.qld.gov.au>; Shane F Lonsdale <Shane.F.Lonsdale@tmr.qld.gov.au>;
Patricia L Bailey <Patricia.L.Bailey@tmr.qld.gov.au>
Cc: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>; Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Christina T
Myers <christina.t.myers@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>
Subject: Covering Message for new LS15 and revised LS11...

Draft covering note for our key institutional stakeholders...

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 (Trade Based Qualifications) to enhance the operation of the previously developed LS11 (Engineering Based Qualifications) modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached now for your perusal and feedback. Please provide any comments, and email to vehiclestandards@tmr.qld.gov.au by close of business on Friday 29th June 2018. These codes are intended to be implemented from 1 August 2018.

Regards
Peter Twining

Internal Consultation

Peter N Twining

From: Peter N Twining
Sent: Friday, 1 June 2018 6:12 AM
To: Patricia L Bailey
Subject: Please Check
Attachments: LS 11 Version May 2018 V2.1 (002) V3 AS changes.docx; LS 15 Version May 2018 V1 AS comments.docx

Can you please check the attached documents are the latest versions.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM re-rating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to vehiclestandards@tmr.qld.gov.au. The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30666537
E: peter.n.twining@tmr.qld.gov.au
W: www.tmr.qld.gov.au



Peter N Twining

From: Peter N Twining
Sent: Friday, 1 June 2018 8:46 AM
To: Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)
Cc: Anant Z Bellary
Subject: As Discussed
Attachments: LS 11 Version May 2018 V2.1 (002) V3 AS changes.docx; LS 15 Version May 2018 V1 AS comments.docx

Please see document and ne mod codes as requested.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to vehiclestandards@tmr.qld.gov.au. The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30666537
E: peter.n.twining@tmr.qld.gov.au
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Peter N Twining

From: Peter N Twining
Sent: Tuesday, 5 June 2018 6:43 AM
To: Peter N Twining
Subject: FW: TMR Letter- Revised GCM- 1st June 2018

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30666537
E: peter.n.twining@tmr.qld.gov.au
W: www.tmr.qld.gov.au



From: Scott G Notley
Sent: Friday, 1 June 2018 1:55 PM
To: Peter N Twining ; Anant Z Bellary ; Adam Shaw ; Shane F Lonsdale
Subject: FW: TMR Letter- Revised GCM- 1st June 2018

Fyi

Pete when we send the draft LS11/LS15 codes to Levels can you make sure you send it to Dragana please rather than Mike. We will send one to Mike as an LS11 AP anyway.

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3338 4082 | f 3253 4453 | m Not relevant
e Scott.G.Notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Mike Davison [<mailto:miked@lovells.com.au>]
Sent: Friday, 1 June 2018 11:04 AM
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>

Cc: Dragan Vasic <dragan.vasic@lovells.com.au>
Subject: TMR Letter- Revised GCM- 1st June 2018

Hi Scott

Further to my email below, I would like to make you aware that, as of the 1st February 2018, due to the Lovells Group restructure, the newly appointed position of National Sales Manager now manages the GVM Upgrade Program.

The new Manager is Dragan Vasic and all future correspondence regarding Lovells GVM Upgrades should be addressed to and handled by him.

Dragan Vasic
Lovells Automotive Systems- National Sales Manager
Email: draganv@lovells.com.au
Contact number:

Dragan has been with the company for 10 years and is very experienced in this field.

I will however still handle any questions in relation to my Approved Person status as required.

Kind regards,

Mike

Mike Davison

General Manager

Lovells Automotive Systems Pty Ltd
(Incorporating Lovells Suspension)

Sydney (Sales and Engineering)
PO Box 5126
Minto BC
Unit 2, 25 Badgally Rd
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AUSTRALIA

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AUSTRALIA

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AUSTRALIA

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Mobile:

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Web: www.lovells.com.au



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delete the message (including attachments).
Thank you.

From: Mike Davison
Sent: Wednesday, 30 May 2018 7:45 AM
To: 'Scott G Notley'
Subject: TMR Letter- GCM Upgrades- 30th May 2018

Hi Scott,

While we are on the subject again, I was hoping you could clarify something for me (as a Lovells employee, not an AP).

TMR allow a revised GCM to be quoted for pre-registration vehicles (Federal Compliance) by an SSM, however don't recognise the revised GCM for post registration/in service vehicles.

I fully understand it forms part of the LS11 code, however there appears to be double standards (pardon the pun) in this instance.

Can you confirm the reasoning behind this, as this is what confuses the market the most.

Kind regards,

Mike

Mike Davison

General Manager

Lovells Automotive Systems Pty Ltd
(Incorporating Lovells Suspension)

Sydney (Sales and Engineering)

PO Box 5126
Minto BC
Unit 2, 25 Badgally Rd
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AUSTRALIA

Sandgate (Warehouse)

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AUSTRALIA

Ph: +61 2 9820 6800

Fax: +61 2 9820 6788

Mobile: Not relevant

E-Mail: miked@lovells.com.au

Web: www.lovells.com.au



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Thank you.

From: Scott G Notley [<mailto:Scott.G.Notley@tmr.qld.gov.au>]
Sent: Tuesday, 29 May 2018 6:27 PM
To: Mike Davison
Subject: Re: TMR Letter- GCM Upgrades- 29th May 2018

Thanks Mike. That is reassuring but I will get some further advice and come back to you later this week.

Regards

Scott Notley
A/Director (Industry Accreditation and Authorisation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division

t 07 3338 4082 | **f** 07 3338 4640 | **m** Not relevant
e scott.g.notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

On 29 May 2018, at 5:45 pm, Mike Davison <miked@lovells.com.au> wrote:

Hi Scott,

I can assure you that any modification plates and certificates prepared by myself under the LS11 code, do not note a GCM figure.

I however cannot vouch for the other two AP's who we give access to our data and are approved to use Lovells SSM data.

They are: Not relevant

If you have a copy of recent mod certificates received by TMR which indicate a GCM figure, please pass on so it can be taken up with the signatory.

Kind regards,

Mike

Mike Davison

General Manager

Lovells Automotive Systems Pty Ltd
(Incorporating Lovells Suspension)

Sydney (Sales and Engineering)
PO Box 5126
Minto BC
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Ph: +61 2 9820 6800

Fax: +61 2 9820 6788

Mobile: Not relevant

E-Mail: miked@lovells.com.au

Web: www.lovells.com.au

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From: Scott G Notley [<mailto:Scott.G.Notley@tmr.qld.gov.au>]
Sent: Tuesday, 29 May 2018 4:11 PM
To: Mike Davison
Cc: Vehicle Standards
Subject: FW: GCM Upgrades

Hi Mike,

Just following up on previous advice provided to yourself and/or Lovells in relation to upgrades to GCM and/or towing capacity when GVM is upgraded on in-service vehicles. I have included some previous correspondence in case it assists.

I am seeking an update from you on any action you have taken since the advice below to ensure that any modifications you or your associated Approved Persons have undertaken are consistent with our previous advice on this matter.

Some recent mod-certificates received by TMR indicate Lovells may have continued to provide upgrades to GCM/towing capacity when providing GVM upgrades on in-service vehicles for customers. I would appreciate any advice you can provide on the matter.

Trust you will treat this request with some priority.

Regards

Scott Notley

A/Director (Standards and Accreditation)

Transport Regulation Branch

Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

From: Vehicle Standards
Sent: Tuesday, 23 January 2018 2:52 PM
To: simonc@lovells.com.au
Cc: Peter N Twining <peter.n.twining@tmr.qld.gov.au>
Subject: FW: GCM Upgrades

Dear Mr Crane,

Thank you for your letter of 11th December 2017 as per attachment 1. The name of the directing officer is Mr Peter Twining (Senior Policy Advisor, Vehicle Standards & Accreditation). Peter who has been communicating with Mr Mike Davison from Lovells Group in this matter, is on leave at the moment so I have prepared a response in his absence.

As you may be aware, the communication in the second attachment to this message and titled "GCM Upgrades" has largely overtaken the content of the email communication dated 28th Sept 2017 from Peter to Mr Davison, as attached to your letter. Hence my below response focuses on and clarifies the most recent message sent by Mr Twining to Mr Davison on 4th Dec 2017. I trust this helps.

You have asked for clarification of the position that Mr Twining outlined in his email including any specific legislation that applies. As you may also be aware, I have received a letter from solicitors acting on your behalf and provided a similar response to this one earlier today. I note also that Mr Davison has requested a meeting with Mr Twining later in February 2018.

As you may be aware, in Queensland, complex modifications such as engine upgrades or changes to vehicle ratings, including vehicle's Gross Vehicle Mass (GVM) rating, must be in accordance with an approved code of practice and must be certified by an Approved Person (AP) under Schedule 1 part 2 of the Transport Operations (Road Use Management – Accreditation and Other Provisions) Regulation 2015.

The Queensland Code of Practice: Vehicle Modifications (the Code of Practice) is the approved code of practice for certifying specified complex modifications, including a GVM upgrade to an in-service light vehicle registered in Queensland. For GVM upgrade, the certifying AP is required to ensure that the vehicle has been modified according to the code LS11 contained in the Code of Practice. For your reference I have attached an extract of the LS11 requirements from the Code of Practice.

Clause 1.2 of the LS11 Code clearly prohibits an increase in Gross Combination Mass (GCM) rating unless it is in accordance with a Second Stage of Manufacture (SSM) approval; SSM approvals are issued by the Department of Infrastructure and Regional Development (DIRD).

The code LS11 is about a GVM upgrade and requires the certifying AP to show on the modification plate the details relevant to the GVM upgrade, including the revised GVM. Any GCM upgrade can only be shown on the modification plate if the GCM upgrade is in accordance with the above clause in the LS11 Code. In effect, when SSM approval is used

as the basis for GVM upgrade, according to code LS11, revised GCM rating, if any, must form part of the SSM approval before it can be shown on the LS11 modification plate.

An AP certifying such a modification is required, under the statutory conditions of their appointment (under Schedule 1 of the Transport Operations (Road Use Management – Accreditation and Other Provisions) Regulation 2015), to ensure that s/he does not contravene an approved Code of Practice. Showing an upgraded GCM rating on a modification plate issued under the LS11 code would be acceptable if and only if the GCM upgrade forms part of the underlying SSM approval issued by DIRD.

Mr Twining has previously sought confirmation from Mr Davison that Lovells has either obtained SSM approval for the GCM upgrades or the SSM approvals held for GVM upgrade also include GCM upgrade; but that confirmation has not yet been provided. As a consequence, Mr Twining sent the email dated 4 December 2017 to clarify requirements under the LS11 Code. Any further information that you can supply that might shed further light on the approvals that you do hold with DIRD would be most welcome.

If you have any further questions, please call me on the number below. Note also that Mr Twining will return from leave next week and is happy to meet with Mr Davison to discuss further if required. I am happy for you to confirm the same with Mr Davison.

Regards

Scott Notley

A/Director (Standards and Accreditation)

Transport Regulation Branch

Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006

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Internal Consultation Use Only

Peter N Twining

From: Peter N Twining
Sent: Tuesday, 12 June 2018 1:54 PM
To: Anant Z Bellary
Cc: Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)
Subject: FW: Covering Message for new LS15 and revised LS11...

Hi Anant

I made a few changes for comment

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to provide greater clarity about the intent of the LS11 code.

Note 1 the revised LS11 code does not have any reference to a Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating, which is in line with the recently released federal circular 0-4-5 (copy attached) which states that these values must not exceed the value set by the first stage manufacturer. Second stage manufacturers are not permitted to increase the towing capacity as part of an SSM IPA that results in GVM upgrade.

Note 2 that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, in the attached feedback via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday 20th July 2018. These codes are intended to be implemented from 3 September 2018.

The qualifications for the revised LS11 modification code will remain unchanged (Qualification No 1) and the LS15 modification code qualifications will be trade based (Qualification No 2) which is in line with the redundant Type Approval scheme qualifications for similar types of modifications. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Regards
Peter Twining

Internal Consultation Use Only

Peter N Twining

From: Scott G Notley
Sent: Thursday, 14 June 2018 2:14 PM
To: Peter N Twining
Subject: FW: Important Information
Attachments: LX1 Modification Certificate (Sample).pdf; LX1 Modification Certificate 2 (Sample).pdf; TMR Blue Mod Plate LX1 completed sample plate.pdf

Pete,

The suggested changes make sense. Even though the Type Approval holders are familiar with the term signatories we should transition them to AP world. The amended certificates are attached.

We should include contact details of course.

Can go out tomorrow if you like or we can wait til the new LS15 and amended LS11 are ready to go as well. Some people will get coth. I assume Anant will finish them today Not relevant

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3338 4082 | f 3253 4453 | m Not relevant
e Scott.G.Notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Tracey L Dreier
Sent: Thursday, 14 June 2018 1:57 PM
To: Scott G Notley
Subject: RE: Important Information

Sorry it took a while to get back to you.

Slightly amended versions of Mod certificate samples attached (only changes related to inclusion of missing “). No changes to Mod plate sample.

The only suggestion for the email below, besides the suggested changes in red, is to add contact details (email or phone) for VSU.

Regards

Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3066 2532 | f 33384640 | m Not relevant

e tracey.l.dreier@tmr.qld.gov.au

w www.tmr.qld.gov.au

From: Scott G Notley
Sent: Thursday, 14 June 2018 8:33 AM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Subject: FW: Important Information

Any additional commentary required Trace?

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3338 4082 | f 3253 4453 | m Not relevant
e Scott.G.Notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Scott G Notley
Sent: Thursday, 14 June 2018 8:26 AM
To: Peter N Twining <peter.n.twining@tmr.qld.gov.au>
Subject: FW: Important Information

Pete,

I have tinkered but not yet gone to Tracey. I'm thinking we might provide another certificate as an example. The notes in the one provided specific to GVM upgrades might confuse some if we don't have a second example. No need to do a second blue plate though. What do you think??

Dear Vehicle Standards Approval (VSA) holder.

I trust by now you and **the Approved Persons operating under your VSA your signatories** are already using the new VSA process to sign off your modifications previously certified under Type Approvals.

Random audits of **modification** certificates returned to the Department of Transport and Main Roads (TMR) from LX1 holders have highlighted the need for some further advice on how to follow the new certification process correctly.

I have attached a sample blue Modification Plate and the associated Modification Certificate as examples of how to complete them correctly for a VSA involving a GVM upgrade. Note that for VSA's not related to a GVM upgrade, **your signatories Approved Persons** will simply need to include the full suite of codes that are specific to your VSA, your VSA number as well as any notes that relevant to your upgrade. I have also provided a second certificate (Sample2) as an example of a different modification involving different codes to ensure there is no confusion. The Modification Plate for the second certificate (not provided) will mirror the information on the second certificate.

When certifying modifications under your VSA, please ensure that:

1. the blue Modification Plate must show the full suite of codes that make up your LX1 approval and the VSA. For example LX1-LS10-LG2 and VSA56.
2. the information on blue Modification Plate must be legible and all the applicable sections must be completed.
3. the accompanying Modification Certificate must also contain all the relevant information and accurately reflect all the information on the associated Blue Modification Plate.

TMR will continue to monitor Modification Certificates provided under this process and it is important that the above requirements are followed if **the Approved Persons operating under your VSA your signatories** are to continue to provide certification under this process. Can you please ensure that all **your signatories of the Approved Persons certifying modifications under your VSA** are provided with this advice as soon as practicable.

Regards

Scott Notley

A/Director (Standards and Accreditation)

Transport Regulation Branch

Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006

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e Scott.G.Notley@tmr.qld.gov.au

w www.tmr.qld.gov.au

From: Peter N Twining

Sent: Thursday, 14 June 2018 7:50 AM

To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>

Subject: Important Information

Hi Scott

I intend to send this out today do you think I need to run it by accreditation first.

Dear Vehicle Standards Approval (VSA) holder.

I trust by now you are already using the new VSA process to sign off your modifications previously certified under Type Approvals.

I take this opportunity to inform about how to follow the new certification process correctly.

I have attached a sample blue Modification Plate and the associated Modification Certificate as examples of how to complete them correctly.

When certifying modifications under your VSA, please ensure that:

1. the blue Modification Plate must show the full suite of codes that make up your LX1 approval and the VSA. For example LX1-LS10-LG2

2. the information on blue Modification Plate must be legible and all the applicable sections must be completed.
3. the accompanying Modification Certificate must also contain all the relevant information and accurately reflect all the information on the associated Blue modification plate.

It is your responsibility to ensure all of your approved signatories are aware of these requirements.

Kind regards

Peter Twining

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Internal Consultation Use Only

Peter N Twining

From: Peter N Twining
Sent: Monday, 18 June 2018 8:03 AM
To: Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)
Cc: Tracey L Dreier; Anant Z Bellary
Subject: New and amended modification codes
Attachments: Form for Feedback on Draft Modification Code LS11.docx; Form for Feedback on Draft Modification Code LS15.docx; LS11 Code Jun 2018 V-1.0.docx; LS15 Code Jun 2018 V-1.0.docx

Hi Scott

This is already to go just a final check please.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of an in-service light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes sometime between late August and early September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Kind regards

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Peter N Twining

From: Peter N Twining
Sent: Tuesday, 24 July 2018 9:20 AM
To: 'Vehicle Standards'
Cc: Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)
Subject: RE: New LS15 and amended LS11 Modification Codes for comment

BCC Sent to: 19 June 2018

Not relevant @aaaa.com.au'; Not relevant @mtaq.com.au'; 'draganv@lovels.com.au'; Not relevant @arb.com.au';
Not relevant @carrolls.com.au'; 'info@ironman4x4.com'; 'sales@driveline.com.au'; Not relevant @marks4wd.com';
Not relevant @truck-industry-council.org'; Not relevant @hvia.asn.au'; AP Policy <AP_Policy@tmr.qld.gov.au>;
Not relevant @truckengineering.com.au'; Paul R Hawkey <paul.r.hawkey@tmr.qld.gov.au>;
Not relevant @creativeconversions.com.au'; 'info@rvwconversions.com'; Not relevant @pedders.com.au';
'gvmadmin@pedders.com.au'; Not relevant @pedders.com.au'; Not relevant @kineticeng.com.au';
'6x6australia@gmail.com'; 'sales@enduroco.com'; Not relevant @sixwheeler.com.au'; Not relevant @customvehicleservices.com.au';
Not relevant @bus4x4.com.au'; Not relevant @gmail.com'; Not relevant @mobilityengineering.com.au';
Not relevant @ozemail.com.au'; 'info@transmod.com.au'; 'engineer@aafap.com.au'; 'info@not relevant .com.au';
Not relevant @autoengineering@gmail.com'; Not relevant @hotmail.com'; Not relevant @optusnet.com.au';
Not relevant @dbautotech.com.au'; Not relevant @apseng.com.au'; Not relevant @bigpond.com'; Not relevant @customvehicleservices.com.au';
Not relevant @bigpond.com'; Not relevant @truckengineering.com.au'; Not relevant @tonkin.com.au';
Not relevant @outlook.com.au'; 'miked@lovels.com.au'; Not relevant @motivengineering.com.au';
Not relevant @coastwideengsol.com.au'; Not relevant @westnet.com.au'

Kind regards

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From: Peter N Twining
Sent: Tuesday, 19 June 2018 6:42 AM
To: 'Vehicle Standards' <vehiclestandards@tmr.qld.gov.au>
Subject: New LS15 and amended LS11 Modification Codes for comment

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of

This email printed
to show Bcc
recipients of
19 June 18 email.
Scott.

the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of an in-service light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM re-rating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes 3rd September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

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Vehicle Standards

From: Peter N Twining
Sent: Tuesday, 19 June 2018 6:40 AM
To: Vehicle Standards
Subject: New and Revised Modification Code for your comment
Attachments: Form for Feedback on Draft Modification Code LS11.docx; Form for Feedback on Draft Modification Code LS15.docx; LS11 Code Jun 2018 Final Consultation Draft.docx; LS15 Code Jun 2018 Final Consultation Draft.docx

Dear Stakeholders

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Internal Consultation Use Only

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles:

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicles GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWS) where the number of vehicles is capped in the SSM approval.

- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass (MBTM) of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

2.0 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have. Any effect this modification may have on the product warranty provided by the original vehicle manufacturer is outside the scope of this code. The certifying officer must clarify this point to the modifier and the vehicle operator.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs that apply to them.

If different ADRs apply due to the modified vehicles, they must comply to those ADRs that are relevant to them.

Modified vehicles must also comply with the applicable in-service requirements of Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation).

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Braking Systems	ADR 31/...or ADR 35/...
Brake Performance (for non-ADR vehicles)	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.2 GVM re-rating based on Original Vehicle Manufacturer's Option

The change to the vehicle's GVM must replicate the original vehicle manufacturer's optional GVM for that particular make, model and variant. All components, including suspension, transmission, engine, brakes, tyre and rims must be fitted same as those specified for that particular vehicle's alternate rated variant.

2.3 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of new vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 or 300 vehicles per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of in-service vehicles modified per annum under the combination of the particular SSM approval and this code do not exceed the limit specified for that low volume SSM approval.
- GVM re-rating of in-service vehicles using LS11 code must not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- A statutory declaration must be obtained from the low volume SSM holder stating that the number limit has not been exceeded as of that date.
- The SSM approval number must be recorded on the modification certificate.
- The low volume SSM restrictions must be noted on the modification certificate (for example vehicle #12 of 300).
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.4 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.5 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original vehicle manufacturer's GVM rating. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the original manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or any combination of these

The following specific requirements must be met.

3.1 Chassis

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

Chassis modifications must be performed in accordance with section LH5 of VSB14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification Code of Practice (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

3.2 Engine/Transmission

The GVM re-rating assigned must not exceed the engine and transmission manufacturer's recommendations, if any, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on vehicle's tail shaft. For example:

- changes to vehicle's ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

3.5 Suspension

When loaded to re-rated GVM, additional loads are placed on suspension. Vehicle suspension ratings must be adequate for the re-rated GVM plus it must be able to accommodate the axle loads resulting from the common and practical load distribution. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the re-rated GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the re-rated GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the potential maximum mass on that axle.

If re-rated GVM and axle masses require different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

If different tyres & rims are specified, their size must be no more than necessary to support the increased axle masses. The effect of alternate tyres on speedometer/odometer accuracy must be considered. It must be ensured that, with the alternate tyres, vehicle's compliance to ESC requirements is not affected.

4.0 Owner's Handbook and Load Capacity Label

The vehicle operator must be adequately informed of the changes.

4.1 Owner's Handbook

To inform the vehicle operator about the vehicle's towing capacity and tyre & rim requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres, rims and the towing capacity. Of particular importance is any sliding reduction in towing capacity of the vehicle as it is loaded to its re-rated GVM and/or vertical load on tow ball (ball weight).

If the vehicles handbook is not available, this information must be provided in written form to the owner of the vehicle.

4.2 Load Capacity Label

Certain information must also be displayed on the Load Capacity Label as discussed below.

The Load Capacity Label must follow the below format. It must be made of durable material and letter size and contrast should be similar to the tyre placard. Label must be fitted to the vehicle, as close as practicable, to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Re-rated GVM	kg
Maximum Braked Towing Mass at re-rated GVM*	kg
Maximum Front Axle Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum braked towing mass depends on the re-rated GVM and trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Re-rated GVM may have direct effect on the performance of Electronic Stability Control (ESC) system. Hence ESC system must be revalidated so it performs satisfactorily at the re-rated GVM. However such revalidation is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated using other agreed methods.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as GCM rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. The scope of code does not include changes to vehicle's towing capacity. If towing capacity is not specified by the original vehicle manufacturer, the limits mentioned in the Safe Towing Guide published by TMR apply.

If the original vehicle manufacturer has specified towing capacity in some form, the gross combination mass formed by adding that towing capacity and the original GVM rating must not be exceeded. Hence, when the GVM is re-rated, the actual towed mass must be proportionately reduced according to the loaded mass of the towing vehicle.

6.0 Additional Modifications and Changes to Vehicle Category

If additional modifications are made or the vehicle's category has changed due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited AP holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that same make/model/variant/chassis series and generate the necessary evidence to show that the requirements of the LS11 design certification are met.

When LS11 code is used to provide design certification, the AP providing the design certification, may not inspect the modified vehicle(s) and is not required to fit LS11 modification plate on the vehicle(s). Also the checklist completed as part of the LS11 design certification will not refer to any particular VIN.

The outputs of a design certification under LS11 code are (a) a comprehensive design package (b) a modification certificate and (c) a completed checklist. All of these outputs must be preserved as records of the LS11 design certification and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design package must clearly identify which make/model/variant/chassis series it applies to. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating of GVM is being done on in-service vehicles, the condition of the vehicle is important to decide which vehicle can be safely modified and re-rated. The design package must include instructions about what is to be inspected and the acceptance criteria. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations, leaks and structural damage due to overloading, accidents or rust is also critical.

The design package must include a checklist template for use by the AP certifying the physical modification. The checklist will be completed by the AP who certifies the physical modification to confirm that the vehicle was inspected and was found in sound condition before commencing the modification.

7.1.2 Evidence package

The design package must include all the test reports and engineering calculations that validate the re-rating, when modified as prescribed. Test reports must be from reputed test laboratories, have unique identification number and be signed and dated. All test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply. Also the test reports must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier document that is dated and signed.

If any evidence is sourced from a third party, the evidence package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, sometimes the LS11 certifier may choose not to include all the test reports in the design package. In such cases the design package must still include a full list of all the test reports and the calculation sheets (using their unique identifiers) and provide written assurance to the client that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package must include comprehensive work instructions on how to modify the vehicle, what parts to be used, the sequence of actions to be performed, precautions to be taken and what process controls to be applied.

The work instructions must include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The work instructions must be easy to understand, unambiguous and should include sufficient pictorials including photos and graphics.

The work instructions must include the contact details of the LS11 certifying AP if enquiries arise needing further clarification during the physical modification and/or its certification.

7.1.4 Checklist for the modifier and the certifier

The design package must include template checklist(s) to be completed by the vehicle modifier and the certifier of the physical modification. These may be separate or one combined checklist. These checklists, when completed, are evidence that the modifier and the certifier of the physical modification have understood and followed the work instructions and the intent of the design package has been met. The LS11 AP may ask for copies of completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice. The completed checklist must also be retained by the AP who certifies the physical modification.

Note that this checklist is different than any checklist that the certifier of the physical modification is required to complete as part his/her certification of the modification under the relevant code.

7.2 Certificate of Modification

The LS11 AP must issue a certificate of modification to his client for the design certification provided. This is similar to any other certificate of modification, except that the certificate may not make reference to any specific modification plate number or VIN. Instead, it must refer to the basis of the design certification (for example, SSM approval number) and the unique identification number of the design package provided.

7.3 Modification Checklist

LS11 AP must complete the modification checklist provided at the end of this code and must retain it as part of his/her records.

Checklist LS11

Gross Vehicle Mass Increase

CODE LS11

Form No: LS11

(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	----	Y	N
6.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Label			
8.1	Is the Load Capacity Label attached to the vehicle?	---	Y	N
8.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	----	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM approval holder provided written approval to use that SSM design and a copy of the same attached to this checklist?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	---	Y	N
12.2	Does the design package have a unique identification number?	---	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	---	Y	N
12.4	Does the design package include guidance on what to inspect to decide if the vehicle is fit to receive the re-rated GVM?	---	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	---	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	---	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	---	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	---	Y	N
12.9	Does the design package address all the requirements of this code?	---	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS														
Make						Model						Year of Manufacture		
VIN														
Chassis Number (If applicable)														
Brief Description of Modification/s														
Vehicle Modified By														
Certificate Number (If applicable)														
Vehicle Certified By (Print)														
Signatory's Employer (If applicable)														
Signatory's Signature											Date			

2.0

Internal Consultation Use Only

Modifications Leading to Re-rating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification

CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons (AP) to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications are carried out in accordance with instructions in the relevant LS11 design certification. In addition to the requirements in this code, the AP providing LS15 certification must follow the instructions in the design package that came with the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Re-rating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Re-rating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Re-rating of a vehicle which is outside the scope of the relevant LS11 design certification.
- Re-rating of a vehicle, the GVM of which, before modification, is greater than 4,500 kg.
- Re-rating of a vehicle, the GVM of which, after modification, will be greater than 4,500 kg.
- Re-rating of GVM by comparing with an alternative make/model of vehicle.
- Re-rating of GVM by comparing with another vehicle which has been previously re-rated using a modification code.
- Re-rating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Re-rating of GVM prior to first registration anywhere in Australia. In such cases seek a Second Stage of Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications under LS15 may include replacement of axle(s), suspension or braking system with alternative components or reinforced chassis frame which collectively may permit a different rating.

2.2 Re-rating without Modifications

In some cases, re-rating of GVM may involve no physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required for re-rating. Care must be taken when comparing vehicles/ their components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) which are relevant to it. This includes ADRs which applied to it when it was originally constructed and the ADRs that apply to it after it is modified. If there is a conflict, the ADR requirement after modification takes priority.

2.4 Work Instructions from the LS11 Design Package

Modifications must be carried out according to the work instructions that are in the design package that came with the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection specified in the design package must be completed and the evidence of the same must be held by the LS15 certifier. This includes completing the checklist(s) that came with the LS11 design package.

3.0 Specific Requirements

When certifying the re-rated GVM under LS15, the chassis frame, suspension, axles and drive train components must be used within the original vehicle manufacturer's rated capacities. All instructions provided in the LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

If re-rated GVM requires different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

3.2 Chassis Frame

The chassis frame of the modified vehicle must be according to the LS11 design package or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design package or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the details and the in-service condition of the vehicle must be checked, as specified in the LS11 design package, to ensure that the vehicle is eligible for re-rating and its condition is safe and suitable.

Step-1: Confirm that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: Inspect and confirm that the condition of the vehicle is suitable for re-rating. The instructions in the LS11 design package must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition for re-rating. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

If re-rating is based on the original vehicle manufacturer's letter, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being re-rated.
- Details of all physical changes required for re-rating (including the details of the specific upgrade parts to be fitted).
- Re-rated GVM.
- Signature and date by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
1.1	<p>Have you received a copy of and understood: The LS11 design package with all the instructions to modify, test and re-rate vehicle of this make/model/variant/chassis series? LS11 Design Certification No. Date</p> <p>OR A letter from the original vehicle manufacturer for re-rating? Manufacturer's Letter Reference _____ date _____</p> <p>Note: If you do not have one of the above, you are unable to certify this vehicle.</p>	Y	N
1.2	Are you accredited to certify the additional modification codes required by the LS11 design certification or the vehicle manufacturer's letter?	Y	N
2	Chassis Frame		
2.1	Does the chassis frame conform to the detail construction, section properties and cross-members of the LS11 design package or the original vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation? Does it meet the inspection criteria mentioned in the LS11 design package?	Y	N
3	Brake system		
3.1	Is the vehicle's braking system as specified in the LS11 design package or the original vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching? Does it meet the inspection criteria mentioned in the LS11 design package?	Y	N
4	Tyres and Rims		
4.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	Y	N
4.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	Y	N
4.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	Y	N
4.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Load Capacity Label		

6.1	Is the Load Capacity Label attached to the vehicle?	Y	N
6.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are/Is the checklist(s) required in the LS11 design package completed?	Y	N
7.3	Are all the inspections and tests as required in the LS11 design package completed?	Y	N
7.4	Have you kept all supporting documents you used to certify this modification and photos of the modified vehicle for future audit?	Y	N

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CERTIFICATION DETAILS																			
Make												Model						Year of Manufacture	
VIN																			
Chassis Number (If applicable)																			
Brief Description of Modification/s																			
Vehicle Modified By																			
TMR In-Principle Approval Number																			
Vehicle Certified By (Print)																			
Signatory's Employer (If applicable)																			
Signatory's Signature																	Date		

Internal Consultation Use Only

Peter N Twining

From: Peter N Twining
Sent: Monday, 25 June 2018 3:09 PM
To: Anant Z Bellary; Adam Shaw
Cc: Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)
Subject: FW: Draft VSB 11 & VSB 15
Attachments: Feedback on Draft Modification Code LS15.docx; Feedback on Draft Modification Code LS11.docx; GVM upgrade.pdf

FYI

Kind regards

Peter Twining

Senior Policy Advisor (Standards and Accreditation)

Transport Regulation Branch | Department of Transport and Main Roads

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W: www.tmr.qld.gov.au



From: [Not relevant] [mailto:[Not rele]@test-trak.com]

Sent: Monday, 25 June 2018 2:38 PM

To: Peter N Twining

Subject: Draft VSB 11 & VSB 15

Hi Peter

I was forwarded the draft VSB 11 / VSB 15 and I've taken the liberty of making some comments

Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial affairs

Regards

Not relevant

Test-Trak

Mobile: Not relevant

Office +61 3 9769 9766

Email: Not relevant@test-trak.com



www.test-trak.com

Internal Consultation Use Only

Scott G Notley

From: Nigel G Ellis
Sent: Monday, 23 April 2018 8:09 AM
To: Scott G Notley
Cc: Anant Z Bellary; Adam Shaw
Subject: FW: Type Approvals

Scott, as mentioned Friday afternoon, the proposed solution seems practical to me, and provides a balanced and reasoned solution to the business needs of the industry. Thanks, Nigel.

Kind regards,

Nigel Ellis

A/Executive Director (Transport Access & Use) | Transport Regulation Branch
Customer Services, Safety and Regulation Division | Department of Transport and Main Roads

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PO Box 673 | Fortitude Valley Qld 4006

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M: Not relevant

E: nigel.g.ellis@tmr.qld.gov.au

W: www.tmr.qld.gov.au

From: Scott G Notley
Sent: Monday, 16 April 2018 10:04 AM
To: Nigel G Ellis <nigel.g.ellis@tmr.qld.gov.au>
Cc: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>
Subject: Type Approvals

Nige,

When you get a chance, I would like to discuss the plan of attack for Type Approvals as well. See details below.

