VM- Motor R754 EU6
VM- Engine R754 EU6

VM- Motor R754 EU6
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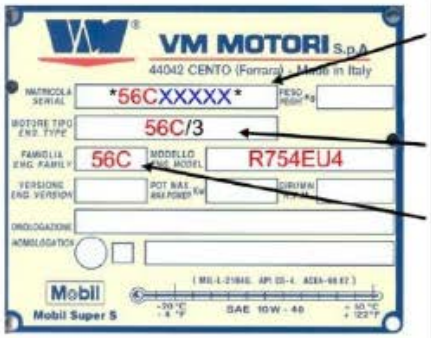
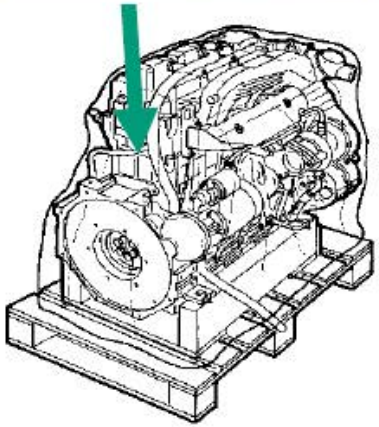
Engine- Number



SERIENNUMMER
56C**XXXXX** 5-stellige Seriennummer

SONDEREINSTELLUNGEN
56C/3 Bsp. ../3" = 2'600 min-1

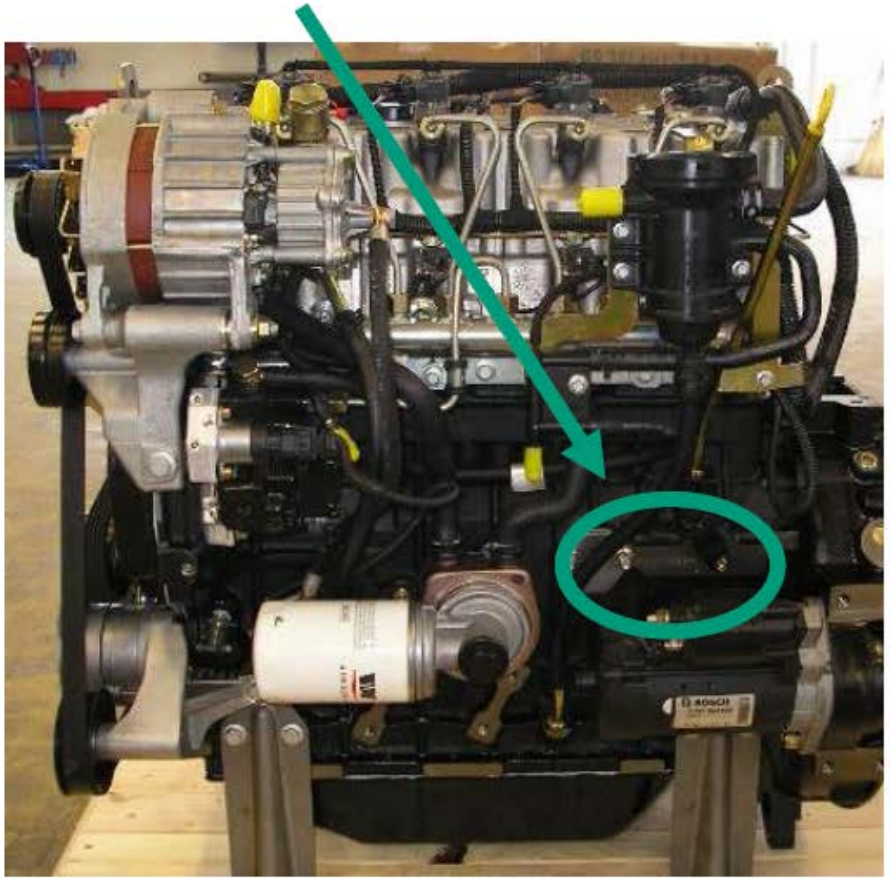
MOTORENFAMILIE
56C Motorenfamilie



R754EU4 = 56C 00000

R754EU6 = 60D 00000

56C XXXXX oder *60D XXXXX*



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Engine Control Unit A1 (ECU)

ECU-Teilenummer

Software-Kalibration

Software Calibration

ECU Part Number

IMA-Code

Motor-Serienummer

Engine- Number

IMA- Code Injektors

Bosch-Etikette

Bosch Code

VM- Motor R754 EU6
VM- Engine R754 EU6

Technical data and equipment

Engine manufactor		VM
Type of engine		R754 EU6
Number of cylinders		4
Displacement	ccm	2970
Power	KW bei 1/Min	80 KW bei 2600
Engine rpm	1/ Min	max. 2700
Torque	Nm	420 Nm bei 1100 1/min
Engine oil fill capacity with oil filter	Littre	9.5L (8.7kg) **ACEA E6/ E9 oder API CJ-4**
Coolant fill capacity	Litre	10
Compression ratio		17.5 +/- 0.5 : 1
Valves per cylinder		2
Ignition sequence		1-3-4-2 **(clinder 1 at the timing side)**

VM- Motor R754 EU6
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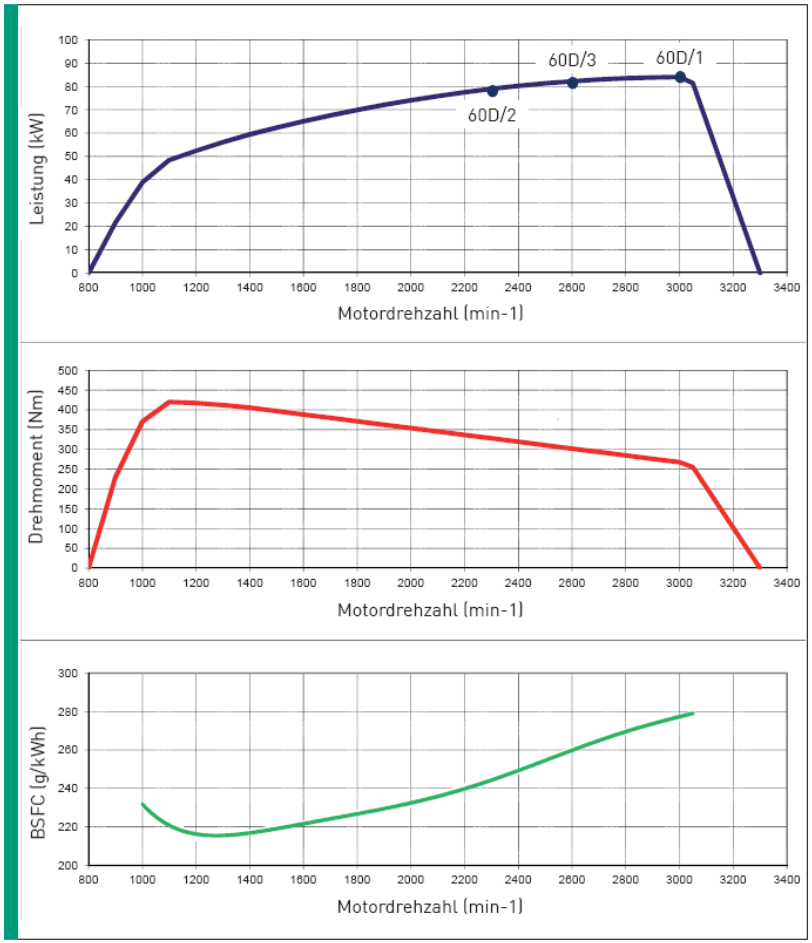
Technical data and equipment

