

Coolant Level - Sight Glass

Daily Check

The coolant level gauge is sighted on the rear of the vehicle. The coolant level should be checked when the engine is cold or after 15 minutes if the vehicle has been running. The level should be maintained at the maximum level. If topping up is required, use the correct premixed coolant. The header tank filler cap is situated at the rear right hand side of the vehicle.

⚠ WARNING

Top up the coolant only when the engine is stopped. Allow the system to cool until the temperature is below 50°C (120°F) before removing the pressure cap.

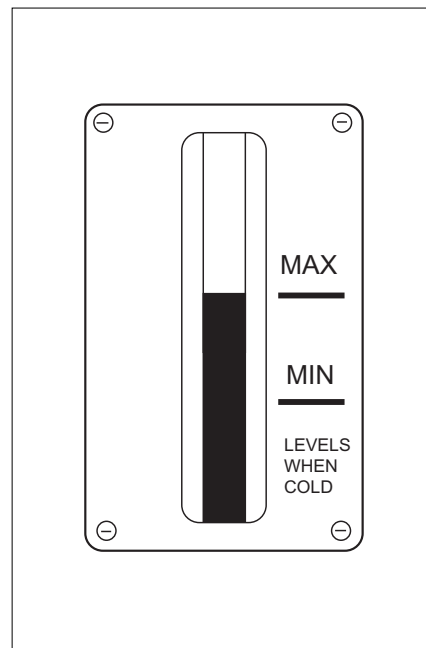
Failure to do so can cause personal injury from pressurised heated coolant spray.

CAUTION

Never use a sealing additive to stop leaks in the coolant system. This can result in coolant system clogging and inadequate coolant flow.

NOTE :

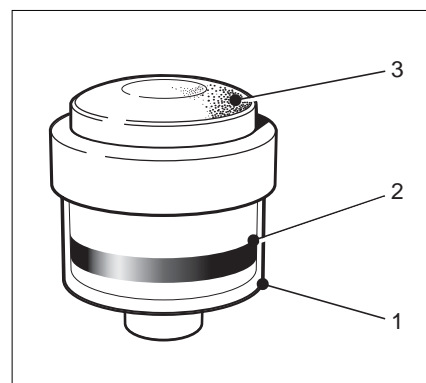
Valvoline HD Extended Life RTU Coolant, to Cummins 14603, must be used for vehicles fitted with an Aluminium Radiator Insert.



Air Cleaner Restriction Indicator

The restriction indicator gives a warning that the air cleaner filter is too clogged for further service. The indicator is operated by the depression between the air cleaner and the engine, and at a preset figure, the red warning indicator will remain locked up in a visible position after the engine has stopped running.

When the red indicator band appears, the air cleaner element must be removed and renewed. After the element has been renewed, reset the indicator by pushing on the diaphragm at the top of the instrument.



- 1. Housing
- 2. Red panel (service the filter)
- 3. Resetting button

Towing

The vehicle should only be towed from the towing eyes. The towing eyes should be screwed into both of the the tapped sockets in the rear or front crossmember. A rigid tow bar should be used, utilising both towing eyes.

⚠ CAUTION

It is essential to disconnect and support the propshaft at the rear axle before attempting to tow the vehicle. Where there is no means of supplying air to the vehicle being towed the parking brake (spring brake) must be released.

An air coupling is located on the front of the vehicle to provide a means of supplying air to the braking system while the vehicle is being towed.

