CX800 Tier 3 Crawler Excavators
Table of Contents

** Consult the Engine Service Manual*

[redacted] *Sections to be distributed at a later date*

NOTE: CNH Company reserves the right to make changes in the specification and design of the machine without prior notice and without incurring any obligation to modify units previously sold.

The description of the models shown in this manual has been made in accordance with the technical specifications known as of the date of design of this document.

Section

1001

SAFETY, GENERAL INFORMATION AND TORQUE SPECIFICATIONS

Printed in France
February 2006

CNH

Lep 7-27691EN

GENERAL INFORMATION

Cleanning

Clean all metal parts except bearings, in a suitable cleaning solvent or by steam cleaning. Do not use caustic soda for steam cleaning. After cleaning, dry and put oil on all parts. Clean oil passages with compressed air. Clean bearings in a suitable cleaning solvent, dry the bearings completely and put oil on the bearings.

Inspection

Check all parts when the parts are disassembled. Replace all parts that have wear or damage. Small scoring or grooves can be removed with a hone or crocus cloth. Complete a visual inspection for indications of wear, pitting and the replacement of parts necessary to prevent early failures.

Bearings

Check bearings for easy action. If bearings have a loose fit or rough action replace the bearing. Wash bearings with a suitable cleaning solvent and permit to air dry. DO NOT DRY BEARINGS WITH COMPRESSED AIR.

Needle bearings

Before you press needle bearings in a bore always remove any metal protrusions in the bore or edge of the bore. Before you press bearings into position put petroleum jelly on the inside and outside diameter of the bearings.

Gears

Check all gears for wear and damage. Replace gears that have wear or damage.

Oil seals, O-rings and gaskets

Always install new oil seals, O-rings and gaskets. Put petroleum jelly on seals and O-rings.

Shafts

Check all shafts that have wear or damage. Check the bearing and oil seal surfaces of the shafts for damage.

Service parts

Always install genuine Case service parts. When ordering refer to the Parts Catalog for the correct part number of the genuine Case replacement items. Failures due to the use of other than genuine Case replacement parts are not covered by warranty.

Lubrication

Only use the oils and lubricants specified in the Operator's or Service Manuals. Failures due to the use of non-specified oils and lubricants are not covered by warranty.

SAFETY

This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.

To prevent injury always follow the Warning, Caution and Danger notes in this section and throughout the manual.

Put the warning tag shown below on the key for the keyswitch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags Part Number 331-4614 are available from your service parts supplier

.

WARNING: *Read the operator's manual to familiarize yourself with the correct control functions.*

WARNING: *Operate the machine and equipment controls from the seat position only. Any other method could result in serious injury.*

WARNING: *This is a one man machine, no riders allowed.*

WARNING: *Before starting engine, study Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.*
It is your responsibility to understand and follow manufacturers instructions on machine operation, service and to observe pertinent laws and regulations. Operator's and Service Manuals may be obtained from your Case dealer.

WARNING: *If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.*

WARNING: *When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution.*

WARNING: *When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. DO NOT change the procedure.*

WARNING: *When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure all people are out of the way.*

WARNING: *Use insulated gloves or mittens when working with hot parts.*

WARNING: *Lower all attachments to the ground or use stands to safely support the attachments before you do any maintenance or service.*

WARNING: *Pin sized and smaller streams of hydraulic oil under pressure can penetrate the skin and result in serious infection. If hydraulic oil under pressure does penetrate the skin, seek medical treatment immediately. Maintain all hoses and tubes in good condition. Make sure all connections are tight. Make a replacement of any tube or hose that is damaged or thought to be damaged. DO NOT use your hand to check for leaks, use a piece of cardboard or wood.*

WARNING: *When removing hardened pins such as a pivot pin, or a hardened shaft, use a soft head (brass or bronze) hammer or use a driver made from brass or bronze and a steel head hammer.*

