VSB 6

Section F

Suspension

Contents

Section F — Overview

1. Description

This section of Vehicle Standards Bulletin 6 (VSB6) relates to the fitting of modified or alternative suspensions to heavy vehicles and consists of the following modification codes:

F1	**Suspension substitution** • fitting of an alternative suspension system. This code applies to heavy motor vehicles only.
F2	**Trailer suspension modifications** • trailer suspension modifications where the registration category of configuration of the trailer to be modified is not changed. This code applies to heavy trailers only.

2. Related Australian Design Rules

The ADRs relevant to this section include:

ADR no.	Title
35/..	Commercial Vehicle Brake Systems
38/..	Trailer Brake Systems
84/..	Front Underrun Protection

3. Record keeping

The person responsible for certifying the modification should:

- collate complete records, including drawings, calculations, test results and copies of the appropriate issue of Australian Standards and ADRs
- retain the records for a minimum of seven years after commissioning of the modified vehicle
- make the records available upon request for inspection by officers of the relevant federal, state or territory authority or relevant heavy vehicle regulator.

Reports and checklists

The person responsible for certifying the modification must complete and record the following reports and checklists as applicable:

F1 Checklist	Suspension substitution
F2 Checklist	Trailer suspension modifications

4. Design requirements

Advanced braking systems

Advanced braking systems are an important safety feature fitted to many new vehicles.

Advanced braking systems are programmed by the vehicle manufacturer and are specific to the vehicle to which they are fitted. Changes made to the vehicle, such as engine, tyre size, steering control, suspension characteristics, vehicle mass and its distribution, may impact the performance of the advanced braking system.

Exercise extra caution when modifying vehicles fitted with advanced braking systems. Electric braking systems may be known as:

- electronic stability control (ESC)
- electronic stability program (ESP)
- vehicle stability control (VSC)
- dynamic stability control (DSC)
- vehicle stability assist (VSA)
- roll stability control (RSC)
- roll control system (RCS)
- electronic braking system (EBS)
- trailer electronic braking system (TEBS).

- Advanced braking systems and their components may be easily damaged by common modification, maintenance and servicing techniques, such as the use of rattle guns within one metre of the sensors. When undertaking any work on a vehicle fitted with an advanced braking system, ensure all modifiers are familiar with these systems and the precautions that must be taken.
- Ensure that before undertaking any modification on a vehicle that is fitted with an advanced braking system, the modifier and approved vehicle examiner (AVE) consult with the vehicle manufacturer to determine the impact on the system.

Modification Code F1 — Suspension substitution

1. Scope

Modifications covered under this code:

Covered

- fitting of an alternative suspension system.

Not covered

- re-rating of suspension systems
- relocation of existing suspension systems
- fitting of components not designed for automotive use.

2. Related standards

Modified vehicles must comply with all ADRs, Australian Standards, acts and regulations. Below are some but not all of the areas that may be affected by the modifications in this code and require certification, testing or evidence to demonstrate compliance.

The certifier must ensure that the modified vehicle continues to comply with all related ADRs.

This…	Must comply with…
Fitting of alternative suspension	Manufacturer's specifications VSB6 Section F — Suspension
Relocation of existing suspension	VSB6 Section H — Chassis
Chassis modification	VSB6 Section H — Chassis
Rear axle installation	VSB6 Modification Code D1
Front axle installation	VSB6 Modification Code E1
Brake system modification	VSB6 Section G — Brakes
Tail shaft modification	VSB6 Modification Code C1
Re-rating GVM	VSB6 Modification Code S1
Re-rating GCM	VSB6 Modification Code S3

3. Certification procedure

The certification procedure for this modification code is as follows:

1.	Modifier	Determine if the modification is within manufacturer specifications. • If **yes**, the modification will need to be done in accordance with manufacturer specifications. • If **no**, the modification will need to be done in accordance with this modification code.
2.	Modifier	Consult with an accredited F1 AVE for guidance on how to perform the modification.
3.	Modifier	Perform modification in accordance with AVE advice and this code.
4.	Modifier	Organise approval inspection by an accredited F1 AVE.
5.	F1 AVE	Perform inspection, complete F1 checklist and determine if compliance has been achieved. • If **yes**, proceed to step 6. • If no, do not proceed, advise modifier rework is required to ensure compliance. Return to step 2.
6.	F1 AVE	Issue modification certificate, affix modification plate, and submit paperwork as required by the relevant AVE registration scheme.