Motoröldruck	At 800 rpm and an oil temperature of 80°C	Minimum of 1 bar
Compression	bar	25- 30
Compression	bar	19 **(wear limit)**
Compression Permissible difference between all cylinders	bar	5 Permissible difference between all cylinders
Exhaust gas limits according to Euro standard		EU 6
DOC + Partikelfilter (DPF)		Yes
SCR- System		Yes
Exhaust gas recirculation		Yes
Charging (Turbocharger)		Yes
Charge air cooling		Yes

VM- Motor R754 EU6
VM- Engine R754 EU6

Power and Torque Curves

LEISTUNGSKURVE



Leistung nach 50 Stunden Einlaufzeit, Nutzleistung gemäss ECE R120/R24, Toleranz +/- 5 %, Version 14.02.2014.00, Änderungen vorbehalten

HOMOLOGATION

EC 595/2009 EURO 6

LEISTUNG

80 kW (109 PS) bei 2600 min-1

MAX. DREHMOMENT

420 Nm bei 1100 min-1

Homologation
EC 595/2009 Euro 6

Power

80 kW (109 hp) with 2600 min- 1

Max. Torque
420 Nm with 1100 min-1

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VM- Engine R754 EU6

Maintenance

Daily maintenance Customer, driver, operator	Standart maintenance intervalls		Additional
	Daily		
Check engine oil level SAE 10W- 40, Specification ACEA E6- E9 ou API CJ-4. E.g. Motorex Focus QTM 10W-40!	X		
Maintenance: Check the cooler (radiator) daily for external contamination and clean the cooler if required.	X		
Checking coolant level (daily), Use coolant additive Paraflu Up or Paraflu Up Ready(mixed , ready to use) Ensure the mixing ratio is at least 50 % coolant additive to 50 % water (distilled water).	X		

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VM- Engine R754 EU6

Maintenance

Service tasks	Standard maintenance intervals			Additional
	After every 500 o.p.hours	After every 1000 o.p. hours	After every 1500 o.p. hours	
Read out engine control unit error memory, delete sporadic errors, repair obvious errors if necessary.	X			
Check condition of diesel particulate filter and perform service regeneration if necessary.	X			Replace or burned out the diesel particle filter Every 4000 o.h. hours
Replace the engine oil and engine oil fil filter after 50 o.p. hours, after 250 o.p. hours and then every 500 o.p. hours. SAE 10W- 40, Specification ACEA E6- E9 ou API CJ-4. E.g. Motorex Focus QTM 10W-40!	X			Important notice: If any other engine oil being used, the oil change interval is halved to 250 operating hours or no more than 15000 km!
Replace the fuel filter, after 50 o.p. hours , after 250 o.p. hours and then every 500 o.p. hours	X			
Replace air filter catridge	X			

VM- Motor R754 EU6
VM- Engine R754 EU6

Maintenance

Service tasks	Standard maintenance intervals			Additional
	After every 500 o.p. hours	After every 1000 o.p. hours	After every 1500 o.p. hours	
Fuel lines: Functional and seal tightness check	X			
Air intake pipe: Functional and seal tightness check	X			
Exhaust system: Functional and seal tightness check	X			
Checking coolant level Use coolant additive Paraflu Up or Paraflu Up Ready(mixed , ready to use) Ensure the mixing ratio is at least 50 % coolant additive to 50 % water (distilled water).	X			Replace the coolant after every 3000 o.p. hours
Check the condition of the v-ribbed belt for generator drive	X			Replace the v- ribbed belt for generator drive after every 1000 o.p. hours

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VM- Engine R754 EU6

Maintenance

Service tasks	Standard maintenance intervals			Additional
	After every 500 o.p. hours	After every 1000 o.p. hours	After every 1500 o.p. hours	
Replace the safety insert of the air filter		X		
Remove throttle valve B42 and clean with throttle valve cleaner (Würth No. 5861113500)	X			
Remove charge air pressure temperature sensor B4 and clean with with throttle valve cleaner (Würth No. 5861113500)	X			
Dismount the AdBlue dosing valve Y39 at the SCR mixing pipe and clean with warm water.	X			
Check the v- ribbed- belt for generator drive and belt tensioner and idler pulleys	X			
Check the tension of the V-belt for radiator fan drive. Retighten the V-belt for radiator fan drive if necessary.	X			
Replace DEF filter at Adblue system pump unit		X		
Replace the v- ribbed- belt for generator drive and belt tensioner and idler pulleys		X		
Replace V-belt for radiator fan drive		X		

VM- Motor R754 EU6
VM- Engine R754 EU6

Maintenance

Service tasks	Standard maintenance intervals			Additional
	After every 3000 o.p. hours	After every 4000 o.p. hours	After every 8000 o.p. hours	
Replace coolant: Engine coolant (50 % Paraflu Up - 50 % distilled water or replace ready-mixed coolant (Paraflu Up Ready)	X			Replace coolant every 3000 operating hours
Note: According to the VM engine manufacturer, the diesel particle filter should be replaced or burned out every 4000 operating hours as a precaution.		X		Replace or burned out the diesel particle filter Every 4000 o.h. hours
Carry out partial engine revision Replace the hydraulic tappets and replace the water pump.		X		
Carry out total revision of the engine.			X	

VM- Motor R754 EU6
VM- Engine R754 EU6

Maintenance

Vor jeder Motorwartung:

- Ist mit der VM- Diagnose der Fehlerspeicher vom Motorsteuergerät auszulesen. Vorhandene Fehler abstellen.

  Wenn Fehlereinträge vorhanden sind ist eine Kopie (log file) abzuspeichern. Hierzu sollten Sie auf der Festplatte C einen Ordner „VM- Diagnose“ anlegen. Für Garantieanträge wird unbedingt eine Kopie mit den Fehlereinträgen vor der Reparatur und den Fehlereinträgen nach der Reparatur benötig. Die Kopien müssen dem Garantieantrag beigelegt werden. Bei Garantieanträgen per e- mail, müssen die Kopien (log files) als Datei angehängt werden.

- Ist der Beladungszustand des Partikelfilter zu prüfen. Ist die Beladungsgrenze erreicht, muss eine Service- Regeneration des Partikelfilters (DPF) durchgeführt werden.
  Die Service Regeneration sollte vor der Wartung und vor dem Motorölwechsel durchgeführt werden, da bei jeder Regeneration des Dieselpartikelfilters (DPF) Diesel in das Motoröl gelangt und das Motoröl verdünnt.

  Weiterhin sind bei der Wartung folgende arbeiten durchzuführen:

- Abgasanlage auf Dichtigkeit prüfen
- Kraftstoffleitungen auf Dichtigkeit und Scheuerstellen prüfen
- Luftansauganlage auf Dichtigkeit und festen Sitz der Schlauchschellen prüfen.

- Bei spätesten 4000 Betriebsstunden sollte der Partikelfilter ausgebrannt oder ausgetauscht werden.

Werden arbeiten am Zylinderkopf oder der Zylinderkopfdichtung durchgeführt, sollten die Hydrostößel für die Ventile vorsorglich ausgetauscht werden.