WARNING: *When using a hammer to remove and install pivot pins or separate parts using compressed air or using a grinder, wear eye protection that completely encloses the eyes (approved goggles or other approved eye protectors).*

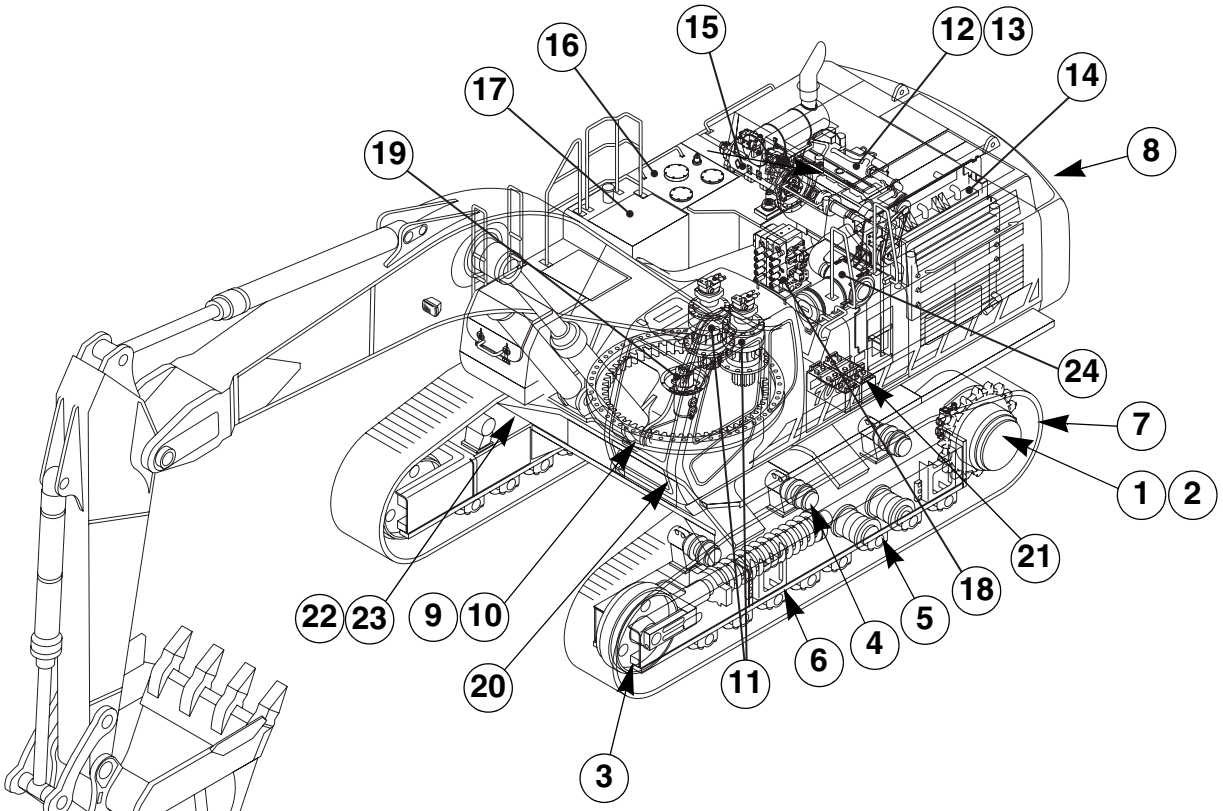
WARNING: *Use suitable floor (service) jacks or chain hoist to raise wheels or tracks off the floor. Always block machine in place with suitable safety stands.*

WARNING: *When servicing or repairing the machine, keep the shop floor and operator's compartment and steps free of oil, water, grease, tools, etc. Use an oil absorbing material and/or shop cloths as required. Use safe practices at all times.*

WARNING: *Some components of this machine are very heavy. Use suitable lifting equipment or additional help as instructed in this Service Manual.*

WARNING: *Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. Open the doors and get outside air into the area.*