AVEs must be satisfied that vehicle modification requirements are being met. It is advised that before modifications are carried out they are discussed with the certifying AVE.

4. Compliance requirements

Suspensions must be of an approved Load Sharing Suspension type (if applicable) as per the Commonwealth Government component type approval system (previous Road Vehicle Certification System) and the relevant heavy vehicle standards regulation.

Where supplementary suspension is added to an existing system, consider it to be a substituted suspension.

Required:

- Before substituting a suspension system, ensure that it is compatible with the frame width, brake configuration, suspension mounting and that it is suitable for the intended use of the vehicle.
- Ensure the mass ratings (gross vehicle mass [GVM] and gross combination mass [GCM]) of the substitute suspension are sufficient for the mass ratings of the modified vehicle (see VSB6 Section S — Vehicle rating).
- Before performing the suspension substitution, check that chassis strength is in accordance with VSB6 Section H — Chassis and that loading is acceptable.
- Ensure that the vehicle maintains overall balance especially in pitching mode.
- Ensure that ride height changes to the vehicle due to suspension/axle changes do not result in the height of the front underrun protection (FUP) being non-compliant with ADR 84/.. or outside of the manufacturer's specifications.

Recommended:

- Install only manufacturer's optional suspensions or equivalent (e.g., in terms of size of the frame rail, additional reinforcements, types of cross-members and attachment arrangements) and only in accordance with the manufacturer's specifications.

5. Installation requirements

Required:

- Assemble and fit substitute suspension in accordance with the suspension manufacturer's instructions.
- Install axles in the substitute suspension in accordance with and in the following order of priority:
  - axle manufacturer's instructions
  - suspension manufacturer's instructions
  - VSB6 Section D — Rear axles or VSB6 Section E — Front axle steering wheels and tyres.
- Position and attach spring hanger brackets, torque rod brackets and shock absorber brackets to the chassis in accordance with suspension manufacturer and vehicle manufacturer (where applicable) requirements (see VSB6 Section H — Chassis).
- If bolts are used to attach suspension brackets to the web of the chassis, use at least ISO Grade 10.9 (SAE Class 8) bolts and self-locking nuts (fitted bolts are preferable but not essential).
- Ensure that all bolts are tightened to the manufacturer's recommended torque.
- Fit and adjust variable ride height and constant ride height mechanisms (if required) in accordance with suspension manufacturer recommendations.
- Ensure the substitute suspension assembly, including springs, bushes, pins and shock absorbers, is in serviceable condition.

- Ensure the substitute suspension is the correct width in relation to the vehicle chassis.
- After suspension modification, check all associated components for adequate clearance through full suspension travel.

Recommended:

- Fit hardened washers between the fastener and cast component unless spot faced.
- Fasten all attachments, including axle bump stops to the web of the chassis.
- Use a rear suspension chassis liner (this is essential in some applications, see VSB6 Section H — Chassis).
- Where the manufacturer's bolt torque recommendation is not available, ensure that all bolts are tightened to the torque specified in the relevant Australian Standard.
- After any modification to the suspension, check and adjust axle alignment to the appropriate specification.

F1 Checklist – Suspension substitution (example)

F1 Checklist — Suspension substitution

This checklist is for use by authorised vehicle examiners (AVEs) when assessing and certifying suspension substitutions.