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VM- Engine R754 EU6

Maintenance: Check The Engine Oil Level (Daily)

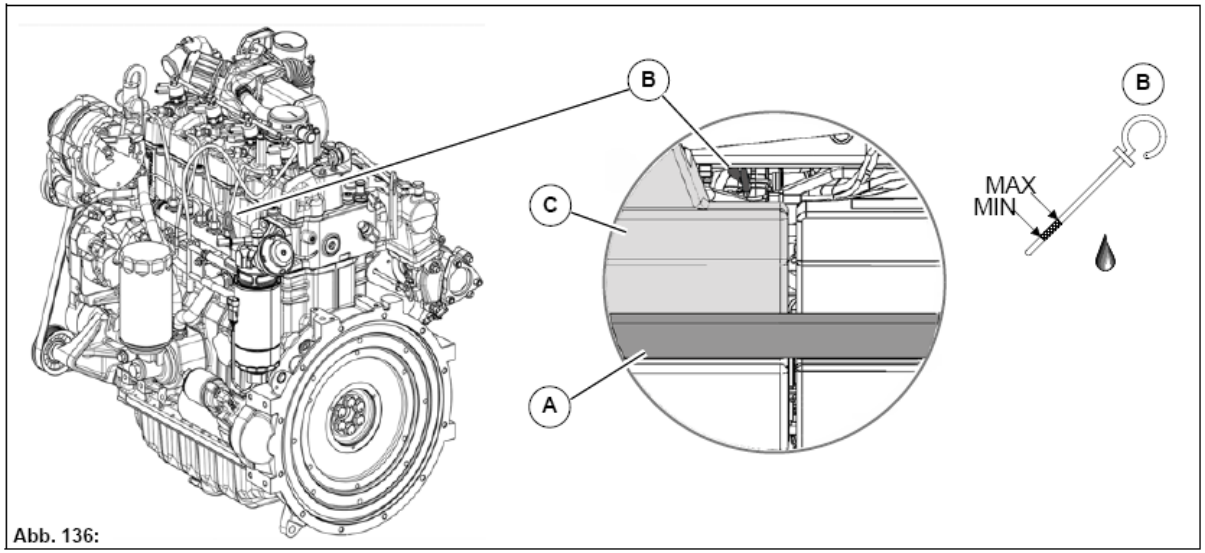
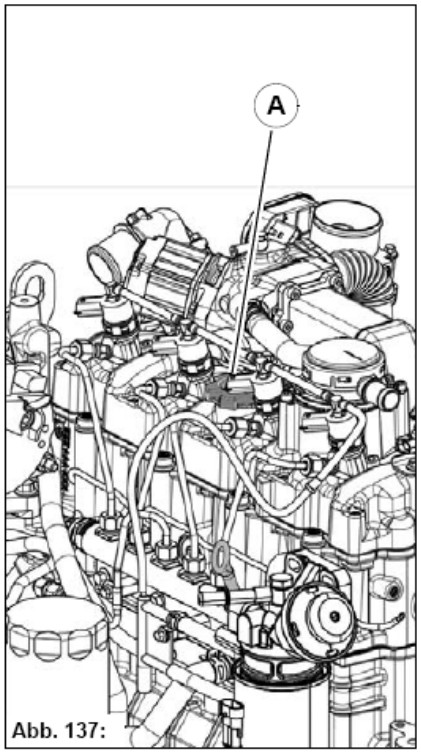


Abb. 136:



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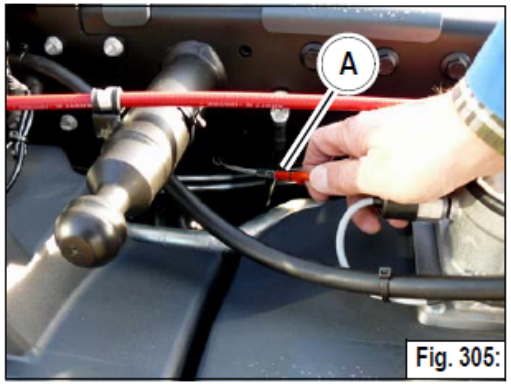

Fig. 305:

Engine oil dipstick A is located on the left side of the vehicle above the fuel tank and can be accessed from the outside.

Check the engine oil level

☞ *When the engine oil pressure warning light lights up* ***138***

☞ *After 10 operating hours or daily*

- With the vehicle on even ground
- Before starting the engine or
- No sooner than 5 minutes after switching off the engine

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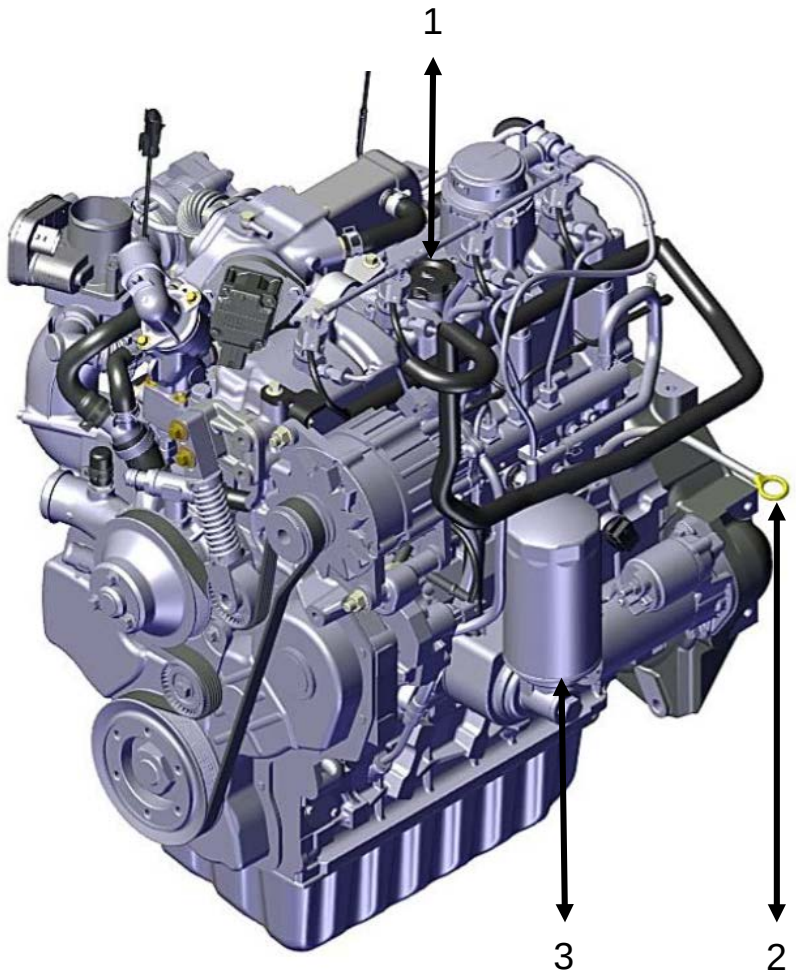
Maintenance



1. Oil filling opening

2. Oil dipstick

3. Engine oil filter

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VM- Engine R754 EU6

Maintenance

Check the engine oil level daily, and refill if required.

Replace engine oil and engine oil filter
after 50 o.p. hours or 2500 km (once)
after 250 o.p. hours or 12500 km (once)
after every 500 o.p. hours or 25000 km

Engine oil W Oil change 9.5 ltr. incl. oil filter SAE 10W- 40, Specification ACEA E6- E9 ou API CJ-4

Important notice: If any other engine oil than SAE 10W- 40, Specification ACEA E6- E9 ou API CJ-4 is being used, the oil change interval is halved to 250 operating hours or no more than 15000 km! E.g. Motorex Focus QTM 10W-40!