WARNING: *When the battery electrolyte is frozen, the battery can explode if (1), you try to charge the battery, or (2), you try to jump start and run the engine. To prevent the battery electrolyte from freezing, try to keep the battery at full charge. If you do not follow these instructions, you or others in the area can be injured.*



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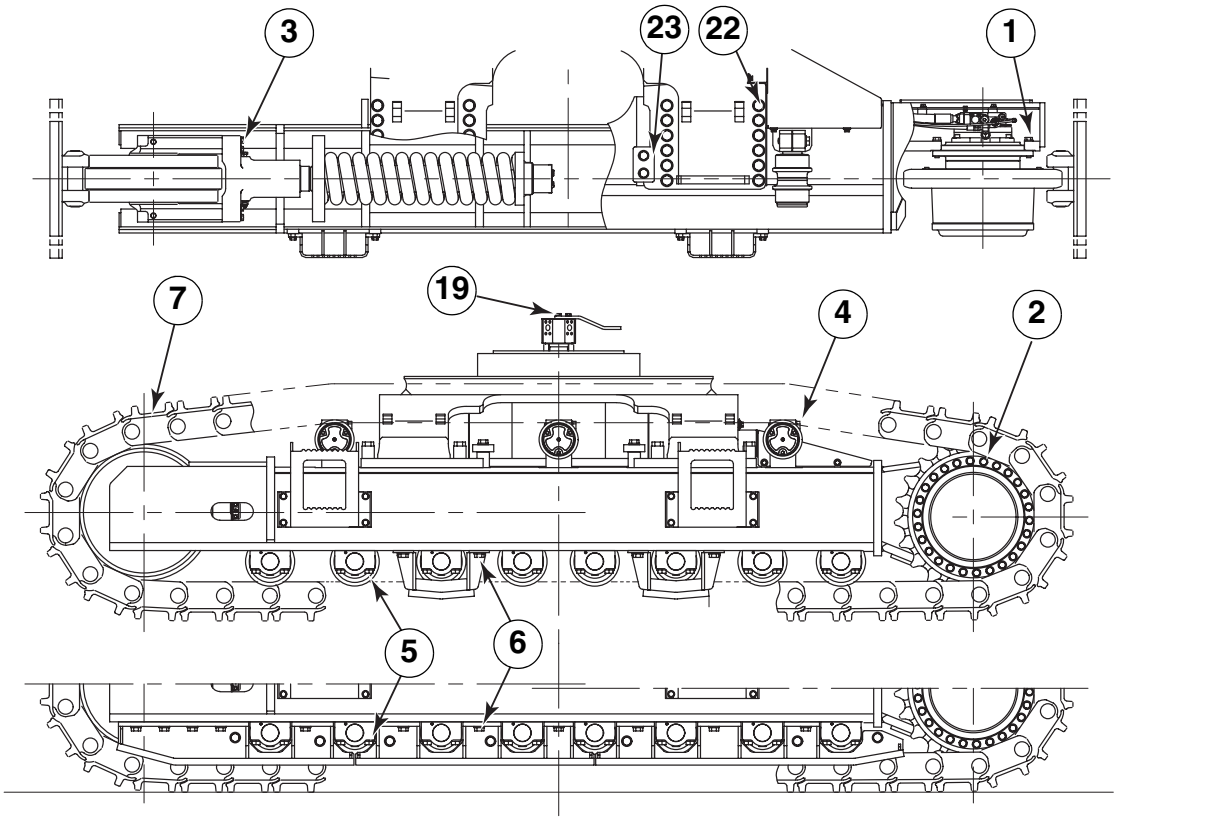

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Section

2001

RADIATOR, OIL-COOLER, INTER COOLER, FUEL COOLER AND ENGINE

REMOVAL AND INSTALLATION

Printed in France
September 2006

RADIATOR, OIL-COOLER, INTER COOLER AND FUEL COOLER

Before carrying out any operation on the machine, perform the following operations in the order shown:

- Park the machine on hard, flat ground.
- Lower the attachment to the ground.
- Shut down the engine.
- Remove the starter switch key.
- Make sure that pressure in the hydraulic system has been completely released (see Operator's Manual).