Vehicle and modifier details

Vehicle make:	Vehicle model:	Month and year of manufacture:
VIN (if applicable):	**Vehicle chassis no. (if applicable):**	**Vehicle modifier (company name):**

Advanced braking systems

Braking systems — Check Yes, No, N/A as applicable:	Yes	No	N/A
1 Is the advanced braking system (where fitted) un-affected or re-certified after the vehicle modification?	☐	☐	☐

Modification details

Modification criteria — Check Yes, No as applicable:	Yes	No
1 Has the modification been performed in accordance with the manufacturer's guidelines?	☐	☐

Substitution details

Suspension — Check Yes, No, N/A as applicable:	Yes	No	N/A
1 Is the substituted suspension suitable for the application of the vehicle?	☐	☐	☐
2 Are the maximum load ratings, GVM and GCM rating of replacement suspension sufficient for the mass ratings of the modified vehicle?	☐	☐	☐
3 If a non-load sharing type of suspension is replacing a load sharing type of suspension, has the vehicle's GVM been reassessed in accordance with VSB6 Section S — Vehicle ratings?	☐	☐	☐
4 Is the substitute suspension assembled and fitted in accordance with the suspension manufacturer's recommendations or VSB6 (as applicable)?	☐	☐	☐
5 Is the replacement suspension assembly, including springs, bushes, pins and shock absorbers, in serviceable condition?	☐	☐	☐
6 Is the replacement suspension the correct width to suit the chassis?	☐	☐	☐
7 Regarding all welding on the axle housings and angle of installation, are the axle(s) installed in the substitute suspension in accordance with the axle manufacturer's instructions, the suspension manufacturer's instructions and VSB6 Section D — Rear axles or VSB6 Section E — Front axle steering wheels and tyres (as applicable)?	☐	☐	☐
8 Are all suspension brackets (spring hanger brackets, torque rod brackets and shock absorber brackets) positioned and attached to the chassis in accordance with the suspension manufacturer's requirements and the vehicle manufacturer's requirements (as applicable)?	☐	☐	☐
9 Are all suspension brackets attached to the web of the chassis by at least ISO 10.9 (SAE Grade 8) bolts with self-locking nuts?	☐	☐	☐
10 Are all suspension bolts tightened to the correct torque?	☐	☐	☐
11 Are all suspension substitution-related chassis alterations, including the fitting of additional cross members, performed and certified in accordance with VSB6 Section H — Chassis?	☐	☐	☐
12 Is there clearance for all components under full suspension travel?	☐	☐	☐
13 Is the variable ride height or constant ride height mechanism, as fitted, adjusted in accordance with the suspension manufacturer's recommendations?	☐	☐	☐

Compliance

Modification — Check Yes, No as applicable:	Yes	No
1 Does this modification meet all the requirements of the manufacturer's guidelines / Modification Code F1?	☐	☐
2 Is the quality of the work to an accepted industry standard?	☐	☐
3 Does the vehicle continue to comply with ADRs and heavy vehicle standards regulations affected by the modification?	☐	☐

Authorisation

Other than modification criteria, if the answer to any relevant question is NO the modification is not acceptable.

Comments:			
Examined by:	**Company (if applicable):**		**AVE no.:**
Signed:	**Modification certificate no.:**	**Modification plate no.:**	**Date:**

Vehicle chassis no./VIN:	Date:	Signed:

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Modification Code F2 — Trailer suspension modifications

1. Scope

Modifications covered under this code:

Covered

- suspension modifications to heavy trailers where the basic trailer type is not changed
- trailer suspension modifications where a different suspension system is substituted for the original.

Not covered

- modifications that alter the basic trailer type, e.g., semitrailer conversion to dog trailer or pig trailer. Such trailers are deemed to be newly manufactured and must be certified as a new vehicle through the Register of Approved Vehicles (RAV). For more information about the certification of new vehicles, please refer to the Federal Transport Department of Infrastructure, Transport, Regional Development, Communications and the Arts.
- changes in the gross trailer mass (GTM) or aggregate trailer mass (ATM) of trailers (see VSB6 modification codes S7 and S12)
- relocating suspension systems *(*see VSB6 Modification Code H5).
- chassis alterations including fitting of additional cross-members (see VSB6 Modification Code H5).