Background

S&A has, for over ten years, been issuing Type Approvals to some businesses for modifications, including GVM upgrades on in-service light vehicles. This was (and continues to be) done at a time when there was no standard code in the Queensland Code of Practice (QCOP) for doing so. These Type Approvals are conditional on the business holding a current Second Stage of Manufacture (SSM) approval issued by DIRDC for the same make/model new vehicles.

Type Approvals do not meet the regulatory requirements for vehicle inspection and certification, S&A have taken steps to transition these approvals to certification under the QCOP.

Initially, in March 2017, TMR issued the LS11 (GVM upgrade) code as part of the Queensland Code of Practice (QCOP). As a result, businesses can now rerate GVM of eligible in-service vehicles and certify the same using the LS11 code. Effectively the code LS11 has made it not necessary to issue type approvals to this type of modifications in future. Because of the technical nature of the LS11 code, engineering qualifications are required.

However action is also required to smoothly transition the existing Type Approvals into QCOP. To that end, earlier this year, TMR introduced a new code LX1 code and wrote to all Type Approval holders to confirm that signatories needed to obtain this code (and the supporting trade-based code LS10) to continue providing GVM upgrades in

accordance with their Type Approval. This process of transitioning to QCoP has been in place since 1 April 2018. So far no Type Approval holder has raised any difficulty in adopting the LX1 code.

It is expected that GVM upgrades to in-service vehicles based on new SSM approvals (for which no Type Approval was ever issued by TMR) would be certified using the dedicated LS11 code. This is considered as the best approach to eventually phase out the Type Approvals as they do not meet the regulatory requirements.

Representation by ARB

ARB is a business that holds several SSM approvals and a Type Approval TA.030 based on those SSM approvals for GVM upgrade on various make/model light vehicles. Just before the introduction of LX1 code in April 2018, ARB had applied to TMR requesting update to its Type Approval TA.030 in line with the updates to its underlying SSM approvals. The request also contained one new SSM approval which was never part of ARB's current Type Approval TA.030.

With the imminent introduction of LX1 code to transition all Type Approvals, the ARB's request to update its Type Approval TA.030 has been kept pending. [Not relevant] and [Not relevant] from ARB recently met with S&A team to convey that if the Type Approval TA.030 is not updated, as requested, ARB is likely to face difficulties including:

- [Redacted]
- [Redacted]
- Both [Not relevant] and [Not relevant] believe that the involvement of an LS11 AP does not add value to the process as, in their observation, the LS11 AP conducts only a cursory inspection before fitting the mod plate.

The Analysis

S&A team agreed to analyse ARB's above concerns and develop solution(s) to address them, if possible. The rest of this message outlines the outcome of that analysis and the potential solution.

S&A is conscious that any potential solution needs to satisfy the following essential criteria:

- The solution must be based on the QCoP codes and must lead to eventual phasing out of the current Type Approval TA.030
- The solution must be equitable to other Type Approval holders in similar situation and must not result in selective commercial advantage to ARB.
- The solution must not result in certifications that are not based on physical inspection of the modified vehicle. In other words, certification must not be done remotely.

Though the LX1 code was developed to address the remoteness of some of the Type Approval holders' shop fronts, TMR understands that some Type Approval holders have transitioned to using the LS11 Engineering code in all areas, rather than the LX1 code, particularly in remote areas. A secret shopper approach revealed (as was suspected) that the LS11 plate may be getting mailed out to remote shop fronts where the local business owner doing the work is attaching the plate. This is contrary to the AP business rules and the intentions underlying the code LS11. This revelation also needs to be considered when developing solution to address ARB's concerns.

The Solution

After due deliberations, the following solution is proposed for ARB (and any other Type Approval holder in similar situation):

- TMR to update the current Type Approval TA.030 held by ARB to reflect the updates in the underlying SSM approvals, as requested by ARB
- TMR to advise ARB that GVM upgrades to in-service vehicles based on any new SSM approval (for which no Type Approval was ever issued) may be performed using the LS11 code. This applies to one new SSM approval in ARB's current pending list .
- LS11 (GVM upgrade) and LS12 (trailer modifications including ATM upgrade) are currently combined design and modification codes, meaning (a) they require engineering qualifications and (b) the same code can be used to provide model design certification and also to certify an individual vehicle modified according to that model design certification. Note that recently code LS14 has been introduced for light trailers to compliment LS12. The new LS14 code, among other things, provides for certification of a trailer modified according to model design provided in LS12. Thus LS12 (model design certification) and LS14 (certification of modification on individual vehicle) work in a complimentary way. Consider adopting similar approach with LS11 code by developing a complimentary LS15 code. Unlike LS11, trade based qualification will be adequate for the new LS15 code. This solves the difficulty of remoteness when obtaining proper certification.
- Make suitable changes to LS11 code to reflect the provision of new LS15 code
- Meet with ARB to inform and explain the proposed solution.

Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/

Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial

Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial affairs

- Note that the LS11 model design certification is one off requirement for each make/model, can be performed where a suitably qualified person is available and is not a recurring cost for the business.
- Note also the LS15 modification certification will be done on each vehicle after physical inspection, which can be performed by a suitably trade-qualified person likely to be available in remote areas.
- Institute audit framework to ensure that the twin codes LS11+LS15 and LS12+LS14 function properly as intended.
- Consult further with all Type Approval and LS11 holders prior to implementing the new code.
- TMR to advise all Type Approval Holders and APs holding LS11 code that if GVM upgrade is provided using LS11 code, vehicles must be physically inspected by the person providing the LS11 certification.

This approach would also mean that others businesses providing GVM upgrades in remote locations would no longer need to distort or circumvent requirements by certifying vehicles remotely.

Regards

Scott Notley

A/Director (Standards and Accreditation)

Transport Regulation Branch

Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

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e Scott.G.Notley@tmr.qld.gov.au

w www.tmr.qld.gov.au

Scott G Notley

From: Scott G Notley
Sent: Friday, 27 April 2018 3:04 PM
To: Not relevant
Cc: Peter N Twining
Subject: LS11/LX1 Type Approval requirements.

Hi Not relevant

Just a quick note to confirm our discussion on Tuesday and follow up on your request to add vehicles/variants to your existing Type Approvals.

TMR received a request for 10 vehicles/variants based on additional SSM approvals.

- Where the vehicle/variant is simply an amendment of your existing SSM approvals, approval will be given. Peter Twining from my team will provide formal advice on Monday of the 8 vehicle/variants to be added to your existing Type Approval.
- Two requests (for the Hilux under SSM 48108) will not be approved on the basis that this is a new SSM. GVM upgrades related to this SSM can be done under the LS11 code.
- TMR will draft amendments to the LS11 code and a new LS15 code.
- Industry will be consulted on the drafting of the change to LS11 and the new LS15 code.
- Once LS15 code is implemented, ARB will be able to provide GVM upgrades for in service vehicles on the basis of any new SSM using a combination of LS11 and LS15.
- Your ARB representatives in remote and regional sites can apply for trade based LS15 code to certify GVM upgrades. An LS11 AP would only need to provide one off design certification for each make/model/variant/chassis series.

Any questions, please give me a ring.

Peter will confirm the changes to your Type Approval on Monday.

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

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Scott G Notley

From: Patricia L Bailey
Sent: Monday, 28 May 2018 3:57 PM
To: Scott G Notley; Anant Z Bellary; Adam Shaw; Peter N Twining; Neil L Todd
Cc: Peter R Phillips; Shane F Lonsdale
Subject: Formatted LS11 and LS15 for your review
Attachments: LS 11 Version May 2018 V2.1 (002) V3 AS changes.docx; LS 15 Version May 2018 V1 AS comments.docx

Please find attached documents for your review and any comments, please send to Shane or Peter T.

Cheers

Trish

Kind regards,

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Internal Consultation Use Only

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for rerating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4 500 kg.

Rerating of GVM under code LS11 is permissible only on following type of light vehicles:

- (a) a light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction are not eligible.
- (b) A light vehicle that has not previously been rerated from the original manufacturer's GVM rating.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same the make/model/variant/chassis series as a vehicle having a Second Stage of Manufacture (SSM) approval for GVM rerating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM rerating.
 - Increase in GVM where an additional axle has been installed
 - Alteration of a vehicles GVM rating to match the manufacturer's alternative rating for a particular variant of that make/model

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model (except in case of heavy motorhomes).
- Rerating of GVM on a vehicle which has previously received a GVM rerating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).

- GVM rerating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM rerating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.
- GVM rerating where practical loading is likely to exceed the load on any axle beyond the rating by the original vehicle manufacturer
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

GVM rerating under LS11 code must not result in any increase in the towing capacity of the vehicle beyond that specified by the original vehicle manufacturer. This requirement must be met irrespective of how the towing capacity is specified or calculated and includes the terms gross combination mass rating, the rated towing capacity and the maximum braked towing mass rating.

2.0 General Requirements

The vehicle must be able to safely operate at the rerated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they are suitable to operate under the loads resulting from the rerated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the rerated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and Approved Person to consider any effect on warranty that the modification may have.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle.
- as allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation)*.
- Modified vehicles must also comply with the applicable in-service requirements of the Regulation.

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicles category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicles GVM.

2.2 GVM alteration based on Manufacturer's Option

The change to the vehicles GVM must replicate the manufacture's optional GVM for that particular make, model and variant of vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicles rated variant.

2.3 GVM Upgrade based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc. must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM must also be met. These requirements can include but are not limited to the following:

- The vehicles first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the SSM approval holder must ensure that the same restriction is applied to the number of vehicles modified under this code.
- GVM re-rating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When upgrading GVM in accordance with an SSM approval the certifying AP must ensure the SSM approval holder has provided written permission for use of the SSM design as the basis.
- If upgrading a GVM in accordance with a Low Volume SSM a statutory declaration must be obtained from the SSM holder stating no more approvals than the limit stipulated on the SSM have been provided. For example, if the Low Volume SSM

restricts the number of vehicles to 25 per annum then the SSM approval holder cannot provide permission for more than 25 in-service vehicles to be modified in that year (in addition to the 25 new vehicles certified in accordance with their SSM approval).

- Any low volume SSM restrictions must be noted on the modification certificate (for example vehicle #2 of 25)
- The SSM Approval number must be documented on the modification certificate.
- Both the written permission and statutory declaration from the SSM holder must be retained by the Approved Person as evidence for certifying the rerating of GVM under this code.

2.4 GVM Upgrade by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicles GVM may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with adjacent axle in the group then the 10% limit on increase in GVM increase may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code.

2.5 GVM rerating outside of Manufacturer's Option

A rerating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer provided the change is no more than 10% above the original manufacturer's GVM. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When rerating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved with rerating a vehicles GVM include:

- single axle to tandem axle configuration
- combination of replacement engine, transmission, axles or suspension components, reinforced chassis and upgraded brake components

The following specific requirements must be met.

3.1 Chassis

Chassis modifications must be performed in accordance with section LH5 of Vehicle Standards Bulletin 14. If the necessary information is not available in LH5 then the relevant sections of H code of the Heavy Vehicle Modification (VSB6) may be referenced or consulted, as far as possible and appropriate.

When modifications such as fitting of additional or replacement axles with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to accommodate the rerated GVM. For calculating chassis strength, VSB6 may be consulted.

A simplified way to look at the frame requirements for GVM rerating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturers for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. The original vehicle manufacturer's axle ratings must not be exceeded in normal and practical loading resulting after the GVM is rerated, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with rerated GVM may place additional load on a vehicles tailshaft. For example:

- changes to vehicle ride height which may alter the tailshaft and pinion angles;
- alterations to a vehicles wheelbase may result in change in tailshaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tailshaft.

The vehicles tailshaft strength and its installation must be suitable at the vehicles rerated GVM.

3.5 Suspension

With an increase in GVM, additional loads are placed on suspension. Vehicle suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from normal and practical loading patterns. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling & roll stability.

3.6 Brakes

A vehicles braking performance is directly affected by changes to the vehicles GVM. Therefore, the vehicles braking system must be assessed to determine if the performance of the original system is adequate for the proposed GVM or if it requires to be upgraded.

3.7 Steering

The entire steering system must be identical to that fitted by the manufacturer to the original or reference vehicle as appropriate. If the steering system is modified or a new steering system is fitted it must be approved under the LS section of VSB14.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the revised GVM rating and the load is distributed in a practical and uniform way.

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the revised GVM rating.

If required, an amending tyre placard must be fitted to indicate the correct tyre specifications for the vehicle at the revised GVM rating. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes such as the vehicles towing capacity and tyre requirements, the vehicles handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any reduction in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicles handbook is not available this information must be provided in written form to the owner of the vehicle. In addition this information may be included on the load capacity label discussed below.

A label containing important information about the vehicles load capacity must also be fitted. The label must follow the below label as an example and must be fitted to the vehicle, as close as practicable to the vehicles tyre placard.

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Rated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Front Axle/s Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2. In addition, the following limitations mentioned in sections 5.1 and 5.2 apply.

5.1 Electronic Stability Control

Changes to a vehicles GVM can have a direct effect on electronic stability control (ESC) performance. Therefore, for vehicles fitted with ESC the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicles GVM is being rerated to a manufacture's alternative variant or by SSM approval such that the system's compliance has been demonstrated.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. For many light vehicles rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases the limit mentioned in the Safe Towing Guide applies. When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, please note that the maximum mass that can be legally towed when the vehicle is loaded at the rerated GVM must be proportionately reduced to ensure that the sum of GVM and maximum towing mass at GVM before and after rerating remains unchanged.

6.0 Additional Modifications and Changes to Vehicle Category

Where additional modifications have been performed or a change in vehicle category has occurred due to the increase in GVM, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Rerating

LS11 code may now be used to provide design certification for GVM rerating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the rerating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited Approved Person holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the Approved Person providing the design certification may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the design certification may not refer to any particular VIN.

The outputs of a Design Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All these outputs must be preserved as records and must be made available, on request, for audit and enforcement purpose.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the re-rating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to decide that the vehicle is safe to modify and receive re-rating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

The design certification package must include a template of checklist that needs be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

Integral to the design package output is the collection of various test reports and engineering calculations that validate the re-rating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and dated. Test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifier to not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

The work instruction must also include contact detail for querying or seeking clarification, should that be required during modification.

All details must be recorded in the modification certificate including details of any SSM approvals or conditions.

The load capacity label must be affixed to indicate revised GVM and other relevant loading conditions.

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists one of each for the vehicle modifier and the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

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Checklist LS11
Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension		
1.1	Is the vehicles suspension suitable for the increased GVM?	---	Y N
2	Chassis		
2.1	Is the chassis suitable for the increased GVM?	---	Y N
3	Axles		
3.1	Are the axle ratings suitable for the increased GVM?	---	Y N
4	Engine/Transmission		
4.1	Is the engine/transmission suitable for the increased GVM?	---	Y N
5	Braking System		
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y N
5.2	Is the vehicles brake system suitable for the increased GVM?	---	Y N
6	Tyres and Rims		
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	---	Y N
6.2	Has an updated tyre placard been fitted to the vehicle?	---	Y N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?	---	Y N
6.4	Are load ratings of the tyres and rims adequate for the vehicles new GVM?	---	Y N
7	Electronic Stability Control		
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y N
8	Load Capacity Information		
8.1	Is the Load Capacity Label attached to the vehicle?	---	Y N
8.2	Has the vehicles handbook been amended or additional information been included on the Load Capacity Label?	---	Y N
9	Manufacturer's Optional GVM		

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM rerating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM Approval holder provided written approval to use that SSM design?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the rerated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM rerating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for rerating?	----	Y	N
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM rerating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS												
Make												
Model												
Year of Manufacture												
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
Certificate Number (If applicable)												
Vehicle Certified By (<i>Print</i>)												
Signatory's Employer (If applicable)												
Signatory's Signature									Date			

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Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification Code LS15

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the defined modification process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement of the chassis frame.

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing vehicles/components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires.

3.0 Specific Requirements

When rating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Specific instructions provided in LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternative model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

The load capacity label must be fitted as close to the tyre placard as possible.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1 To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2 To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being modified.
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted).
- Revised GVM rating.
- Signed and dated by the delegate of the original vehicle manufacturer.

Checklist LS15

Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
1.1	Do you have: a copy of the LS11 design certification package with all instructions to certify this modification. Design Cert No. OR a copy of a letter from the original vehicle manufacturer Note: If you do not have one of the above you are unable to modify/certify this vehicle.		
1.2	Are you accredited to certify the additional modification codes required by the LS11 design certification package or the vehicle manufacturer's letter?	Y	N
1.3	Have all details of the design package of LS11 design certification or a letter from the original vehicle manufacturer been retained for future audit?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims		
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N
7	Workmanship		

CERTIFICATION DETAILS												
Make											Model	
												Year of Manufacture
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
TMR In-Principle Approval Number												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature											Date	

Internal Consultation Use Only

Scott G Notley

From: Scott G Notley
Sent: Thursday, 31 May 2018 4:01 PM
To: Peter N Twining
Subject: FW: Covering Message for new LS15 and revised LS11...

Pete,

Can you send me a copy of the draft email cover note and codes so I can make a check before it is distributed more broadly please.

I might even get Tracey to check as well.

I will let the accreditation team know what is happening because Christina Not relevant

We should be sending it ourselves when the tie comes because it is VS seeking feedback on our draft. I know that is your opinion as well.

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3338 4082 | f 3253 4453 | m Not relevant
e Scott.G.Notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Anant Z Bellary
Sent: Thursday, 31 May 2018 3:33 PM
To: Peter N Twining <peter.n.twining@tmr.qld.gov.au>; Shane F Lonsdale <Shane.F.Lonsdale@tmr.qld.gov.au>; Patricia L Bailey <Patricia.L.Bailey@tmr.qld.gov.au>
Cc: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>; Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Christina T Myers <christina.t.myers@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>
Subject: Covering Message for new LS15 and revised LS11...

Draft covering note for our key institutional stakeholders...

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less)

when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to vehiclestandards@tmr.qld.gov.au. The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Regards
Peter Twining

Draft covering note for Accreditation Unit for broadcast to LS11 APs...

Dear Deann.

Please circulate the following message to all the Approved Persons currently holding LS11 modification code. A similar message is being sent to our key institutional stakeholders including the businesses holding type approvals.

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to vehiclestandards@tmr.qld.gov.au. The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Regards
Peter Twining

Regards

Anant Bellary
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Scott G Notley

From: Scott G Notley
Sent: Tuesday, 19 June 2018 8:14 AM
To: Nigel G Ellis
Subject: FW: New LS15 and amended LS11 Modification Codes for comment
Attachments: Form for Feedback on Draft Modification Code LS11.docx; Form for Feedback on Draft Modification Code LS15.docx; LS11 Code Jun 2018 Final Consultation Draft.docx; LS15 Code Jun 2018 Final Consultation Draft.docx; 0-4-6 Certificate.pdf

Fyi Nige.

We have released our draft LS15 and draft amended LS11 to industry today.

Note that the process allows for an engineer to design a modification under the LS11 and then an AP with LS15 to install the modification. This will mean ARB for instance can manage their modifications without have to have an engineer present to certify.

Note also that we have removed the option to upgrade the GCM and towing capacity based on SSM approval in our drafts. Industry have 4 weeks to provide feedback. Rather than engage in discussions about the issue, I have indicated to Pete that he should simply ask for any feedback in writing.

DIRDC recently released a 0-4-6 Certificate which, amongst other things, states GCM and towing capacity cannot be increased beyond the original manufacturers ratings. The Certificate is attached in case you want to have a look. It is not clear what consultation was undertaken before the release of the document.

This has caused a bit of angst. DIRD are fielding calls and we are also receiving some flack.

Anant is currently liaising with DIRD to get clarification and we intend to share any advice provided with our QLD SSM holders (who are predominantly our Type approval holders. Lovells appear to be the main company affected. If you recall, we wrote to Lovell's solicitors very early in the year to confirm our stance which was that GCM could not be upgraded under LS11. Whilst we got no response at the time, Lovells have continued to provide towing capacity increases for both new and in-service vehicles and the information coming from DIRDC is a little ambiguous as to their SSM approval and what they are approved to do.

I will keep you posted but it will not surprise to see the issue escalate.

Part Refuse Sch.4 Part 3 s.13 - Prejudice flow of information

Part Refuse Sch.4 Part 3 s.13 - Prejudice flow of information

Part Refuse Sch.4 Part 3 s.13 - Prejudice flow of information

Regards

Scott Notley
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From: Peter N Twining
Sent: Tuesday, 19 June 2018 7:56 AM
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Subject: FW: New LS15 and amended LS11 Modification Codes for comment

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
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From: Peter N Twining
Sent: Tuesday, 19 June 2018 6:42 AM
To: 'Vehicle Standards' <vehiclestandards@tmr.qld.gov.au>
Subject: New LS15 and amended LS11 Modification Codes for comment

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of an in-service light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM re-rating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes 3rd September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade

based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Kind regards

Peter Twining

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CIRCULAR 0-4-6

CERTIFICATION OF VEHICLES WHICH HAVE UNDERGONE A SECOND-STAGE-OF-MANUFACTURE

1. INTRODUCTION

1.1 This Circular sets out the requirements for *Manufacturers* making application for Identification Plate Approval (IPA) for additions to, or modifications undertaken on a *New Vehicle* that already has affixed a completed vehicle Identification Plate. Such arrangements are identified as "Second-Stage-of-Manufacture" (SSM) IPA.

1.2 A further SSM arrangement can also apply to completed SSM vehicles. (For example, a completed *cab-chassis* may be modified to be dual-steer under SSM approval, and then that completed dual-steer *cab-chassis* vehicle may then have its GVM upgraded under a further SSM approval).

2. APPLICABILITY

2.1 SSM arrangements only apply to *New Vehicles* as defined in the *Motor Vehicle Standards Act 1989*, and do not apply to vehicles that have already been used in transport.

2.2 SSM arrangements apply to vehicle make/model types seeking IPA under the Full Volume arrangements, and also the concessionary evidence Low Volume arrangements.

2.3 Vehicles under the SSM IPA Low Volume arrangements are not subject to an eligibility ruling under the "Specialist and Enthusiast Vehicle Scheme (SEVS) Eligibility" as per Circular 0-2-12.

2.4 Arrangements for SSM do not apply to vehicles that are built on, or based on vehicle sub-assemblies/chassis that have been approved under Sub-Assembly Registration Number (SARN) arrangements as set out in Circular 0-4-23.

2.5 Arrangements for SSM do not apply to vehicles without an Identification Plate, such as a vehicle imported from overseas which has yet to be brought up to the National Standards. Such vehicles are subject to either the "Motor Vehicle Compliance Plate Approval" arrangements as per Circular 0-3-4, or the "Certification of Motor Vehicles Produced in Low Volume" requirements as per Circular 0-2-1.

2.6 Arrangements for SSM do not need to be used where the proposed modification can be done under the provisions of Vehicle Standards Bulletin (VSB) 6. However, where the proposed modifications are not within the scope of VSB6, SSM must be used.

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3. APPLICATION FOR IDENTIFICATION PLATE APPROVAL

3.1 Applications for SSM IPA will only be accepted from a legal entity (Company or Individual, and not a business or trading name) that must first register as a Licensee on the Road Vehicle Certification System (RVCS), and have both the Production Facility and Design Facility similarly registered on RVCS thus being subject to "Conformity of Production" arrangements as per Circular 0-13-1.

3.2 Make and Model designation shall generally be in accordance with Circular 0-3-3 "Motor Vehicle Make and Model Designation".

3.2.1 The "Make-Model" designation must be unique from all other Identification Plate Approvals.

3.2.2 The "Make" of the SSM should comprise a prefix, representing the second-stage manufacturer, followed by the "Make" of the completed first-stage vehicle. For example:-

- A SSM modified "ALPHA", might be designated "ABC ALPHA".

3.2.3 The "Model" of the SSM should include qualification as to the SSM vehicle type. For example:-

- An SSM modified "ALPHA Beta", might be designated "ABC ALPHA Beta Ambulance", or "ABC ALPHA Beta Motorhome" as appropriate.

3.3 The SSM IPA arrangements are available to new vehicles subject to addition and/or modification, except where the nature of the addition and/or modification does not impact on the ADR certification of the first-stage vehicle, or when the impact is considered to be minor, and readily examined by the State/Territory registration authorities. Examples of additions/modifications considered to be of State/Territory responsibility are:-

- Where the original rearward facing lamp units of a new *chassis-cab* are relocated with the adding of an otherwise non-ADR impacting goods carrying body.
- Where the original external rear vision mirrors of a new *chassis-cab* are relocated to accommodate added goods carrying bodies of variable width.
- Where additional Side-Marker lamps are added to a commercial vehicle *chassis-cab*.
- Non-ADR-relevant body added to a commercial vehicle *chassis-cab*.
- A *heavy goods vehicle* wheelbase extension.

NOTE: Vehicle Standards Bulletin VSB.6, Heavy Vehicle Modifications, applies to modifications to heavy vehicles with a GVM greater than 4.5 tonnes, or heavy trailers with an ATM greater than 4.5 tonnes.

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3.4 Typical examples of modified new vehicles that should access these SSM arrangements are: -

- Light and Medium Goods vehicles subject to a Gross Vehicle Mass upgrade and/or a reduction in Lightly Laden Test Mass.
- Passenger vehicle cut and stretched to become a Limousine or Hearse
- Vehicle subject to an engine/fuel type replacement or modification.
- Ambulance, Motorhome or Fire Tender body added to a *chassis-cab*.
- Vehicle modified to carry wheel-chair passengers or additional seats.
- Vehicles modified from one ADR vehicle category to another vehicle category.

3.5 There are specific requirements for campervans and motorhomes, including when certified under SSM arrangements. These requirements are set out in Circular 0-4-12 "Certification of Campervans and Motorhomes".

4. AUSTRALIAN DESIGN RULE EVIDENCE

4.1 Applications for SSM IPA must include an Application for Compliance Approval (Motor Vehicle) form, a Road Vehicle Descriptor, relevant Selection of Fleet submissions (SF forms) and resultant ADR evidence via RVCS, providing evidence of compliance with all ADRs applicable to the completed added to, or modified vehicle, and not solely evidence applicable to the second-stage work.

4.1.1 "Compliance Demonstrated Using SARN(s) (MV)" forms may be submitted to carry over evidence already provided within the first-stage completed vehicle Approval, if that evidence remains unaltered by the second-stage manufacture's additions and/or modifications. Certification responsibility for any carry-over ADR evidence remains with the holder of the first-stage IPA.

4.1.2 In submitting a "Compliance Demonstrated Using SARN(s)(MV)" form, the SSM makes a declaration that the ADR evidence to be carried over has been subject to appropriate examination attesting that it remains unaffected by the second-stage manufacture.

4.1.3 Where the second-stage manufacture has an indirect effect on the first-stage evidence, but the second-stage manufacturer can demonstrate that the tests conducted by the first-stage manufacturer would also cover the second-stage work satisfactorily, then for the purposes of seeking SSM IPA this ADR evidence can also be carried over.

4.2 Any additions and/or modifications to the original vehicle must be supported by evidence of ADR compliance, as appropriate, and in the form provided by: -

- Full Volume arrangements as per Circular 0-3-4 "Motor Vehicle Compliance Plate Approval", or
- As per Circular 0-2-1 "Certification of Motor Vehicles Produced in Low Volume".

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4.3 Application for SSM IPA can only be based on one first-stage IPA, with a separate SSM application required for each different first-stage vehicle Approval. Accordingly, any carry over evidence, as per 4.1.1 above, can only reference the one first-stage Approval.

4.4 A SSM IPA can include multiple vehicle variants and multiple engines and other options included in the SSM RVD, as supported by the evidence of ADR compliance provided.

4.5 Applications for SSM IPA are expected to demonstrate compliance with all ADRs applicable as of the date of issue of the SSM IPA. However if a completed first-stage vehicle IPA does not yet include a new ADR introduced under transitional implementation arrangements, then the SSM may submit an SE blank-form, and make application for an exemption from that ADR by referencing this Circular 0-4-6 clause 4.5. If exemptions are granted, then the SE blank-form will be noted as “**Not Applicable**”, and details of the exemption will be included in Schedule 5 of the Approval. Where such exemptions are provided the applicability date of the ADR will be noted, and the Approval issued will be restricted to the due date of that ADR. When the exempted evidence is subsequently provided, the Approval will be reissued without this date restriction.

4.6 Circular 79/00-1-1 “Second-Stage-of-Manufacture Emissions Evidence where there is an increase in GVM” details the arrangements that apply for emissions ADRs.

5. CHANGE IN VEHICLE CATEGORY

5.1 Where a SSM IPA application changes the ADR Vehicle Category from the original completed first-stage vehicle, then the SSM IPA must comply with all the ADRs applicable to the completed SSM Vehicle Category, as at the date of the issue of the SSM IPA, subject to 4.5 above.

6. ROAD VEHICLE DESCRIPTOR

6.1 Road Vehicle Descriptors (RVDs) are required for all SSM IPAs and should include all variants and options to be offered. The remarks section should include a brief description of the SSM additions/modifications, identifying the IPA and variant information of the completed first-stage vehicle.

7. VEHICLE IDENTIFICATION NUMBER

7.1 The Vehicle Identification Number (VIN) of the SSM vehicle shall be the same as the VIN of the first-stage vehicle.

8. DATE OF MANUFACTURE

8.1 The *Date of Manufacture* of the SSM vehicle shall be the date that it is completed and is in Australia in a condition that will enable it to be made available to the market.

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9. IDENTIFICATION PLATES

9.1 Following issue of an SSM IPA, the second-stage manufacturer will be able to affix a Second-Stage-of-Manufacture Identification Plate in addition to, and adjacent to the existing first-stage Identification Plate, as demonstration that the vehicle complies with the conditions of the SSM IPA.

9.2 SSM Identification Plates must be as per Circular O-3-2. All SSM Identification Plates will be made available from a Contractor authorised to manufacture and supply Identification Plates, unless the second-stage manufacturer is authorised by the Administrator to supply their own Identification Plates. The SSM Identification Plate will include both VIN and *Date of Manufacture* as per 7.1 and 8.1 above respectively.

9.3 There is a prescribed fee payable to the Commonwealth for each SSM Identification Plate that is affixed to a vehicle. This fee is included within the supply of Identification Plates from the Contractor 9.2 above. Where the Administrator has authorised the SSM to supply their own Identification Plates the prescribed fee is to be paid directly to the Commonwealth. As at 1 November 2003 the prescribed fee is \$7.50 for each Identification Plate to be affixed to a SSM vehicle.

10. ARRANGEMENTS FOR SSM LIGHT VEHICLES THAT HAVE BEEN SUBJECT TO A GROSS VEHICLE MASS (GVM) UPGRADE

10.1 Where a light vehicle is fitted with or is required to be fitted with Electronic Stability Control (ESC) system and a full volume SSM IPA is being sought, a GVM upgrade SSM IPA holder will be permitted to use ESC test reports owned by other GVM upgrade SSM IPA holders for the same make and model, provided the test covers the variants to be supplied. Coverage of variants is to be demonstrated using a 'worst case' assessment and selection of fleet forms. Use of any test report must also be permitted by the test report owner.

10.2 Low volume GVM upgrades on vehicles with suspension lifts less than or equal to 50mm will not require testing of the ESC system. For suspension lifts exceeding 50mm, full ESC testing will be required.

10.3 For SSM IPAs issued under the low volume scheme, numbers per Licensee for GVM upgrade are capped at 300 vehicles per annum per vehicle category and 100 vehicles per annum per SSM IPA.

10.4 O-4-5 certificate submissions will not be required on low volume GVM upgrades where GVM upgrade is the only modification being undertaken under an SSM IPA.

10.5 Existing full volume SSM IPA holders have the choice of converting their full volume SSM IPAs to low volume SSM IPAs. No application processing fees will apply to these SSM IPA conversions.

10.6 The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the

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first stage manufacturer. Second stage manufacturers are not permitted to increase the towing capacity as part of an SSM IPA that results in GVM upgrade.



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Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles:

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicle's GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWS) where the number of vehicles is capped in the SSM approval.

- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass (MBTM) of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

2.0 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have. Any effect this modification may have on the product warranty provided by the original vehicle manufacturer is outside the scope of this code. The certifying officer must clarify this point to the modifier and the vehicle operator.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs that apply to them.

If different ADRs apply due to the modified vehicles, they must comply to those ADRs that are relevant to them.

Modified vehicles must also comply with the applicable in-service requirements of Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation).

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Braking Systems	ADR 31/...or ADR 35/...
Brake Performance (for non-ADR vehicles)	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.2 GVM re-rating based on Original Vehicle Manufacturer's Option

The change to the vehicle's GVM must replicate the original vehicle manufacturer's optional GVM for that particular make, model and variant. All components, including suspension, transmission, engine, brakes, tyre and rims must be fitted same as those specified for that particular vehicle's alternate rated variant.

2.3 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of new vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 or 300 vehicles per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of in-service vehicles modified per annum under the combination of the particular SSM approval and this code do not exceed the limit specified for that low volume SSM approval.
- GVM re-rating of in-service vehicles using LS11 code must not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- A statutory declaration must be obtained from the low volume SSM holder stating that the number limit has not been exceeded as of that date.
- The SSM approval number must be recorded on the modification certificate.
- The low volume SSM restrictions must be noted on the modification certificate (for example vehicle #12 of 300).
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.4 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.5 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original vehicle manufacturer's GVM rating. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the original manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or any combination of these

The following specific requirements must be met.