> ⚠ **WARNING:** *When the machine is working, the engine components and the hydraulic pump reach a high temperature. To avoid being burnt by hot metal or scalded by high temperature water or oil, allow the machine to cool down before starting any servicing operation.*

NOTE: *For the removal and the installation of the radiator, oil cooler, inter cooler and fuel cooler refer to the figure 1, page 10.*

Removal

STEP 1

Drain the cooling system (see Operator's Manual).

STEP 2

Release pressure in the hydraulic reservoir to allow the vacuum pump to be mounted (see Section 8000).

Installation

When installing, proceed in the reverse order from that of removal.

Before operating the machine:

- Check the oil level in the hydraulic reservoir. Top up if necessary.

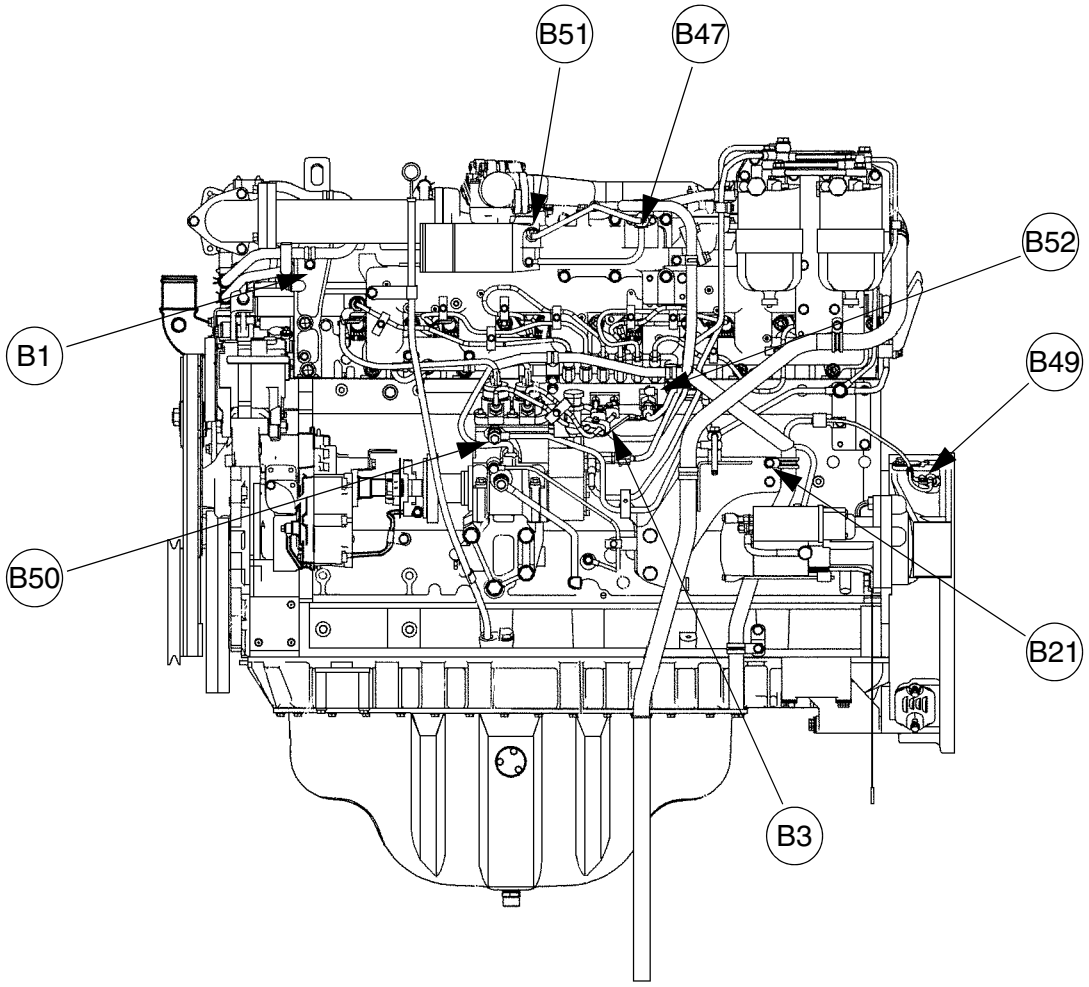
- Check the hydraulic fluid cooling circuit for leaks.