2. Related standards

Modified vehicles must comply with all ADRs, Australian Standards, acts and regulations. Below are some but not all of the areas that may be affected by the modifications in this code and require certification, testing or evidence to demonstrate compliance.

The certifier must ensure that the modified vehicle continues to comply with all related ADRs.

This…	Must comply with…
ATM re-rating	VSB6 Modification Code S7
Trailer chassis modifications	VSB6 Modification Code H5
Trailer brake system upgrading — non-standard	VSB6 Modification Code G3
Trailer brake system upgrading — standard	VSB6 Modification Code G8

3. Certification procedure

The certification procedure for this modification code is as follows:

1.	Modifier	Determine if the modification is within manufacturer specifications. • If **yes**, the modification will need to be done in accordance with manufacturer specifications. • If **no**, the modification will need to be done in accordance with this modification code.
2.	Modifier	Consult with an accredited F2 AVE for guidance on how to perform the modification.
3.	Modifier	Perform modification in accordance with AVE advice and this code.
4.	Modifier	Organise approval inspection by an accredited F2 AVE.
5.	F2 AVE	Perform inspection, complete F2 checklist and determine if compliance has been achieved. • If **yes**, proceed to step 6. • If **no**, do not proceed, advise modifier rework is required to ensure compliance. Return to step 2.
6.	F2 AVE	Issue modification certificate, affix modification plate, and submit paperwork as required by the relevant AVE registration scheme.

AVEs must be satisfied that vehicle modification requirements are being met. It is advised that before modifications are carried out they are discussed with the certifying AVE.

4. Compliance requirements

Because trailer and suspension manufacturers' design preferences and production methods vary, the installation is likely to differ for the various makes or types of trailers and suspensions.

Required:

- Ensure the modified trailer complies with all applicable ADRs, and the requirements of the relevant heavy vehicle regulator and apply good engineering practice.
- Assess the impact of the suspension modification on braking performance and where necessary assess and certify the trailer to VSB6 modification codes G3 or G8.
- If the skid limits for the service brake application of the substitute suspension differ from those of the original suspension, conduct an analysis to confirm that it still complies with ADR 38/...
- Follow the manufacturer's instructions for installation if available, and if not available follow the guidelines outlined in this modification code.
- Where the modification renders the trailer identical to a trailer specification offered by the trailer manufacturer (including suspension, axle configuration, chassis design, braking system and kingpin to centre line of suspension dimension) then, other than certification of each modification to appropriate modification codes, no additional design and engineering evaluation of the modifications is needed.

Recommended:

- Modify the trailer so that it is similar or identical to a trailer offered by the trailer's manufacturer if possible. If this is done, the design process, sourcing of components, evaluation and certification of the modification is likely to be simpler.

5. Design requirements

Trailer mass rating requirements

If modification of the suspension changes the trailer's GTM or ATM, it must be demonstrated that the trailer frame and braking system can accommodate this. These changes must be certified to the requirements of VSB6 Section S — Vehicle rating, Section G — Brakes, and Section H — Chassis, as applicable, and should be assessed to the manufacturer's specification.