3.1 Chassis

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

Chassis modifications must be performed in accordance with section LH5 of VSB14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification Code of Practice (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

3.2 Engine/Transmission

The GVM re-rating assigned must not exceed the engine and transmission manufacturer's recommendations, if any, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on vehicle's tail shaft. For example:

- changes to vehicle's ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

3.5 Suspension

When loaded to re-rated GVM, additional loads are placed on suspension. Vehicle suspension ratings must be adequate for the re-rated GVM plus it must be able to accommodate the axle loads resulting from the common and practical load distribution. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the re-rated GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the re-rated GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the potential maximum mass on that axle.

If re-rated GVM and axle masses require different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

If different tyres & rims are specified, their size must be no more than necessary to support the increased axle masses. The effect of alternate tyres on speedometer/odometer accuracy must be considered. It must be ensured that, with the alternate tyres, vehicle's compliance to ESC requirements is not affected.

4.0 Owner's Handbook and Load Capacity Label

The vehicle operator must be adequately informed of the changes.

4.1 Owner's Handbook

To inform the vehicle operator about the vehicle's towing capacity and tyre & rim requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres, rims and the towing capacity. Of particular importance is any sliding reduction in towing capacity of the vehicle as it is loaded to its re-rated GVM and/or vertical load on tow ball (ball weight).

If the vehicles handbook is not available, this information must be provided in written form to the owner of the vehicle.

4.2 Load Capacity Label

Certain information must also be displayed on the Load Capacity Label as discussed below.

The Load Capacity Label must follow the below format. It must be made of durable material and letter size and contrast should be similar to the tyre placard. Label must be fitted to the vehicle, as close as practicable, to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Re-rated GVM	kg
Maximum Braked Towing Mass at re-rated GVM*	kg
Maximum Front Axle Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum braked towing mass depends on the re-rated GVM and trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Re-rated GVM may have direct effect on the performance of Electronic Stability Control (ESC) system. Hence ESC system must be revalidated so it performs satisfactorily at the re-rated GVM. However such revalidation is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated using other agreed methods.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as GCM rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. The scope of code does not include changes to vehicle's towing capacity. If towing capacity is not specified by the original vehicle manufacturer, the limits mentioned in the Safe Towing Guide published by TMR apply.

If the original vehicle manufacturer has specified towing capacity in some form, the gross combination mass formed by adding that towing capacity and the original GVM rating must not be exceeded. Hence, when the GVM is re-rated, the actual towed mass must be proportionately reduced according to the loaded mass of the towing vehicle.

6.0 Additional Modifications and Changes to Vehicle Category

If additional modifications are made or the vehicle's category has changed due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited AP holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that same make/model/variant/chassis series and generate the necessary evidence to show that the requirements of the LS11 design certification are met.

When LS11 code is used to provide design certification, the AP providing the design certification, may not inspect the modified vehicle(s) and is not required to fit LS11 modification plate on the vehicle(s). Also the checklist completed as part of the LS11 design certification will not refer to any particular VIN.

The outputs of a design certification under LS11 code are (a) a comprehensive design package (b) a modification certificate and (c) a completed checklist. All of these outputs must be preserved as records of the LS11 design certification and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design package must clearly identify which make/model/variant/chassis series it applies to. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating of GVM is being done on in-service vehicles, the condition of the vehicle is important to decide which vehicle can be safely modified and re-rated. The design package must include instructions about what is to be inspected and the acceptance criteria. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations, leaks and structural damage due to overloading, accidents or rust is also critical.

The design package must include a checklist template for use by the AP certifying the physical modification. The checklist will be completed by the AP who certifies the physical modification to confirm that the vehicle was inspected and was found in sound condition before commencing the modification.

7.1.2 Evidence package

The design package must include all the test reports and engineering calculations that validate the re-rating, when modified as prescribed. Test reports must be from reputed test laboratories, have unique identification number and be signed and dated. All test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply. Also the test reports must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier document that is dated and signed.

If any evidence is sourced from a third party, the evidence package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, sometimes the LS11 certifier may choose not to include all the test reports in the design package. In such cases the design package must still include a full list of all the test reports and the calculation sheets (using their unique identifiers) and provide written assurance to the client that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package must include comprehensive work instructions on how to modify the vehicle, what parts to be used, the sequence of actions to be performed, precautions to be taken and what process controls to be applied.

The work instructions must include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The work instructions must be easy to understand, unambiguous and should include sufficient pictorials including photos and graphics.

The work instructions must include the contact details of the LS11 certifying AP if enquiries arise needing further clarification during the physical modification and/or its certification.

7.1.4 Checklist for the modifier and the certifier

The design package must include template checklist(s) to be completed by the vehicle modifier and the certifier of the physical modification. These may be separate or one combined checklist. These checklists, when completed, are evidence that the modifier and the certifier of the physical modification have understood and followed the work instructions and the intent of the design package has been met. The LS11 AP may ask for copies of completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice. The completed checklist must also be retained by the AP who certifies the physical modification.

Note that this checklist is different than any checklist that the certifier of the physical modification is required to complete as part his/her certification of the modification under the relevant code.

7.2 Certificate of Modification

The LS11 AP must issue a certificate of modification to his client for the design certification provided. This is similar to any other certificate of modification, except that the certificate may not make reference to any specific modification plate number or VIN. Instead, it must refer to the basis of the design certification (for example, SSM approval number) and the unique identification number of the design package provided.

7.3 Modification Checklist

LS11 AP must complete the modification checklist provided at the end of this code and must retain it as part of his/her records.

Checklist LS11

Gross Vehicle Mass Increase

CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	----	Y	N
6.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Label			
8.1	Is the Load Capacity Label attached to the vehicle?	—	Y	N
8.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	—	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM approval holder provided written approval to use that SSM design and a copy of the same attached to this checklist?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect to decide if the vehicle is fit to receive the re-rated GVM?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS													
Make												Year of Manufacture	
VIN													
Chassis Number (If applicable)													
Brief Description of Modification/s													
Vehicle Modified By													
Certificate Number (If applicable)													
Vehicle Certified By (Print)													
Signatory's Employer (If applicable)													
Signatory's Signature											Date		

2.0

Internal Consultation Use Only

Modifications Leading to Re-rating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification

CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons (AP) to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications are carried out in accordance with instructions in the relevant LS11 design certification. In addition to the requirements in this code, the AP providing LS15 certification must follow the instructions in the design package that came with the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Re-rating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Re-rating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Re-rating of a vehicle which is outside the scope of the relevant LS11 design certification.
- Re-rating of a vehicle, the GVM of which, before modification, is greater than 4,500 kg.
- Re-rating of a vehicle, the GVM of which, after modification, will be greater than 4,500 kg.
- Re-rating of GVM by comparing with an alternative make/model of vehicle.
- Re-rating of GVM by comparing with another vehicle which has been previously re-rated using a modification code.
- Re-rating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Re-rating of GVM prior to first registration anywhere in Australia. In such cases seek a Second Stage of Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications under LS15 may include replacement of axle(s), suspension or braking system with alternative components or reinforced chassis frame which collectively may permit a different rating.

2.2 Re-rating without Modifications

In some cases, re-rating of GVM may involve no physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required for re-rating. Care must be taken when comparing vehicles/ their components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) which are relevant to it. This includes ADRs which applied to it when it was originally constructed and the ADRs that apply to it after it is modified. If there is a conflict, the ADR requirement after modification takes priority.

2.4 Work Instructions from the LS11 Design Package

Modifications must be carried out according to the work instructions that are in the design package that came with the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection specified in the design package must be completed and the evidence of the same must be held by the LS15 certifier. This includes completing the checklist(s) that came with the LS11 design package.

3.0 Specific Requirements

When certifying the re-rated GVM under LS15, the chassis frame, suspension, axles and drive train components must be used within the original vehicle manufacturer's rated capacities. All instructions provided in the LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

If re-rated GVM requires different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

3.2 Chassis Frame

The chassis frame of the modified vehicle must be according to the LS11 design package or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design package or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the details and the in-service condition of the vehicle must be checked, as specified in the LS11 design package, to ensure that the vehicle is eligible for re-rating and its condition is safe and suitable.

Step-1: Confirm that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: Inspect and confirm that the condition of the vehicle is suitable for re-rating. The instructions in the LS11 design package must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition for re-rating. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

If re-rating is based on the original vehicle manufacturer's letter, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being re-rated.
- Details of all physical changes required for re-rating (including the details of the specific upgrade parts to be fitted).
- Re-rated GVM.
- Signature and date by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General	
1.1	<p>Have you received a copy of and understood: The LS11 design package with all the instructions to modify, test and re-rate vehicle of this make/model/variant/chassis series? LS11 Design Certification No. Date..... OR A letter from the original vehicle manufacturer for re-rating? Manufacturer's Letter Reference _____ date _____ Note: If you do not have one of the above, you are unable to certify this vehicle.</p>	Y N
1.2	Are you accredited to certify the additional modification codes required by the LS11 design certification or the vehicle manufacturer's letter?	Y N
2	Chassis Frame	
2.1	Does the chassis frame conform to the detail construction, section properties and cross-members of the LS11 design package or the original vehicle manufacturer's letter?	Y N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation? Does it meet the inspection criteria mentioned in the LS11 design package?	Y N
3	Brake system	
3.1	Is the vehicle's braking system as specified in the LS11 design package or the original vehicle manufacturer's letter?	Y N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching? Does it meet the inspection criteria mentioned in the LS11 design package?	Y N
4	Tyres and Rims	
4.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	Y N
4.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	Y N
4.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	Y N
4.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	Y N
5	Eligibility- Make/model/variant/chassis series	
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y N
6	Load Capacity Label	

6.1	Is the Load Capacity Label attached to the vehicle?	Y	N
6.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are/Is the checklist(s) required in the LS11 design package completed?	Y	N
7.3	Are all the inspections and tests as required in the LS11 design package completed?	Y	N
7.4	Have you kept all supporting documents you used to certify this modification and photos of the modified vehicle for future audit?	Y	N

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CERTIFICATION DETAILS																							
Make												Model							Year of Manufacture				
VIN																							
Chassis Number (If applicable)																							
Brief Description of Modification/s																							
Vehicle Modified By																							
TMR In-Principle Approval Number																							
Vehicle Certified By (Print)																							
Signatory's Employer (If applicable)																							
Signatory's Signature																							
														Date									

Internal Consultation Use Only



Scott G Notley

From: Scott G Notley
Sent: Monday, 18 June 2018 4:35 PM
To: Peter N Twining
Cc: Anant Z Bellary
Subject: FW: New and amended modification codes
Attachments: Form for Feedback on Draft Modification Code LS11.docx; Form for Feedback on Draft Modification Code LS15.docx; LS15 Code Jun 2018.docx; LS11 Code Jun 2018.docx

Pete,

The documents are good to do.

Note that I changed the file name on the two Codes and I made some very minor changes (to formatting mainly).

That means you should save the two documents attached in this email to wherever our current documents are kept.

We can schedule the release date as 3 September if you like. They have 5 weeks for feedback which should be plenty.

Will be interesting to see how certain parts of industry respond.

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 9 / 61 Mary St Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006
t 07 3338 4082 | f 3253 4453 | m Not relevant
e Scott.G.Notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Anant Z Bellary
Sent: Monday, 18 June 2018 2:36 PM
To: Peter N Twining <peter.n.twining@tmr.qld.gov.au>
Cc: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>; Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Patricia L Bailey <Patricia.L.Bailey@tmr.qld.gov.au>
Subject: FW: New and amended modification codes

The most current versions of the documents are attached.

Ready to go, if you are.

Regards

Anant Bellary
vehicle Standards & Accreditation

From: Peter N Twining
Sent: Monday, 18 June 2018 8:03 AM
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Cc: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: New and amended modification codes

Hi Scott

This is already to go just a final check please.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of an in-service light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes sometime between late August and early September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
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Internal Consultation Use Only

Modifications Leading to Re-rating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification

CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons (AP) to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications are carried out in accordance with instructions in the relevant LS11 design certification. In addition to the requirements in this code, the AP providing LS15 certification must follow the instructions in the design package that came with the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Re-rating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Re-rating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Re-rating of a vehicle which is outside the scope of the relevant LS11 design certification.
- Re-rating of a vehicle, the GVM of which, before modification, is greater than 4,500 kg.
- Re-rating of a vehicle, the GVM of which, after modification, will be greater than 4,500 kg.
- Re-rating of GVM by comparing with an alternative make/model of vehicle.
- Re-rating of GVM by comparing with another vehicle which has been previously re-rated using a modification code.
- Re-rating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Re-rating of GVM prior to first registration anywhere in Australia. In such cases seek a Second Stage of Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications under LS15 may include replacement of axle(s), suspension or braking system with alternative components or reinforced chassis frame which collectively may permit a different rating.

2.2 Re-rating without Modifications

In some cases, re-rating of GVM may involve no physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required for re-rating. Care must be taken when comparing vehicles/ their components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) which are relevant to it. This includes ADRs which applied to it when it was originally constructed and the ADRs that apply to it after it is modified. If there is a conflict, the ADR requirement after modification takes priority.

2.4 Work Instructions from the LS11 Design Package

Modifications must be carried out according to the work instructions that are in the design package that came with the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection specified in the design package must be completed and the evidence of the same must be held by the LS15 certifier. This includes completing the checklist(s) that came with the LS11 design package.

3.0 Specific Requirements

When certifying the re-rated GVM under LS15, the chassis frame, suspension, axles and drive train components must be used within the original vehicle manufacturer's rated capacities. All instructions provided in the LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

If re-rated GVM requires different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

3.2 Chassis Frame

The chassis frame of the modified vehicle must be according to the LS11 design package or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design package or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the details and the in-service condition of the vehicle must be checked, as specified in the LS11 design package, to ensure that the vehicle is eligible for re-rating and its condition is safe and suitable.

Step-1: Confirm that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: Inspect and confirm that the condition of the vehicle is suitable for re-rating. The instructions in the LS11 design package must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition for re-rating. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

If re-rating is based on the original vehicle manufacturer's letter, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being re-rated.
- Details of all physical changes required for re-rating (including the details of the specific upgrade parts to be fitted).
- Re-rated GVM.
- Signature and date by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General	
1.1	<p>Have you received a copy of and understood: The LS11 design package with all the instructions to modify, test and re-rate vehicle of this make/model/variant/chassis series? LS11 Design Certification No. Date..... OR A letter from the original vehicle manufacturer for re-rating? Manufacturer's Letter Reference _____ date _____ Note: If you do not have one of the above, you are unable to certify this vehicle.</p>	Y N
1.2	Are you accredited to certify the additional modification codes required by the LS11 design certification or the vehicle manufacturer's letter?	Y N
2	Chassis Frame	
2.1	Does the chassis frame conform to the detail construction, section properties and cross-members of the LS11 design package or the original vehicle manufacturer's letter?	Y N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation? Does it meet the inspection criteria mentioned in the LS11 design package?	Y N
3	Brake system	
3.1	Is the vehicle's braking system as specified in the LS11 design package or the original vehicle manufacturer's letter?	Y N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching? Does it meet the inspection criteria mentioned in the LS11 design package?	Y N
4	Tyres and Rims	
4.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	Y N
4.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	Y N
4.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	Y N
4.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	Y N
5	Eligibility- Make/model/variant/chassis series	
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y N
6	Load Capacity Label	

6.1	Is the Load Capacity Label attached to the vehicle?	Y	N
6.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are/Is the checklist(s) required in the LS11 design package completed?	Y	N
7.3	Are all the inspections and tests as required in the LS11 design package completed?	Y	N
7.4	Have you kept all supporting documents you used to certify this modification and photos of the modified vehicle for future audit?	Y	N

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CERTIFICATION DETAILS													
Make								Model				Year of Manufacture	
VIN													
Chassis Number (If applicable)													
Brief Description of Modification/s													
Vehicle Modified By													
TMR In-Principle Approval Number													
Vehicle Certified By (Print)													
Signatory's Employer (If applicable)													
Signatory's Signature											Date		

Internal Consultation Use Only

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles.

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicle's GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWS) where the number of vehicles is capped in the SSM approval.

- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass (MBTM) of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

2.0 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have. Any effect this modification may have on the product warranty provided by the original vehicle manufacturer is outside the scope of this code. The certifying officer must clarify this point to the modifier and the vehicle operator.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs that apply to them.

If different ADRs apply due to the modified vehicles, they must comply to those ADRs that are relevant to them.

Modified vehicles must also comply with the applicable in-service requirements of Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation).

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Braking Systems	ADR 31/...or ADR 35/...
Brake Performance (for non-ADR vehicles)	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.2 GVM re-rating based on Original Vehicle Manufacturer's Option

The change to the vehicle's GVM must replicate the original vehicle manufacturer's optional GVM for that particular make, model and variant. All components, including suspension, transmission, engine, brakes, tyre and rims must be fitted same as those specified for that particular vehicle's alternate rated variant.

2.3 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of new vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 or 300 vehicles per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of in-service vehicles modified per annum under the combination of the particular SSM approval and this code do not exceed the limit specified for that low volume SSM approval.
- GVM re-rating of in-service vehicles using LS11 code must not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- A statutory declaration must be obtained from the low volume SSM holder stating that the number limit has not been exceeded as of that date.
- The SSM approval number must be recorded on the modification certificate.
- The low volume SSM restrictions must be noted on the modification certificate (for example vehicle #12 of 300).
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.4 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.5 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original vehicle manufacturer's GVM rating. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the original manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or any combination of these

The following specific requirements must be met.

3.1 Chassis

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

Chassis modifications must be performed in accordance with section LH5 of VSB14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification Code of Practice (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

3.2 Engine/Transmission

The GVM re-rating assigned must not exceed the engine and transmission manufacturer's recommendations, if any, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on vehicle's tail shaft. For example:

- changes to vehicle's ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

3.5 Suspension

When loaded to re-rated GVM, additional loads are placed on suspension. Vehicle suspension ratings must be adequate for the re-rated GVM plus it must be able to accommodate the axle loads resulting from the common and practical load distribution. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the re-rated GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the re-rated GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the potential maximum mass on that axle.

If re-rated GVM and axle masses require different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

If different tyres & rims are specified, their size must be no more than necessary to support the increased axle masses. The effect of alternate tyres on speedometer/odometer accuracy must be considered. It must be ensured that, with the alternate tyres, vehicle's compliance to ESC requirements is not affected.

4.0 Owner's Handbook and Load Capacity Label

The vehicle operator must be adequately informed of the changes.

4.1 Owner's Handbook

To inform the vehicle operator about the vehicle's towing capacity and tyre & rim requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres, rims and the towing capacity. Of particular importance is any sliding reduction in towing capacity of the vehicle as it is loaded to its re-rated GVM and/or vertical load on tow ball (ball weight).

If the vehicles handbook is not available, this information must be provided in written form to the owner of the vehicle.

4.2 Load Capacity Label

Certain information must also be displayed on the Load Capacity Label as discussed below.

The Load Capacity Label must follow the below format. It must be made of durable material and letter size and contrast should be similar to the tyre placard. Label must be fitted to the vehicle, as close as practicable, to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Re-rated GVM	kg
Maximum Braked Towing Mass at re-rated GVM*	kg
Maximum Front Axle Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum braked towing mass depends on the re-rated GVM and trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Re-rated GVM may have direct effect on the performance of Electronic Stability Control (ESC) system. Hence ESC system must be revalidated so it performs satisfactorily at the re-rated GVM. However such revalidation is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated using other agreed methods.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as GCM rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. The scope of code does not include changes to vehicle's towing capacity. If towing capacity is not specified by the original vehicle manufacturer, the limits mentioned in the Safe Towing Guide published by TMR apply.

If the original vehicle manufacturer has specified towing capacity in some form, the gross combination mass formed by adding that towing capacity and the original GVM rating must not be exceeded. Hence, when the GVM is re-rated, the actual towed mass must be proportionately reduced according to the loaded mass of the towing vehicle.

6.0 Additional Modifications and Changes to Vehicle Category

If additional modifications are made or the vehicle's category has changed due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited AP holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that same make/model/variant/chassis series and generate the necessary evidence to show that the requirements of the LS11 design certification are met.

When LS11 code is used to provide design certification, the AP providing the design certification, may not inspect the modified vehicle(s) and is not required to fit LS11 modification plate on the vehicle(s). Also the checklist completed as part of the LS11 design certification will not refer to any particular VIN.

The outputs of a design certification under LS11 code are (a) a comprehensive design package (b) a modification certificate and (c) a completed checklist. All of these outputs must be preserved as records of the LS11 design certification and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design package must clearly identify which make/model/variant/chassis series it applies to. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating of GVM is being done on in-service vehicles, the condition of the vehicle is important to decide which vehicle can be safely modified and re-rated. The design package must include instructions about what is to be inspected and the acceptance criteria. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations, leaks and structural damage due to overloading, accidents or rust is also critical.

The design package must include a checklist template for use by the AP certifying the physical modification. The checklist will be completed by the AP who certifies the physical modification to confirm that the vehicle was inspected and was found in sound condition before commencing the modification.

7.1.2 Evidence package

The design package must include all the test reports and engineering calculations that validate the re-rating, when modified as prescribed. Test reports must be from reputed test laboratories, have unique identification number and be signed and dated. All test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply. Also the test reports must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier document that is dated and signed.

If any evidence is sourced from a third party, the evidence package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, sometimes the LS11 certifier may choose not to include all the test reports in the design package. In such cases the design package must still include a full list of all the test reports and the calculation sheets (using their unique identifiers) and provide written assurance to the client that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package must include comprehensive work instructions on how to modify the vehicle, what parts to be used, the sequence of actions to be performed, precautions to be taken and what process controls to be applied.

The work instructions must include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The work instructions must be easy to understand, unambiguous and should include sufficient pictorials including photos and graphics.

The work instructions must include the contact details of the LS11 certifying AP if enquiries arise needing further clarification during the physical modification and/or its certification.

7.1.4 Checklist for the modifier and the certifier

The design package must include template checklist(s) to be completed by the vehicle modifier and the certifier of the physical modification. These may be separate or one combined checklist. These checklists, when completed, are evidence that the modifier and the certifier of the physical modification have understood and followed the work instructions and the intent of the design package has been met. The LS11 AP may ask for copies of completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice. The completed checklist must also be retained by the AP who certifies the physical modification.

Note that this checklist is different than any checklist that the certifier of the physical modification is required to complete as part his/her certification of the modification under the relevant code.

7.2 Certificate of Modification

The LS11 AP must issue a certificate of modification to his client for the design certification provided. This is similar to any other certificate of modification, except that the certificate may not make reference to any specific modification plate number or VIN. Instead, it must refer to the basis of the design certification (for example, SSM approval number) and the unique identification number of the design package provided.

7.3 Modification Checklist

LS11 AP must complete the modification checklist provided at the end of this code and must retain it as part of his/her records.

Checklist LS11

Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/... or 35/..., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	----	Y	N
6.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Label			
8.1	Is the Load Capacity Label attached to the vehicle?	---	Y	N
8.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	---	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM approval holder provided written approval to use that SSM design and a copy of the same attached to this checklist?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect to decide if the vehicle is fit to receive the re-rated GVM?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS																
Make								Model							Year of Manufacture	
VIN																
Chassis Number (If applicable)																
Brief Description of Modification/s																
Vehicle Modified By																
Certificate Number (If applicable)																
Vehicle Certified By (Print)																
Signatory's Employer (If applicable)																
Signatory's Signature													Date			

2.0

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Shane F Lonsdale

From: Shane F Lonsdale
Sent: Monday, 30 April 2018 10:29 AM
To: Anant Z Bellary
Subject: for your review

For your review please before I send the information to the team

Good morning All

There is a new LS 15 code being Developed and will be allied with the LS11. The purpose of this code is to allow the fitment of equipment required as per a SSM approval remotely. Before the LS15 code can be used the company holding the SSM **must** have an approved LS11 for the make and model of the vehicle. Anant is doing a full review of the LS11 code as part of this process.

The time frame will be Anant will have a draft by the 8 May 2018, for a 2 week internal review once the review is completed I will work with Peter Twining on the completed document getting it ready to do the external review. This will be sent to all the type approval holders that have a SSM for GVM upgrades.

Any questions please let me know and I will work on getting the answered for you.

Kind regards,
Shane Lonsdale
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Shane F Lonsdale

From: Shane F Lonsdale
Sent: Monday, 30 April 2018 11:15 AM
To: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'; Anant Z Bellary; Adam Shaw
Cc: Peter N Twining; Neil L Todd; Peter R Phillips; Patricia L Bailey
Subject: New modification code LS15

Good morning All

As you are aware, LS11 is an engineering code. You will be pleased to know that VS team is working on developing a new trade-based LS 15 code to compliment the operation of LS11, particularly in the remote and regional areas. To certify using LS15 code it will be necessary to follow the instructions in an LS11 design approval related to the same make/model/variant. VS will use this opportunity to review the LS11 code so the needs of the new LS15 code are addressed and some of the previously identified issues in LS11 are rectified at the same time.

An early time table is to have an initial draft of LS15 sometime in the week commencing 7th May 2018. We will allow two weeks for internal review. Then it will go out for consultation with our external stakeholders for approx. four weeks. Myself, Peter Twining and Anant will be working on this at various stages.

Any questions please let me know and I will work on getting them answered for you.

Kind regards,
Shane Lonsdale
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Shane F Lonsdale

From: Shane F Lonsdale
Sent: Friday, 18 May 2018 1:36 PM
To: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'; Anant Z Bellary; Adam Shaw; Neil L Todd
Cc: Peter N Twining; Peter R Phillips; Patricia L Bailey; Christina T Myers; Tracey L Dreier
Subject: Revised LS11 and the new LS15 codes
Attachments: LS 11 Version May 2018 V2.1 (002) V3.docx; LS15 Version May 2018 V1.doc

Good afternoon all

Please find a draft of the revised LS11 and the new LS15 codes for the re rating of a light vehicles GVM. If you have any comment's please do them in mark-up and have them back to me by the 25 May 2018.

Any questions please let me know and I will try to help.

Kind regards,
Shane Lonsdale
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Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle to LS11 Design Certification

Code LS15

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement chassis frame.

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is

issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires.

3.0 Specific Requirements

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternate model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1 To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2 To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information)
- Make/model/variant of the vehicle
- Vehicle Identification Number (VIN) of the particular vehicle being modified
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted)
- Revised GVM rating
- Signed and dated by the delegate of the original vehicle manufacturer

Checklist LS15

Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification

CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
1.1	Have all details of the design package of LS11 design certification or a letter from the original vehicle manufacturer been retained for future audit?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims		
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are the checklists required in the LS11 design certification completed?	Y	N
7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N
7.4	Is the GVM re-rating plate/label as specified in the LS11 design certification fitted?	Y	N

Note: If the answer to any question is **N (No)** the modification cannot be certified under Code LS14.

CERTIFICATION DETAILS																
Make					Model					Year of Manufacture						
VIN																
Chassis Number (If applicable)																
Brief Description of Modification/s																
Vehicle Modified By																
TMR In-Principle Approval Number																
Vehicle Certified By (Print)																
Signatory's Employer (If applicable)																
Signatory's Signature										Date						

Internal Consultation Use Only

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for rerating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4 500 kg.

Rerating of GVM under code LS11 is permissible only on following type of light vehicles:

- (a) a light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction are not eligible.
- (b) A light vehicle that has not previously been rerated from the original manufacturer's GVM rating.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWs Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted...

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer
- Exceptions to the limit of 10% apply in following cases:
 - (i) GVM rating of an in-service vehicle that is of the same the make/model/variant/chassis series as a vehicle having a Second Stage of Manufacture (SSM) approval for GVM rerating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM rerating.
- Increase in GVM where an additional axle has been installed
 - Alteration of a vehicle's GVM rating to match the manufacturer's alternative rating for a particular variant of that make/model

1.2 What is not permitted...

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in 1.1 above

- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model (except in case of heavy motorhomes).
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.
- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating by the original vehicle manufacturer
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

GVM re-rating under LS11 code must not result in any increase in the towing capacity of the vehicle beyond that specified by the original vehicle manufacturer. This requirement must be met irrespective of how the towing capacity is specified or calculated and includes the terms gross combination mass rating, the rated towing capacity and the maximum braked towing mass rating.

2.0 General Requirements

The vehicle must be able to safely operate at the rerated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they are suitable to operate under the loads resulting from the rerated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the NCOP.

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the rerated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and Approved Person to consider any effect on warranty that the modification may have.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle
- as allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation)*.
- Modified vehicles must also comply with the applicable in-service requirements of the regulation.

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to rerate vehicle's GVM.

2.2 GVM alteration based on Manufacturer's Option

The change to the vehicle's GVM must replicate the manufacturer's optional GVM for that particular make, model and variant of vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

2.3 GVM Upgrade based on SSM Approval

The rerated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM must also be met. These requirements can include but are not limited to the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the SSM approval holder must ensure that the same restriction is applied to the number of vehicles modified under this code.
- GVM rerating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When upgrading GVM in accordance with an SSM approval the certifying AP must ensure the SSM approval holder has provided written permission for use of the SSM design as the basis.
- If upgrading a GVM in accordance with a Low Volume SSM a statutory declaration must be obtained from the SSM holder stating no more approvals than the limit stipulated on the SSM have been provided. For example, if the Low Volume SSM restricts the number of vehicles to 25 per annum then the SSM approval holder cannot provide permission for more than 25 in-service vehicles to be modified in that year (in addition to the 25 new vehicles certified in accordance with their SSM approval)
- Both the written permission and statutory declaration from the SSM holder must be retained by the Approved Person as evidence for certifying the rerating of GVM under this code.

2.4 GVM Upgrade by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with adjacent axle in the group then the 10% limit on increase in GVM increase may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code.

2.5 GVM rerating outside of Manufacturer's Option

A rerating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer provided the change is no more than 10% from the original manufacturer's GVM. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When rerating GVM the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved with rerating a vehicle's GVM include:

- single axle to tandem axle configuration
- combination of replacement engine, transmission, axles or suspension components, reinforced chassis and upgraded brake components

The following specific requirements must be met.

3.1 Chassis

Chassis modifications must be performed in accordance with section LH5 of Vehicle Standards Bulletin 14 – and the relevant sections of H code of the Heavy Vehicle Modification VSB6, as far as possible and appropriate.

When modifications such as fitting of additional or replacement axles with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to accommodate the rerated GVM. For calculating chassis strength, Vehicle Standards Bulletin 6 – Heavy Vehicle Modification may be consulted.

A simplified way to look at the frame requirements for GVM rerating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturers for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. The original vehicle manufacturer's axle ratings must not be exceeded in normal and practical loading resulting after the GVM is rerated, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with rerated GVM may place additional load on vehicle's tailshaft. For example:

- changes to vehicle ride height which may alter the tailshaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tailshaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tailshaft.

The vehicle's tailshaft strength and its installation must be suitable at the vehicle's rerated GVM.

3.5 Suspension

With an increase in gross mass, additional loads are placed on suspension. Vehicle's suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from normal and practical loading patterns. Effects of changes in ride height must be carefully considered. FOR EXAMPLE, bump and rebound travel, hydraulic brake hose length, handling & roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to the vehicle's gross load. Therefore, the vehicle's braking system must be assessed to determine if the original system is adequate for the proposed GVM or if it requires to be upgraded.

3.7 Steering

The entire steering system must be identical to that fitted by the manufacturer to the original or reference vehicle as appropriate. If the steering system is modified or a new steering system is fitted it must be approved under the LS section of Vehicle Standards Bulletin 14 – National Code of Practice for Light Vehicle Construction and Modification.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the revised GVM rating and the load is distributed in a practical and uniform way.

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the revised GVM rating.

If required, an amending tyre placard must be fitted to indicate the correct tyre specifications for the vehicle at the revised GVM rating. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes such as the vehicle's towing capacity and tyre requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any reduction in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicle's handbook is not available this information must be provided in written form to the owner of the vehicle owner. In addition this information may be included on the load capacity label discussed below.

A label containing important information about the vehicle's load capacity must also be fitted. The label must follow the below label as an example and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Rated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Front Axle/s Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicle's handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2. In addition, the following limitations mentioned in sections 5.1 and 5.2 apply.

5.1 Electronic Stability Control

Changes to a vehicle's GVM can have a direct effect on electronic stability control (ESC) performance. Therefore, for vehicles fitted with ESC the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being rerated to a manufacture's alternative variant or by SSM approval such that the system's compliance has been demonstrated.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. For many light vehicles rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases the limit mentioned in the Safe Towing Guide applies. When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, please note that the maximum mass that can be legally towed when the vehicle is loaded at the rerated GVM must be proportionately reduced to ensure that the sum of GVM and maximum towing mass at GVM before and after rerating remains unchanged.

6.0 Additional Modifications and Changes to Vehicle Category

Where additional modifications have been performed or a change in vehicle category has occurred due to the increase in GVM, certification using the appropriate additional codes must be provided.

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7.0 Use of LS11 code to provide design certification for GVM Rerating

LS11 code may now be used to provide design certification for GVM rerating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the rerating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited Approved Person holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the Approved Person providing the design certification may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the the design certification may not refer to any particular VIN.

The outputs of a Design Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All these outputs must be preserved as records and must be made available, on request, for audit and enforcement purpose.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the rerating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the rerating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to decide that the vehicle is safe to modify and receive rerating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

Design certification package must include a template of checklist that needs be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

Integral to the design package output is the collection of various test reports and engineering calculations that validate the rerating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and dated. Test reports must make unambiguous reference to the specific make/model/variants of

the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifier to not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

The work instruction must also include contact detail for querying or seeking clarification, should that be required during modification.