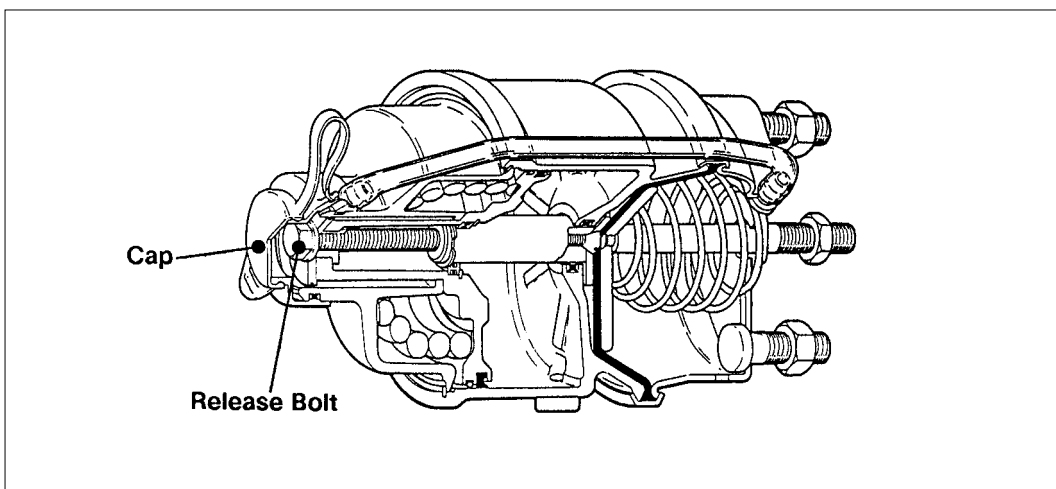
Where there is no means of supplying air to the vehicle being towed the parking brake (spring brake) must be released.

⚠ CAUTION

In this condition the brakes are completely inoperative. Towing must be carried out using a rigid tow bar.

Releasing Spring Brake Actuators

- Place chocks behind and in front of the wheels.
- Remove the cap from the end of both rear spring actuators.
- Unscrew the release bolts of both actuators until the brake shoes release from the drums.
- When resetting release bolts, tighten to 35ft lbs (47Nm) in a clockwise direction.
- Replace the spring brake actuator caps.