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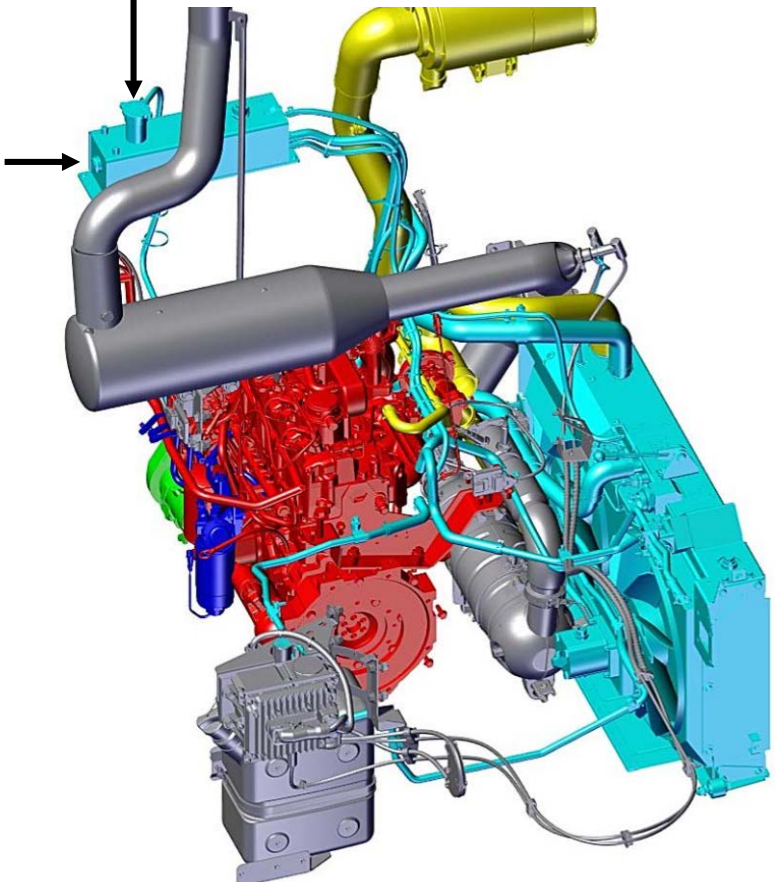
VM- Engine R754 EU6

Maintenance: Checking coolant level (daily), replace the coolant every 3,000 operating hours

Coolant tank
with sight glass



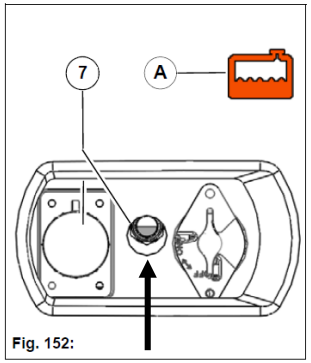


Fig. 152:

Check the coolant level at the sight glass **Fig. 152-7** at daily intervals and refill as required. Maintenance intervals according to maintenance plan, see page 167. The sight glass is located on the left-hand side of the vehicle behind the vehicle cab. The warning symbol **Fig. 152-A**appears in the indicating device if the coolant level is too low.

Note

The coolant prevents frost and corrosion damage and lime deposits and also increases the boiling point of the water. For these reasons, the cooling system must be filled with coolant additive the whole year round. Especially in countries with a tropical climate, the coolant with its higher boiling point contributes to operational safety when the engine is under high load.

Observe the Safety instructions – Cooling system, see page 193.

1. Place the vehicle on a level surface and hold it with the parking brake. Switch the engine off and pull out the ignition key. Allow the engine to cool down.
2. Check the coolant level.
   With the engine cooled down, the coolant must be in the middle of the sight glass **Fig. 152-7**. If the engine is warm, it might also be above the middle.
3. If no coolant can be seen in the sight glass or the warning symbol **Fig. 152-A** lights up in the indicating device, coolant must be topped up.

Replace the coolant after every 3,000 operating hours.

Use coolant additive Paraflue Up or Paraflue Up Ready (mixed , ready to use)

Ensure the mixing ratio is at least 50 % coolant additive to 50 % water (distilled water).

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VM- Engine R754 EU6

Maintenance: Check the cooler (radiator) daily for external contamination and clean the cooler if required

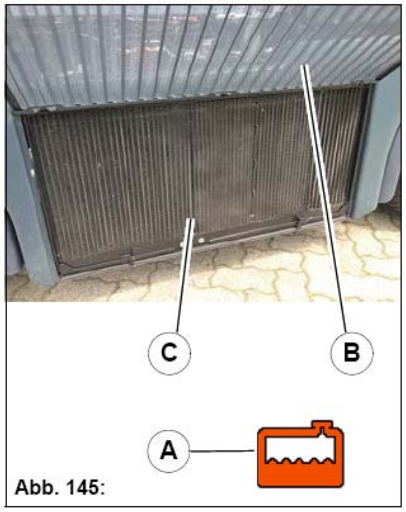

Abb. 145:

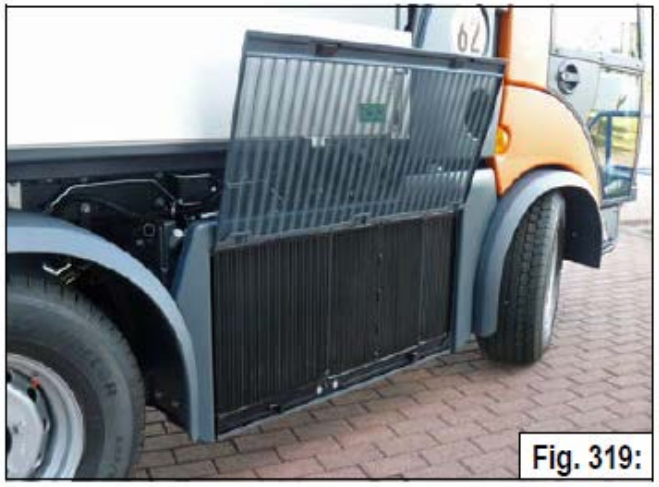
Fig. 319:

Attention!

Be careful when cleaning the radiator with a high-pressure cleaner or steam jet. The radiator fins are made of 0.1-mm-thick sheet metal and can be easily damaged.

☞ *Make sure that the nozzle is not closer than 30 cm to the radiator fins.*

A slow increase in the temperature of the coolant and/or the hydraulic oil is a sign that the cooling system is contaminated.

If the coolant temperature is too high, it is signalled in the multifunction display – see *Display of the coolant temperature*.

During operation, it might be sufficient to actuate the reversing fan (option) at regular inter-vals – see *Reversing fan (option)*

Check the cooler daily for external contamination – see section *„Mainte-nance plan"* .

Completely remove all foreign bodies from the radiator fins.

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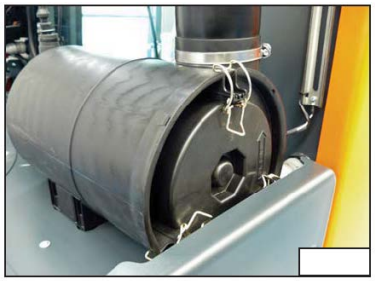
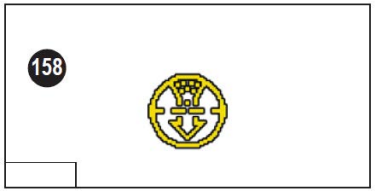
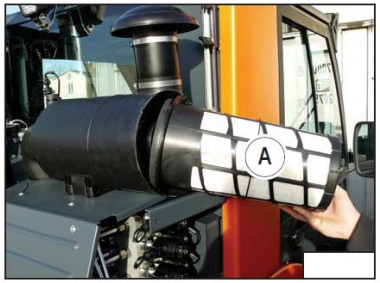
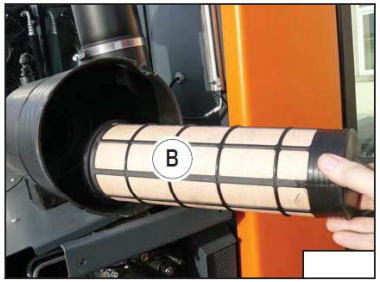
Maintenance: Clean the air filter insert when the warning symbol 158 „Air Filter Clogged „ appears









If the filter insert is clogged, the warning symbol **158** appears in the multifunction display.