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists one each for the vehicle modifier and the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

Internal Consultation Use Only

Checklist LS11

Gross Vehicle Mass Increase

CODE LS11

Form No: LS11

(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicle's suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicle's brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?	----	Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's new GVM?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicle's ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Information			
8.1	Is the Load Capacity Label attached to the vehicle?	----	Y	N
8.2	Has the vehicle's handbook been amended or additional information been included on the Load Capacity Label?	----	Y	N

9	Manufacturer's Optional GVM			
9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM rerating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM Approval holder provided written approval to use that SSM design?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the rerated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM rerating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicle's GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for rerating?	----	Y	N
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM rerating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N

12.9	Does the design package address all the requirements of this code?	---	Y	N
------	--	-----	---	---

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If N/A does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS														
Make						Model						Year of Manufacture		
VIN														
Chassis Number (If applicable)														
Brief Description of Modification/s														
Vehicle Modified By														
Certificate Number (If applicable)														
Vehicle Certified By (Print)														
Signatory's Employer (If applicable)														
Signatory's Signature						Date								

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Anant Z Bellary

From: Anant Z Bellary
Sent: Monday, 14 May 2018 12:42 PM
To: Shane F Lonsdale; Peter N Twining
Subject: RE: Revised LS11 Code readied for implementation of new LS15 Code

Hello Peter and Shane,

Thanks for your comments.

I don't see any issues with anything you have said. I note that most of your comments are related to the areas that are unchanged from the current LS11.

There are a couple of items on which some discussion and clarification may help and happy to do it during our meeting.

Regards

Anant Bellary
Vehicle Standards & Accreditation
Transport & Main Roads

From: Shane F Lonsdale
Sent: Monday, 14 May 2018 12:04 PM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: FW: Revised LS11 Code readied for implementation of new LS15 Code

From: Shane F Lonsdale
Sent: Monday, 14 May 2018 10:23 AM
To: Peter N Twining <peter.n.twining@tmr.qld.gov.au>
Subject: RE: Revised LS11 Code readied for implementation of new LS15 Code

Good morning Anant and Peter

Please see my questions and comments.

Kind regards,
Shane Lonsdale
Vehicle Standards | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
PO Box 673 | Fortitude Valley Qld 4006
P: 3866 5469
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au



From: Peter N Twining
Sent: Monday, 14 May 2018 10:00 AM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>; Shane F Lonsdale <Shane.F.Lonsdale@tmr.qld.gov.au>
Cc: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Subject: RE: Revised LS11 Code readied for implementation of new LS15 Code

Hi All

Please see my comments for discussion.

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30666537
E: peter.n.twining@tmr.qld.gov.au
W: www.tmr.qld.gov.au



From: Anant Z Bellary
Sent: Friday, 11 May 2018 3:33 PM
To: Shane F Lonsdale <Shane.F.Lonsdale@tmr.qld.gov.au>
Cc: Peter N Twining <peter.n.twining@tmr.qld.gov.au>; Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Subject: Revised LS11 Code readied for implementation of new LS15 Code

Hello Shane,

As promised, see attached extensively revised LS11 code for internal stakeholder engagement:

Key features are:

1. GCM/towing capacity changes are removed, irrespective of SSM provisions for the same

2. Code has been readied for design certification, in anticipation of LS15 to take care of modification certification
3. Loading beyond axle rating of OE manufacturer is prohibited

Next week is set for a draft of LS15.

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000

P: (07) 3066 3468

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Shane F Lonsdale

From: Shane F Lonsdale
Sent: Monday, 14 May 2018 10:23 AM
To: Peter N Twining
Subject: RE: Revised LS11 Code readied for implementation of new LS15 Code
Attachments: LS 11 Version May 2018 V2.1 (002) (002).docx

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Vehicle Standards | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
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Peter N Twining

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Sent: Monday, 14 May 2018 10:00 AM
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Cc: Scott G Notley
Subject: RE: Revised LS11 Code readied for implementation of new LS15 Code
Attachments: LS 11 Version May 2018 V2 (002).docx

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Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies requirements/arrangements for rerating of the gross vehicle mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4 500 kg.

Rerating of GVM under code LS11 is permissible only on following type of light vehicles:
(a) a truck like light vehicle that is constructed on a ladder type chassis frame on which with a cabin and/or body is mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction are not eligible.

(b) A light vehicle that is not previously rerated from the original manufacturer's GVM rating.

For the purpose of this code, the original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA) first-stage manufacturer. Any entity holding the Second Stage Manufacturers (SSM) such as SSM Approval or RAWS Approval holders are not considered deemed as the original vehicle manufacturer.

In cases where a the original vehicle manufacturer does not specify an original (as not specified the GVM rating for a vehicle) the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) compliance is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 Modifications allowed under Code LS11: What is permitted...

Modifications that may be certified under Code LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer
- Exceptions to the limit of 10% apply in following cases:
 - Increase in (i) GVM rating of an in-service vehicle that is same the make/model/variant/chassis series as a vehicle having Second Stage of Manufacture (SSM) approval for GVM rerating AND is modified in accordance with a the SSM Approval approval the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM rerating same make/model/variant/chassis series (where the SSM Approval holder has permitted use of that SSM Approval as the basis)
- Increase in GVM where an additional axle has been installed
 - Alteration of a vehicle's GVM rating to match a the manufacturer's alternative rating for a particular variant of that vehicle's make/model
- Up to 10% increase in GVM outside of a manufacturer's GVM rating

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1.2 Modifications not allowed under Code LS11 What is not permitted...

Modifications that must not be certified under Code LS11 code are:

- Modifications other than those described in 1.1 above
 - Increase in GVM greater than 10% of a manufacturer's rating (except where an additional axle has been fitted or modified in accordance with an SSM approval)
 - Increase in GVM rating of vehicles having unitary/monocoque construction
 - Increase in GVM rating where no physical modifications (i.e. reinforced suspension, frame, brakes, etc) are performed (replacement tyres and rims alone, with different ratings are not deemed as physical modification)
Please note, this does not apply when upgrading to a manufacturer's optional GVM where the vehicle specifications of both GVM options are identical.
- Reduction in GVM rating (apart from re-rating a vehicle's GVM to a manufacturer's optional GVM for that particular make/model of vehicle)
- Re-rating of GVM increase to a vehicle which has previously received a GVM increase rating (i.e. by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval.)
- Increase in GVM re-rating of an in-service vehicle that is modified in accordance with an SSM Approval where but the SSM Approval holder has NOT provided explicit permission to use the SSM Approval as the basis.
- Increase in GVM re-rating of an in-service vehicle that is modified in accordance with a Low Volume on the basis of a concessional SSM Approval (for example Low Volume or RAWs) but where the number of vehicles is capped in the SSM approval exceeded the SSM Approval limit.
- Increase in Gross Combination Mass (GCM) rating (unless in accordance with an SSM approval)
- Increase in the maximum towing mass rating (unless in accordance with an SSM approval)
- Increase in vehicle's rated towing capacity (unless in accordance with an SSM approval)
- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating by the original vehicle manufacturer
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- GVM re-rating under LS11 code must not result in any increase in the towing capacity of the vehicle beyond that specified by the original vehicle manufacturer. This requirement must

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Commented [PNT7]: what about motorhomes

Commented [SFL8]: Is this already happening

Commented [PNT9]: a number of SSM holders rate the axles above the original manufacturers rating without a modification

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Commented [SFL10]: Will this need to be corresponded with Lovells or will this be part of the external steps before it is implemented

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be met irrespective of how the towing capacity is specified or calculated and includes the terms gross combination mass rating, the rated towing capacity and the maximum braked towing mass rating.

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2.0 General Requirements

For a vehicle to qualify for an increase in GVM, the vehicle must be able to safely operate at the increased rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres are all critical components which must be assessed individually to ensure that each is suitable to operate under the increased loads resulting from increased the rated GVM.

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All work must also comply with the requirements contained in sub-section 2 General Requirements of the NCOP.

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the rated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and Approved Person to consider any effect on warranty that the modification may have.

Commented [SFL11]: Is this part of the code or just something for the owner to keep in mind?

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification in which case they must comply to those ADRs that are relevant to the modified vehicle as allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation)*.
- as allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation)*.
- Modified vehicles must also comply with the applicable in-service requirements of the regulation.

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Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other modifications ADRs may also be affected. ADR compliance.

Table LS11 Summary of items that, if modified or altered, may detrimentally affect compliance with applicable ADRs. List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

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To determine the ADRs that apply to the vehicle in question, refer to the Applicability Tables in Section LS of VSB-14 - Vehicles manufactured between 1 January 1969 and 1 July 1988

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(both inclusive) need to comply with the Second Edition ADRs, whilst vehicles manufactured after 1 July 1988 need to comply with the Third Edition ADRs. Section LO has separate applicability tables for each edition.

Alternatively, ADR applicability tables for individual vehicle categories may be referenced on the website of Road Vehicle Certification System (RVCS) of the C-Wealth Department of Infrastructure and Regional Development (DIRD).

<http://rvcs.dotars.gov.au/>

The ADR ~~apply~~ applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the ~~signatory~~ ~~the certifying~~ Approved Person to refer to the appropriate ADRs applicable to the vehicle.

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Sections 2.2 to 2.5 relate to the different options of upgrading the ~~to rerate~~ vehicle's GVM.

2.2 GVM alteration based on Manufacturer's Option

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The change to the vehicle's GVM must replicate the manufacture's optional GVM for that particular make, model and variant of vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

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2.3 GVM Upgrade based on SSM Approval

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The ~~increase in vehicle~~ ~~rated~~ GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc must be fitted and be identical to those specified on the SSM approved vehicle.

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In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM must also be met. These requirements can include but are not limited to the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the SSM approval holder must ensure that the same restriction is applied to the number of vehicles ~~permitted to be~~ modified under this code.
- GVM rerating of in-service vehicles using LS11 code should not certified if the SSM approval is no longer current and has been suspended or cancelled.
- When upgrading GVM in accordance with an SSM approval the ~~certifier~~ ~~certifying AP~~ must ensure the SSM approval holder has provided written permission for use of the SSM design as the basis.
- ~~Additionally~~ If upgrading a GVM in accordance with a Low Volume SSM a statutory declaration must be obtained from the SSM holder stating no more approvals than the limit stipulated on the SSM have been provided. For example, if the Low Volume SSM restricts the number of vehicles to 25 per annum then the SSM approval holder cannot provide permission for more than 25 in-service vehicles to be modified in that year (in addition to the 25 new vehicles certified in accordance with their SSM approval).

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- Note – both Both the written permission and statutory declaration from the SSM holder must be retained by the Approved Person as evidence for certifying the re-rating of GVM upgrade under this code.

2.4 GVM Upgrade by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with adjacent axle in the group then the 10% limit on increase in GVM increase may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code.

2.5 GVM Upgrade re-rating Outside outside of Manufacturer's Option

An increase in A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer. In these cases the maximum allowable increase to the vehicle's GVM provided the change is no more than 10% above the vehicle's from the original manufacturer's GVM. However, the actual increase in GVM (not exceeding 10%) While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

The GVM upgrade must address the compatibility of the entire vehicle for the revised GVM: in particular it must be checked that When re-rating GVM the chassis, suspension, axles and drive train components are must be used within their the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved with increasing re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- combination of replacement engine, transmission, axles or suspension components and upgraded brake components

The following specific requirements must be met to receive a GVM increase on a light vehicle in accordance with this code.

3.1 Chassis

Chassis modifications must be performed in accordance with section H of Vehicle Standards Bulletin 6 – Heavy Vehicle Modification, as far as possible and appropriate.

When modifications such as fitting of additional or replacement axles with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to accommodate the increased (rated) GVM. As Vehicle Standards Bulletin 14 – National Code of Practice for Light Vehicle Construction and Modification does not provide information regarding For calculating chassis strength, Vehicle Standards Bulletin 6 – Heavy Vehicle Modification may be consulted.

A simplified way to look at the frame requirements for GVM upgrading re-rating, is to associate

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Commented [SFL16]: What is this section trying to cover?

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the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturers for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

Commented [PNT19]: most light vehicle manufacturers do not state engine and transmission ratings

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. Vehicle's axle ratings must not only be adequate for the revised GVM but must also be able to accommodate the axle loads resulting from normal and practical loading patterns. The original vehicle manufacturer's axle ratings must not be exceeded in normal and practical loading resulting after the GVM is rerated, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Commented [PNT20]: some SSM approval holders have increased the axle rating above the original manufacturers without modification

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Modifications/Changes associated with increasing a vehicle's rated GVM can may place greater demands/additional load on a vehicle's tailshaft. These may include but are not limited to the following/For example:

- changes to vehicle ride height which may alter the tailshaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tailshaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tailshaft.

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The vehicle's tailshaft strength and its installation must be suitable for at the vehicle's increased/rerated GVM.

3.5 Suspension

With increase in GVM/gross mass, additional loads are placed on suspension. Vehicle's suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from normal and practical loading patterns. Effects of changes in ride height must be carefully considered. FOR EXAMPLE, bump and rebound travel, hydraulic brake hose length, handling & roll stability.

Commented [PNT21]: an

3.6 Brakes

A vehicle's braking performance is directly affected by changes to the vehicle's GVM/gross load. Therefore, the vehicle's braking system must be tested/assessed to determine if the original system is adequate for the proposed GVM or if it requires to be upgraded.

3.7 Steering

The entire steering system must be identical to that fitted by the manufacturer to the original or reference vehicle as appropriate. If the steering system is modified or a new steering system is fitted it must be approved under the LS section of Vehicle Standards Bulletin 14 – National Code of Practice for Light Vehicle Construction and Modification.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the revised GVM rating and the load is distributed in a practical and uniform way.

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the revised GVM rating.

If required, an amending tyre placard must be fitted to indicate the correct tyre specifications for the vehicle at the revised GVM rating. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes such as the vehicle's towing capacity and tyre requirements the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any variation in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

Commented [PNT22]: should we put reduction in here so there is no confusion

If the vehicle's handbook is not available this information must be provided in written form to the owner of the vehicle owner. Optionally in addition this information may be included on the load capacity label discussed below.

A label containing important information about the vehicle's load capacity must also be fitted. The label must be identical to follow the below label as an example below and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Upgraded Rerated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Allowed Front Axle/s Mass Weight Permitted	kg
Maximum Allowed Rear Axle/s Weight/Mass Permitted	kg
Total Vehicle Load Capacity	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicle's handbook.	

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5.0 Limitations

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For modifications not permitted under Code LS11 see Section 1.2. In addition the following limitations stipulated mentioned in sections 5.1 and 5.2 apply.

5.1 Electronic Stability Control

Changes to a vehicle's GVM can have a direct effect on electronic stability control (ESC) performance. Therefore, for vehicles fitted with ESC the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being rerated to a manufacturer's alternative variant or by SSM approval such that the system's compliance has been demonstrated.

5.2 Gross Combination Mass Rating & Towing-Capacity Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. (unless in accordance with an SSM approval). For some many light vehicles rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases the limit mentioned in the Safe Towing Guide applies. When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, please note that the maximum towing mass that can be legally towed when the vehicle is loaded at the rerated GVM must be proportionately reduced to ensure that

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the sum of GVM and maximum towing mass at GVM before and after GVM upgradereating remains unchanged.

6.0 Additional Modifications and Changes to Vehicle Category Changes

Where additional modifications have been performed or a change in vehicle category has occurred due to the increase in GVM, certification using the appropriate additional codes must be used/provided.

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7.0 Use of LS11 code to provide design certification for GVM Rerating

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LS11 code may now be used to provide design certification for GVM rerating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the rerating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited Approved Person holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the Approved Person providing the design certification may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the the design certification may not refer to any particular VIN.

The outputs of a Design Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All these outputs must be preserved as records and must be made available, on request, for audit and enforcement purpose.

7.1 Design Package

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This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

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Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years, that also must be mentioned.

Since the modification and the rerating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the rerating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to decide that the vehicle is safe to modify and receive rerating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

Design certification package must include a template of checklist that needs be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

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Integral to the design package output is the collection of various test reports and engineering calculations that validate the rerating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and

dated. Test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifier to not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions as to how to modify the vehicle, what parts to be used, what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

The work instruction must also include contact detail for querying or seeking clarification, should that be required during modification.

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists one each for the vehicle modifier and the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

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For this output, a modification certificate must be issued similar to any other modification code except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

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Checklist LS11

Gross Vehicle Mass Increase
CODE LS11

Form No: LS11

(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicle's suspension suitable for the increased GVM?		Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?		Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?		Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?		Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicle's brake system suitable for the increased GVM?		Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?		Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?		Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?		Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's new GVM?		Y	N
7	Electronic Stability Control			
7.1	Has the vehicle's ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Information			
8.1	Is the Load Capacity Label attached to the vehicle?		Y	N
8.2	Has the vehicle's handbook been amended or additional information been included on the Load Capacity Label?		Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM rerating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM/GCM			
10.1	Has the SSM Approval holder provided written approval to use their that SSM design?	N/A	Y	N
10.2	If certifying the GVM/GCM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the rerated GVM/GCM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM/GCM rerating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicle's GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?			
12.2	Does the design package have a unique identification number?			
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for rerating?			
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?			
12.5	Does the design package include a complete Evidence Package on which the GVM rerating is based?			
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?			
12.7	Does the design package include a checklist for the modifier of the vehicle?			
12.8	Does the design package include a checklist for the certifier of the modified vehicle?			

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12.9	Does the design package address all the requirements of this code?			
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Note: If the answer to any question is N (No) the design cannot be certified under Code LS11.

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CERTIFICATION DETAILS										
Make		Model		Year of Manufacture						
VIN										
Chassis Number (If applicable)										
Brief Description of Modification/s										
Vehicle Modified By										
Certificate Number (If applicable)										
Vehicle Certified By (Print)										
Signatory's Employer (If applicable)										
Signatory's Signature		Date								

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Shane F Lonsdale

From: Shane F Lonsdale
Sent: Thursday, 24 May 2018 8:54 AM
To: Elizabeth P Austin
Subject: Ls11 and Ls15

Good morning Liz

Anant is Not relevant Peter, Anant and myself will be in on Monday after 2pm if that works. You can email me any proposed changes in mark up and I will pass them on to the team.

Kind regards,
Shane Lonsdale
[Vehicle Standards](#) | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
PO Box 673 | Fortitude Valley Qld 4006
P: 3066 3469
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au



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Shane F Lonsdale

From: Shane F Lonsdale
Sent: Friday, 25 May 2018 11:12 AM
To: Adam Shaw
Subject: Draft
Attachments: LS 11 Version May 2018 V2.1 (002) V3 Scotts changes.docx; LS15 Version May 2018 V1.doc

Kind regards,
Shane Lonsdale
Vehicle Standards | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
PO Box 673 | Fortitude Valley Qld 4006
P: 3066 3469
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au



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Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for rerating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4 500 kg.

Rerating of GVM under code LS11 is permissible only on following type of light vehicles:

- (a) a light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction are not eligible.
- (b) A light vehicle that has not previously been rerated from the original manufacturer's GVM rating.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is not deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted..

Modifications that may be certified under LS11 code are

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same the-make/model/variant/chassis series as a vehicle having a Second Stage of Manufacture (SSM) approval for GVM rerating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM rerating.
 - Increase in GVM where an additional axle has been installed
 - Alteration of a vehicle's GVM rating to match the manufacturer's alternative-rating for a particular variant of that make/model

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in 1.1 above
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model (except in case of heavy motorhomes).

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- Re-rating of GVM on a vehicle which has previously received a GVM rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval.
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.
- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating by the original vehicle manufacturer
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 1.3 Towing Capacity and LS11 Code

GVM re-rating under LS11 code must not result in any increase in the towing capacity of the vehicle beyond that specified by the original vehicle manufacturer. This requirement must be met irrespective of how the towing capacity is specified or calculated and includes the terms gross combination mass rating, the rated towing capacity and the maximum braked towing mass rating.

2.0 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they are suitable to operate under the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the NCOP.

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the re-rated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and Approved Person to consider any effect on warranty that the modification may have.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle
- as allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation)*.
- Modified vehicles must also comply with the applicable in-service requirements of the Regulation.

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

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This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to rerate vehicle's GVM.

2.2 GVM alteration based on Manufacturer's Option

The change to the vehicle's GVM must replicate the manufacturer's optional GVM for that particular make, model and variant of vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

2.3 GVM Upgrade based on SSM Approval

The rerated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM must also be met. These requirements can include but are not limited to the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the SSM approval holder must ensure that the same restriction is applied to the number of vehicles modified under this code.
- GVM rerating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When upgrading GVM in accordance with an SSM approval the certifying AP must ensure the SSM approval holder has provided written permission for use of the SSM design as the basis.

Commented [SGNS]: The SSM approval holder has no responsibility under this code?

- If upgrading a GVM in accordance with a Low Volume SSM a statutory declaration must be obtained from the SSM holder stating no more approvals than the limit stipulated on the SSM have been provided. For example, if the Low Volume SSM restricts the number of vehicles to 25 per annum then the SSM approval holder cannot provide permission for more than 25 in-service vehicles to be modified in that year (in addition to the 25 new vehicles certified in accordance with their SSM approval).
- Both the written permission and statutory declaration from the SSM holder must be retained by the Approved Person as evidence for certifying the rerating of GVM under this code.

Commented [SGN6]: I don't see how this works

2.4 GVM Upgrade by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with adjacent axle in the group then the 10% limit on increase in GVM increase may be exceeded. The fitting of an additional axle is permitted in Queensland under the LB2 modification code.

2.5 GVM rerating outside of Manufacturer's Option

A rerating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer provided the change is no more than 10% above from the original manufacturer's GVM. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

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3.0 Specific Requirements

When rerating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved with rerating a vehicle's GVM include:

- single axle to tandem axle configuration
- combination of replacement engine, transmission, axles or suspension components, reinforced chassis and upgraded brake components

The following specific requirements must be met.

3.1 Chassis

Chassis modifications must be performed in accordance with section LH5 of Vehicle Standards Bulletin 14 and the relevant sections of H code of the Heavy Vehicle Modification VSB6, as far as possible and appropriate.

When modifications such as fitting of additional or replacement axles with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to accommodate the rerated GVM. For calculating chassis strength, Vehicle Standards Bulletin 6 – Heavy Vehicle Modification may be consulted.

A simplified way to look at the frame requirements for GVM rerating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturers for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. The original vehicle manufacturer's axle ratings must not be exceeded in normal and practical loading resulting after the GVM is rerated, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with rerated GVM may place additional load on vehicle's tailshaft. For example:

- changes to vehicle ride height which may alter the tailshaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tailshaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tailshaft.

The vehicle's tailshaft strength and its installation must be suitable at the vehicle's rerated GVM.

3.5 Suspension

With an increase in gross mass, additional loads are placed on suspension. Vehicle's suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from normal and practical loading patterns. Effects of changes in ride height must be carefully considered. FOR EXAMPLE, bump and rebound travel, hydraulic brake hose length, handling & roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to the vehicle's gross load. Therefore, the vehicle's braking system must be assessed to determine if the original system is adequate for the proposed GVM or if it requires to be upgraded.

3.7 Steering

The entire steering system must be identical to that fitted by the manufacturer to the original or

reference vehicle as appropriate. If the steering system is modified or a new steering system is fitted it must be approved under the LS section of Vehicle Standards Bulletin 14 – National Code of Practice for Light Vehicle Construction and Modification.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the revised GVM rating and the load is distributed in a practical and uniform way.

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the revised GVM rating.

If required, an amending tyre placard must be fitted to indicate the correct tyre specifications for the vehicle at the revised GVM rating. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

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4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes such as the vehicle's towing capacity and tyre requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any reduction in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicle's handbook is not available this information must be provided in written form to the owner of the vehicle owner. In addition this information may be included on the load capacity label discussed below.

A label containing important information about the vehicle's load capacity must also be fitted. The label must follow the below label as an example and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

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Ratings Item	Rating Information
SSM Approval # (if applicable)	
Rated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Front Axle/s Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicle's handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2. In addition, the following limitations mentioned in sections 5.1 and 5.2 apply.

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5.1 Electronic Stability Control

Changes to a vehicle's GVM can have a direct effect on electronic stability control (ESC) performance. Therefore, for vehicles fitted with ESC the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being related to a manufacturer's alternative variant or by SSM approval such that the system's compliance has been demonstrated.

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5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. For many light vehicles rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases the limit mentioned in the Safe Towing Guide applies. When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, please note that the maximum mass that can be legally towed when the vehicle is loaded at the rated GVM must be proportionately reduced to ensure that the sum of GVM and maximum towing mass at GVM before and after rating remains unchanged.

6.0 Additional Modifications and Changes to Vehicle Category

Where additional modifications have been performed or a change in vehicle category has occurred due to the increase in GVM, certification using the appropriate additional codes must be provided.

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7.0 Use of LS11 code to provide design certification for GVM Rerating

LS11 code may now be used to provide design certification for GVM rerating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the rerating criteria discussed in Section 2.2 to 2.5 of this code.

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The design certification must be comprehensive enough so a suitably qualified and accredited Approved Person holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the Approved Person providing the design certification may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the design certification may not refer to any particular VIN.

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The outputs of a Design Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All these outputs must be preserved as records and must be made available, on request, for audit and enforcement purpose.

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7.1 Design Package

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This output must result in a set of documents that clearly and comprehensively address the following four requirements:

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7.1.1 Scope of what is eligible

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Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

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Since the modification and the rerating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the rerating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to decide that the vehicle is safe to modify and receive rerating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

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The design certification package must include a template of checklist that needs to be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

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7.1.2 Evidence package

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Integral to the design package output is the collection of various test reports and engineering calculations that validate the rerating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and dated. Test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

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Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

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If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

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For reasons of commercial confidence or sensitivity, it is not uncommon for design certifier to not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that full evidence package will be made available, on request, for audit and enforcement purposes.

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7.1.3 Work instructions for modification

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The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

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Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

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The work instruction must also include contact detail for querying or seeking clarification, should that be required during modification.

7.1.4 Checklist for the modifier and the certifier

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This output of the design package consists of two separate checklists one each for the vehicle modifier and the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

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For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

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For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

Checklist LS11

Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicle's suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicle's brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?	----	Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's new GVM?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicle's ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Information			
8.1	Is the Load Capacity Label attached to the vehicle?	----	Y	N
8.2	Has the vehicle's handbook been amended or additional information been included on the Load Capacity Label?	----	Y	N

9	Manufacturer's Optional GVM			
9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM rerating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM Approval holder provided written approval to use that SSM design?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the rerated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM rerating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicle's GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for rerating?	----	Y	N
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM rerating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N

12.9	Does the design package address all the requirements of this code?	----	Y	N
------	--	------	---	---

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If N/A does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS	
Make	Model
Year of Manufacture	
VIN	
Chassis Number (If applicable)	
Brief Description of Modification/s	
Vehicle Modified By	
Certificate Number (If applicable)	
Vehicle Certified By (Print)	
Signatory's Employer (If applicable)	
Signatory's Signature	Date

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Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle to LS11 Design Certification

Code LS15

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement chassis frame.

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is

issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires.

3.0 Specific Requirements

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternate model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1 To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2 To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information)
- Make/model/variant of the vehicle
- Vehicle Identification Number (VIN) of the particular vehicle being modified
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted)
- Revised GVM rating
- Signed and dated by the delegate of the original vehicle manufacturer

Checklist LS15

Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification

CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General	
1.1	Have all details of the design package of LS11 design certification or a letter from the original vehicle manufacturer been retained for future audit?	Y N
2	Chassis	
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y N
3	Brake system	
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y N
4	Tyres and Rims	
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y N
5	Eligibility- Make/model/variant/chassis series	
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y N
6	Eligibility- Vehicle condition	
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y N
7	Workmanship	
7.1	Is the quality of the workmanship to a satisfactory standard?	Y N
7.2	Are the checklists required in the LS11 design certification completed?	Y N
7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y N
7.4	Is the GVM rerating plate/label as specified in the LS11 design certification fitted?	Y N

Note: If the answer to any question is **N (No)** the modification cannot be certified under Code LS14.

CERTIFICATION DETAILS																						
Make											Model								Year of Manufacture			
VIN																						
Chassis Number (If applicable)																						
Brief Description of Modification/s																						
Vehicle Modified By																						
TMR In-Principle Approval Number																						
Vehicle Certified By (Print)																						
Signatory's Employer (If applicable)																						
Signatory's Signature																Date						

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Shane F Lonsdale

From: Shane F Lonsdale
Sent: Monday, 28 May 2018 4:08 PM
To: Patricia L Bailey
Subject: FW: Revised LS11 and the new LS15 codes
Attachments: LS 11 Version May 2018 V2.1 (002) V3 comments DC.EA.docx; LS15 Version May 2018 V1 Comments DC EA.doc

This is the documents with all the information.

Kind regards,
Shane Lonsdale
Vehicle Standards | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
PO Box 673 | Fortitude Valley Qld 4006
P: 3066 3469
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au



From: Elizabeth P Austin
Sent: Thursday, 24 May 2018 4:07 PM
To: Vehicle Standards <vehiclestandards@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>; Peter N Twining <peter.n.twining@tmr.qld.gov.au>; Shane F Lonsdale <Shane.F.Lonsdale@tmr.qld.gov.au>
Cc: Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>; Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Subject: RE: Revised LS11 and the new LS15 codes

Good afternoon gentlemen

Please find attached the marked up LS11 & LS15 drat documents as discussed in today's meeting.

Thank you.

Regards

Elizabeth Austin
AP Policy
Approved Person Scheme | Transport Regulation Branch
Customer Services, Safety and Regulation Division | Department of Transport and Main Roads

PO Box 673 | Fortitude Valley Qld 4006
E: ap_policy@tmr.qld.gov.au
W: www.tmr.qld.gov.au

From: Tracey L Dreier
Sent: Monday, 21 May 2018 7:36 AM
To: Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>; Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>
Subject: Fwd: Revised LS11 and the new LS15 codes

Hi Deann and Liz

Could you guys please review and send your comments back to me so I can review and send consolidated response back to Shane. Thanks.

Regards
Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
Transport Regulation Branch
Ph: 3066 2532
Mob:

Begin forwarded message:

From: Shane F Lonsdale <Shane.F.Lonsdale@tmr.qld.gov.au>
Date: 18 May 2018 at 1:36:16 pm AEST
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>, Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>, "Adam Shaw" <Adam.M.Shaw@tmr.qld.gov.au>, Neil L Todd <Neil.L.TODD@tmr.qld.gov.au>
Cc: Peter N Twining <peter.n.twining@tmr.qld.gov.au>, Peter R Phillips <Peter.R.Phillips@tmr.qld.gov.au>, Patricia L Bailey <Patricia.L.Bailey@tmr.qld.gov.au>, Christina T Myers <christina.t.myers@tmr.qld.gov.au>, Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Subject: Revised LS11 and the new LS15 codes

Good afternoon all

Please find a draft of the revised LS11 and the new LS15 codes for the re rating of a light vehicles GVM. If you have any comment's please do them in mark-up and have them back to me by the 25 May 2018.

Any questions please let me know and I will try to help.

Kind regards,
Shane Lonsdale
Vehicle Standards | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
PO Box 673 | Fortitude Valley Qld 4006
P: 3066 3469
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W: www.tmr.qld.gov.au

Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle to LS11 Design Certification

Code LS15

Commented [EPA1]: This doesn't stand out as being the code - a bit picky I know but!!!!

Commented [EPA2]: LS11 talks about amending tyre placard and load capacity Label and Handbook - are we relying of the LS11 design instructions to include this in the instructions - if we are I think this will be a big problem

Commented [EPA3]: Is this meant to mean the same as "according to instructions" under 1.1 as I think "process specified" is not that easy for our APs to understand

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement chassis frame.

Commented [EPA4]: Does the AP have to certify each physical modification - axles, suspension, braking or is this all covered under LS15 code?

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is

issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

Commented [EPA5]: What is the AP comparing?

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

Commented [EPA6]: Is the conflict only in relation to the ADRs affected by the modification that is, all other ADRs for construction must apply

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the LS11 design package requires.

3.0 Specific Requirements

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/04 or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternative model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

Commented [EPA7]: The label that has to be attached as part of LS11 is not mentioned in LS15 - who is responsible for ensuring that the label is fitted?

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1 To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2 To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information)
- Make/model/variant of the vehicle
- Vehicle Identification Number (VIN) of the particular vehicle being modified
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted)
- Revised GVM rating
- Signed and dated by the delegate of the original vehicle manufacturer

Checklist LS15

Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification

CODE LS15

Form No: LS15
(Y=Yes, N=No)

Commented [EPAB]: I believe that we can make this checklist more AP user friendly by expanding the information – clarifying what is needed.

1	General		
	<p>Do you have a copy of the LS11 design certification package with all instructions to certify this modification. Design Cert No. _____</p> <p>OR</p> <p>a copy of a letter from the original vehicle manufacturer.</p> <p>Note: If you do not have one of the above you are unable to modify/certify this vehicle.</p>		
1.4	Are you accredited to certify the additional modification codes required by the LS11 design certification package or the vehicle manufacturer's letter? Have all details of the design package of LS11 design certification or a letter from the original vehicle manufacturer been retained for future audit?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims	Y	N
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N

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Commented [EPA9]: Not sure how to word this!!!

7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are the checklists required in the LS11 design certification completed?	Y	N
7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N
7.4	Is the GVM rating plate/label as specified in the LS11 design certification fitted?	Y	N
7.5	Have you kept all supporting documents relied on by you to certify this modification and photos of the modified vehicle for future audit?		

Note: If the answer to any question is N (No) the modification cannot be certified under Code LS154.