Required:

- Ensure the suspension is designed for heavy trailer application and is an approved load sharing suspension type (if applicable) as per the Commonwealth component type approval system and relevant heavy vehicle standards regulation.
- Ensure that the suspension and axle combination is suitable for the proposed mass rating of the modified trailer. Re-rating of the ATM, which is always required if the axle configuration is changed, is covered under VSB6 Modification Code S7.
- Ensure the attachment of suspension hangers to the trailer frame are adequate for all operating conditions and can

accommodate high shock loads from poor road surfaces and loads from braking forces, in both forward and reverse directions.
- Ensure the suspension is suitable for the trailer's chassis width.
- Ensure the trailer's slope (rake) suits its application and the coupling height.
- Ensure all trailer components have sufficient clearance from the suspension when it moves through its full range of travel.
- Ensure attachment points for axle catch straps or shock absorber mounts are adequate to support the mass of the axle plus any residual spring force.
- Ensure the configuration and mounting of brake components, brake chambers and chamber mounting brackets are suitable.
- Assess that chassis strength is adequate in accordance with VSB6 Modification Code H5.
- The braking system is re-certified under VSB6 modification codes G3 or G8.
- Do not allow shock absorbers to extend or bottom fully in the normal operation of the suspension.

Axle group requirements

Sliding Axle Assembly

Required:
- Ensure that when fitting a sliding axle assembly the trailer and assembly design is adequate for all likely operating loads.
- Ensure the following for the sliding axle assembly design:
  - Fit a positive locking device to secure the assembly in fore and aft positions.
  - Do not use air pressure to secure a lock in position.
  - Spring load the release mechanism so that it returns immediately to the locked position when released.
  - Mount the release mechanism in a lockable box on the left side of the trailer.
  - Display clear and concise operating instructions in an area adjacent to the release control mechanism.
- Fit permanent stops of adequate size to the trailer chassis to prevent the axle assembly from detaching from the trailer.
- Fit clearly visible or audible signalling devices to warn a driver in the normal seated position of incorrectly adjusted or positioned locking devices.

Axle groups and spacing

Required:
- Ensure all axle groups and the spacing of axles in each group are conforming axle groups and are in accordance with the limits and requirements specified by the applicable in-service heavy vehicle regulator.

6. Installation requirements

Hanger bracket installation recommendations

Procedure

Recommended:
- Locate the suspension's forward hanger brackets on the chassis at the required position to achieve the intended kingpin to suspension centre line dimension and axle spacing.
- Align the two forward hangers precisely square with the frame and in-line longitudinally and transversely, by measuring to the kingpin or front tow connection.
- Tack the forward two hangers in position to an accuracy of within ± 2 mm.
- Position next rearward hangers by measuring back from forward hangers and tacking them in position square to the frame.

Practice

Recommended:
- Use the above steps to locate all subsequent hanger brackets.
- Use low hydrogen consumables when welding hangar brackets to the chassis.
- Avoid welds transverse to the rail flange where possible.
- Assemble the suspension in the hanger brackets in accordance with the manufacturer's instructions, ensuring that all fasteners are correctly tightened.

Axle and spring assembly recommendations

Recommended:
- Position spring seats on the axle at the correct spacing and rotation so that spring mating faces are parallel with each other.
- Place the centre of the centre-bolt hole at the top centre of the axle housing.
- Tack the spring seats in position.
- Check clearances between the spring and axle equipment (such as brake chambers or brake chamber brackets) with the springs in position on the axles.
- Remove the springs and weld the spring seats to the axle in accordance with the axle manufacturer's instructions.
- Use low hydrogen consumables.
- Position the springs on the axle seats ensuring that any spacers needed to accommodate the slope and camber of the trailer chassis are included.
- Align springs square to the axle and fasten and tighten them correctly.

Axle installation

Required:
- Refer to VSB6 Section S — Vehicle rating before changing the number of axles as it is likely to require a change in the GTM and ATM of the trailer.

Recommended:
- Fit the axle and spring assembly into the hanger brackets.
- Before aligning the axles, check the suspension is free and loose in its rest position.
- Check the alignment of the forward axle using specialist optical alignment equipment or the following alignment check method.