1. Remove the right side cover.
2. Open the locks at the air filter housing and remove and open the flap
3. Lift the filter insert A and remove it.
4. Shake out the air filter insert and remove dirt from the air filter housing if necessary.
5. Insert the filter insert and push it downwards.
6. Insert the flap and close the locks at the air filter housing.

Note: Clean air filter inserts only in emergency cases with pressure air!

The filter insert get damadged from the air pressure .

Never clean the air filters with air pressure higher than 3 bar!

Maintenance:

Replace the air filter insert **A** every 500 operating hours

Replace the safety cartidge **B** every 1000 operating hours.

Attention!

The filter cartridge will be damaged if it is washed, blown or brushed out.
☞ *Do not clean the filter cartridge.*
☞ *Do not reuse damaged filter cartridges; replace them if unsure!*

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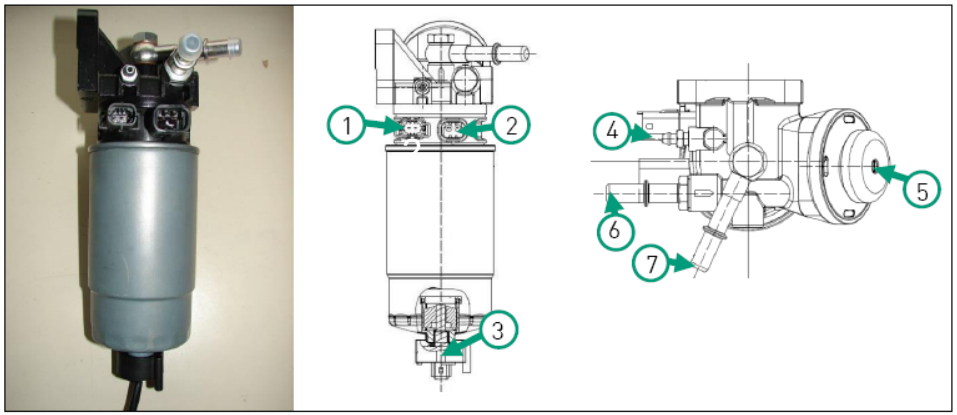
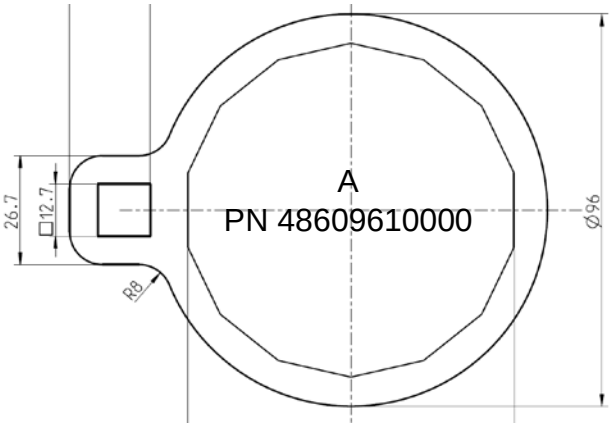
VM- Engine R754 EU6

Engine Maintenance Fuel Filter





Replace the fuel filter
after 50 o.p. hours or 2500 km
after 250 o.p. hours or 12500 km
After every 500 o.p. hours or 25000 km

Note use the tool A (Part Number48609610000) to replace the fuel filter
Damage no electrical connections on the fuel filter.

Replace or drain the fuel filter if you see this symbol:

	Yellow	Twice	Water in the fuel filter	Lights up when there is water in the fuel filter. Lights up when the fuel filter is soiled. • Seek assistance from an authorised workshop.

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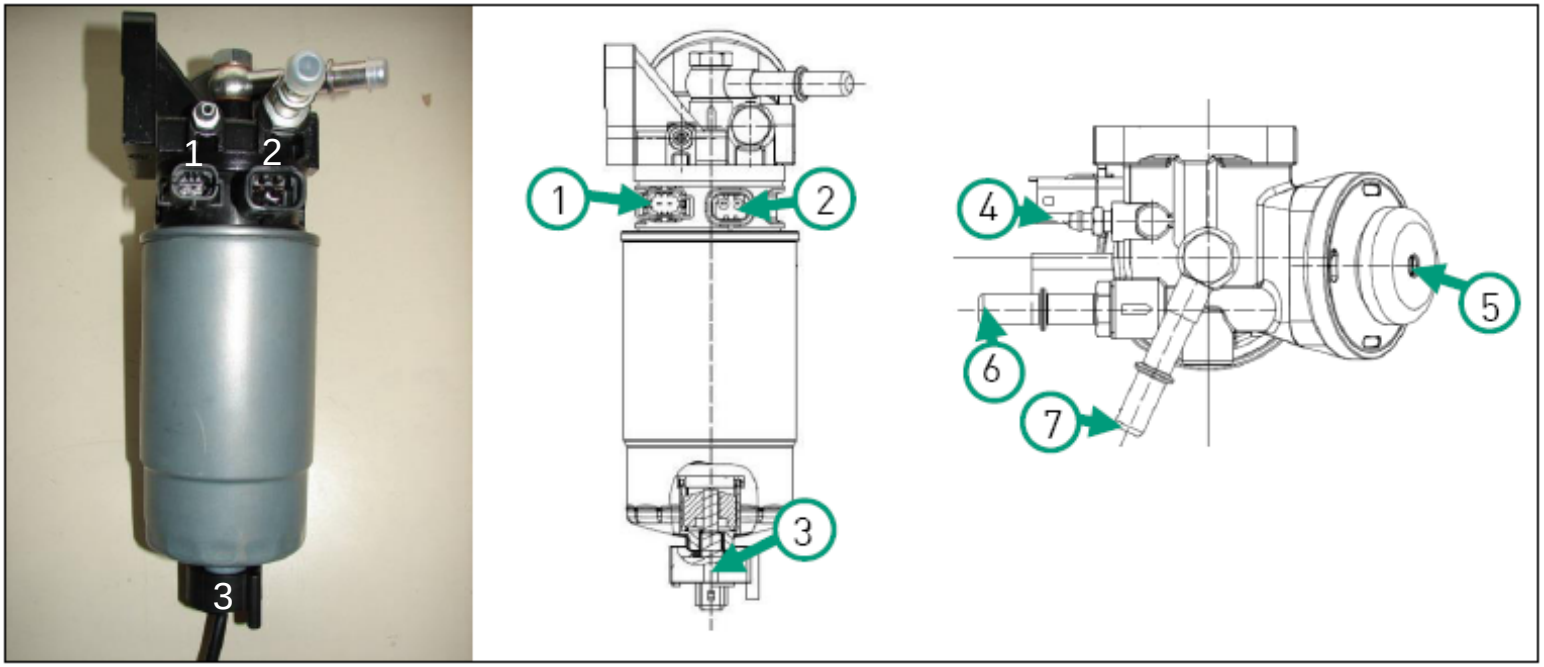
Engine Maintenance Fuel Filter



Elektrische Anschlüsse
1. Anschluss Dieseltemperatursensor
2. Anschluss Dieselheizung
3. Anschluss Wasser im Diesel (im Dieselfilter) B18, X145

Kraftstoff (Diesel) Anschlüsse
4. Entlüftungsventil
5. Handförderpumpe
6. Dieselanschluss vom Tank
7. Dieselanschluss zum Motor