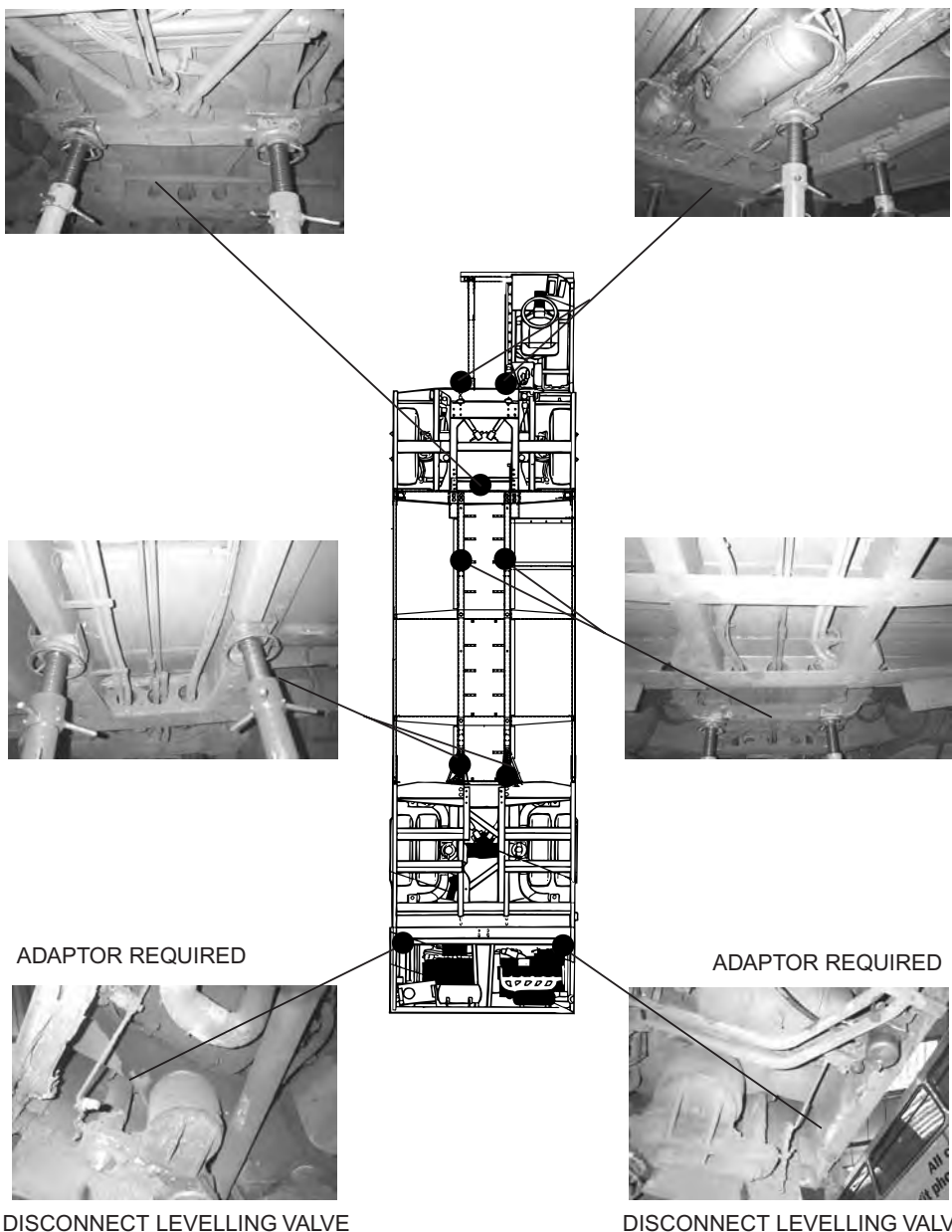
Spring Brake Actuator

Supporting Vehicle for Maintenance Purposes

When it is necessary to elevate the vehicle to carry out maintenance it is strongly recommended that the wheel type lifts are used and that they remain in position to provide a stable and safe platform whilst carrying out maintenance / inspection tasks beneath the vehicle.

Only under certain circumstances such as axle removal / replacement which require the wheel type lifts to be removed to gain access to components, should the vehicle be supported on stands. Adaptors may be required to support the chassis from the top of the axle stands, Please contact the axle stand manufacturer for details of stand adaptors. When supporting the vehicle in this manner it is important that the safety guidelines below are followed in addition to all normal workshop safety procedures:

- The recommended support stand positions should be used (refer to illustration below for positions).
- On vehicles with air suspension, do not attempt the support the vehicle using suspension components or a combination of chassis and suspension points.
- Only use stands that are in a safe condition and with a capacity that is rated to support the vehicle.
- Do not use packing between stand tops and the chassis as movement may cause the vehicle to become unstable.



Special Tools and Diagnostic Equipment

Amended:

Enviro 400 Special tools and diagnostic equipment

Gearbox - ZF HP500

Testman diagnostic software (1)	6008 308 901
DPA 04 1 Adaptor (2)	6008 308 600
RS 232-cable (3)	6008 308 601
ISO cable (4)	0501 211 103
Pressure gauge 0 - 25 bar	1P01 136 670
Pressure gauge 0 - 10 bar * 2	1P01 137 856
Test union M10 x 1 (spare if required)	0637 839 504

Voith D864.5E

Diagnostic software and interface lead	Voith Aladin Diagnostics
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Braking System

Brake tube cutter	610224
Pressure gauges 0 - 10 bar * 4	local supply
Test hoses with ISO test connectors * 4	local supply
ISO test nipple nut -2 off (to make above)	SC1006

Rear Axle - ZF AV-132

Oil seal driver	5870 051 040
Driver handle	5870 260 004
Halfshaft Oil seal driver	5870 005 098
Driver handle	5870 260 002
Oil sampling device	5870 286 078

Front Axle - Kirkstall

Swivel pin dummy nut	SL225/19
UNIPAC bearing alignment sleeve	E660
Alignment Studs	E542

Chassis Electrics

Multiplex	Multitool
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Cooling fan motor & ZF Steering

Pressure test point	Hose adaptor	SMA-3-2000
	Hose to gauge adaptor	MAV1/4-MA3

Standard Torque Figures

Torque values quoted are standard figures for general non-specific applications and assume the application is generally in line with the test fixture outlined in BS 7371 : Part 2 : 1993.