CERTIFICATION DETAILS												
Make		Model		Year of Manufacture								
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
TMR In-Principle Approval Number												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature											Date	

Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle to LS11 Design Certification

Code LS15

Commented [EPA1]: This doesn't stand out as being the code – a bit picky I know by !!!!

Commented [EPA2]: LS11 talks about amending tyre placard and load capacity Label and Handbook – are we relying of the LS11 design instructions to include this in the instructions – if we are I think this will be a big problem.

Commented [EPA3]: Is this meant to mean the same as "according to instructions" under 1.1 – I think "process specified" is not that easy for our APs to understand

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement chassis frame.

Commented [EPA4]: Does the AP have to certify each physical modification – axles, suspension, braking or is this all covered under LS15 code?

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is

issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

Commented [EPA5]: What is the AP comparing?

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

Commented [EPA6]: Is the conflict only in relation to the ADRs affected by the modification that is, all other ADRs for construction must apply

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the LS11 design package requires.

3.0 Specific Requirements

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternative model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

Commented [EPA7]: The label that has to be attached as part of LS11 is not mentioned in LS15 - who is responsible for ensuring that the label is fitted?

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1 To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2 To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required. To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information)
- Make/model/variant of the vehicle
- Vehicle Identification Number (VIN) of the particular vehicle being modified
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted)
- Revised GVM rating
- Signed and dated by the delegate of the original vehicle manufacturer

Checklist LS15

Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification

CODE LS15

Form No: LS15
(Y=Yes, N=No)

Commented [EPAB]: I believe that we can make this checklist more AP user friendly by expanding the information - clarifying what is needed

1	General		
	Do you have: a copy of the LS11 design certification package with all instructions to certify this modification Design Cert No _____ OR a copy of a letter from the original vehicle manufacturer, Note: If you do not have one of the above you are unable to modify/certify this vehicle.		
1.4	Are you accredited to certify the additional modification codes required by the LS11 design certification package or the vehicle manufacturer's letter? Have all details of the design package or LS11 design certification or a letter from the original vehicle manufacturer been retained for future audit?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
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3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims	Y	N
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N

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Commented [EPA9]: Not sure how to word this!!

7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
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7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N
7.4	Is the GVM rating plate/label as specified in the LS11 design certification fitted?	Y	N
7.5	Have you kept all supporting documents relied on by you to certify this modification and photos of the modified vehicle for future audit?		

Note: If the answer to any question is N (No) the modification cannot be certified under Code LS154.

CERTIFICATION DETAILS												
Make					Model					Year of Manufacture		
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
TMR In-Principle Approval Number												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature											Date	

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Shane F Lonsdale

From: Shane F Lonsdale
Sent: Thursday, 31 May 2018 7:46 AM
To: Peter N Twining; Anant Z Bellary; Patricia L Bailey
Cc: 'Scott G Notley (Scott.G.Notley@tmr.qld.gov.au)'
Subject: LS11 changes and the new LS15

Good morning Team

This is a link to all the information in regards to the LS11 changes and the new LS15: [G:\Section_Vs&ir\Document Management\Codes of Practice\QCOP\LS11 & LS15 review](#)

The table has current emails and contact details for the type approval holders and the approved LS11 holders.

I will be discussing this information at this afternoons meeting

Kind regards,
Shane Lonsdale
Vehicle Standards | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
PO Box 673 | Fortitude Valley Qld 4006
P: 3066 3469
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au



Vehicle Standards

From: Not relevant @sixwheeler.com.au >
Sent: Tuesday, 19 June 2018 1:28 PM
To: Peter N Twining; Vehicle Standards
Subject: RE: New LS15 and amended LS11 Modification Codes for comment
Attachments: Form for Feedback on Draft Modification Code LS11 completed.pdf; Form for Feedback on Draft Modification Code LS15 completed.pdf; RVCS Circular 0-4-6 response letter18062018.pdf

Thanks Peter,

Please see the attached documents.

Regards,

Not relevant

Director

Six Wheeler Conversions Pty Ltd
1 Brook St, North Toowoomba, Qld, 4350
Australia

Not relevant

CARRY MORE
6 WHEELER .COM.AU

Our brands

eye∞tie
SMARTER WORK UTES

NICE RACK

SIXTRAK

Proud agents for

The Ultimate SUSPENSION

CLEARVIEW
TOWING MIRRORS
AUTHORISED DEALERS

HAYMAN REESE

From: Peter N Twining <peter.n.twining@tmr.qld.gov.au>
Sent: Tuesday, 19 June 2018 6:42 AM
To: Vehicle Standards <vehiclestandards@tmr.qld.gov.au>
Subject: New LS15 and amended LS11 Modification Codes for comment

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of an in-service light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes 3rd September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30666537
E: peter.n.twining@tmr.qld.gov.au
W: www.tmr.qld.gov.au



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Six Wheeler Conversions Pty Ltd
1 Brook St, North Toowoomba, Qld, 4350
Australia

Not relevant

Not relevant [@sixwheeler.com.au](mailto:sixwheeler.com.au)

<http://www.sixwheeler.com.au/>

<https://www.facebook.com/sixwheeler.com.au>

Open letter regarding towing capacity and GCM upgrades on light vehicles.

The latest circular from RVCS, has certainly created quite a stir in the towing community, particularly those towing recreational equipment such as larger caravans, fifth wheelers and boats.

Whilst I'm keen to support any improvement to road safety and I'm sure these changes come with the best intentions, the obvious solution isn't always the right one and a rigid ruling to stop all towing capacity upgrades on light vehicles is counterproductive from a safety perspective, given the current environment.

The current environment:

As our transport departments are aware, there are currently thousands of light vehicles on our roads which are exceeding combinations of GVM, GCM and towing capacity. This is particularly prevalent with but not limited to caravans, campers, motorhomes, etc. but this isn't a group of willing lawbreakers. These motorists have mostly been caught out by ambiguous marketing and weight ratings by vehicle and caravan manufacturers and an underestimation of the weight of the products they need to carry for life on the road.

Many of these people have bought light vehicles with 3500kg tow ratings (the highest available on any new ute under about \$130,000), with 3500kg ATM caravans; only to later discover that the 6,000kg GCM leaves their tow vehicle with a payload of less than 300kg including 2-5 occupants and at least 90kg of fuel. Many also discover that their van is over ATM by the time they're on the road because these big vans have high and often underquoted tare weights. The Queensland Caravan Show, last week had many manufacturers promoting huge vans at 3500kg ATM, with tare weights of over 3000kg.

RVCS has allowed car manufacturers to promote high tow capacities, with unrealistically low GCMs and allowed caravan manufacturers to promote big vans with unrealistically low payloads for years. This has trapped many motorists, who've unwittingly found themselves over ATM and GCM. For many of these motorists, it's unaffordable or impractical for them to trade up from their already accessorised \$45-65,000 BT50/Ranger/Dmax, etc. to a massive \$130-180,000 American pick-up or a rigid truck. The sheer size of these other vehicles often makes them completely impractical for many people who need to be able to park in shopping centres and CBD parking when they aren't towing.

These motorists want to obey the law and make their setups safe but unless there is a practical and affordable solution, they're forced to plead ignorant and keep motoring.

Closing the door to towing capacity and GCM upgrades will also reduce the viability of upgrading the ATM of these vans which have unrealistic payloads, many of which are already built to higher ATM specs than what is marked on the compliance plate. This in turn will have a severe effect on the resale value of these vans due to a reduction in the number of viable tow vehicle options.

My company, Six Wheeler Conversions Pty Ltd (and some others around Australia) has been providing an affordable solution for many years by adding an extra braked axle to the rear of many of these vehicles. This conversion comes at an average price of about \$25,000 including a high-quality tray body.

This results in a drastic increase in towing safety from the following factors.

- More road contact area. (50% more rubber on the road)
- Up to 30% greater braking capacity (2 extra rotors/drums)
- Much better stability, with at least 66% increase in carrying capacity of rear axle group.
- 15% longer effective wheelbase also improves stability.
- Increased tare weight (about 18-25%), which provides ballast to counteract trailer weight increase.

The engines and drivelines of Isuzu Dmax, Ford Ranger, Toyota Landcruiser, Mazda Bt50 and some other models have been well proven to be capable of hauling more than their original stated GCMs at highway speeds and up steep gradients and they have low range and 4wd available for emergencies, mostly at the press of a button or flick of a switch.

In fact, these modern 4wd utes now have outputs ranging from 130kw/430nm to 165kw/550nm, whilst 20 to 30 years ago, many of our customers were successfully running heavier combinations with Landcruisers and Patrols, with outputs as low as 80kw/240nm (Toyota 2H).

The power and torque specs on these modern utes are actually comparable to figures advertised for many trucks with GCMs around 10-12 tonnes and whilst these vehicles don't have the bigger displacement, oil capacity, etc, which makes trucks able to lug these loads up and down big hills, day in, day out for millions of kilometres they have proven to last well as touring vehicles.

Bear in mind that Australian roads don't have the long steep gradients found in other continents such as Europe and America.

However, RVCS Administrator's Circular 0-4-6, released last week casts a shadow on the viability of development of future models for conversion, with the following statement:

10.6 The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the first stage manufacturer. Second stage manufacturers are not permitted to increase the towing capacity as part of an SSM IPA that results in GVM upgrade.

This was released with no warning and with less than one month from publication to enactment. This also places the viability of my entire company at risk because it will drastically reduce the market for my conversions. I've also invested considerable resources in a project to develop a new conversion for the VW Amarok V6 (which promises to make a fantastic tow vehicle, with full-time 4wd, 6 wheel disc brakes, a wide track, low centre of gravity and a powerful V6 driveline, which will easily handle trailers of 4000kg and over), including an overseas trip where I met with Volkswagen engineers to discuss the project.

This mock-up/concept vehicle was shown at the Queensland Caravan Show, to gauge market response and interest because we've already done most of the design work and the overwhelming public response is that there is a healthy niche market and this vehicle will solve many people's towing requirements.

(Note the asterisks and fine print, which clarified that the advertised capacities were estimated figures and subject to testing and approval.)



Coming Soon!



V6 Amarok 6 Wheeler
Up to 4500kg GVM*/1700kg payload*
Increased towing capacity/GCM*
Up to 2.6m tray on dual cab!

CARRY MORE

*Estimated/required figures based on approved figures for towing @ 100km/hr models
**Approved figures may vary, subject to test results and technical approvals.

Facebook Instagram

Surely RVCS can issue an exemption to rule 10.6 for multi-axle conversions (and maybe some other upgrades) which can demonstrate significant increases in towing safety. This provides a viable option for many of the motorists mentioned above, who need a practical affordable means to acquire compliant vehicles to tow their equipment and enables a few Australian family businesses to remain viable and productive.

Regards,

Not relevant

Director

Feedback on Draft Modification Code

Your Details

Name	Organisation	Contact Phone	Contact Email Address
Not relevant	Six Wheeler Conversions PL	Not relevant	Not rele @sixwheeler.com.au

Code Details

Code Name	Title	Date Submitted
LS15	GVM Re-rating in accordance LS11 Design	19/06/18

Your Specific Comments

Section #	Clause #	Your Comment
1	1.1	<p>"Re-rating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer." Seems to be invalidated by 1.2, which prohibits "Re-rating of a vehicle, the GVM of which, before modification, is greater than 4,500 kg." and "Re-rating of a vehicle, the GVM of which, after modification, will be greater than 4,500 kg."</p> <p>There are very few, if any instances where vehicles other than trailers would be re-rated to a manufacturer's letter without the GVM changing past 4500kg in either direction.</p> <p>This should also be expanded to include "Re-rating of a light vehicle's GVM in accordance with a letter from a second stage manufacturer" because as a Second Stage Manufacturer, I hold design approvals which permit a range of GVM ratings for the same conversion.</p> <p>This still seems onerous compared to other transport departments such as Victoria, where the customer service officers at the branch can process GVM changes over the counter, where a (original or SSM) manufacturer's letter states the vehicle is identical to the model with the alternate GVM.</p>

Your General Comments

Qualification requirements are too restrictive for this code. I am a qualified Vehicle Body Builder (Qualification 4) and my trade course included installation of axles, suspensions, etc as well as chassis strength requirements, weight distribution, load calculations, etc, (not to mention detailed welding training) and I have over 20 years of experience in designing and installing multi axle conversions which result in GVM increases. This provides me with far more relevant qualifications to assess the installation of a conversion which generally includes suspension and chassis modifications than a mechanic (Qualification 2).

By comparison, Cert III in Automotive Mechanical Technology contains no training relating to chassis modifications, strength requirements, weight distribution, load calculations, etc. and only basic welding technology.

When I need to upgrade models which don't have the market volume to justify the expense of SSM testing, I can submit my designs to a consulting engineer for assessment and certification to an LS11

code but surely, I should then be recognised as qualified to assess the installation of my own design and apply an LS15 without having to take it to a mechanic who's probably never even had a close look at a similar conversion.

Please use additional sheets, if required, for more feedback.

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[Empty rectangular box for feedback]

Please use additional sheets, if required, for more feedback.

Internal Consultation Use Only

Vehicle Standards

From: Not relevant <[redacted]>@cruisemaster.com.au>
Sent: Tuesday, 19 June 2018 2:10 PM
To: Vehicle Standards
Subject: RE: New and Revised Modification Code for your comment
Categories: SL

Hi

The LS11 check list does not make provision for the tyre placard to be "not applicable" (N/A).

6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	---	Y	N
6.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	---	Y	N
6.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	---	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	---	Y	N
7	Electronic Stability Control			

Section 3.8 of the mod code states that the placard is only required on condition of the GVM:

If re-rated GVM and axle masses require different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

The check list however, seems to suggest that a tyre placard is mandatory.

Regards

Not relevant
MEng CPEng RPEQ APQld
Engineering Manager

P 07 3624 3804 M Not relevant
@cruisemaster.com.au www.cruisemaster.com.au



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Begin forwarded message:

From: "Peter N Twining" <peter.n.twining@tmr.qld.gov.au>
Date: June 19, 2018 at 6:39:32 AM GMT+10
To: "Vehicle Standards" <vehiclestandards@tmr.qld.gov.au>
Subject: New and Revised Modification Code for your comment

Dear Stakeholders

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Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
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Vehicle Standards

From: [Not relevant]@WalshEng.Com.Au>
Sent: Tuesday, 19 June 2018 2:24 PM
To: Peter N Twining
Subject: LS11 / LS15
Attachments: Form for Feedback on Draft Modification Code LS11.pdf

Hi Peter

My comments attached

Regards

[Not relevant]

Walsh Engineering Solutions Pty Ltd

478 Boundary St

TOOWOOMBA

Phone:- 07 4634 3344

Fax :- 07 4634 3355

Internal Consultation Use Only

In a case where the OEM does not specify a GCM, RVCS are interpreting their ruling that we can increase the GVM and as long as we don't increase the towing capacity it is acceptable. That means that in the case of a 200 Series Landcruiser we can increase the GVM to say 4200 kG and maintain the towing capacity as 3500 kG. Toyota only specify a maximum braked towing capacity, not a GCM. This is different to the interpretation in this document.

If an SSM approval includes a GVM upgrade and maintains the towing capacity , ie ultimately increasing the GCM – If I have approval from the SSM can this modification, including GCM increase, be approved under the LS11 code.

Please use additional sheets, if required, for more feedback.

Internal Consultation Use Only

Vehicle Standards

From: Paul R Hawkey
Sent: Monday, 25 June 2018 10:29 AM
To: Peter N Twining; Vehicle Standards
Cc: Jarrod P Wilson; Tina L Highet; Toni M Laver; Ross F Butler
Subject: FW: New LS15 and amended LS11 Modification Codes for comment
Attachments: Form for Feedback on Draft Modification Code LS11.docx

Thanks, Jarrod & Ross.

Pete,

Two comments for consideration.

Cheers

Regards,

Paul Hawkey
Senior Policy Advisor | Transport Regulation Branch
Customer Services, Safety & Regulation Division | Department of Transport and Main Roads

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From: Jarrod P Wilson
Sent: Monday, 25 June 2018 10:09 AM
To: Paul R Hawkey <paul.r.hawkey@tmr.qld.gov.au>
Subject: FW: New LS15 and amended LS11 Modification Codes for comment

Good morning Paul,

Please see feedback from Northern Region SME Ross Butler.

Kind regards

Jarrold Wilson
A/Manager (Compliance) Northern | Northern Region
Customer Services Branch | Department of Transport and Main Roads
Floor 5 | Townsville – Flinders Street | 445 Flinders Street | Townsville Qld 4810
PO Box 7466 | Garbutt Bc Qld 4814
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W: www.tmr.qld.gov.au

I work flexible hours Mon-Tue-Thurs-Fri 0630 to 1600 hrs



Safe Drivers. Safe Vehicles. Safe Roads.

From: Ross F Butler
Sent: Monday, 25 June 2018 6:50 AM
To: Jarrod P Wilson <Jarrod.P.Wilson@tmr.qld.gov.au>
Subject: RE: New LS15 and amended LS11 Modification Codes for comment

Hi Jarrod,

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Ross F Butler

Transport Inspector | Northern Region
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Floor 1 | Townsville - Garbutt Customer Service Centre | 21-35 Leyland Street | Garbutt Qld 4814
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W: www.tmr.qld.gov.au



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Sent: Tuesday, 19 June 2018 10:21 AM
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From: Peter N Twining
Sent: Tuesday, 19 June 2018 6:42 AM
To: Vehicle Standards <vehiclestandards@tmr.qld.gov.au>
Subject: New LS15 and amended LS11 Modification Codes for comment

Dear Stakeholders

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W: www.tmr.qld.gov.au



Internal Consultation Use Only

Please use additional sheets, if required, for more feedback.

Internal Consultation Use Only

Vehicle Standards

From: [Not relevant]@test-trak.com>
Sent: Monday, 25 June 2018 2:38 PM
To: Peter N Twining
Subject: Draft VSB 11 & VSB 15
Attachments: Feedback on Draft Modification Code LS15.docx; Feedback on Draft Modification Code LS11.docx; GVM upgrade.pdf

Hi Peter

I was forwarded the draft VSB 11 / VSB 15 and I've taken the liberty of making some comments.

Part Refuse Sch.4 Part 4 s.7(1)(c) Business/commercial/professional/financial affairs

Regards

[Not relevant]

Test-Trak

Mobile: [Not relevant]

Office +61 3 9769 9766

Email: [Not relevant]@test-trak.com



www.test-trak.com

VSBS 14

GVM Upgrade

Background

The GVM for light vehicles set by the manufacturer has a degree of arbitrariness. GVM is often set by marketers to compete in a market, or meet local registration or road tax or driving license requirements. It is not uncommon for the same vehicle to have different GVM ratings in different markets around the world.

Once the GVM for a vehicle model is set, the engineering development testing occurs. Components that fail or exhibit issues give indications of some of the constraints on the vehicle GVM. However, for most components, the amount of capacity "in reserve" or the degree that components could take a higher GVM is unknown.

GVM upgrades have become popular (primarily for body on-chassis 4WD vehicles) as owners require additional load capacity for:

- Towing,
- 4WD accessories (such as bull bars, winches, long range fuel tanks, water tanks, etc).

GVM upgrades were popularized after ARB gained Secondary Stage Manufacturing (SSM) approval for LandCruiser 200. The Landcruiser 200 was launched above its design empty weight and Toyota deleted the rear fuel tank to allow it to remain an 8 seat vehicle, which was unpopular in the market and created a demand for a raised GVM solution.

Additional modifications that require GVM upgrades are:

- Armoured vehicles
- Specialised vehicles with task specific equipment, eg HiRail vehicles
- Special task vehicles, eg military conversion vehicles, police vehicles, ambulance conversions, UN and Aid & Development agency vehicles.

We have been involved in most, if not all, of these conversion types, especially Armoured, military & aid & development organization vehicles.

Typically with light vehicles the GVM upgrade is achieved by either:

- a) Increasing GVM to the sum of front & rear axle load limits, or
- b) Increasing the rear axle load limit only. Typically, it is the rear axle load limit which is restrictive. Also, the class of vehicle involved typically has a solid rear axle, which is easier to prove a higher load limit.

Typical GVM increases are in the order of 100kg – 500 kg or typically 3% - 15%

SSM vs VSB modification approval.

The SSM system allocates approval to a specific manufacturer who assumes product liability for the modification. The SSM process (at least in theory) has a mechanism that provides for recall / service campaigns if a problem emerges in service.

We have been involved with 3 GVM upgrade programs with 3 different companies. A weakness of the SSM system is that each application is treated differently and is subject to different evidence requests from the RVCS group.

GVM, durability, and handling performance are not covered in the ADR's that the DIRD administer.

SSM is concerned only with the requirements of:

- ADR 23 – tyres
- ADR 31 or 35 – Braking systems
- ADR 42 (general safety requirements)
- ADR 43 Vehicle dimensions

The SSM process does not address the requirements for roadworthiness and registration embodied in state legislation. Nor does it take a broad view of vehicle safety. It does not consider “fitness for purpose” or workmanship. It does not consider durability issues. It does not consider suspension geometry issues, particularly bump stops and sway bars, It does not consider the adequacy of body to frame mounts for the additional loads resulting from the GVM increase.

RVCS will accept GVM increase to a GVM that is the simple addition of front and rear axle loads. We believe this is seriously flawed. OE manufacturers set a GVM that is below the addition of front and rear axle load limits. Different OE manufacturers use different factors between the sum of axle load limits and GVM, but typical figures would be 10% - 20%.

If the GVM is set at the addition of front and rear axle load, then at GVM, as soon as the vehicle goes uphill or downhill, or the vehicle brakes (transferring additional load to the front axle), the axle load limit is exceeded.

In our view, some companies seek SSM primarily as a defacto route for post registration modification approval. These companies (eg aftermarket suspension retailers) do not have workshop facilities that can perform the secondary stage manufacturing process with the required process control. Many of them are not in a position (in the distribution chain) to access pre-registered vehicles to qualify for SSM conversion.

We believe that the use of SSM as the basis for GVM upgrade based on VSB 14 is flawed.

Issues requiring assessment for GVM increase:

1. Safety issues:

- Braking performance to ADR 31 or 35.
- Brake pedal effort
- Maximum (ABS) braking & operation of brake proportioning (not required by tests detailed in VSB 14 table LG5)
- Split- μ braking (not required by tests detailed in VSB 14 table LG5)
- Tyre load capacity
- Revised tyre pressures for the additional load.
- Revised tyre placard
- Wheel load capacity
- Reduced clearance between body and wiring looms, brake lines, etc due to compression of body to frame mounts. (requirement to change or time-life body mounts).
- Action of bump stops, particularly in repeated direction reversal or slalom type maneuvers. Our past work has found more than one vehicle to be deficient in this area.

2. Durability issues:

- Chassis strength
- Wheel bearing capacity
- Axle torque capacity
- Axle housing strength
- Spring mount strength
- Sway bar mount strength
- Differential capacity
- Panhard rod / watts link axle lateral location strength
- Suspension bush stiffness

None of the durability issues listed above are covered by ADR's or state registration requirements. Therefore, we do not believe that they should be the subject of prescriptive test and evaluation requirements detailed in the draft VSB 14 LS11 & LS15.

GVM upgrades have been common under SSM and VSB 14 for approx. 10 years. There are no known chassis or structural issues that have arisen over this time. There are however, known to be some bearing life and axle life issues with some vehicles – primarily due to increased lateral (cornering) force rather than the vertical weight force vector. We believe these issues can be addressed by calculating revised life estimates and specifying appropriate replacement schedules for these components.

However, conversely, we believe that critical safety issues are not covered by the draft VSB 14 LS11 & LS15. In particular:

- Maximum braking capacity
- Brake performance with failed systems (eg brake booster)
- Revised tyres & tyre pressures
- Body mount rubbers and reduced body to chassis clearance
- Bump stop performance – especially under slalom conditions.

GVM Upgrade Notes:

1. The durability issues are not covered under the ADR's. In all instances, they relate to fatigue or life longevity issues. Loading by up to 15% above the declared GVM of a vehicle may still be within the OE manufacturers "factor of safety" but never-the-less the only detrimental effect of an increased GVM is likely to be a shortened service life. OE manufactures typically do not apply service lives to these components, nor list these components in the service schedule. Therefore a reduction in service life becomes a nebulous issue.
2. Chassis strength is a very grey area. A number OE 4WD vehicles have known chassis cracking issue at the OE published GVM. This has been demonstrated to be acceptable in the market and there has been no move by any regulators to have the issues rectified. Therefore, it would seem unreasonable to hold modifiers to higher standards.
3. Similarly, there are some vehicles that are prone to axle shaft breakage and cracking of the rear axle housing in the original equipment condition. Therefore, the standard to which the strength of axles and axle housing are to be assessed is very difficult to determine. Modifications should not be held to a higher standard than OE manufacturers.
4. The remaining strength issues are service life issues that are dependent on a mix of load and number of cycles. None of the components involved appear in vehicle manufacturers service replacement lists. Any loading in excess of the design loads will serve to shorten the service life only. A sensible approach may be to place service life limits or inspection requirements on these components after GVM upgrade.
5. A revised tyre placard showing revised tyres, tyre pressures and axle load limits should be a mandatory part of the modification approval.
6. A rule of thumb for the revised GVM could be a maximum of 95% of the rear axle load limit plus 90% of the front axle load limit. We do not believe that GVM limits which are the summation of front and rear axle loads should be allowed.
7. The combined tyre load capacity of an axle should be in excess of the axle load limit. Industry best practice is 15% - 20%. This is to allow for road impact loads (eg potholes), poor tyre pressure management and some level of tyre damage (eg sidewall cuts and bruising).
8. Typically, current popular GVM upgrades are achieved by increasing the load of the rear beam axle only. This is primarily due to the complexity of proving increased load capacity of independent front suspension. However, it is not common for any loading analysis to show that this represents real world loading.

Braking tests

The braking of increased GVM vehicles will be affected by:

- a) Increased energy required to be dissipated due to the additional mass.
- b) Increased brake dive from increased vehicle mass
- c) Changed tyres and possibly wheels to deal with increased axle load limits.

The brake test in VSB 14 table LG5 is a simplified for of the ADR 31 or ADR 35 tests. It is not required to be conducted by certified test facilities, nor is there any requirement for equipment calibration. The VSB 14 test does not test any failed system conditions (eg failed vacuum boost, failed brake circuit, etc).

In our opinion, confirming the maximum braking possible is an important safety test but not covered by the VSB 14 tests, ie demonstrating that the vehicle will brake severely enough for ABS to intervene or to lock a wheel.

Similarly, confirming that the vehicle brakes straight under split- μ circumstances and demonstration that the higher GVM does not adversely affect the front / rear brake proportioning is important.

Lazy Axles

Many Lazy Axle installations do not adequately load share. The simple test of placing the 4 rear wheels on load scales, then raising an axle by 100mm (simulating a speed hump, pothole, kerb, etc) and comparing the individual wheel weights demonstrates this. We believe that this should be part of the test requirement for lazy axles under VSB14.

Vehicle dynamics / C of g location / Rollover propensity

For passenger cabin vehicles (eg MC category) and pickups as delivered OE (category NA & NB) the additional loading to the change to centre of gravity will not be significant enough to require further analysis. Accessories such as long range fuel tanks lower the c of g, towball load is typically below the c of g and bull bars / rear bumpers are typically at about c of g height. The centre of gravity of human passengers is typically close to the vehicle c of g as is the load area of a wagon or pickup.

For vehicles without additional modifications, it can be assumed that the increased GVM will remain inside the c of g envelope intended by the vehicle's manufacturer.

GVM upgrade for armoured vehicles requires special assessment. The armouring increases centre of gravity height significantly

Pick-ups with trade bodies and other accessories that allow loading up high require specific assessment of the effect of c of g height change on vehicle handling and stability.

VSC / ESC

In the simplest terms, VSC operates by comparing yaw angles with steering angle. Assuming the envelope of cog location does not change in size and shape from that intended by the manufacturer, then simply increasing GVM should not have a significant effect on polar moment of inertia.

Therefore the yaw characteristic is not changed by increasing the GVM and VSC / ESC systems are not affected.

This does not apply to vehicle modifications that significantly change the c of g location, eg armored vehicles or vehicles with roof loads above that specified by the manufacturer (typically circa 100kg).

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GCM / Towing issues.

The concept of GCM involves both towing stability and braking performance. Theoretically, above 750kg the trailer brakes should relieve the towing vehicle from additional braking load due to the trailer.

Increased mass of the towing vehicle serves to improve towing stability. See “Determination of Trailer Stability Through Simple Analytical Methods and Test Procedures” SAE paper 790186.

The primary impact of increased GVM on towing capacity / GCM is braking performance. This is not an area addressed by the ADR's.

A discussion of potential testing for increased GCM is outside the scope of this paper. However, as a minimum it should include:

- Gradient driving performance (say grades approx. 12% as found on some freeways)
- Handbrake performance at GCM
- Ability of the vehicle to move from a standing start on a slope of 20% (ie the handbrake test slope)
- Braking performance (say the simplified ADR test detailed in VSB14)
- Brake performance in the event of trailer brake failure.

These tests should be performed by an ADR test facility with calibrated equipment.

The conservative approach is the increase GVM, but leave GCM unchanged. However, if braking tests are repeated, this should be adequate demonstration for increased GCM to the modified GVM plus the OE towbar limit. However, this is not addressed by the ADR's. In the absence of any specific ADR a repeat of ADR 31 or 35 at the amended GCM would seem to be the only option.

Towbar capacity is set by the OE Manufacturer and involves significant strength and fatigue testing. This is identified on the rating plate attached to the towbar.

In our experience, most problems that occur in OE testing are the interface between the towbar and the vehicle. This can be a complex situation that involves the bolted joint design and the shape rigidity of the vehicle attach point.

We do not believe that the rated towing limits should be varied without replicating the OE testing regime – which is usually not known.

Feedback on Draft Modification Code

Your Details

Name	Organisation	Contact Phone	Contact Email Address
Not relevant	Test-Trak	Not relevant	Not relevant@test-trak.com

Code Details

Code Name	Title	Date Submitted
LS11	GVM Re-rating of light vehicles	25/6/2018

Your Specific Comments

Section #	Clause #	Your Comment
1.1		15% GVM upgrade is common and a better limit.
1.2	Point 6	This point effectively says that the GVM must be lower than the combined axle load limits, yet this provision does not appear in the document body
1.2	Point 7	The whole point of the VSB is to re-rate components above the manufacturers published rating. This is in conflict with 2section .5 This point is non sensical. Furthermore, the rating of most components cannot be determined.
2.1		If this code is intended to be part of VSB14, then the reference to Queensland legislation is inappropriate.
3.2		This makes no sense. GVM and engine power are not really related. If so, there would be specification on minimum power to weight ratios. Engine & transmission manufacturers do not publish any recommendations on vehicle weight.
3.3		The requirement for "re-inforced replacement axles" is meaningless. How is an axle defined? Is it the axle assembly, axle housing or axle shafts? Furthermore, there is a substantial body of evidence of successful GVM upgrades that do nothing to improve axle strength. Axle strength / durability is not an ADR issue, nor is it a safety issue.
3.4		This paragraph demonstrates ignorance of vehicle mechanics. The torque load placed on the axles is a function of available torque from the engine. It is independent of GVM. Higher GVM will simply have lower acceleration for the same engine.
3.4	Dot points 1-3	Engine changes are subject to code LA and have no place in this code.
3.6		Brake test standard is not specified.
3.7		Steering changes are subject to code LS. Steering modifications have no place in this code.
3.8	Para 1	A "factor of safety" for the rated tyre load above the re-rated axle load should be specified.

3.8	Para 1	The revised tyre placard should refer to the modification approval number. It should be specified that axle load limits are included on the tyre placard.
4.2		The information shown in this label is repeated in other required labels, ie modification plate and tyre placard. This proposed label is redundant and unnecessary and incomplete because it does not contain tyre load & pressure details.
5.1		No test or assessment method for VSB has been nominated. ADR 88, ADR 31 / 25 Annex A or modifiers assessment? There is a significant number of peer reviewed SAE papers that suggest that VSC performance is not affected by weight change if there is no change on c of g location. This draft code is not requiring any estimation of c of g location change.
7.1		Test authority status is not specified. Is ADR test facility status required? If not, what other qualification is appropriate?

Your General Comments

Refer to attached notes.

Please use additional sheets, if required, for more feedback.

Feedback on Draft Modification Code

Your Details

Name	Organisation	Contact Phone	Contact Email Address
Not relevant	Test-Trak	Not relevant	Not relevant@test-trak.com

Code Details

Code Name	Title	Date Submitted
LS15	GVM Re-rating in accordance LS11 Design	25/6/2018

Your Specific Comments

Section #	Clause #	Your Comment
2.2		I don't believe that manufacturers will ever supply a letter sanctioning GVM upgrade without physical change.
3.1		The tyre loading should be in excess of the axle load rating. The combined axle load rating should be in excess of GVM. The statement of loading in this paragraph is inappropriate and may lead to unsafe tyre loading.
3.2		Chassis modifications are subject to code LH and inclusion in this code is inappropriate.
3.3		Brake modifications are subject to code LG and inclusion in this code is inappropriate.
3.4		It is typical that GVM upgrades exceed the manufacturers axle ratings. There is now a 10 year history of such modifications occurring safely.
3.7		Has there been consultation with manufacturers on this? Key manufacturers involved (in order of volume) are Toyota, Ford, Nissan, GM. I do not believe any of these manufacturers will issue such a letter, in which case this section is redundant. The subject of this code should be the guidelines upon which qualified persons can modify a vehicle to deviate from the manufacturers recommendation – in the same manner of all other VSB codes .