Alignment check method

1. Accurately measure the distance from the kingpin to the centre line of the axle spindles on both sides (try to use spindle extensions for this).
2. Align the forward axle square to the kingpin or front towing attachment by changing the length of the adjustable radius rods, shimming the ends of fixed radius rods, or similar, as dictated by the design of the suspension.
3. Tighten the adjustment fasteners on the forward axle to the correct torque.
4. Align the next axle to the forward axle by measuring from centre lines of axle spindles on both sides and adjusting accordingly.
5. Align any other axles in the same manner.

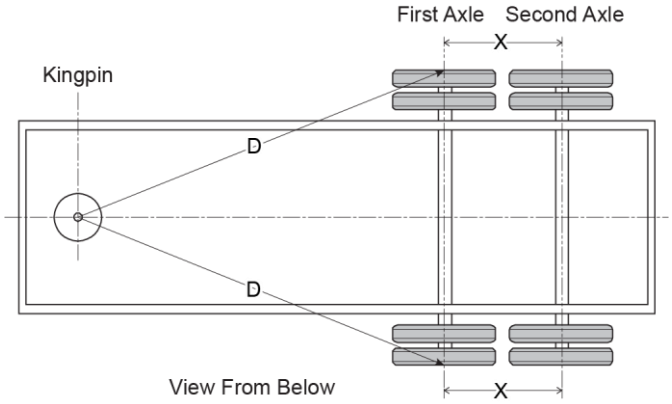

Figure 1: Axle alignment

Chassis installation

Required:

- Perform and certify chassis alterations including the fitting of additional cross-members in accordance with VSB6 Modification Code H5.
- Drill or punch holes. Do not flame cut holes unless they are ground or reinforced.
- Do not allow fastener hole diameters to exceed the fastener diameter by more than 1.5 mm and avoid elongating them.
- Ensure all bolts for structural purposes are at least ISO Metric Grade 10.9 or SAE Class 8.
- Do not use spring type lock washers on structural members.
- Ensure that all bolts are tightened to the manufacturer's recommended torque.

Recommended:

- Fit all structural bolts with hardened washers and self-locking nuts.
- On alterations to air or hydraulic lines, use piping of the same bore as the original design and do not introduce additional restrictions at joints
- Where the manufacturer's bolt torque recommendation is not available, ensure that all bolts are tightened to the torque specified in the relevant Australian Standard.

Welding on frame rails

Required:

- Before performing welding on the trailer chassis, determine the material specification of the frame rail to ensure the correct welding procedure is used.
- Ensure all welding is performed by a competent person in accordance with the recommendations of the original trailer and suspension manufacturer, AS/NZS 1554 *Structural Steel Welding Code* or similar accepted standard.
- Always attach the earth welding cable terminal as close as possible to the region where the welding is being carried out.
- Never attach the welding earth cable terminal to components such as axles, springs or other suspension components. Arcing on these components may cause serious damage to bearing surfaces, springs or other stressed components.
- Take care to protect suspension parabolic leaf springs, air suspension springs as well as brake and electrical system hoses and conduits against cutting and welding sparks and spatter.
- Ensure that finished welds do not exhibit excessive undercut.
- Do not cool welds with water.

Recommended:

- Do not expose plastic and rubber materials to temperatures above 80° C.
- Remove auxiliary air, oil and fuel tanks from the vicinity of welding.
- Before welding starts, disconnect electronic components of the anti-lock braking system if fitted.
- Do not place welds within 25 mm of the flanges except where joining the rail flange or where fitting longitudinal strapping.
- Avoid welds transverse to the rail flanges wherever possible and in regions of high stress.
- Take care to prepare joints before and after heat and welding.
- Use low hydrogen consumables to weld suspension brackets.
- Remove all paint, dirt and grease from the region of the weld prior to welding.
- In low ambient temperatures or if there is dew or other moisture present, warm the region to be welded slightly (i.e., with an oxy-acetylene torch).
- Ensure the minimum length of any weld is 30 mm.
- Welds may be ground flush with the chassis rail, take care not to grind back the weld and chassis rail material excessively, thereby reducing section thickness.
- Carry out grinding so that marks are along the frame rail.