Electrical connections
1. Diesel temperature sensor connection
2. Connector diesel heating connection
3. Water in the diesel B18, X145

Diesel hoses connection
4. Vent valve
5. Manual feed pump (for venting)
6. Diesel connection from tank
7. Diesel connection to engine

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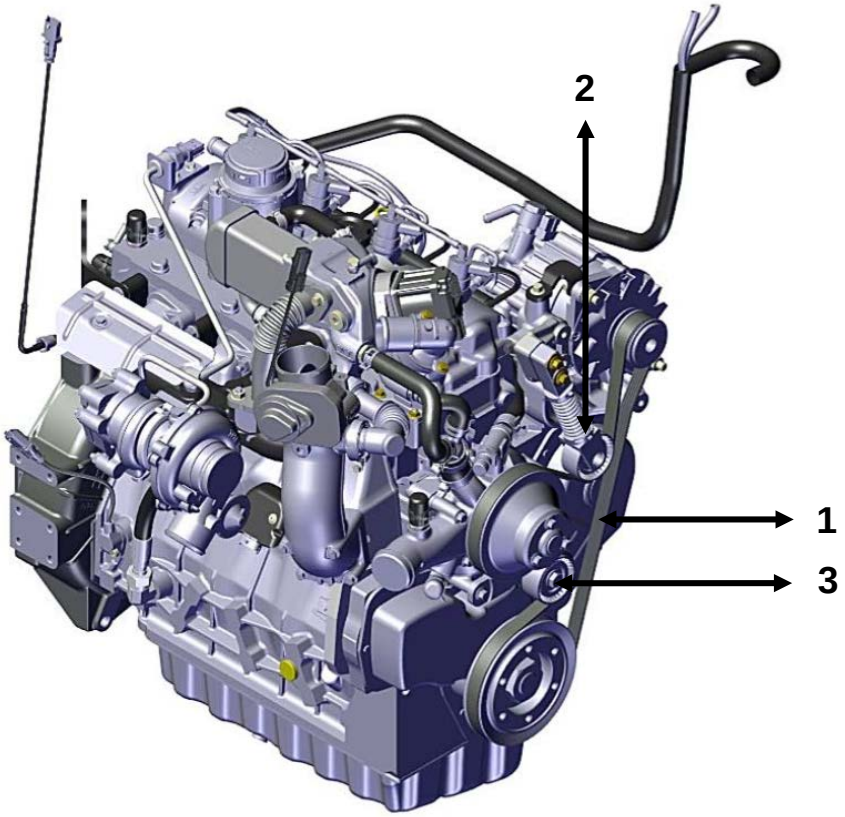
VM- Engine R754 EU6

Maintenance: Ribbed Belt, Tensioner and Rollers.
Replace every 1000 o.p. hours or 50.000 km



1. Replace the ribbed belt every 1000 o.p. hours or 50.000 km.

2. Replace the tensioner every 1000 o.p. hours or 50000 km.
   PN 48608160004

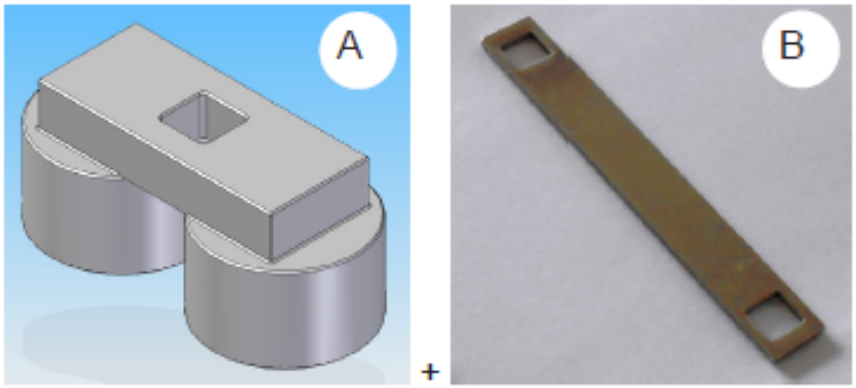
3. Replace the rollers every *1000* o.p. hours or 50000 km.
   PN 06001620031

Metal idler pulley (2X) with air conditioning system. Note: The fastening screw has a left-hand thread. PN 06001620031.

Plastic idler pulley (1X). Note: The fastening screw has a left-hand thread. PN 48608160005.

VM- Motor R754 EU6
VM- Engine R754 EU6

Maintenance: Belt Fitting Tool, Hako Part Number 48609610001

68490007F	Belt fitting tool (R750IE4-TE4-ISE4) A: belt fitting B: tensioner locking spring	

PROCEDURE TO REPLACE THE BELT IN SERIVCE

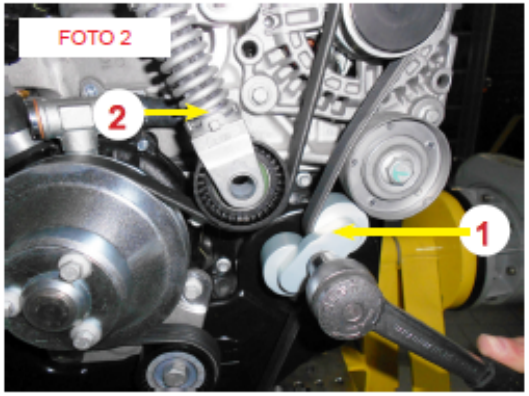
Rotate the special tool (1) counterclockwise so that the tensioner belt (2) compresses (Foto 2).

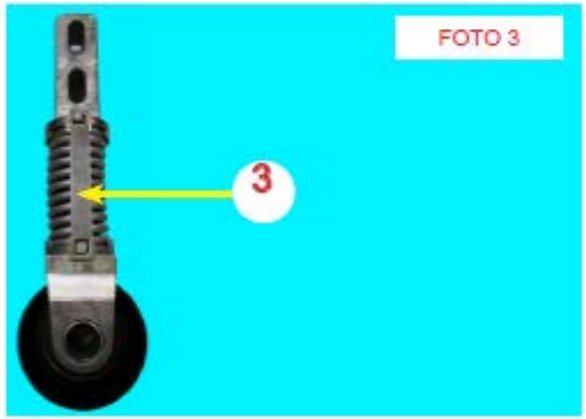
Install the locking bracket (3) as shown in foto 3.

Remove the belt.

Install a new belt and position it as shown in foto 1.

Rotate the special tool (1) counterclockwise so that the tensioner (2) compresses and remove the locking bracket (3).