Your General Comments

See attached notes.

Please use additional sheets, if required, for more feedback.

Vehicle Standards

From: Anant Z Bellary
Sent: Wednesday, 27 June 2018 11:14 AM
To: Peter N Twining; Shane F Lonsdale
Subject: FW: New Modification Code LS15 and Revised Modification Code LS11...
Attachments: LS11 Code Jun 2018 Consultation Draft.docx; LS15 Code Jun 2018 Consultation Draft.docx

FYI and for storing as jurisdictional feedback.

Regards

Anant Bellary

Vehicle Standards & Accreditation
Transport & Main Roads

From: [Not relevant] @sa.gov.au
Sent: Tuesday, 26 June 2018 4:23 PM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: RE: New Modification Code LS15 and Revised Modification Code LS11...

Anant,

The grammar Nazi strikes again!

Apart from a few minor points both documents look good. It will assist us in making our own decision about light vehicle GCM/towing capacity increases.

[Not rel]

From: Anant Z Bellary [mailto:Anant.Z.Bellary@tmr.qld.gov.au]
Sent: Wednesday, 20 June 2018 8:46 AM
To: [Not relevant] @roads.vic.gov.au
Subject: New Modification Code LS15 and Revised Modification Code LS11...

To

[Not relevant]

Chair
VSB-14 Single Issue Working Group
AMVCE

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of in-service light

vehicles (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued for the vehicles of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes from 3rd September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

TMR invites, urges and welcomes you to include these codes in the VSB-14 National Code of Practice for national uniformity.

Happy to discuss further to assist national adoption of these codes as required.

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

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Internal Consultation Use Only

Modifications Leading to Re-rating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification

CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons (AP) to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications are carried out in accordance with instructions in the relevant LS11 design certification. In addition to the requirements in this code, the AP providing LS15 certification must follow the instructions in the design package that came with the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Re-rating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same make/model/variant/chassis series.
- Re-rating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

Commented [SR(1)]: A bit broad. Surely just make/model is sufficient.

1.2 Certifications not permitted under LS15 code

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Re-rating of a vehicle which is outside the scope of the relevant LS11 design certification.
- Re-rating of a vehicle, the GVM of which, before modification, is greater than 4,500 kg.
- Re-rating of a vehicle, the GVM of which, after modification, will be greater than 4,500 kg.
- Re-rating of GVM by comparing with an alternative make/model of vehicle.
- Re-rating of GVM by comparing with another vehicle which has been previously re-rated using a modification code.
- Re-rating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Re-rating of GVM prior to first registration anywhere in Australia. In such cases seek a Second Stage of Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications under LS15 may include replacement of axle(s), suspension or braking system with alternative components or reinforced chassis frame which collectively may permit a different rating.

Commented [SR(2)]: Just chassis is sufficient

2.2 Re-rating without Modifications

In some cases, re-rating of GVM may involve no physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required for re-rating. Care must be taken when comparing vehicles ~~and~~ their components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

Commented [SR(3)]: I abominate the use of the slash where a normal conjunction can be used.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) which are relevant to it. This includes ADRs which applied to it when it was originally constructed and the ADRs that apply to it after it is modified. If there is a conflict, the ADR requirement after modification takes priority.

2.4 Work Instructions from the LS11 Design Package

Modifications must be carried out according to the work instructions that are in the design package that came with the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection specified in the design package must be completed and the evidence of the same must be held by the LS15 certifier. This includes completing the checklist(s) that came with the LS11 design package.

3.0 Specific Requirements

When certifying the re-rated GVM under LS15, the chassis frame, suspension, axles and drive train components must be used within the original vehicle manufacturer's rated capacities. All instructions provided in the LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

If re-rated GVM requires different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

3.2 Chassis Frame

The chassis frame of the modified vehicle must be according to the LS11 design package or identical to the original vehicle manufacturer's alternate model or variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design package or identical to the vehicle manufacturer's specifications for the alternate model or variant.

3.4 Axles and Suspension

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the details and the in-service condition of the vehicle must be checked, as specified in the LS11 design package, to ensure that the vehicle is eligible for re-rating and its condition is safe and suitable.

Step-1: Confirm that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: Inspect and confirm that the condition of the vehicle is suitable for re-rating. The instructions in the LS11 design package must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition for re-rating. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

If re-rating is based on the original vehicle manufacturer's letter, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being re-rated.
- Details of all physical changes required for re-rating (including the details of the specific upgrade parts to be fitted).
- Re-rated GVM.
- Signature and date by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
1.1	<p>Have you received a copy of and understood: The LS11 design package with all the instructions to modify, test and re-rate vehicle of this make/model/variant/chassis series? LS11 Design Certification No. Date..... OR A letter from the original vehicle manufacturer for re-rating? Manufacturer's Letter Reference _____ date _____ Note: If you do not have one of the above, you are unable to certify this vehicle.</p>	Y	N
1.2	Are you accredited to certify the additional modification codes required by the LS11 design certification or the vehicle manufacturer's letter?	Y	N
2	Chassis Frame		
2.1	Does the chassis frame conform to the detail construction, section properties and cross-members of the LS11 design package or the original vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation? Does it meet the inspection criteria mentioned in the LS11 design package?	Y	N
3	Brake system		
3.1	Is the vehicle's braking system as specified in the LS11 design package or the original vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching? Does it meet the inspection criteria mentioned in the LS11 design package?	Y	N
4	Tyres and Rims	Y	N
4.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	Y	N
4.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	Y	N
4.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	Y	N
4.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Load Capacity Label		

6.1	Is the Load Capacity Label attached to the vehicle?	Y	N
6.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are/Is the checklist(s) required in the LS11 design package completed?	Y	N
7.3	Are all the inspections and tests as required in the LS11 design package completed?	Y	N
7.4	Have you kept all supporting documents you used to certify this modification and photos of the modified vehicle for future audit?	Y	N

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CERTIFICATION DETAILS											
Make		Model		Year of Manufacture							
VIN											
Chassis Number (if applicable)											
Brief Description of Modification/s											
Vehicle Modified By											
TMR In-Principle Approval Number											
Vehicle Certified By (Print)											
Signatory's Employer (if applicable)											
Signatory's Signature									Date		

Internal Consultation Use Only

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles:

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. ~~Also~~ A light vehicle that has been previously re-rated from the original manufacturer's GVM rating is ~~also~~ not eligible for re-rating under this code.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWs Approval is ~~not deemed as to be~~ the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a ~~vehicle's~~ GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

Commented [SR(1)]: A bit broad. Surely just make/model is sufficient.

Commented [SR(2)]: Is there a separate code for the fitting of an additional axle?

Commented [SR(3)]: There is inconsistent use of the apostrophe throughout this document.

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1.2 What is not permitted

Modifications that must not be certified under LS11 code are.

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to ~~the~~ manufacturer's optional GVM for that make/model and also in case of GVM reductions required as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 Code or another Code of Practice or another jurisdictional approval).
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.

- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass (MBTM) of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

2.0 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the *National Code of Practice (NCOP) – Light vehicle modifications (VSB14)*.

Increased GVM has the potential to affect eligibility ~~of for~~ warranty claims with the original vehicle manufacturer ~~in some cases~~. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have. Any effect this modification may have on the product warranty provided by the original vehicle manufacturer is outside the scope of this code. The certifying officer must clarify this point to the modifier and the vehicle operator.

Commented [SR(4)]: Document titles, when given in full, should be in italics (see Commonwealth Style Manual).

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2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs that apply to them.

If different ADRs apply due to the modified vehicles, they must comply ~~to with~~ those ADRs that are relevant to them.

Modified vehicles must also comply with the applicable in-service requirements of *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010* (the Regulation).

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Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Braking Systems	ADR 31/...or ADR 35/...
Brake Performance (for non-ADR vehicles)	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.2 GVM re-rating based on Original Vehicle Manufacturer's Option

The change to the vehicle's GVM must replicate the original vehicle manufacturer's optional GVM for that particular make, model and variant. All components, including suspension, transmission, engine, brakes, tyre and rims must be fitted same as those specified for that particular vehicle's ~~alternate~~ alternative rated variant.

2.3 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicle's first Identification Plate/Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of new vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 or 300 vehicles per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of in-service vehicles modified per annum under the combination of the particular SSM approval and this code do not exceed the limit specified for that low volume SSM approval.
- GVM re-rating of in-service vehicles using LS11 code must not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- A statutory declaration must be obtained from the low volume SSM holder stating that the number limit has not been exceeded as of that date.
- The SSM approval number must be recorded on the modification certificate.
- The low volume SSM restrictions must be noted on the modification certificate (for example vehicle #12 of 300).
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.4 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The ~~fitment-fitting~~ of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

Commented [SR(5)]: Fitment is a noun, not a verb.

2.5 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original vehicle manufacturer's GVM rating. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the original manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or any combination of these

Commented [SR(6)]: Just chassis is sufficient.

The following specific requirements must be met.

3.1 Chassis

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

Chassis modifications must be performed in accordance with section LH5 of VSB14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification Code of Practice (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

3.2 Engine/Transmission

The GVM re-rating assigned must not exceed the engine and transmission manufacturer's recommendations, if any, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on vehicle's tail shaft. For example:

- changes to vehicle's ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

3.5 Suspension

When loaded to re-rated GVM, additional loads are placed on the suspension. Vehicle suspension ratings must be adequate for the re-rated GVM plus it must be able to accommodate the axle loads resulting from the common and practical load distribution. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

Commented [SR(7)]: What is this trying to achieve?

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the re-rated GVM or if it requires to be reinforced.

Commented [SR(8)]: Reinforced is an unusual word in this context. I would suggest that modified in more appropriate

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the re-rated GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the potential maximum mass on that axle.

If re-rated GVM and axle masses require different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

If different tyres & rims are specified, their size must be no more than necessary to support the increased axle masses. The effect of alternate/alternative tyres on speedometer/odometer accuracy must be considered. It must be ensured that, with the alternate/alternative tyres, vehicle's compliance to ESC requirements is not affected.

Formatted: Highlight

Commented [SR(9)]: I see what you are getting at but owners fit alternative tyres for other reasons. e.g. to increase ground clearance and/or footprint

4.0 Owner's Handbook and Load Capacity Label

The vehicle operator must be adequately informed of the changes.

4.1 Owner's Handbook

To inform the vehicle operator about the vehicle's towing capacity and tyre & rim requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres, rims and the towing capacity. Of particular importance is any sliding reduction in towing capacity of the vehicle as it is loaded to its re-rated GVM and/or vertical load on tow ball (ball weight).

Commented [SR(10)]: What does this mean?

Formatted: Highlight

If the vehicle's handbook is not available, this information must be provided in written form to the owner of the vehicle.

4.2 Load Capacity Label

Certain information must also be displayed on the Load Capacity Label as discussed below.

The Load Capacity Label must follow the below format. It must be made of durable material and letter size and contrast should be similar to the tyre placard. Label must be fitted to the vehicle, as close as practicable, to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Re-rated GVM	kg
Maximum Braked Towing Mass at re-rated GVM*	kg
Maximum Front Axle Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum braked towing mass depends on the re-rated GVM and trailer ball weight. For further information regarding towing capacities please refer to the vehicle's handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Re-rated GVM may have a direct effect on the performance of the Electronic Stability Control (ESC) system. Hence the ESC system must be revalidated so it performs satisfactorily at the re-rated GVM. However such revalidation is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to the SSM approval, such that the system's compliance has been demonstrated using other agreed methods.

Commented [SR(11)]: Don't be frightened of the definite article

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as GCM rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. The scope of this code does not include changes to vehicle's towing capacity. If towing capacity is not specified by the original vehicle manufacturer, the limits mentioned in the Safe Towing Guide published by TMR apply.

If the original vehicle manufacturer has specified towing capacity in some form, the gross combination mass formed by adding that towing capacity and the original GVM rating must not be exceeded. Hence, when the GVM is re-rated, the actual towed mass must be proportionately reduced according to the loaded mass of the towing vehicle.

6.0 Additional Modifications and Changes to Vehicle Category

If additional modifications are made or the vehicle's category has changed due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

The LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited AP holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that same make/model/variant/chassis series and generate the necessary evidence to show that the requirements of the LS11 design certification are met.

When LS11 code is used to provide design certification, the AP providing the design certification, may not inspect the modified vehicle(s) and is not required to fit LS11 modification plate on the vehicle(s). Also the checklist completed as part of the LS11 design certification will not refer to any particular VIN.

The outputs of a design certification under LS11 code are (a) a comprehensive design package (b) a modification certificate and (c) a completed checklist. All of these outputs must be preserved as records of the LS11 design certification and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design package must clearly identify which make/model/variant/chassis series it applies to. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating of GVM is being done on in-service vehicles, the condition of the vehicle is important to decide which vehicle can be safely modified and re-rated. The design package must include instructions about what is to be inspected and the acceptance criteria. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations, leaks and structural damage due to overloading, accidents or rust is also critical.

The design package must include a checklist template for use by the AP certifying the physical modification. The checklist will be completed by the AP who certifies the physical modification to confirm that the vehicle was inspected and was found in sound condition before commencing the modification.

7.1.2 Evidence package

The design package must include all the test reports and engineering calculations that validate the re-rating, when modified as prescribed. Test reports must be from reputed test laboratories, have unique identification number and be signed and dated. All test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply. Also the test reports must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier document that is dated and signed.

If any evidence is sourced from a third party, the evidence package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, sometimes the LS11 certifier may choose not to include all the test reports in the design package. In such cases the design package must still include a full list of all the test reports and the calculation sheets (using their unique identifiers) and provide written assurance to the client that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package must include comprehensive work instructions on how to modify the vehicle, what parts to be used, the sequence of actions to be performed, precautions to be taken and what process controls to be applied.

The work instructions must include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The work instructions must be easy to understand, unambiguous and should include sufficient pictorials including photos and graphics.

The work instructions must include the contact details of the LS11 certifying AP if enquiries arise needing further clarification during the physical modification and/or its certification.

7.1.4 Checklist for the modifier and the certifier

The design package must include template checklist(s) to be completed by the vehicle modifier and the certifier of the physical modification. These may be separate or one combined checklist. These checklists, when completed, are evidence that the modifier and the certifier of the physical modification have understood and followed the work instructions and the intent of the design package has been met. The LS11 AP may ask for copies of completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice. The completed checklist must also be retained by the AP who certifies the physical modification.

Note that this checklist is different than any checklist that the certifier of the physical modification is required to complete as part his/her certification of the modification under the relevant code.

7.2 Certificate of Modification

The LS11 AP must issue a certificate of modification to his client for the design certification provided. This is similar to any other certificate of modification, except that the certificate may not make reference to any specific modification plate number or VIN. Instead, it must refer to the basis of the design certification (for example, SSM approval number) and the unique identification number of the design package provided.

7.3 Modification Checklist

LS11 AP must complete the modification checklist provided at the end of this code and must retain it as part of his/her records.

Checklist LS11

Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicle's suspension suitable for the increased GVM?	---	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	---	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	---	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	---	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicle's brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	----	Y	N
6.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicle's ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Label			
8.1	Is the Load Capacity Label attached to the vehicle?	---	Y	N
8.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	---	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM approval holder provided written approval to use that SSM design and a copy of the same attached to this checklist?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicle's GVM has been increased more than 10%, is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect to decide if the vehicle is fit to receive the re-rated GVM?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is N (No) the design cannot be certified under LS11 code. If N/A does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS												
Make												
		Model										
				Year of Manufacture								
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
Certificate Number (If applicable)												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature												Date

2.0

Internal Consultation Use Only

Vehicle Standards

From: [Not relevant]@atozimports.net>
Sent: Tuesday, 3 July 2018 12:33 PM
To: Vehicle Standards
Subject: FW: New and Revised Modification Code for your comment

Hi Vehicle Standards Team

I am writing this email to voice my opinion and concerns about the proposed revisions to the Qld Codes. Whilst I don't think my opinion will have much impact, I unfortunately am not in support of the proposed changes.

Sections of the LS11 that have been changed such as the inclusion of the Maximum Braked Towing Mass at re-rated GVM is a good idea. However the section relating to SSM has now become confusing and requires a lot of pointless information and documentation that most SSM will not want to supply as many of them have very little knowledge of their own products, So trying to obtain any more than a stat dec will be almost impossible.

The reason for negative outlook on the addition of the LS15 is mainly due to the facts that firstly I don't think in this day and age there are that many remote or regional areas which are not adequately serviced by fully qualified approved persons.

Secondly it creates more problems and possible floors in the already floored system.

By this I mean you will create the situation where approved persons will be writing out LS15 certificates either without the appropriate paperwork, Or you will have engineers such as [Not relevant] issuing LS11 approval codes without any information or details relating to the modifications.

And whilst I am sure your general reply to this will be that it won't happen, I think it already happens now with so many of the design codes.

I very often see vehicles with LG2 or LH4 etc that list nothing on the certificates about the design codes used? Not to mention the LK1 code that seems to cover every possible seating modification going, regardless of how the seats are anchored or if it effects the seating changes might have on the vehicle ADR category.

I'm the first to admit I make mistakes and I am a long way short of knowing everything about the system, But I can say with no uncertainty that overall mod scheme needs to be updated and possibly cleaned out along the way. It like the safety certificate scheme has just become a tick and flick fast revenue raiser for so many of its participants. instead of getting paid to make sure something is safe, people would much rather just pay to get it passed.

I have been told more than once to get *ucked when I've suggested that we may have to carry out testing to ensure a component or modification meets with the requirements, then to only be insulted further because the local mobile mechanic has mod plated the job for \$50.

I thank you for the opportunity to voice my opinion.

Regards

[Not relevant]

Eng Aust 4179060
SAE Aust 14482
NSW VSCCS Certifier 130016
Approved person Qld 2791
Approved inspector QLD 15653

A to Z Imports

12 Leonard Parade
Currumbin QLD 4223
Ph# 617 55345957
Mob# Not relevant
atozimports.com

Sent from my iPad

On 19 Jun 2018, at 6:39 am, Peter N Twining <peter.n.twining@tmr.qld.gov.au> wrote.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to be incorporated into the Queensland Code of Practice (QCoP) for Light Vehicle Modifications. The purpose of the new code is to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of an in-service light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes have also been made to LS11 code to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are attached for your perusal and feedback. Please provide any comments, via email to vehiclestandards@tmr.qld.gov.au by the close of business on Friday, 20th July 2018. You may use the attached template form to provide your feedback. It is proposed to implement these codes 3rd September 2018.

The qualifications for the revised LS11 code will remain unchanged (that is, Qualification No 1). For the new LS15 code the required qualification will be Level-1 or Level-2, as per the business rules. The latter is a trade based qualification which is considered appropriate for the new LS15 code. I have attached the following link to the qualification table for your convenience:

<https://www.tmr.qld.gov.au/business-industry/Accreditations/Approved-Person-Scheme/Industry-experience-and-qualifications/Qualifications#qualificationtable>

Kind regards

Peter Twining

Senior Policy Advisor (Standards and Accreditation)

Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000

PO Box 673 | Fortitude Valley Qld 4006

P: (07) 30666537

E: peter.n.twining@tmr.qld.gov.au

W: www.tmr.qld.gov.au

<image003.png>

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<Form for Feedback on Draft Modification Code LS11.docx>

<Form for Feedback on Draft Modification Code LS15.docx>

<LS11 Code Jun 2018 Final Consultation Draft.docx>

<LS15 Code Jun 2018 Final Consultation Draft.docx>

Deann G Coleman

From: Elizabeth P Austin
Sent: Thursday, 24 May 2018 4:07 PM
To: Vehicle Standards; Adam Shaw; Peter N Twining; Shane F Lonsdale
Cc: Deann G Coleman; Tracey L Dreier
Subject: RE: Revised LS11 and the new LS15 codes
Attachments: LS 11 Version May 2018 V2.1 (002) V3 comments DC.EA.docx; LS15 Version May 2018 V1 Comments DC EA.doc

Good afternoon gentlemen

Please find attached the marked up LS11 & LS15 draft documents as discussed in today's meeting.

Thank you.

Regards

Elizabeth Austin

AP Policy

Approved Person Scheme | Transport Regulation Branch

Customer Services, Safety and Regulation Division | Department of Transport and Main Roads

PO Box 673 | Fortitude Valley Qld 4006

E: ap_policy@tmr.qld.gov.au

W: www.tmr.qld.gov.au

From: Tracey L Dreier

Sent: Monday, 21 May 2018 7:36 AM

To: Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>; Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>

Subject: Fwd: Revised LS11 and the new LS15 codes

Hi Deann and Liz

Could you guys please review and send your comments back to me so I can review and send consolidated response back to Shane. Thanks.

Regards

Tracey Dreier

A/Manager (Operator Accreditation & Authorisation)

Transport Regulation Branch

Ph: 3066 2532

Mob Not relevant

Begin forwarded message:

From: Shane F Lonsdale <Shane.F.Lonsdale@tmr.qld.gov.au>

Date: 18 May 2018 at 1:36:16 pm AEST

To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>, Anant Z Bellary

<Anant.Z.Bellary@tmr.qld.gov.au>, "Adam Shaw" <Adam.M.Shaw@tmr.qld.gov.au>, Neil L Todd

<Neil.L.TODD@tmr.qld.gov.au>

Cc: Peter N Twining <peter.n.twining@tmr.qld.gov.au>, Peter R Phillips <Peter.R.Phillips@tmr.qld.gov.au>, Patricia L Bailey <Patricia.L.Bailey@tmr.qld.gov.au>, Christina T Myers <christina.t.myers@tmr.qld.gov.au>, Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Subject: Revised LS11 and the new LS15 codes

Good afternoon all

Please find a draft of the revised LS11 and the new LS15 codes for the re rating of a light vehicles GVM. If you have any comment's please do them in mark-up and have them back to me by the 25 May 2018.

Any questions please let me know and I will try to help.

Kind regards,
Shane Lonsdale
Vehicle Standards | Legislation and Standards
Transport Regulation Branch | Department of Transport and Main Roads
Floor 9 | 61 Mary Street Brisbane 4000
PO Box 673 | Fortitude Valley Qld 4006
P: 3066 3469
E: vehiclestandards@tmr.qld.gov.au
W: www.tmr.qld.gov.au

Internal Consultation Use Only

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for rerating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4 500 kg.

Rerating of GVM under code LS11 is permissible only on following type of light vehicles:

- (a) a light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction are not eligible.
- (b) A light vehicle that has not previously been rerated from the original manufacturer's GVM rating.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWs Approval is not deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted...

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer
- Exceptions to the limit of 10% apply in following cases:
 - (i) GVM rating of an in-service vehicle that is of the same the make/model/variant/chassis series as a vehicle having a Second Stage of Manufacture (SSM) approval for GVM rerating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM rerating.
- Increase in GVM where an additional axle has been installed
 - Alteration of a vehicle's GVM rating to match the manufacturer's alternative rating for a particular variant of that make/model

1.2 What is not permitted...

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in 1.1 above

Commented [EPA1]: The 25 per annum limit how do we expect this to be managed - or how do we monitor it or is it outside our area of responsibility.

Commented [EPA2]: Is LS11 going to be a design code only - or will LS11 APs be able to do both.

Commented [EPA3]: It would have been nice to have received a marked up copy of the changes instead of having to compare the 2 documents.

Commented [EPA4]: Does this mean SSM or TA

Commented [EPA5]: How do they know who we consider is reliable & traceable

Commented [EPA6]: This is not clear to look at

- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model (except in case of heavy motorhomes).
- Rerating of GVM on a vehicle which has previously received a GVM rerating by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval.
- GVM rerating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM rerating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.
- GVM rerating where practical loading is likely to exceed the load on any axle beyond the rating by the original vehicle manufacturer
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

GVM rerating under LS11 code must not result in any increase in the towing capacity of the vehicle beyond that specified by the original vehicle manufacturer. This requirement must be met irrespective of how the towing capacity is specified or calculated and includes the terms gross combination mass (GCM) rating, the rated towing capacity and the maximum braked towing mass rating.

2.0 General Requirements

The vehicle must be able to safely operate at the rerated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they are suitable to operate under the loads resulting from the rerated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the NCOP.

Commented [EPA7]: Does this need to be in full

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the rerated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and Approved Person to consider any effect on warranty that the modification may have.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle
- as allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation)*.
- Modified vehicles must also comply with the applicable in-service requirements of the regulation.

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in the table below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to rerate vehicle's GVM.

2.2 GVM alteration based on Manufacturer's Option

The change to the vehicle's GVM must replicate the manufacture's optional GVM for that particular make, model and variant of vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

2.3 GVM Upgrade based on SSM Approval

The rerated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM must also be met. These requirements can include but are not limited to the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the SSM approval holder must ensure that the same restriction is applied to the number of vehicles modified under this code.
- GVM rerating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When upgrading GVM in accordance with an SSM approval the certifying AP must ensure the SSM approval holder has provided written permission for use of the SSM design as the basis.
- If upgrading a GVM in accordance with a Low Volume SSM a statutory declaration must be obtained from the SSM holder stating no more approvals than the limit stipulated on the SSM have been provided. For example, if the Low Volume SSM restricts the number of vehicles to 25 per annum then the SSM approval holder cannot provide permission for more than 25 in-service vehicles to be modified in that year (in addition to the 25 new vehicles certified in accordance with their SSM approval).
- Both the written permission and statutory declaration from the SSM holder must be retained by the Approved Person as evidence for certifying the rerating of GVM under this code.

2.4 GVM Upgrade by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with adjacent axle in the group then the 10% limit on increase in GVM increase may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code.

2.5 GVM rerating outside of Manufacturer's Option

Commented [EPA8]: How is this monitored

Commented [EPA9R8]:

Commented [EPA10]: Does this mean that LS11 is not required here

A rerating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer provided the change is no more than 10% from the original manufacturer's GVM. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When rerating GVM the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved with rerating a vehicle's GVM include:

- single axle to tandem axle configuration
- combination of replacement engine, transmission, axles or suspension components, reinforced chassis and upgraded brake components

The following specific requirements must be met.

3.1 Chassis

Chassis modifications must be performed in accordance with section LH5 of Vehicle Standards Bulletin 14 – and the relevant sections of H code of the Heavy Vehicle Modification VSB6, as far as possible and appropriate.

Commented [EPA11]: Not clear

When modifications such as fitting of additional or replacement axles with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to accommodate the rerated GVM. For calculating chassis strength, Vehicle Standards Bulletin 6 – Heavy Vehicle Modification may be consulted.

A simplified way to look at the frame requirements for GVM rerating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturers for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. The original vehicle manufacturer's axle ratings must not be exceeded in normal and practical loading resulting after the GVM is rerated, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with rerated GVM may place additional load on vehicle's tailshaft. For example:

- changes to vehicle ride height which may alter the tailshaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tailshaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tailshaft.

The vehicle's tailshaft strength and its installation must be suitable at the vehicle's rerated GVM.

3.5 Suspension

With an increase in gross mass, additional loads are placed on suspension. Vehicle's suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from normal and practical loading patterns. Effects of changes in ride height must be carefully considered. FOR EXAMPLE, bump and rebound travel, hydraulic brake hose length, handling & roll stability.

Commented [EPA12]: Should this be GVM

3.6 Brakes

A vehicle's braking performance is directly affected by changes to the vehicle's gross load. Therefore, the vehicle's braking system must be assessed to determine if the original system is adequate for the proposed GVM or if it requires to be upgraded.

Commented [EPA13]: Don't understand

3.7 Steering

The entire steering system must be identical to that fitted by the manufacturer to the original or reference vehicle as appropriate. If the steering system is modified or a new steering system is fitted it must be approved under the LS section of Vehicle Standards Bulletin 14 – National Code of Practice for Light Vehicle Construction and Modification (VSB14).

Commented [EPA14]:

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the revised GVM rating and the load is distributed in a practical and uniform way.

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the revised GVM rating.

If required, an amending tyre placard must be fitted to indicate the correct tyre specifications for the vehicle at the revised GVM rating. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes such as the vehicle's towing capacity and tyre requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any reduction in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicle's handbook is not available this information must be provided in written form to the owner of the vehicle. In addition this information may be included on the load capacity label discussed below.

A label containing important information about the vehicle's load capacity must also be fitted. The label must follow the below label as an example and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

Commented [EPA15]: Where do they get these and the sample still has SSM

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Rated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Front Axle/s Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicle's handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2. In addition, the following limitations mentioned in sections 5.1 and 5.2 apply.

5.1 Electronic Stability Control

Changes to a vehicle's GVM can have a direct effect on electronic stability control (ESC) performance. Therefore, for vehicles fitted with ESC the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being related to a manufacturer's alternative variant or by SSM approval such that the system's compliance has been demonstrated.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. For many light vehicles rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases the limit mentioned in the TMH Safe Towing Guide applies. When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, please note that the maximum mass that can be legally towed when the vehicle is loaded at the related GVM must be proportionately reduced to ensure that the sum of GVM and maximum towing mass at GVM before and after relating remains unchanged.

6.0 Additional Modifications and Changes to Vehicle Category

Where additional modifications have been performed or a change in vehicle category has occurred due to the increase in GVM, certification using the appropriate additional codes must be provided.

Internal Consultation Use Only

7.0 Use of LS11 code to provide design certification for GVM Rerating

LS11 code may now be used to provide design certification for GVM rerating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the rerating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited Approved Person holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the Approved Person providing the design certification may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the design certification may not refer to any particular VIN.

The outputs of a Design Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All these outputs must be preserved as records and must be made available, on request, for audit and enforcement purpose.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the rerating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the rerating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to decide that the vehicle is safe to modify and receive rerating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

Design certification package must include a template of checklist that needs be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

Integral to the design package output is the collection of various test reports and engineering calculations that validate the rerating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and dated. Test reports must make unambiguous reference to the specific make/model/variants of

the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifier to not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

The work instruction must also include contact detail for querying or seeking clarification, should that be required during modification.

Commented [EPA16]: Should mention of label and placard be included

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists one each for the vehicle modifier and the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Commented [EPA17]: Is the 2 copies one for the designer (LS11) and one for the certifier (LS15)

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

Commented [EPA18]: Clarify by adding LS15.

7.2 Modification Certificate

For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

Commented [EPA19]: What if the LS11 does the modification and it is not a design certification for another AP

7.3 Modification Checklist

For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

Commented [EPA20]: Do we make photos mandatory if they also certify the mod.

Internal Consultation Use Only

Checklist LS11

Gross Vehicle Mass Increase
CODE LS11

Form No: LS11

(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicle's suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicle's brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?	----	Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's new GVM?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicle's ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Information			
8.1	Is the Load Capacity Label attached to the vehicle?	----	Y	N
8.2	Has the vehicle's handbook been amended or additional information been included on the Load Capacity Label?	----	Y	N

Commented [EPA21]: Is there some way to add a section at the start of the checklist that will enable identification as to whether the is a design only certificate or if the AP is undertaking both rolls?
If it can be done then the chance of an LS11 engineer being lazy and just handing over the instructions for one where he has had both rolls.

9	Manufacturer's Optional GVM			
9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM rerating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM Approval holder provided written approval to use that SSM design?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the rerated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM rerating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicle's GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for rerating?	----	Y	N
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM rerating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N

Commented [EPA22]: Where is this recorded – both here and on the certificate or even in the certification details at the end of the checklist.?

Commented [EPA23]: Should there be a question/area where the engineer states what other mod codes have to be certified as part of the LS11 design package?

Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle to LS11 Design Certification

Code LS15

Commented [EPA1]: This doesn't stand out as being the code - a bit picky I know but !!!!

Commented [EPA2]: LS11 talks about amending tyre placard and load capacity Label and Handbook - are we relying of the LS11 design instructions to include this in the instructions - if we are I think this will be a big problem.

Commented [EPA3]: Is this meant to mean the same as "according to instructions" under 1.1 as I think "process specified" is not that easy for our APs to understand

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement chassis frame.

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is

Commented [EPA4]: Does the AP have to certify each physical modification - axles, suspension, braking or is this all covered under LS15 code?

issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

Commented [EPAS5]: What is the AP comparing?

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

Commented [EPAS6]: Is the conflict only in relation to the ADRs affected by the modification that is, all other ADRs for construction must apply

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires

3.0 Specific Requirements

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternative model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

Commented [EPA7]: The label that has to be attached as part of LS11 is not mentioned in LS15 – who is responsible for ensuring that the label is fitted?

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1 To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2 To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information)
- Make/model/variant of the vehicle
- Vehicle Identification Number (VIN) of the particular vehicle being modified
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted)
- Revised GVM rating
- Signed and dated by the delegate of the original vehicle manufacturer

Checklist LS15

Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification

CODE LS15

Form No: LS15
(Y=Yes, N=No)

Commented [EPAS]: I believe that we can make this checklist more AP user friendly by expanding the information – clarifying what is needed.

1	General		
	Do you have: a copy of the LS11 design certification package with all instructions to certify this modification Design Cert No. OR a copy of a letter from the original vehicle manufacturer Note: If you do not have one of the above you are unable to modify/certify this vehicle.		
1-1	Are you accredited to certify the additional modification codes required by the LS11 design certification package or the vehicle manufacturer's letter? Have all details of the design package of LS11 design certification or a letter from the original vehicle manufacturer been retained for future audit?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims		
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N

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Commented [EPA9]: Not sure how to word this!!!

7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are the checklists required in the LS11 design certification completed?	Y	N
7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N
7.4	Is the GVM rating plate/label as specified in the LS11 design certification fitted?	Y	N
7.5	Have you kept all supporting documents relied on by you the certifier for this modification and photos of the modified vehicle for future audit?		

Note: If the answer to any question is **N (No)** the modification cannot be certified under Code LS154.