Inspection recommendations

Recommended:

- After installing and aligning the axles, visually check the unit to ensure:
  - all springs are properly located on the wear pads
  - equalisers of centre rocker type suspensions are parallel to a line through the axle centres
  - there is sufficient and even clearance between springs and hanger brackets on both sides
  - there is sufficient clearance between suspension/axle assembly and the rest of the trailer under all loading and operational conditions (particularly for air bag type suspensions, so that sufficient clearance exists at the tyres if there is a loss of air pressure in the bags)
  - all fasteners are tightened to the correct torque.

F2 Checklist – Trailer suspension modifications (example)

F2 Checklist — Trailer suspension modifications

This checklist is for use by approved vehicle examiners (AVEs) when assessing and certifying trailer suspension modifications.

Vehicle and modifier details

Vehicle make:	Vehicle model:	Month and year of manufacture:
VIN (if applicable):	**Vehicle chassis no. (if applicable):**	**Vehicle modifier (company name):**

Advanced braking systems

Braking systems	Check Yes, No, N/A as applicable:	Yes	No	N/A
1	Is the advanced braking system (where fitted) un-affected or re-certified after the vehicle modification?	☐	☐	☐

Modification details

Modification criteria	Check Yes, No as applicable:	Yes	No
1	Has the modification been performed in accordance with the manufacturer's guidelines?	☐	☐

Modification details

Trailer suspension	Check Yes, No, as applicable:	Yes	No
1	Is the modified chassis configuration the same as the original configuration, i.e. is the category of registration unchanged?	☐	☐
2	Is the slope (rake) suitable for the intended application of the trailer?	☐	☐
3	Is the substitute suspension an approved load-sharing type as per the Commonwealth component type approval system and relevant heavy vehicle standards regulation?	☐	☐
4	Has the trailer braking system been re-certified under the VSB6 modification codes G3 or G8?	☐	☐
5	Is the replacement suspension system suitable for the proposed mass rating of the trailer?	☐	☐
6	If mass re-rating is required, has it been performed in accordance with VSB6 Modification Code S7?	☐	☐
7	Is the replacement suspension system the correct width for the chassis?	☐	☐
8	Are all suspension brackets suitably and adequately attached to the chassis?	☐	☐
9	Has the chassis been suitably reinforced at the attachment positions of the suspension hanger brackets and associated components?	☐	☐
10	Is the chassis cross-bracing suitable for the type of suspension?	☐	☐
11	Do all suspension, axle, wheel and chassis components have sufficient clearance to accommodate the entire range of travel of the suspension, including the complete deflation of an air bag in an air suspension?	☐	☐
12	Are axle catch straps and shock absorber mounts adequately designed, constructed and attached?	☐	☐
13	Have appropriate welding practices been followed?	☐	☐
14	Are all suspension substitution-related chassis alterations, including the fitting of additional cross members, performed and certified in accordance with VSB6 Modification Code H5?	☐	☐
15	Have the suspension brackets been properly positioned on the chassis?	☐	☐
16	Has the suspension been installed in accordance with the suspension manufacturer's instructions?	☐	☐
17	Does the installation allow the proper alignment of the axles and have the axles been aligned?	☐	☐

Compliance

Modification	Check Yes, No as applicable:	Yes	No
1	Does this modification meet all the requirements of the manufacturer's guidelines / Modification Code F2?	☐	☐
2	Is the quality of the work to an accepted industry standard?	☐	☐
3	Does the vehicle continue to comply with ADRs and heavy vehicle standards regulations affected by the modification?	☐	☐

Authorisation

Other than modification criteria, if the answer to any relevant question is NO the modification is not acceptable.

Comments:			
Examined by:	**Company (if applicable):**		**AVE no.:**
Signed:	**Modification certificate no.:**	**Modification plate no.:**	**Date:**

Vehicle chassis no./VIN:	Date:	Signed:

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