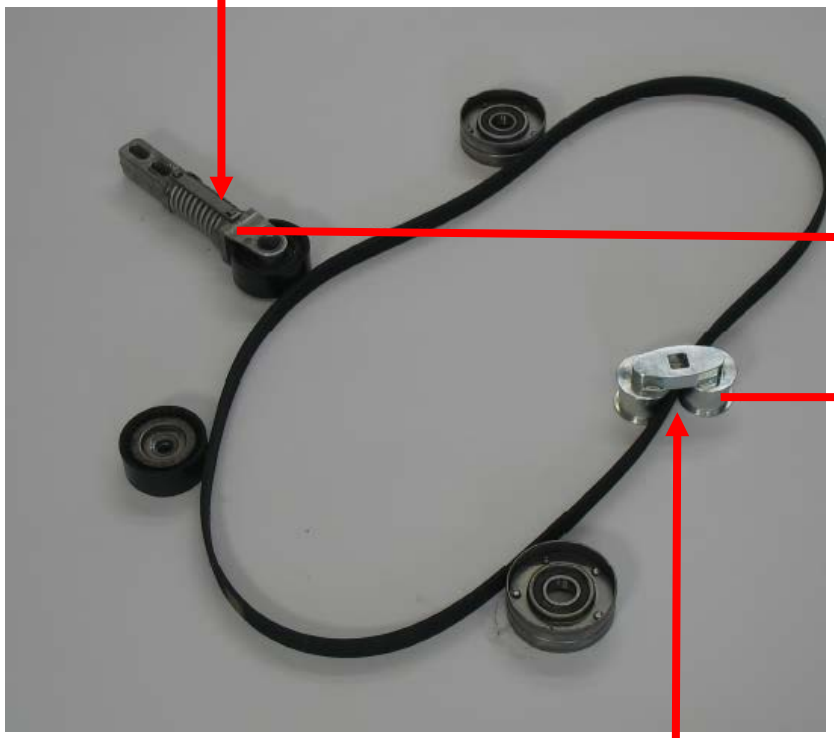


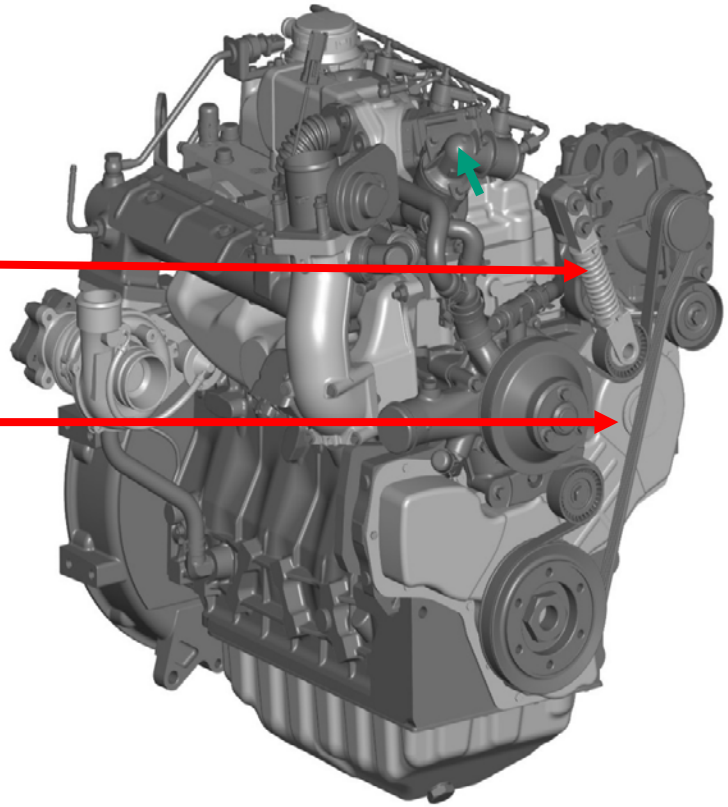


VM- Motor R754 EU6
VM- Engine R754 EU6

Belt Fitting Tool, Hako Part Number 48609610001

B- Tensioner locking spring

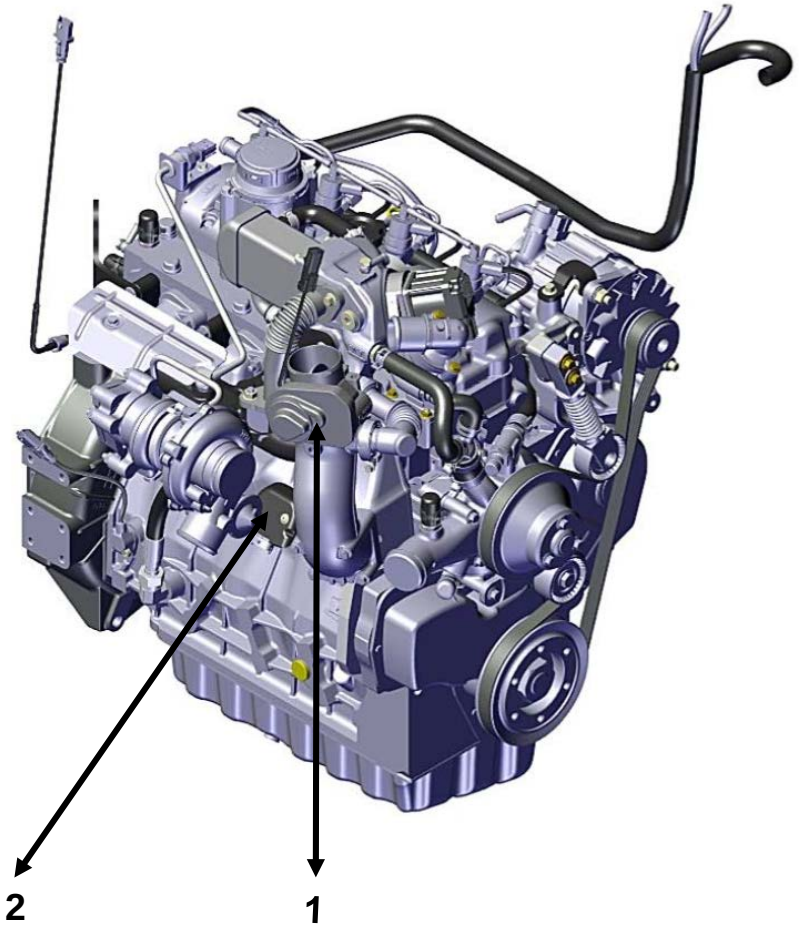




A- Belt fitting tool

VM- Motor R754 EU6
VM- Engine R754 EU6

Maintenance: Dismantle the throttle valve Y42 and Sensor B4 and clean with throttle valve cleaner (Würth No. 5861113500) every 500 o.p hours or 50.000 km



1. Throttle Valve, Y42, X613

Note: Dismantle the throttle valve Y42, every 500 operating hours, and clean the throttle valve Y42 with throttle valve cleaner (Würth No. 5861113500)!

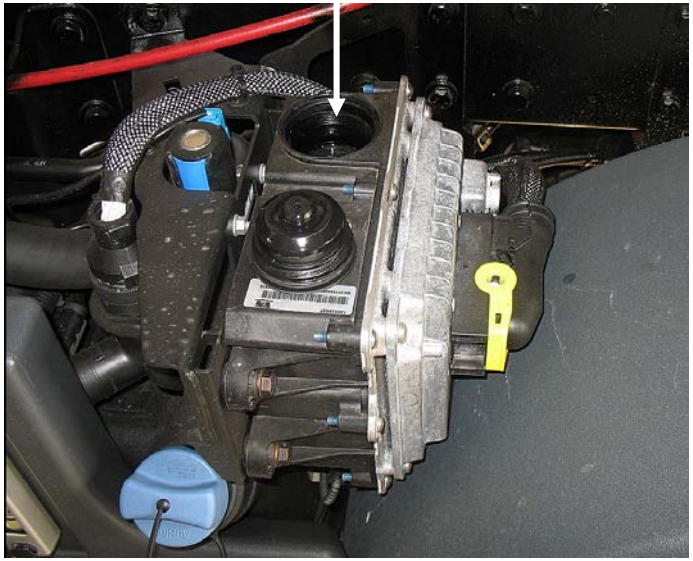
2. Charge air pressure + charge air temperature sensor ,B4, X608

Note: Dismantle Sensor B4, every 500 operating hours, and clean the sensor B4 with throttle valve cleaner (Würth No. 5861113500)!

Details at page 28 to 35!