CERTIFICATION DETAILS												
Make		Model		Year of Manufacture								
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
TMR In-Principle Approval Number												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature												Date

Deann G Coleman

From: Deann G Coleman
Sent: Friday, 1 June 2018 10:41 AM
To: Tracey L Dreier
Cc: Elizabeth P Austin
Subject: FW: As Discussed
Attachments: LS 11 Version May 2018 V2.1 (002) V3 AS changes.docx; LS 15 Version May 2018 V1 AS comments.docx

Tracey and Liz,

Only a few suggested changes on the LS15.

Kind regards,

Deann Coleman
A/Principal Policy Advisor | Transport Access And Use
Transport Regulation Branch | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30662479 | F: (07) 30662155
E: deann.g.coleman@tmr.qld.gov.au
W: www.tmr.qld.gov.au



From: Deann G Coleman
Sent: Friday, 1 June 2018 10:10 AM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Cc: Elizabeth P Austin <Elizabeth.P.Austin@tmr.qld.gov.au>
Subject: FW: As Discussed

Tracey

I've reviewed the LS11 and have comments/markups, and so on for consideration.

I'll now start on LS15.

Kind regards,

Deann Coleman
A/Principal Policy Advisor | Transport Access And Use
Transport Regulation Branch | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
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E: deann.g.coleman@tmr.qld.gov.au
W: www.tmr.qld.gov.au

**Going out drinking?
Take care near the road.**



From: Tracey L Dreier
Sent: Friday, 1 June 2018 9:04 AM
To: Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>; Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>
Subject: FW: As Discussed

Hi guys

Can you please review the attached as soon as possible and provide comments so that I can go back to Scott.
Thanks.

Regards

Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

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From: Scott G Notley
Sent: Friday, 1 June 2018 9:02 AM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Subject: FW: As Discussed

As promised.

I have not checked codes as yet. Can you get one of your guys to check as soon as possible and provide me with any feedback.

Regards

Scott Notley
A/Director (Standards and Accreditation)
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From: Peter N Twining
Sent: Friday, 1 June 2018 8:46 AM

To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Cc: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: As Discussed

Please see document and ne mod codes as requested.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM re-rating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to vehiclestandards@tmr.qld.gov.au. The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Kind regards

Peter Twining

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Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the defined modification process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. In this instance, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement of the chassis frame.

2.2 Rerating without Modifications

In some cases, rerating of GVM may not involve physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing vehicles/components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires.

3.0 Specific Requirements

When rating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Specific instructions provided in LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may ~~need~~ require to be replaced with a new placard replicating the manufacturer's alternative model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

The load capacity label must be fitted as close to the tyre placard as possible.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1: To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter.

In this option, a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being modified.
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted).
- Revised GVM rating.
- Signed and dated by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
	Do you have: a copy of the LS11 design certification package with all instructions to certify this modification. Design Cert No. OR a copy of a letter from the original vehicle manufacturer Note: If you do not have one of the above you are unable to modify/certify this vehicle.	Y	N
	Are you accredited to certify the additional modification codes required by the LS11 design certification package or the vehicle manufacturer's letter?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims		
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are the checklists required in the LS11 design certification completed?	Y	N
7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N

7.4	Is the GVM rating plate/label as specified in the LS11 design certification fitted?	Y	N
7.5	Have you kept all supporting documents relied on by you to certify this modification and photos of the modified vehicle for future audit?	Y	N

CERTIFICATION DETAILS												
Make											Model	
												Year of Manufacture
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
TMR In-Principle Approval Number												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature											Date	

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles:
A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

Commented [DG1]: Consistency. Either spell rerated or re-rated throughout document. Same with rerating or re-rating.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWs Approval is not deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same the make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicles GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).

- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.
- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- ~~LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass of the vehicle.~~ These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the GVM gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total GCM combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

Commented [DGC2]: Formatting issue.

General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the re-rated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have.

2.0 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle.
- As allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010* (the Regulation).
- Modified vehicles must also comply with the applicable in-service requirements of the Regulation.

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Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in the table below in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Commented [DGC4]: Format issue

Internal Consultation Use Only

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.1 GVM re-rating based on Manufacturer's Option

The change to the vehicle's GVM must replicate the manufacture's optional GVM for that particular make, model and variant of the vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

Commented [DGCS]: Check formatting compared to section 1

2.2 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc. must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicles first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of vehicles supplied to market as new plus modified under this code remain within the limit of the SSM approval.
- GVM re-rating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- If re-rating a GVM in accordance with a Low Volume SSM approval, a statutory declaration must be obtained from the SSM holder stating that the number limit has not been exceeded as of that date.
- Any low volume SSM restrictions must be noted on the modification certificate (for example vehicle #2 of 25).
- The SSM approval number must be recorded on the modification certificate.
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.3 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitting of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.4 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original manufacturer's GVM. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or the combination of these

The following specific requirements must be met.

3.1 Chassis

Chassis modifications must be performed in accordance with section LH5 of VSB14 vehicle Standards-Bulletin-14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. The original vehicle manufacturer's axle ratings must not be exceeded when loaded in a practical way to the re-rated GVM, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on a vehicles tail shaft. For example:

- changes to vehicle ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

Commented [DGC6]: I'm a bit confused by this statement. It says it must not be exceeded, unless reinforced replacement axles are fitted (so it can be exceeded in those circumstances) but then it says in that their ratings must not be exceeded. Can this be re-worded to clarify this point?

3.5 Suspension

With an increase in GVM, additional loads are placed on suspension. Vehicle suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from the normal and practical loading patterns. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its the vehicle's GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the proposed GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

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The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM.

If required, an amending tyre placard must be fitted to indicate the revised tyre specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes, such as the vehicle's towing capacity and tyre requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any reduction in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicles handbook is not available, this information must be provided in written form to the owner of the vehicle. This information must also be displayed on the Load Capacity Label discussed below.

The Load Capacity Label must follow the below format and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Rated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Front Axle/s Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Changes to a vehicle's GVM rating can have a direct effect on Electronic Stability Control (ESC) performance. Therefore, for vehicles fitted with ESC, the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. For many light vehicles, rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases, the limit mentioned in the Safe Towing Guide published by TMR applies.

Commented [DGC7]: Be consistent with capital letter when talking about Rated Towing Capacity, Maximum Braked Towing Mass, and so on throughout this section and the whole document

When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, note that the maximum mass that can be legally and safely towed when the vehicle is loaded to the re-rated GVM, must be proportionately adjusted to ensure that the sum of the GVM, gross vehicle mass and the trailer mass remain within the ratings specified by the original manufacturer.

Commented [DGC8]: Is this ATM? If so, spell it out and use ATM

6.0 Additional Modifications and Changes to Vehicle Category

Where additional modifications have been performed or a change in vehicle category has occurred due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited ~~AP~~ ~~Approved Person~~ holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the AP providing the design certification, may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the design certification ~~may~~ ~~must~~ not refer to any particular VIN.

The outputs of a ~~d~~Design ~~c~~Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All of these outputs must be preserved as records and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

Commented [DGC9]: Can this word be changed? What do you mean by tightly? Specifically? Might be misconstrued

Since the modification and the re-rating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the re-rating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to ~~determine~~ ~~decide~~ that the vehicle is safe to modify and receive re-rating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

The design certification package must include a checklist template ~~of checklist~~ that needs be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

Integral to the design package output is the collection of various test reports and engineering calculations that validate the re-rating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and dated. Test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifiers to ~~exclude~~ not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, ~~the~~ what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

Commented [DGC10]: DO you mean photos? If so, say photos

The work instruction must also include contact information ~~detail~~ if enquiries or further clarification is required for querying or seeking clarification, should that be required during modification.

All details must be recorded in the modification certificate including details of any SSM approvals or conditions.

The load capacity label must be affixed to indicate revised GVM and other relevant loading conditions.

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists, one of each for the vehicle modifier and ~~one~~ for the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Commented [DGC11]: This was discussed last time. Is it 1 checklist for modifier and another separate checklist for the certifier? This needs to be clear.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

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Checklist LS11
Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?	----	Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicles new GVM?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Information			
8.1	Is the Load Capacity Label attached to the vehicle?	----	Y	N
8.2	Has the vehicles handbook been amended or additional information been included on the Load Capacity Label?	----	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM Approval holder provided written approval to use that SSM design?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the re-rated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS												
Make												
Model												
Year of Manufacture												
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
Certificate Number (If applicable)												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature											Date	

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Deann G Coleman

From: Anant Z Bellary
Sent: Monday, 18 June 2018 10:23 AM
To: Peter N Twining
Cc: Elizabeth P Austin; Scott G Notley
Subject: RE: LS11 (revised) and LS15 (new) and Feedback Forms... ready to go

Hello Peter,

Liz's corrections have been accepted.

Her concern about alternate tyre sizes has been addressed by including the following in LS11 at Section 3.8

If different tyres & rims are specified, their size must be no more than necessary to support the increased axle masses. The effect of alternate tyres on speedometer/odometer accuracy must be considered. It must be ensured that, with the alternate tyres, vehicle's compliance to ESC requirements is not affected.

Regards

Anant Bellary
Vehicle Standards & Accreditation
Transport & Main Roads

From: Peter N Twining
Sent: Monday, 18 June 2018 9:22 AM
To: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: FW: LS11 (revised) and LS15 (new) and Feedback Forms... ready to go

FYI

Kind regards

Peter Twining
Senior Policy Advisor (Standards and Accreditation)
Transport Regulation Branch | Department of Transport and Main Roads

Floor 9 | 61 Mary Street | Brisbane Qld 4000
PO Box 673 | Fortitude Valley Qld 4006
P: (07) 30666537
E: peter.n.twining@tmr.qld.gov.au
W: www.tmr.qld.gov.au



From: Tracey L Dreier
Sent: Monday, 18 June 2018 8:44 AM

To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>; Peter N Twining <peter.n.twining@tmr.qld.gov.au>
Subject: FW: LS11 (revised) and LS15 (new) and Feedback Forms... ready to go

A couple of minor suggested changes below from Liz. Otherwise, we are happy with the documents.

Regards

Tracey Dreier

A/Manager (Operator Accreditation & Authorisation)

Transport Regulation Branch

Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

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t 07 3066 2532 | f 33384640 | m Not relevant

e tracey.l.dreier@tmr.qld.gov.au

w www.tmr.qld.gov.au

From: Elizabeth P Austin

Sent: Friday, 15 June 2018 11:45 AM

To: Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>; Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>

Subject: FW: LS11 (revised) and LS15 (new) and Feedback Forms... ready to go

Deann & Tracey

I have read the LS11 and LS15 codes and I found one too many "the" in 1.1 What is permitted in LS11 and LS15 3.6 I think that "be" was missing, I numbered 1.1 & 1.2 on the checklist and added a comment on 4 – Tyres & Rims.

Regards,

Liz Austin

Policy Officer | Transport Access And Use

Transport Regulation Branch | Department of Transport and Main Roads

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P: (07) 30662732 | F: (07) 30662453

E: elizabeth.p.austin@tmr.qld.gov.au

W: www.tmr.qld.gov.au

From: Anant Z Bellary

Sent: Thursday, 14 June 2018 4:05 PM

To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>; Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>;

Peter N Twining <peter.n.twining@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>

Cc: Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>; Elizabeth P Austin

<elizabeth.p.austin@tmr.qld.gov.au>; Patricia L Bailey <Patricia.L.Bailey@tmr.qld.gov.au>

Subject: LS11 (revised) and LS15 (new) and Feedback Forms... ready to go

Hello Everyone,

I was given each of these documents allegedly containing all the internal comments received. I have reviewed them. Accommodated most (if not all) of them.

The attached documents are now ready for Peter Twining to send out for comments from our external stakeholders. This could happen early next week.

Here you can have another look at them, if you are interested. Trish, can I request you to please run your eyes to make sure there are no formatting inconsistencies? Thanks.

Regards

Anant Bellary

Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
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Internal Consultation Use Only

Deann G Coleman

From: Tracey L Dreier
Sent: Friday, 1 June 2018 9:27 AM
To: Peter N Twining; Patricia L Bailey
Cc: Scott G Notley; Adam Shaw; Benjamin Scanlan; Elizabeth P Austin; Deann G Coleman
Subject: FW: Covering Message for new LS15 and revised LS11...

Hi Peter

We've made a couple of suggested changes below in red.

Also, do you think we should mention the quals required for LS11 and LS15 to make it clear that LS11 is an engineering code and LS15 is not. I think they should know this when commenting on the codes.

We will provide you with the email addresses of the LS11 APs soon.

Regards

Tracey Dreier

A/Manager (Operator Accreditation & Authorisation)

Transport Regulation Branch

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t 07 3066 2532 | f 33384640 | m Not relevant

e tracey.l.dreier@tmr.qld.gov.au

w www.tmr.qld.gov.au

From: Deann G Coleman
Sent: Friday, 1 June 2018 8:35 AM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Cc: Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>
Subject: FW: Covering Message for new LS15 and revised LS11...

Tracey,

I've just made a few suggested changes.

Kind regards,

Deann Coleman

A/Principal Policy Advisor | Transport Access And Use

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E: deann.g.coleman@tmr.qld.gov.au

W: www.tmr.qld.gov.au

**Going out drinking?
Take care near the road.**



From: Tracey L Dreier

Sent: Thursday, 31 May 2018 3:49 PM

To: Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>; Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>

Subject: FW: Covering Message for new LS15 and revised LS11...

For comment back to me please and I will consolidate our feedback.

Regards

Tracey Dreier

A/Manager (Operator Accreditation & Authorisation)

Transport Regulation Branch

Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006

t 07 3066 2532 | f 33384640 | m

e tracey.l.dreier@tmr.qld.gov.au

w www.tmr.qld.gov.au

From: Anant Z Bellary

Sent: Thursday, 31 May 2018 3:33 PM

To: Peter N Twining <peter.n.twining@tmr.qld.gov.au>; Shane F Lonsdale <Shane.F.Lonsdale@tmr.qld.gov.au>;

Patricia L Bailey <Patricia.L.Bailey@tmr.qld.gov.au>

Cc: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>; Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Christina T

Myers <christina.t.myers@tmr.qld.gov.au>; Adam Shaw <Adam.M.Shaw@tmr.qld.gov.au>

Subject: Covering Message for new LS15 and revised LS11...

Draft covering note for our key institutional stakeholders...

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are ~~attached now provided to you~~ for your perusal and feedback. Please provide ~~any~~ comments, ~~if any~~, in the attached feedback sheet and ~~which can be~~ emailed to vehiclestandards@tmr.qld.gov.au by ~~by~~. ~~The last date for submitting your comments is~~ close of business on Friday 29th June 2018. These codes are intended to be implemented ~~It is intended to implement these codes~~ from 1 August 2018.

Regards
Peter Twining

Draft covering note for Accreditation Unit for broadcast to LS11 APs...

Dear Deann.

Please circulate the following message to all the Approved Persons currently holding LS11 modification code. A similar message is being sent to our key institutional stakeholders including the businesses holding type approvals.

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are ~~attached now provided to you~~ for your perusal and feedback. Please provide ~~any~~ comments, ~~if any~~, in the attached feedback sheet ~~which can be and~~ emailed to vehiclestandards@tmr.qld.gov.au ~~by~~. ~~The last date for submitting your comments is~~ by close of business on Friday 29th June 2018. These codes are intended to be implemented ~~It is intended to implement these codes~~ from 1 August 2018.

Regards
Peter Twining

Regards

Anant Bellary
Principal Engineer (Vehicle Standards & Accreditation) | Transport Regulation Branch
Customer Services, Safety and Regulation | Department of Transport and Main Roads

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Deann G Coleman

From: Tracey L Dreier
Sent: Thursday, 21 June 2018 7:38 AM
To: Deann G Coleman; Elizabeth P Austin
Subject: Fwd: New Modification Code LS15 and Revised Modification Code LS11...
Attachments: image001.gif; ATT00001.htm; Form for Feedback on Draft Modification Code LS11.docx; ATT00002.htm; Form for Feedback on Draft Modification Code LS15.docx; ATT00003.htm; LS11 Code Jun 2018 Consultation Draft.docx; ATT00004.htm; LS15 Code Jun 2018 Consultation Draft.docx; ATT00005.htm

Fyi, Anant is also consulting with other jurisdictions on the LS11/LS15 codes.

Regards
Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
Transport Regulation Branch
Ph: 3066 2532
Mob:

Begin forwarded message:

From: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Date: 20 June 2018 at 9:18:53 am AEST
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Cc: Nigel G Ellis <nigel.g.ellis@tmr.qld.gov.au>, Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Subject: FW: New Modification Code LS15 and Revised Modification Code LS11...

Modifications Leading to Re-rating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification

CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons (AP) to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications are carried out in accordance with instructions in the relevant LS11 design certification. In addition to the requirements in this code, the AP providing LS15 certification must follow the instructions in the design package that came with the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Re-rating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Re-rating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Re-rating of a vehicle which is outside the scope of the relevant LS11 design certification.
- Re-rating of a vehicle, the GVM of which, before modification, is greater than 4,500 kg.
- Re-rating of a vehicle, the GVM of which, after modification, will be greater than 4,500 kg.
- Re-rating of GVM by comparing with an alternative make/model of vehicle.
- Re-rating of GVM by comparing with another vehicle which has been previously re-rated using a modification code.
- Re-rating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Re-rating of GVM prior to first registration anywhere in Australia. In such cases seek a Second Stage of Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications under LS15 may include replacement of axle(s), suspension or braking system with alternative components or reinforced chassis frame which collectively may permit a different rating.

2.2 Re-rating without Modifications

In some cases, re-rating of GVM may involve no physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required for re-rating. Care must be taken when comparing vehicles/ their components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

The modified vehicle must continue to comply with the Australian Design Rules (ADRs) which are relevant to it. This includes ADRs which applied to it when it was originally constructed and the ADRs that apply to it after it is modified. If there is a conflict, the ADR requirement after modification takes priority.

2.4 Work Instructions from the LS11 Design Package

Modifications must be carried out according to the work instructions that are in the design package that came with the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection specified in the design package must be completed and the evidence of the same must be held by the LS15 certifier. This includes completing the checklist(s) that came with the LS11 design package.

3.0 Specific Requirements

When certifying the re-rated GVM under LS15, the chassis frame, suspension, axles and drive train components must be used within the original vehicle manufacturer's rated capacities. All instructions provided in the LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

If re-rated GVM requires different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

3.2 Chassis Frame

The chassis frame of the modified vehicle must be according to the LS11 design package or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design package or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the details and the in-service condition of the vehicle must be checked, as specified in the LS11 design package, to ensure that the vehicle is eligible for re-rating and its condition is safe and suitable.

Step-1: Confirm that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: Inspect and confirm that the condition of the vehicle is suitable for re-rating. The instructions in the LS11 design package must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition for re-rating. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

If re-rating is based on the original vehicle manufacturer's letter, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being re-rated.
- Details of all physical changes required for re-rating (including the details of the specific upgrade parts to be fitted).
- Re-rated GVM.
- Signature and date by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General	
1.1	<p>Have you received a copy of and understood: The LS11 design package with all the instructions to modify, test and re-rate vehicle of this make/model/variant/chassis series? LS11 Design Certification No. Date..... OR A letter from the original vehicle manufacturer for re-rating? Manufacturer's Letter Reference _____ date _____ Note: If you do not have one of the above, you are unable to certify this vehicle.</p>	Y N
1.2	Are you accredited to certify the additional modification codes required by the LS11 design certification or the vehicle manufacturer's letter?	Y N
2	Chassis Frame	
2.1	Does the chassis frame conform to the detail construction, section properties and cross-members of the LS11 design package or the original vehicle manufacturer's letter?	Y N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation? Does it meet the inspection criteria mentioned in the LS11 design package?	Y N
3	Brake system	
3.1	Is the vehicle's braking system as specified in the LS11 design package or the original vehicle manufacturer's letter?	Y N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching? Does it meet the inspection criteria mentioned in the LS11 design package?	Y N
4	Tyres and Rims	
4.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	Y N
4.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	Y N
4.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	Y N
4.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	Y N
5	Eligibility- Make/model/variant/chassis series	
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y N
6	Load Capacity Label	

6.1	Is the Load Capacity Label attached to the vehicle?	Y	N
6.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are/Is the checklist(s) required in the LS11 design package completed?	Y	N
7.3	Are all the inspections and tests as required in the LS11 design package completed?	Y	N
7.4	Have you kept all supporting documents you used to certify this modification and photos of the modified vehicle for future audit?	Y	N

Internal Consultation Use

CERTIFICATION DETAILS												
Make											Year of Manufacture	
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
TMR In-Principle Approval Number												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature											Date	

Internal Consultation Use Only

Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles:

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is **not** deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicle's GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).
- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWS) where the number of vehicles is capped in the SSM approval.

- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass (MBTM) of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.
- When the vehicle is loaded to the gross vehicle mass according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total combination mass does not exceed the rating or the limit specified by the original vehicle manufacturer.

2.0 General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have. Any effect this modification may have on the product warranty provided by the original vehicle manufacturer is outside the scope of this code. The certifying officer must clarify this point to the modifier and the vehicle operator.

2.1 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs that apply to them.

If different ADRs apply due to the modified vehicles, they must comply to those ADRs that are relevant to them.

Modified vehicles must also comply with the applicable in-service requirements of Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010 (the Regulation).

Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in Table LS11 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Braking Systems	ADR 31/...or ADR 35/...
Brake Performance (for non-ADR vehicles)	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.2 GVM re-rating based on Original Vehicle Manufacturer's Option

The change to the vehicle's GVM must replicate the original vehicle manufacture's optional GVM for that particular make, model and variant. All components, including suspension, transmission, engine, brakes, tyre and rims must be fitted same as those specified for that particular vehicle's alternate rated variant.

2.3 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicle's first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of new vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 or 300 vehicles per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of in-service vehicles modified per annum under the combination of the particular SSM approval and this code do not exceed the limit specified for that low volume SSM approval.
- GVM re-rating of in-service vehicles using LS11 code must not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- A statutory declaration must be obtained from the low volume SSM holder stating that the number limit has not been exceeded as of that date.
- The SSM approval number must be recorded on the modification certificate.
- The low volume SSM restrictions must be noted on the modification certificate (for example vehicle #12 of 300).
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.4 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitment of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.5 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original vehicle manufacturer's GVM rating. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the original manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or any combination of these

The following specific requirements must be met.

3.1 Chassis

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

Chassis modifications must be performed in accordance with section LH5 of VSB14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification Code of Practice (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

3.2 Engine/Transmission

The GVM re-rating assigned must not exceed the engine and transmission manufacturer's recommendations, if any, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

When loaded to the re-rated GVM, additional loads are placed on axles. Axle loads must not exceed the original vehicle manufacturer's axle ratings, unless reinforced replacement axles are fitted.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

If a component manufacturer has published instructions to reduce the rating of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on vehicle's tail shaft. For example:

- changes to vehicle's ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

3.5 Suspension

When loaded to re-rated GVM, additional loads are placed on suspension. Vehicle suspension ratings must be adequate for the re-rated GVM plus it must be able to accommodate the axle loads resulting from the common and practical load distribution. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the re-rated GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM. The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

The sum of the load carrying capacities of the tyres fitted must be at least equal to the re-rated GVM. The same applies to the load carrying capacities of the rims. Moreover the load capacity of the tyres (and rims) on each axle must be adequate to support the potential maximum mass on that axle.

If re-rated GVM and axle masses require different tyre and rim combination, an amending tyre placard must be fitted to indicate the revised tyre & rim specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

If different tyres & rims are specified, their size must be no more than necessary to support the increased axle masses. The effect of alternate tyres on speedometer/odometer accuracy must be considered. It must be ensured that, with the alternate tyres, vehicle's compliance to ESC requirements is not affected.

4.0 Owner's Handbook and Load Capacity Label

The vehicle operator must be adequately informed of the changes.

4.1 Owner's Handbook

To inform the vehicle operator about the vehicle's towing capacity and tyre & rim requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres, rims and the towing capacity. Of particular importance is any sliding reduction in towing capacity of the vehicle as it is loaded to its re-rated GVM and/or vertical load on tow ball (ball weight).

If the vehicle's handbook is not available, this information must be provided in written form to the owner of the vehicle.

4.2 Load Capacity Label

Certain information must also be displayed on the Load Capacity Label as discussed below.

The Load Capacity Label must follow the below format. It must be made of durable material and letter size and contrast should be similar to the tyre placard. Label must be fitted to the vehicle, as close as practicable, to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Re-rated GVM	kg
Maximum Braked Towing Mass at re-rated GVM*	kg
Maximum Front Axle Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum braked towing mass depends on the re-rated GVM and trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Re-rated GVM may have direct effect on the performance of Electronic Stability Control (ESC) system. Hence ESC system must be revalidated so it performs satisfactorily at the re-rated GVM. However such revalidation is not required where a vehicle's GVM is being re-rated to the manufacture's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated using other agreed methods.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as GCM rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. The scope of code does not include changes to vehicle's towing capacity. If towing capacity is not specified by the original vehicle manufacturer, the limits mentioned in the Safe Towing Guide published by TMR apply.

If the original vehicle manufacturer has specified towing capacity in some form, the gross combination mass formed by adding that towing capacity and the original GVM rating must not be exceeded. Hence, when the GVM is re-rated, the actual towed mass must be proportionately reduced according to the loaded mass of the towing vehicle.

6.0 Additional Modifications and Changes to Vehicle Category

If additional modifications are made or the vehicle's category has changed due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited AP holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that same make/model/variant/chassis series and generate the necessary evidence to show that the requirements of the LS11 design certification are met.

When LS11 code is used to provide design certification, the AP providing the design certification, may not inspect the modified vehicle(s) and is not required to fit LS11 modification plate on the vehicle(s). Also the checklist completed as part of the LS11 design certification will not refer to any particular VIN.

The outputs of a design certification under LS11 code are (a) a comprehensive design package (b) a modification certificate and (c) a completed checklist. All of these outputs must be preserved as records of the LS11 design certification and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design package must clearly identify which make/model/variant/chassis series it applies to. If its applicability is restricted to specific build years that also must be mentioned.

Since the modification and the re-rating of GVM is being done on in-service vehicles, the condition of the vehicle is important to decide which vehicle can be safely modified and re-rated. The design package must include instructions about what is to be inspected and the acceptance criteria. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations, leaks and structural damage due to overloading, accidents or rust is also critical.

The design package must include a checklist template for use by the AP certifying the physical modification. The checklist will be completed by the AP who certifies the physical modification to confirm that the vehicle was inspected and was found in sound condition before commencing the modification.

7.1.2 Evidence package

The design package must include all the test reports and engineering calculations that validate the re-rating, when modified as prescribed. Test reports must be from reputed test laboratories, have unique identification number and be signed and dated. All test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply. Also the test reports must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier document that is dated and signed.

If any evidence is sourced from a third party, the evidence package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, sometimes the LS11 certifier may choose not to include all the test reports in the design package. In such cases the design package must still include a full list of all the test reports and the calculation sheets (using their unique identifiers) and provide written assurance to the client that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package must include comprehensive work instructions on how to modify the vehicle, what parts to be used, the sequence of actions to be performed, precautions to be taken and what process controls to be applied.

The work instructions must include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The work instructions must be easy to understand, unambiguous and should include sufficient pictorials including photos and graphics.

The work instructions must include the contact details of the LS11 certifying AP if enquiries arise needing further clarification during the physical modification and/or its certification.

7.1.4 Checklist for the modifier and the certifier

The design package must include template checklist(s) to be completed by the vehicle modifier and the certifier of the physical modification. These may be separate or one combined checklist. These checklists, when completed, are evidence that the modifier and the certifier of the physical modification have understood and followed the work instructions and the intent of the design package has been met. The LS11 AP may ask for copies of completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice. The completed checklist must also be retained by the AP who certifies the physical modification.

Note that this checklist is different than any checklist that the certifier of the physical modification is required to complete as part his/her certification of the modification under the relevant code.

7.2 Certificate of Modification

The LS11 AP must issue a certificate of modification to his client for the design certification provided. This is similar to any other certificate of modification, except that the certificate may not make reference to any specific modification plate number or VIN. Instead, it must refer to the basis of the design certification (for example, SSM approval number) and the unique identification number of the design package provided.

7.3 Modification Checklist

LS11 AP must complete the modification checklist provided at the end of this code and must retain it as part of his/her records.

Checklist LS11

Gross Vehicle Mass Increase

CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/.., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	If a revised tyre placard is required, has it been fitted to the vehicle and a copy attached to this checklist?	----	Y	N
6.3	Do the tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicle's re-rated GVM and the potential axle masses?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Label			
8.1	Is the Load Capacity Label attached to the vehicle?	---	Y	N
8.2	Has the vehicle's handbook been amended and a copy of the relevant modified content attached to this checklist?	---	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM approval holder provided written approval to use that SSM design and a copy of the same attached to this checklist?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the rerated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	----	Y	N
12.2	Does the design package have a unique identification number?	----	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	----	Y	N
12.4	Does the design package include guidance on what to inspect to decide if the vehicle is fit to receive the re-rated GVM?	----	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	----	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	----	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	----	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	----	Y	N
12.9	Does the design package address all the requirements of this code?	----	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS																
Make					Model					Year of Manufacture						
VIN																
Chassis Number (If applicable)																
Brief Description of Modification/s																
Vehicle Modified By																
Certificate Number (If applicable)																
Vehicle Certified By (Print)																
Signatory's Employer (If applicable)																
Signatory's Signature										Date						

2.0

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Deann G Coleman

From: Deann G Coleman
Sent: Friday, 1 June 2018 1:52 PM
To: Elizabeth P Austin; Tracey L Dreier
Subject: RE: As Discussed

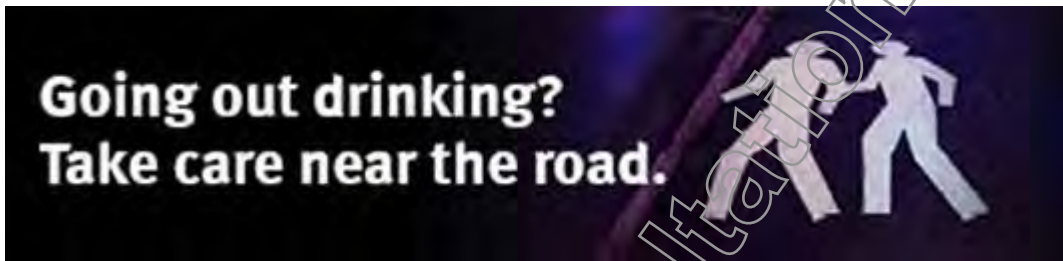
Liz,

I'm happy with your comments.

Kind regards,

Deann Coleman
A/Principal Policy Advisor | Transport Access And Use
Transport Regulation Branch | Department of Transport and Main Roads

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From: Elizabeth P Austin
Sent: Friday, 1 June 2018 12:34 PM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>
Subject: RE: As Discussed

Ladies

I have combined both lots of changes/comments and found a couple more things in the checklists that I have added comments to on LS11 and LS15.

Regards,

Liz Austin
Policy Officer | Transport Access And Use
Transport Regulation Branch | Department of Transport and Main Roads

Floor 10 | 61 Mary Street, Brisbane Qld 4000
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P: (07) 30662732 | F: (07) 30662453
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W: www.tmr.qld.gov.au

From: Tracey L Dreier
Sent: Friday, 1 June 2018 11:48 AM
To: Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>; Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>
Subject: RE: As Discussed

Yes please Liz, can you please combine yours and Deann's comments and changes into the same document for LS11 and LS15 and send back to me. Thanks.

Regards

Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

Floor 10 | 61 Mary Street | Brisbane Qld 4000 | PO Box 673 Fortitude Valley Qld 4006

t 07 3066 2532 | f 33384640 | m Not relevant

e tracey.l.dreier@tmr.qld.gov.au

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From: Elizabeth P Austin
Sent: Friday, 1 June 2018 10:59 AM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>; Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>
Subject: RE: As Discussed

Tracey and Deann

I have the one query re LS11 below and have added a couple of comments to LS15 checklist.

Do you want me to add my bits to Deann's copy so all comments/changes are captured.

LS11 - 5.2 – while I was downstairs yesterday Peter said that there were SSM's where the towing capacity could be upgraded – is this true or not?:

From: Tracey L Dreier
Sent: Friday, 1 June 2018 9:04 AM
To: Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>; Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>
Subject: FW: As Discussed

Hi guys

Can you please review the attached as soon as possible and provide comments so that I can go back to Scott.
Thanks.

Regards

Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

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t 07 3066 2532 | f 33384640 | m Not relevant

e tracey.l.dreier@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Scott G Notley
Sent: Friday, 1 June 2018 9:02 AM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Subject: FW: As Discussed

As promised.

I have not checked codes as yet. Can you get one of your guys to check as soon as possible and provide me with any feedback.

Regards

Scott Notley
A/Director (Standards and Accreditation)
Transport Regulation Branch
Customer Service, Safety and Regulation Division | Department of Transport and Main Roads

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t 07 3338 4082 | f 3253 4453 | m Not relevant
e Scott.G.Notley@tmr.qld.gov.au
w www.tmr.qld.gov.au

From: Peter N Twining
Sent: Friday, 1 June 2018 8:46 AM
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Cc: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: As Discussed

Please see document and ne mod codes as requested.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM rerating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to

vehiclestandards@tmr.qld.gov.au . The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Kind regards

Peter Twining

Senior Policy Advisor (Standards and Accreditation)

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Deann G Coleman

From: Deann G Coleman
Sent: Friday, 1 June 2018 10:10 AM
To: Tracey L Dreier
Cc: Elizabeth P Austin
Subject: FW: As Discussed
Attachments: LS 11 Version May 2018 V2.1 (002) V3 AS changes.docx; LS 15 Version May 2018 V1 AS comments.docx

Tracey

I've reviewed the LS11 and have comments/markups, and so on for consideration.