- Fill and bleed the engine cooling system (see Operator's Manual).

- Check the engine cooling system for leaks.

ENGINE

Description



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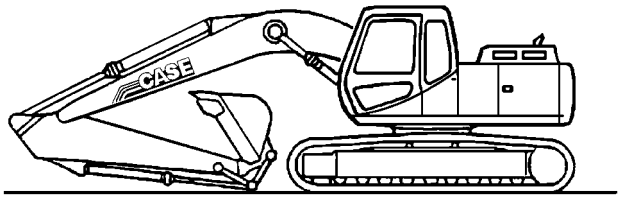
B1 Coolant temperature sensor
B3 Fuel temperature sensor
B21 Engine oil pressure switch
B47 Boost pressure sensor
B49 Crankshaft position sensor (or engine speed sensor (flywheel mounted))
B50 Camshaft position sensor (or G sensor: cylinder recognition sensor (detects rotation of cam shaft))
B51 Boost temperature sensor
B52 Common rail pressure sensor

Removal and installation

NOTE: *For the removal and the installation of the engine refer to the figure 1, page 10.*

STEP 1



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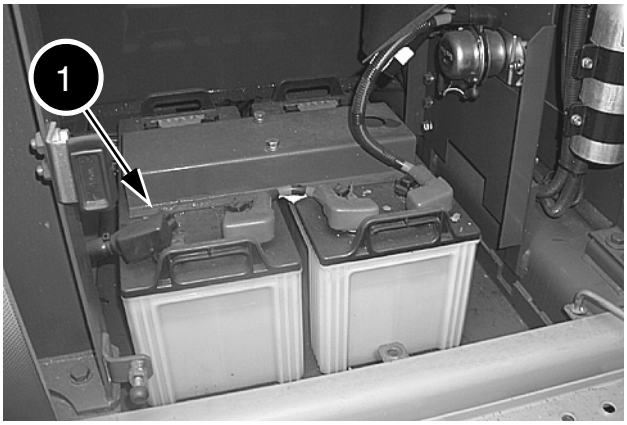
Park the machine on hard, flat ground. Lower the attachment to the ground.

STEP 2

Release pressure in the hydraulic system and in the hydraulic reservoir (see Section 8000).

STEP 3



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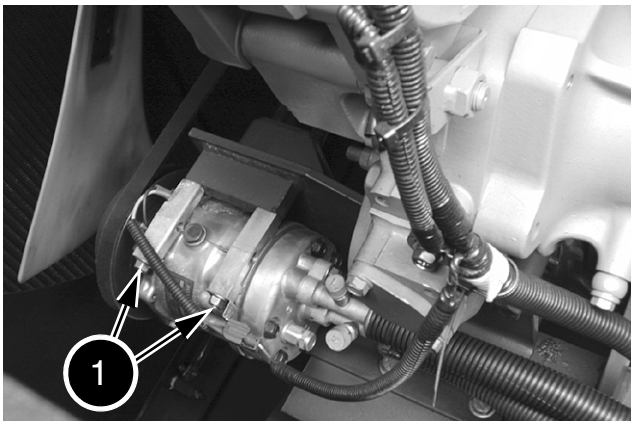
Disconnect the earth cable (-) (1) from the battery.