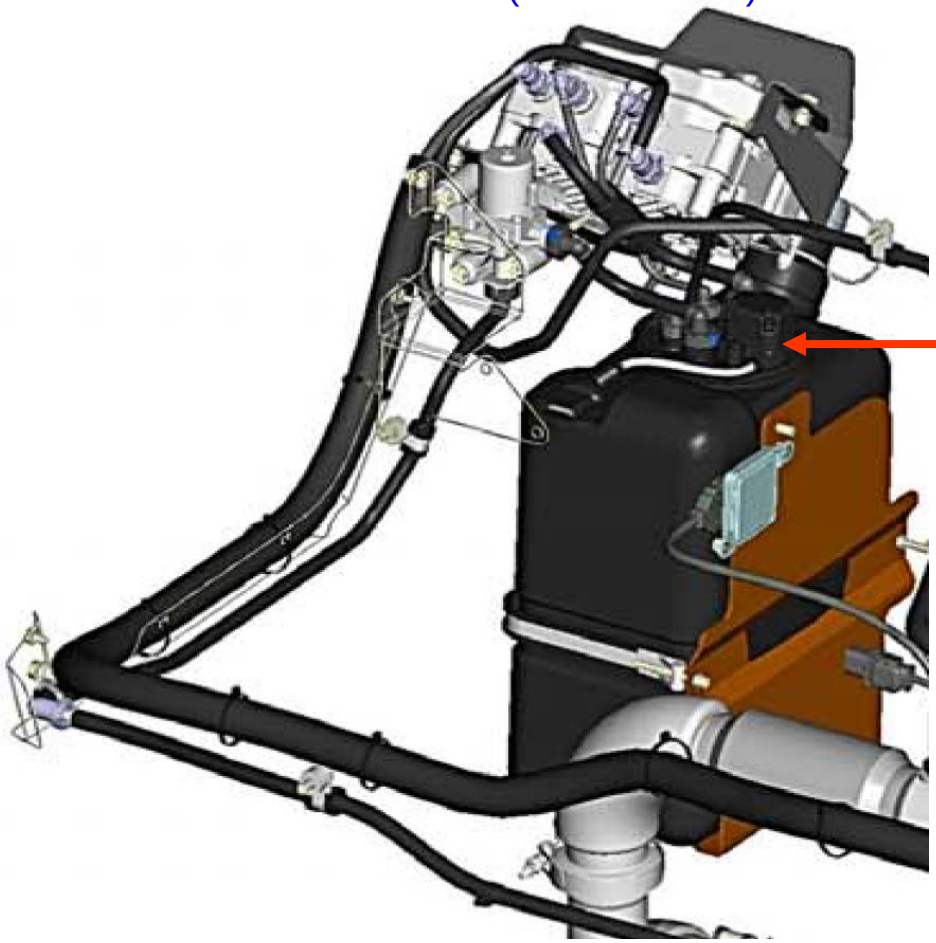
VM- Motor R754 EU6
VM- Engine R754 EU6

M29- CM 2200 with Emmssion Stage Euro 6A
Replace the DEF- (Adblue)- Filter every 1000 o.p. Hours
DEF- Filter (AdBlue- Filter) PN 48608160003



VM- Motor R754 EU6
VM- Engine R754 EU6

New DEF- Supply- Unit(AdBlue) Emisssion Stage Euro 6C
(PN 48601620042E, Supplier Bosch)
Replace the DEF- (Adblue)- Filter every 1000 o.p. Hours
DEF- Filter (AdBlue- Filter) PN 48608160031



AdBlue Sensor B62, X316
für
Adblue Füllstand,
AdBlue Temperatur
und
AdBlue Qualität

AdBlue- Sensor B62, X316
For AdBlue Level
AdBlue Tempeture
and
AdBlue (DEF) Quality

VM- Motor R754 EU6
VM- Engine R754 EU6

Abbreviations

ECU = Engine Control Unit (A1)	Motorsteuergerät A1 (ECU)
ACU = After Treatment Control Unit	Abgasnachbehandlung- Kontrolleinheit Steuergerät
ATS = After Treatment System	Abgas Nachbehandlungssystem
DCU = Dosing Control Unit (Adblue)	Dosier- Kontrolleinheit (Steuergerät Adblue)
DEF = Diesel Exhaust Fluid (Adblue)	Diesel Abgas Flüssigkeit (z.B. Adblue)
DOC = Diesel Oxidation Catalyst (before DPF)	Diesel- Oxidationskatalysator (vor dem DPF)
DPF = Diesel Particulate Filter	Diesel- Partikelfilter
DWS = Driver Warning System	Fahrer Warnsystem
FDS = Fluid Delivery System for DEF	Fördersystem DEF (Adblue)
NOX = Oxides of Nitrogen	Stickoxide
SCR = Selective Catalyst Reduction	Selektive katalytische Reduktion

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TVA valve Y42 and boost pressure sensor B4 cleaning procedure

M29- CM 2200

(R750EU6 engines)

SA 26.03.2019 / rev.02

Telma

- Inspection / execution at intervals of **500** operating hours
- If the failure P0299-01 occurs

Material preparation

Prepare for good cleaning:

- One Container
- Degreaser like brake cleaner
- A soft brush
- O-Ring (article number 46320277F)
- O-Ring (article number 46320266F)
- Hex- wrench 3 mm
- Wrench 8 mm

Removing the valve from the engine

A

Disconnect the plug

B

Loosen the 4 screws with an 8 mm wrench

C

Remove the TVA

D

Seal the intake elbow with an appropriate cap to prevent foreign material ingestion

Clean the valve with degreaser

Attentions!
To avoid damage to electrical parts, do not completely immerse the valve in the solvent.

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Clean valve with degreaser

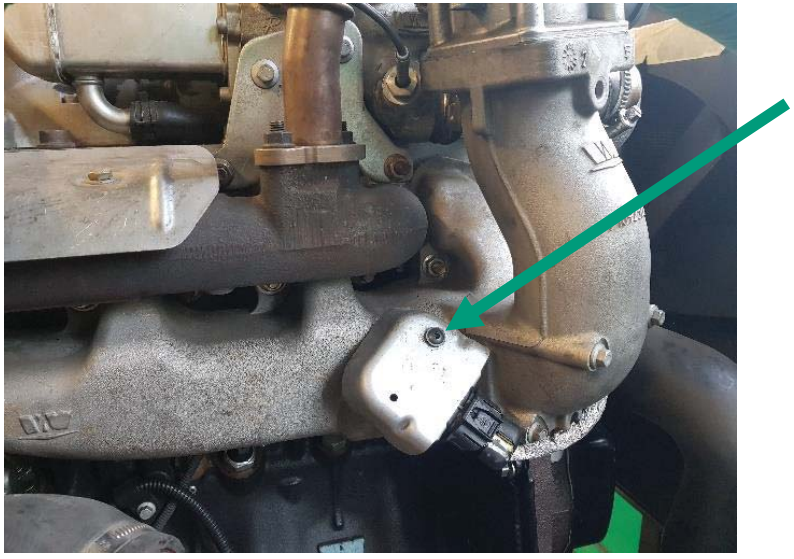
Before cleaning

After cleaning

Valve reinstall

- Make sure to remove the elbow sealing (cap)
- Make sure to install the new O-ring.
- Reinstall the valve in reverse order starting with point C on page 3

Loosen the screw



Loosen the screw with a 3 mm hex-wrenge

Cleaning and blowing out

- Clean the sensor with the brake cleaner.
- Then blow out everything with air.
- Replace the O-ring
  (article number 46320266F)
- Reinstall the sensor

Important:

If the error P0299-01 was the reason for the cleaning, a regeneration of the particle filter must be carried out after deleting the error!