I'll now start on LS15.

Kind regards,

Deann Coleman
A/Principal Policy Advisor | Transport Access And Use
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**Going out drinking?
Take care near the road.**



From: Tracey L Dreier
Sent: Friday, 1 June 2018 9:04 AM
To: Deann G Coleman <deann.g.coleman@tmr.qld.gov.au>; Elizabeth P Austin <elizabeth.p.austin@tmr.qld.gov.au>
Subject: FW: As Discussed

Hi guys

Can you please review the attached as soon as possible and provide comments so that I can go back to Scott.
Thanks.

Regards

Tracey Dreier
A/Manager (Operator Accreditation & Authorisation)
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From: Scott G Notley
Sent: Friday, 1 June 2018 9:02 AM
To: Tracey L Dreier <Tracey.Dreier@tmr.qld.gov.au>
Subject: FW: As Discussed

As promised.

I have not checked codes as yet. Can you get one of your guys to check as soon as possible and provide me with any feedback.

Regards

Scott Notley
A/Director (Standards and Accreditation)
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From: Peter N Twining
Sent: Friday, 1 June 2018 8:46 AM
To: Scott G Notley <Scott.G.Notley@tmr.qld.gov.au>
Cc: Anant Z Bellary <Anant.Z.Bellary@tmr.qld.gov.au>
Subject: As Discussed

Please see document and ne mod codes as requested.

Dear Stakeholders

The Vehicle Standards Unit of TMR has recently developed a new Light Vehicle Modification Code LS15 to enhance the operation of the previously developed LS11 modification code, particularly in the remote and regional areas of Queensland.

The attached LS15 modification code allows Approved Persons to certify physical modifications leading to the re-rating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4,500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the process specified in the design package in the relevant LS11 design certification issued to the vehicle of same make/model/variant/chassis series.

The LS11 modification code has been amended to enable it to provide design certification. Some other changes are also made to provide greater clarity about the intent of the LS11 code. Note that the LS11 code can continue to be used as a combined design and modification code to certify GVM re-rating on its own, without using the new LS15 code.

Both the new LS15 code and the amended LS11 code are now provided to you for your perusal and feedback. Please provide comments, if any, in the attached feedback sheet which can be emailed to

vehiclestandards@tmr.qld.gov.au . The last date for submitting your comments is close of business on Friday 29th June 2018. It is intended to implement these codes from 1 Aug 2018.

Kind regards

Peter Twining

Senior Policy Advisor (Standards and Accreditation)

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Gross Vehicle Mass Rating of Light Vehicles

CODE LS11

1.0 Scope

The LS11 Modification Code specifies arrangements for re-rating of the Gross Vehicle Mass (GVM) rating of a light vehicle that is, a vehicle having current GVM rating that does not exceed 4,500 kg.

Re-rating of GVM under LS11 code is permissible only on the following type of light vehicles:

A light vehicle that is constructed on a ladder type chassis frame with a cabin and/or body mounted on it. Vehicles with integrated frame and body, commonly known as monocoque construction, are not eligible. Also a light vehicle that has been previously re-rated from the original manufacturer's GVM rating is not eligible for re-rating under this code.

Commented [DG1]: Consistency. Either spell rerated or re-rated throughout document. Same with rerating or re-rating.

The original vehicle manufacturer refers to the entity holding the First Stage Identification Plate Approval (IPA). Any entity holding the Second Stage Manufacture (SSM) Approval or RAWS Approval is not deemed as the original vehicle manufacturer.

In cases where the original vehicle manufacturer has not specified the GVM rating, the maximum laden mass permitted by the original vehicle manufacturer for the purpose of showing compliance with the Australian Design Rules (ADRs) is to be taken as the original GVM rating. This information must be obtained from a reliable and traceable source.

1.1 What is permitted

Modifications that may be certified under LS11 code are:

- Up to 10% increase in the GVM rating given by the original vehicle manufacturer.
- Exceptions to the limit of 10% apply in following cases:
 - GVM rating of an in-service vehicle that is of the same the make/model/variant/chassis series as a vehicle having a SSM approval for GVM re-rating AND is modified in accordance with the SSM approval AND the SSM approval holder has given explicit permission for the SSM approval to be used as the basis for GVM re-rating.
 - Increase in GVM where an additional axle has been installed.
 - Alteration of a vehicles GVM rating to match the vehicle manufacturer's alternative rating for a particular variant of that make/model.

1.2 What is not permitted

Modifications that must not be certified under LS11 code are:

- Modifications other than those described in Section 1.1 above.
- Reduction in GVM rating other than the re-rating to manufacturer's optional GVM for that make/model and also in case of GVM reductions require as a result of conversion to heavy motorhomes.
- Re-rating of GVM on a vehicle which has previously received a GVM re-rating (by way of SSM approval or LS11 code or another Code of Practice or another jurisdictional approval).

- GVM re-rating of an in-service vehicle in accordance with an SSM Approval but the SSM approval holder has NOT provided explicit permission to use the SSM approval as the basis.
- GVM re-rating of an in-service vehicle on the basis of a concessional SSM approval (for example, Low Volume or RAWs) where the number of vehicles is capped in the SSM approval.
- GVM re-rating where practical loading is likely to exceed the load on any axle beyond the rating for that axle by the original vehicle manufacturer.
- Re-rating of vehicle components or sub systems beyond the original vehicle manufacturer's rating.

1.3 Towing Capacity and LS11 Code

- ~~LS11 code is not to be used for changing the rating of towing capacity, Gross Combination Mass (GCM) rating or maximum braked towing mass of the vehicle. These ratings must remain the same as those provided by the original vehicle manufacturer.~~
- When the vehicle is loaded to the ~~GVM gross vehicle mass~~ according to LS11 rating, the safe trailer mass it can tow must be adjusted so that the total ~~GCM combination mass~~ does not exceed the rating or the limit specified by the original vehicle manufacturer.

Commented [DGC2]: Formatting issue.

General Requirements

The vehicle must be able to safely operate at the re-rated GVM. The critical components including the chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres must be assessed individually to ensure that they can safely support the loads resulting from the re-rated GVM.

All work must also comply with the requirements contained in sub-section 2 General Requirements of the National Code of Practice (NCOP) – Light vehicle modifications (VSB14).

This code does not provide any assurance regarding the continued eligibility of the vehicle for any warranty claims when operating at the re-rated GVM. The certifying officer must clarify this point to the modifier and the vehicle operator. Increased GVM has the potential to affect eligibility of warranty claims with the vehicle manufacturer in some cases. It is the responsibility of the vehicle operator and the Approved Person to consider any effect on the warranty that LS11 modification may have.

2.0 Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except:

- If different ADRs apply to them due to the modification, in which case they must comply to those ADRs that are relevant to the modified vehicle.
- As allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010* (the Regulation).
- Modified vehicles must also comply with the applicable in-service requirements of the Regulation.

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Modified pre-ADR vehicles must continue to comply with the Regulation.

Outlined in the table below in Table LS14 are areas of the vehicle that may be affected by the modifications and may require re-certification, testing and/or data to show compliance of the modified vehicle.

This is not an exhaustive list and compliance to other ADRs may also be affected.

Commented [DGC4]: Format issue

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Table LS11 List of items and likely affected ADRs

DETAIL	REQUIREMENTS
Tyre and Rim Selection	ADR 42/..
Hydraulic Brake Systems	ADR 31/...or ADR 35/...
Brake Performance	<i>Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010</i>

The ADR applicability is according to the vehicle's category and date of manufacture. It is the responsibility of the certifying Approved Person to refer to the appropriate ADRs applicable to the vehicle.

Sections 2.2 to 2.5 relate to the different options to re-rate vehicle's GVM.

2.1 GVM re-rating based on Manufacturer's Option

Commented [DGC5]: Check formatting compared to section 1

The change to the vehicle's GVM must replicate the manufacture's optional GVM for that particular make, model and variant of the vehicle. Additionally, all components, including suspension, transmission, engine, brakes, tyre and rims, and so on must be fitted and identical to those specified for that particular vehicle's rated variant.

2.2 GVM re-rating based on SSM Approval

The re-rated GVM must be the same as the SSM approved vehicle. All upgraded components, including suspension, brakes, tyres and rims, etc must be fitted and be identical to those specified on the SSM approved vehicle.

In addition to the physical modification replicating the SSM approval, all the administrative requirements specified under the SSM approval must also be met. These requirements may include, but are not limited to, the following:

- The vehicles first Identification Plate Approval number must be identical to that mentioned in the SSM Approval.
- If the SSM approval limits the number of vehicles to be supplied under it each year, (for example, Low Volume 25 or 100 per annum), the certifying AP must check with the SSM approval holder to ensure that the total number of vehicles supplied to market as new plus modified under this code remain within the limit of the SSM approval.
- GVM re-rating of in-service vehicles using LS11 code should not be certified if the SSM approval is no longer current and has been suspended or cancelled.
- When re-rating GVM in accordance with an SSM approval, the certifying AP must ensure that the SSM approval holder has provided written permission for use of the SSM design as the basis.

- If re-rating a GVM in accordance with a Low Volume SSM approval, a statutory declaration must be obtained from the SSM holder stating that the number limit has not been exceeded as of that date.
- Any low volume SSM restrictions must be noted on the modification certificate (for example vehicle #2 of 25).
- The SSM approval number must be recorded on the modification certificate.
- Both the written permission and the statutory declaration from the SSM approval holder must be retained by the AP as evidence for certifying the re-rating of GVM under this code.

2.3 GVM re-rating by installation of an additional axle

If an additional axle is fitted to a vehicle (i.e. lazy axle or additional drive axle) the vehicle's GVM rating may be increased by a maximum of 10% above the original vehicle manufacturer's GVM rating. However, if the additional axle is load sharing with the adjacent axle in the group, then the 10% limit may be exceeded. The fitting of an additional axle is permitted in Queensland under the LB2 modification code in conjunction with the LS11 code. Additional supporting evidence including brake testing and chassis strength analysis must be provided.

2.4 GVM re-rating outside of Manufacturer's Option

A re-rating of GVM is permitted on a light vehicle even if it is not an option by the vehicle manufacturer, provided the change is no more than 10% above the original manufacturer's GVM. While the upper limit is 10%, the actual change possible is limited by various factors including chassis, drive-train, axles, suspension, brakes, steering, wheels and tyres.

3.0 Specific Requirements

When re-rating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Where a component manufacturer has published information stating that reduced ratings apply for safety reasons, the reduced rating must apply.

Typical modifications involved in re-rating a vehicle's GVM include:

- single axle to tandem axle configuration
- replacement engine, transmission, axle(s), suspension components, reinforced chassis frame and upgraded braking system or the combination of these

The following specific requirements must be met.

3.1 Chassis

Chassis modifications must be performed in accordance with section LH5 of VSB14 Vehicle Standards Bulletin-14. If the necessary information is not available in LH5 code, then the relevant sections of H code of the Heavy Vehicle Modification (VSB6) may be consulted, as appropriate.

When modifications such as fitting of additional or replacement axle(s) with higher load rating are carried out, the vehicle frame must be analysed to ensure that it has sufficient strength to support the re-rated GVM. For calculating chassis strength, VSB6 may be consulted.

A simplified way to look at the frame requirements for GVM re-rating, is to associate the bending strength of the chassis with the load carrying capacity (i.e. GVM).

3.2 Engine/Transmission

The GVM rating assigned must not exceed the engine and transmission manufacturer's recommendations, or the limit set by vehicle manufacturer for a vehicle using the engine and transmission models being assessed. Where certification is by comparison with a manufacturer's reference vehicle, the engine and transmission fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle.

3.3 Axle Ratings

With increase in GVM, additional loads are placed on axles. The original vehicle manufacturer's axle ratings must not be exceeded when loaded in a practical way to the re-rated GVM, unless reinforced replacement axles are fitted; in that case their ratings must not be exceeded.

Where certification is by comparison with a manufacturer's reference vehicle, the axle and suspension assemblies fitted to the modified vehicle must be identical to those fitted by the manufacturer to the reference vehicle with the higher GVM rating.

In cases where a component manufacturer has published information reducing the rating capacity of a component for safety reasons, the reduced rating must apply.

3.4 Tail Shaft

Changes associated with re-rated GVM may place additional load on a vehicles tail shaft. For example:

- changes to vehicle ride height which may alter the tail shaft and pinion angles;
- alterations to a vehicle's wheelbase may result in change in tail shaft length;
- changes to engine and/or transmissions may impose increased torsional loading on the tail shaft.

The vehicle's tail shaft strength and its installation must be suitable at the vehicles re-rated GVM.

Commented [DGC6]: I'm a bit confused by this statement. It says it must not be exceeded, unless reinforced replacement axles are fitted (so it can be exceeded in those circumstances) but then it says in that their ratings must not be exceeded. Can this be re-worded to clarify this point?

3.5 Suspension

With an increase in GVM, additional loads are placed on suspension. Vehicle suspension ratings must not only be adequate for the revised GVM but must be able to accommodate the axle loads resulting from the normal and practical loading patterns. Effects of changes in ride height must be carefully considered. For example, tyre and wheel envelope, jounce and rebound travel, hydraulic brake hose length, handling and roll stability.

3.6 Brakes

A vehicle's braking performance is directly affected by changes to its the vehicle's GVM. Therefore, the vehicle's braking system must be assessed to determine if the performance of the original system is adequate for the proposed GVM or if it requires to be reinforced.

3.7 Steering

The entire steering system must be identical to that fitted by the vehicle manufacturer to the original or reference vehicle, as appropriate. If the steering system is modified or a new steering system is fitted it must be certified under the LS section of VSB14.

3.8 Tyres and Rims

The sum of the load carrying capacities of the tyres fitted must be at least equal to the GVM. The same applies to the load carrying capacities of the rims. Moreover, the load capacity of the tyres (and rims) on each axle must be adequate to support the load imposed on that axle.

The load carrying capacity of any tyre or rim must not be exceeded when the vehicle is loaded to the re-rated GVM and the load is distributed in a practical and uniform way.

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The tyres and rims must be selected to comply with the requirements of the relevant ADR (ADR 24/... or ADR 42/04) at the re-rated GVM.

If required, an amending tyre placard must be fitted to indicate the revised tyre specifications for the vehicle at the re-rated GVM. The revised tyre size and load rating must also appear on the modification plate and in the owner's handbook.

4.0 Load Capacity Label and Handbook

To ensure the vehicle operator is adequately informed of the changes, such as the vehicle's towing capacity and tyre requirements, the vehicle's handbook must be updated. The update must provide specific details of the tyres and the towing capacity and if applicable, any reduction in towing capacity due to vehicle loading conditions and/or vertical load on tow ball (ball weight).

If the vehicle's handbook is not available, this information must be provided in written form to the owner of the vehicle. This information must also be displayed on the Load Capacity Label discussed below.

The Load Capacity Label must follow the below format and must be fitted to the vehicle, as close as practicable to the vehicle's tyre placard.

Load Capacity Label

Ratings Item	Rating Information
SSM Approval # (if applicable)	
Rated GVM	kg
Maximum Towing Mass at GVM*	kg
Maximum Front Axle/s Mass Permitted	kg
Maximum Rear Axle/s Mass Permitted	kg
*Warning: The maximum mass the vehicle can safely tow may depend on vehicle loading and/or trailer ball weight. For further information regarding towing capacities please refer to the vehicles handbook.	

5.0 Limitations

For modifications not permitted under LS11 code see Section 1.2 of this code. In addition, the following limitations mentioned in sections 5.1 and 5.2 of this code apply.

5.1 Electronic Stability Control

Changes to a vehicle's GVM rating can have a direct effect on Electronic Stability Control (ESC) performance. Therefore, for vehicles fitted with ESC, the system must be tested to ensure it continues to comply with the relevant ADR or manufacturer's specifications. However, this is not required where a vehicle's GVM is being re-rated to the manufacturer's alternative variant or according to SSM approval, such that the system's compliance has been demonstrated.

5.2 Effect on towing capacity

The towing capacity of a light vehicle expressed as Gross Combination Mass (GCM) rating or Rated Towing Capacity or Maximum Braked Towing Mass rating must not exceed the value set by the original vehicle manufacturer. This code does not permit an increase in rated towing capacity or GCM rating. For many light vehicles, rated towing capacity or GCM rating may not be specified by the original vehicle manufacturer. In such cases, the limit mentioned in the Safe Towing Guide published by TMR applies.

When the original vehicle manufacturer has specified GCM rating or rated towing capacity or maximum braked towing mass, note that the maximum mass that can be legally and safely towed when the vehicle is loaded to the re-rated GVM, must be proportionately adjusted to ensure that the sum of the GVM gross vehicle mass and the trailer mass remain within the ratings specified by the original manufacturer.

Commented [DGC7]: Be consistent with capital letter when talking about Rated Towing Capacity, Maximum Braked Towing Mass, and so on throughout this section and the whole document

Commented [DGC8]: Is this ATM? If so, spell it out and use ATM

6.0 Additional Modifications and Changes to Vehicle Category

Where additional modifications have been performed or a change in vehicle category has occurred due to the GVM re-rating, certification using the appropriate additional codes must be provided.

7.0 Use of LS11 code to provide design certification for GVM Re-rating

LS11 code may now be used to provide design certification for GVM re-rating of a vehicle of a particular make/model/variant/chassis series. The design certification may be provided using any of the re-rating criteria discussed in Section 2.2 to 2.5 of this code.

The design certification must be comprehensive enough so a suitably qualified and accredited Approved Person holding a relevant code is able to follow the instructions, inspect and certify a series of modified vehicles of that make/model/variant/chassis series and generate the necessary evidence to ensure that the requirements of the design certification are met.

When LS11 code is used in this way to provide design certification, the AP providing the design certification, may not inspect the modified vehicle and is not required to fit an LS11 modification plate to the vehicle. Also the checklist completed as part of the design certification may not refer to any particular VIN.

The outputs of a Design Certification under LS11 are (a) design package (b) LS11 modification certificate and (c) LS11 modification checklist. All of these outputs must be preserved as records and must be made available, on request, for audit and enforcement purposes.

7.1 Design Package

This output must result in a set of documents that clearly and comprehensively address the following four requirements:

7.1.1 Scope of what is eligible

Design certification must tightly describe to which make/model/variant/chassis series it applies. If its applicability is restricted to specific build years that also must be mentioned.

Commented [DGC9]: Can this word be changed? What do you mean by tightly? Specifically? Might be misconstrued.

Since the modification and the re-rating is being done on in-service vehicles, the condition of those in-service vehicles plays an important role in determining which vehicle can safely receive the re-rating. This must be reflected in the scope section of the design package by stating what must be inspected and what is acceptable to determine that the vehicle is safe to modify and receive re-rating. Condition of the shock absorbers, suspension, frame, tow equipment and brakes are key areas to inspect. Absence of cracks, deformations and structural damage due to rust is also critical.

The design certification package must include a checklist template of checklist that needs be completed as a record that, before modification, the vehicle was inspected and confirmed that it is eligible and is in sound condition.

7.1.2 Evidence package

Integral to the design package output is the collection of various test reports and engineering calculations that validate the re-rating when modified as prescribed. Test reports must be from reputed test laboratories, must have unique identification number and must be signed and dated. Test reports must make unambiguous reference to the specific make/model/variants of the vehicle or component to which they apply and must contain conclusion about pass or fail according to the relevant criteria.

Engineering calculations must be legible and must include assumptions, if any. They must be compiled under a unique identifier.

If any evidence is sourced from a third party, the package must include a written permission from that party for use of its reports.

For reasons of commercial confidence or sensitivity, it is not uncommon for design certifiers to ~~exclude~~ not include the entire evidence package in the design package output being given to the customer. Where this is the case, however, the design package must list all the key test reports and calculation sheets (using their unique identifiers) and provide written assurance that the full evidence package will be made available, on request, for audit and enforcement purposes.

7.1.3 Work instructions for modification

The design package output must contain detailed work instructions on how to modify the vehicle, what parts to be used, ~~the~~ what sequence of actions to be performed, what precautions to be taken and what process controls to be applied.

Work instructions must also include details of any (non-destructive) testing and inspections to be carried out to ensure that the modification standards are met.

The instructions must be easy to understand, unambiguous and should include sufficient pictorials and graphics.

Commented [DGC10]: DO you mean photos? If so, say photos

The work instruction must also include contact information ~~detail~~ if enquiries or further clarification is required for querying or seeking clarification, should that be required during modification.

All details must be recorded in the modification certificate including details of any SSM approvals or conditions.

The load capacity label must be affixed to indicate revised GVM and other relevant loading conditions.

7.1.4 Checklist for the modifier and the certifier

This output of the design package consists of two separate checklists, one of each for the vehicle modifier and one for the certifier of the physical modification. The purpose of these checklists is to generate evidence that the modifier and the certifier of the physical modification have understood and followed the prescribed procedure and are able to confirm that the intent of the design package has been met. The design certifier under LS11 may choose to collect such completed checklists from the modifier and the certifier of physical modification as part of his/her own quality assurance or risk management practice.

Commented [DGC11]: This was discussed last time. Is it 1 checklist for modifier and another separate checklist for the certifier? This needs to be clear.

Note that this checklist is different than any checklist that the certifier of the physical modification may be required to complete as part his/her certification under the relevant code.

7.2 Modification Certificate

For this output, a modification certificate must be issued similar to any other modification code, except that the certificate may not make reference to any specific modification plate number or vehicle by its VIN.

7.3 Modification Checklist

For this output, the modification checklist at the end of this code must be completed and retained for each design certified under LS11 code.

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Checklist LS11
Gross Vehicle Mass Increase
CODE LS11

Form No: LS11
(Y=Yes, N=No, N/A= Not Applicable)

1	Suspension			
1.1	Is the vehicles suspension suitable for the increased GVM?	----	Y	N
2	Chassis			
2.1	Is the chassis suitable for the increased GVM?	----	Y	N
3	Axles			
3.1	Are the axle ratings suitable for the increased GVM?	----	Y	N
4	Engine/Transmission			
4.1	Is the engine/transmission suitable for the increased GVM?	----	Y	N
5	Braking System			
5.1	Has a brake test been carried out on the modified vehicle to ensure compliance with ADR 31/.. or 35/..., whichever is applicable? (applicable in all cases apart from upgrading to an SSM approval or original vehicle manufacturer's optional GVM)	N/A	Y	N
5.2	Is the vehicles brake system suitable for the increased GVM?	----	Y	N
6	Tyres and Rims			
6.1	Does the Modification Plate record the correct tyre and rim sizes and load ratings for the modified vehicle?	----	Y	N
6.2	Has an updated tyre placard been fitted to the vehicle?	----	Y	N
6.3	Do tyres and rims fitted conform to the modification plate and the tyre placard?	----	Y	N
6.4	Are load ratings of the tyres and rims adequate for the vehicles new GVM?	----	Y	N
7	Electronic Stability Control			
7.1	Has the vehicles ESC system been tested to confirm that the system continues to meet the relevant ADR or manufacturer's specifications?	N/A	Y	N
8	Load Capacity Information			
8.1	Is the Load Capacity Label attached to the vehicle?	----	Y	N
8.2	Has the vehicles handbook been amended or additional information been included on the Load Capacity Label?	----	Y	N
9	Manufacturer's Optional GVM			

9.1	Does the re-rated GVM match an alternative option for the same make, model and variant produced by the vehicle manufacturer?	N/A	Y	N
9.2	Are all components relevant to the GVM re-rating (brake, engine, transmission, suspension, tyres and rims etc) identical to the original vehicle manufacturer's alternative specification?	N/A	Y	N
10	Second Stage of Manufacturer GVM			
10.1	Has the SSM Approval holder provided written approval to use that SSM design?	N/A	Y	N
10.2	If certifying the GVM upgrade using a Low Volume SSM Approval, has a statutory declaration been obtained?	N/A	Y	N
10.3	Does the rerated GVM match that of the SSM approval?	N/A	Y	N
10.4	Are all components relevant to the GVM re-rating (brake, suspension, tyres and rims, etc) identical to the SSM design?	N/A	Y	N
11	Fitment of an additional axle			
11.1	If the vehicles GVM has been increase more than 10% is the additional axle load sharing?	N/A	Y	N
12	Only if LS11 code is used to provide Design Certification			
12.1	Is a comprehensive design package provided?	---	Y	N
12.2	Does the design package have a unique identification number?	---	Y	N
12.3	Does the design package clearly describe which make/model/variant/chassis series is eligible for re-rating?	---	Y	N
12.4	Does the design package include guidance on what to inspect in the in-service vehicle and how to determine its fitness to receive GVM upgrade?	---	Y	N
12.5	Does the design package include a complete Evidence Package on which the GVM re-rating is based?	---	Y	N
12.6	Does the design package include comprehensive work instructions including work to be done, precautions to be taken, control of processes and tests to be conducted?	---	Y	N
12.7	Does the design package include a checklist for the modifier of the vehicle?	---	Y	N
12.8	Does the design package include a checklist for the certifier of the modified vehicle?	---	Y	N
12.9	Does the design package address all the requirements of this code?	---	Y	N

Note: If the answer to any question is **N (No)** the design cannot be certified under LS11 code. If **N/A** does not already appear in the checklist then it cannot be used.

CERTIFICATION DETAILS												
Make												
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
Certificate Number (If applicable)												
Vehicle Certified By (<i>Print</i>)												
Signatory's Employer (If applicable)												
Signatory's Signature											Date	

Internal Consultation Use Only

Modifications Leading to Rerating of Gross Vehicle Mass of a Light Vehicle according to LS11 Design Certification CODE LS15

1.0 Scope

The LS15 modification code allows Approved Persons to certify physical modifications leading to the rerating of Gross Vehicle Mass (GVM) of a light vehicle (GVM 4500 kg or less) when those modifications conform to the specifications contained in the relevant LS11 design certification. In addition to the requirements in this code, the LS15 certification must follow the defined modification process specified in the design package in the relevant LS11 design certification.

1.1 Certifications permitted under LS15 code

Light vehicle modifications of the following types may be certified under LS15 code:

- Rerating of a light vehicle's GVM by modifying it according to the instructions in an LS11 design certification issued for the same/make/model/variant/chassis series.
- Rerating of a light vehicle's GVM in accordance with a letter from the original vehicle manufacturer.

1.2 Certifications not permitted under LS15 code:

Light vehicle modifications of the following types must not be certified under LS15 code:

- Modifications other than those covered under Section 1.1 above.
- Rerating of a vehicle which does not qualify for GVM rerating under LS11 code.
- Rerating of a vehicle, the GVM of which, before modification, is greater than 4500 kg.
- Rerating of a vehicle, the GVM of which, after modification, will be greater than 4500 kg.
- Rerating of GVM by comparing with an alternative make/model of vehicle.
- Rerating of GVM by comparing with another vehicle which has been previously rerated using a modification code.
- Rerating of GVM based on assessment of component specifications or component manufacturer's specifications only.
- Rerating of GVM prior to first registration anywhere in Australia. For it, follow the procedures prescribed for obtaining a Second Stage Manufacture (SSM) approval.

2.0 General Requirements

2.1 Typical Modifications

Typical physical modifications involved in rerating of GVM may include replacement of axle(s), suspension or braking system with alternative components which collectively may permit a different rating and/or reinforcement of the chassis frame.

2.2 Rerating without Modifications

In some cases rerating of GVM may not involve physical changes. For example, where a letter is issued by the original vehicle manufacturer clearly indicating that no changes are required. Care must be taken when comparing vehicles/components, as some properties may not be obvious and evident. In these instances, evidence must be retained to demonstrate that the vehicle is identical to the manufacturer's letter.

2.3 Affected ADRs

Modified vehicle must continue to comply with the Australian Design Rules (ADRs) to which it was originally constructed and also the ADRs that apply to it after modification. Where there is a conflict, it is sufficient for the vehicle to comply with the ADRs that apply to it after the modification.

2.4 Work Instructions from the LS11 design package

Modifications must be carried out following the work instructions provided in the design package of the relevant LS11 design certification. Replacement parts must conform to the design package.

2.5 Testing and Inspection

Testing and inspection requirements specified in the design package must be completed and evidence of it must be held by the LS15 certifier. This includes completing any checklist(s) that the design package requires.

3.0 Specific Requirements

When rerating GVM, the chassis, suspension, axles and drive train components must be used within the vehicle manufacturer's rated capacities. Specific instructions provided in LS11 design package must be followed.

The following specific requirements must be met.

3.1 Tyres and Wheel Rims

The sum of the load carrying capacities of the tyres and rims fitted to an axle or axle group must be at least equal to the load rating of that axle or axle group or the load imposed on that axle or axle group when the vehicle is loaded to its rated GVM (with the load distributed uniformly and in a practical way), whichever is less.

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any tyre or rim exceeding its rated capacity.

For vehicles manufactured to comply with ADR 24/... or ADR 42/04, the tyres and rims fitted must comply in all respects with the requirements of that ADR at the revised GVM rating.

Where a tyre placard is fitted to a vehicle, this placard may require to be replaced with a new placard replicating the manufacturer's alternative model vehicle or as specified in the LS11 design certification. The revised tyre size and load rating must also appear on the modification plate.

The load capacity label must be fitted as close to the tyre placard as possible.

3.2 Chassis

The chassis of the modified vehicle must be according to the LS11 design certification or identical to the original vehicle manufacturer's alternate model/variant.

3.3 Brakes

The complete braking system must be as specified in the LS11 design certification or identical to the vehicle manufacturer's specifications for the alternate model/variant.

3.4 Axles and Suspension

Loading of the vehicle to its GVM with load distributed uniformly and practically, must not result in the load on any axle or suspension exceeding its rated capacity. Rated capacity of an axle or suspension is the rating specified by the original vehicle manufacturer, unless reinforced replacement axle or suspension is fitted.

3.5 Fabrication

All work must be performed in accordance with recognised engineering standards. Cutting, heating, welding or bending of components should be avoided by choosing unmodified production components wherever possible.

3.6 Vehicle Eligibility and In-service Condition

Before carrying out the modifications and certification under LS15 code, the condition of the in-service vehicle must be checked as specified in the design package of LS11 design certification to ensure that the vehicle is eligible for rerating. This is to be achieved in two steps.

Step-1: To verify that the vehicle make/model/variant/chassis series and build year is within the scope of the LS11 design certification.

Step-2: To inspect and verify that the condition of the vehicle is suitable for rerating. The relevant instructions in the design package of LS11 design certification must be followed to ensure that the chassis frame, suspension, brakes and so on are in safe and serviceable condition at the rerated GVM. Evidence of this inspection must be recorded in the checklist provided.

3.7 Manufacturer's Letter

Rerating based on original vehicle manufacturer's letter:

In this option a letter issued by the vehicle's original manufacturer is required.

To be considered acceptable, the manufacturer's letter must contain at least the following information:

- Vehicle manufacturer's details (i.e. manufacturer's letter head with contact information).
- Make/model/variant of the vehicle.
- Vehicle Identification Number (VIN) of the particular vehicle being modified.
- Details of any physical changes required to be performed to the vehicle (along with details of specific components to be fitted).
- Revised GVM rating.
- Signed and dated by the delegate of the original vehicle manufacturer.

Checklist LS15
Re-rating of Gross Vehicles Mass of a Light Vehicle to LS11 Design Certification
CODE LS15

Form No: LS15
(Y=Yes, N=No)

1	General		
	Do you have: a copy of the LS11 design certification package with all instructions to certify this modification. Design Cert No. OR a copy of a letter from the original vehicle manufacturer Note: If you do not have one of the above you are unable to modify/certify this vehicle.	Y	N
	Are you accredited to certify the additional modification codes required by the LS11 design certification package or the vehicle manufacturer's letter?	Y	N
2	Chassis		
2.1	Does the chassis conform to the detail construction, section properties and cross-members of the LS11 design package or to any specified in the vehicle manufacturer's letter?	Y	N
2.2	Is the chassis frame structurally sound, free from deformation, cracks and rust perforation?	Y	N
3	Brake system		
3.1	Is the vehicle's entire braking system as specified in the design package of the LS11 design certification or the specifications in the vehicle manufacturer's letter?	Y	N
3.2	Is the braking system in serviceable condition, free from leaks, wear and fouling/stretching?	Y	N
4	Tyres and Rims		
4.1	Does the tyre placard (if fitted) record the correct tyre and rim sizes, axle configurations, axle loads and inflation pressures for the modified vehicle as specified in the LS11 design certification?	Y	N
4.2	Are tyres and rims fitted in conformance to the tyre placard?	Y	N
5	Eligibility- Make/model/variant/chassis series		
5.1	Does the vehicle meet the eligibility criteria as specified in the LS11 design certification?	Y	N
6	Eligibility- Vehicle condition		
6.1	Is the vehicle in satisfactory structural and mechanical condition?	Y	N
7	Workmanship		
7.1	Is the quality of the workmanship to a satisfactory standard?	Y	N
7.2	Are the checklists required in the LS11 design certification completed?	Y	N
7.3	Are all the inspections and tests as required in LS11 design certification completed?	Y	N

7.4	Is the GVM rating plate/label as specified in the LS11 design certification fitted?	Y	N
7.5	Have you kept all supporting documents relied on by you to certify this modification and photos of the modified vehicle for future audit?	Y	N

CERTIFICATION DETAILS												
Make												
Model												
Year of Manufacture												
VIN												
Chassis Number (If applicable)												
Brief Description of Modification/s												
Vehicle Modified By												
TMR In-Principle Approval Number												
Vehicle Certified By (Print)												
Signatory's Employer (If applicable)												
Signatory's Signature									Date			