Any specific requirements will supersede the figures quoted on these tables and will be identified elsewhere in these manuals.

Table 1 - Standard torques for **Grade 8.8 coarse** thread metric bolts and screws, zinc plated

Table 2 - Standard torques for **Grade 8.8 fine** thread metric bolts and screws, zinc plated

TABLE 1 - METRIC COARSE THREAD

Size / Pitch	Torque Nm
M4 x 0.7	3 - 5
M5 x 0.8	7 - 9
M6 x 1.0	12 - 14
M8 x 1.25	28 - 32
M10 x 1.5	57 - 63
M12 x 1.75	101 - 111
M14 x 2.0	160 - 174
M16 x 2.0	249 - 275
M18 x 2.5	354 - 392
M20 x 2.5	469 - 519
M24 x 3.0	869 - 961

TABLE 2 - METRIC FINE THREAD

Size / Pitch	Torque Nm
M4 x 0.5	3 - 5
M5 x 0.5	7 - 9
M6 x 0.75	13 - 15
M8 x 1.0	31 - 35
M10 x 1.25	61 - 67
M12 x 1.25	109 - 121
M14 x 1.5	173 - 191
M16 x 1.5	265 - 293
M18 x 1.5	399 - 441
M20 x 1.5	557 - 605
M24 x 2.0	946 - 1046

Standard Torques For Grade 'S' thread imperial bolts and screws, zinc plated

B.S.W.	Torque Nm
3/16"	4 - 6
1/4"	13 - 15
3/8"	47 - 53
7/16"	78 - 86
5/8"	233 - 257

B.S.F	Torque Nm
1/4"	8 - 10
5/16"	29 - 33
3/8"	51 - 57
1/2"	124 - 138

U.N.C.	Torque Nm
1/4"	13 - 15
5/16"	26 - 30
3/8"	47 - 53
7/16"	77 - 85
1/2"	119 - 131
5/8"	236 - 260

U.N.F.	Torque Nm
1/4"	15 - 17
5/16"	27 - 29
3/8"	48 - 54
7/16"	77 - 85
1/2"	119 - 131
5/8"	236 - 260
3/4"	418 - 462
1"	1007 - 1113

**Non Standard Torque Figures -
Dacromet Bolts**

All grade 10.9 bolts specified are coated in Dacromet. This is a corrosion preventative finish. (Dacromet 500, Natural Colour, Grade B).

Table 1 - Standard torques for **Grade 10.9 coarse** thread metric bolts and screws, Dacromet plated

Table 2 - Standard torques for **Grade 10.9 fine** thread metric bolts and screws, Dacromet plated

TABLE 1 - COARSE THREAD

Size / Pitch	Torque Nm
M3 x 0.5	1.4 - 1.9
M4 x 0.7	3.7 - 4.5
M5 x 0.8	7.2 - 9.2
M6 x 1.0	12.1 - 15.6
M8 x 1.25	29 - 35
M10 x 1.5	59 - 72
M12 x 1.75	102 - 132
M14 x 2.0	161 - 201
M16 x 2.0	250 - 316
M18 x 2.5	353 - 438
20 x 2.5	491 - 613
M24 x 3.0	857 - 1096
M27 x 3.0	1250 - 1565
M30 x 3.5	1700 - 2130

TABLE 2 - FINE THREAD

Size / Pitch	Torque Nm
M4 x 0.5	
M5 x 0.5	
M6 x 0.75	
M8 x 1.0	
M10 x 1.25	
M12 x 1.25	157 - 173
14 x 1.5	246 - 272
M16 x 1.5	379 - 419
M18 x 1.5	552 - 610
M20 x 1.5	770 - 850
M24 x 2.0	1308 - 1446
M27 x 2.0	
M30 x 2.0	