STEP 4



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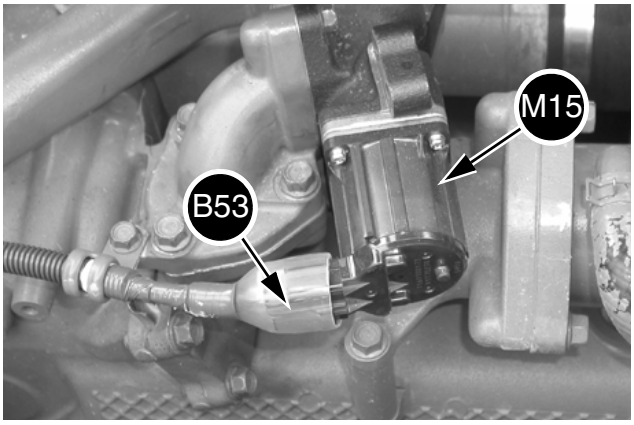
Remove the screws (1) from the compressor and put it away from the engine.

STEP 5



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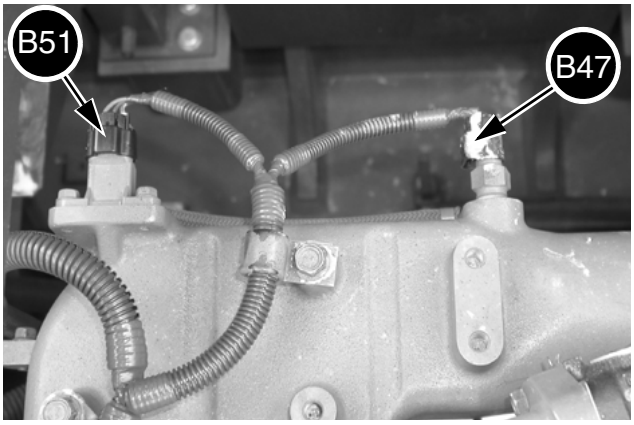
Disconnect the exhaust gas recirculation valve position sensor (B53) from the exhaust gas recirculation motor (M15).

STEP 6



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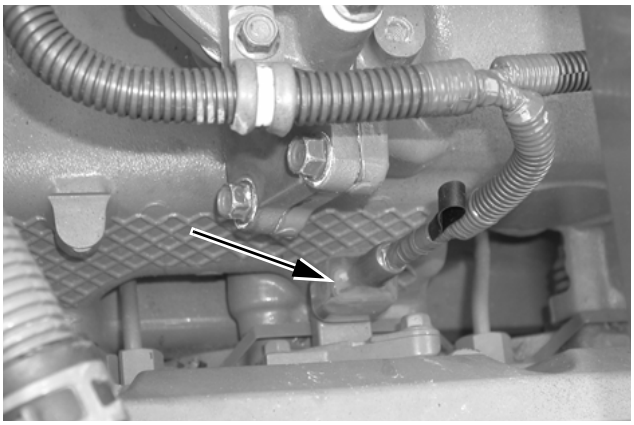
Label and disconnect the boost temperature sensor (B51) and the boost pressure sensor (B47).

STEP 7



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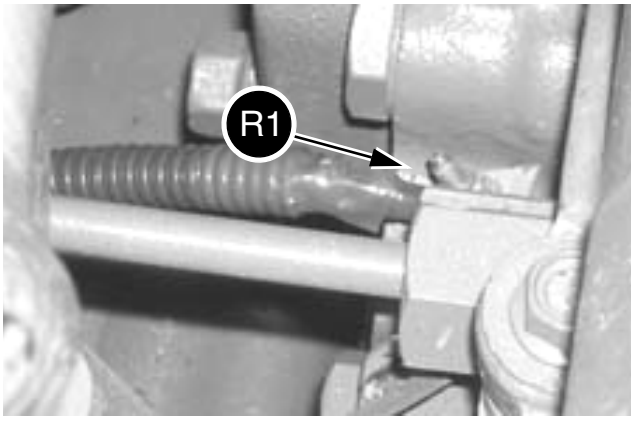
Label and disconnect the electrical connections from the injectors.

STEP 8



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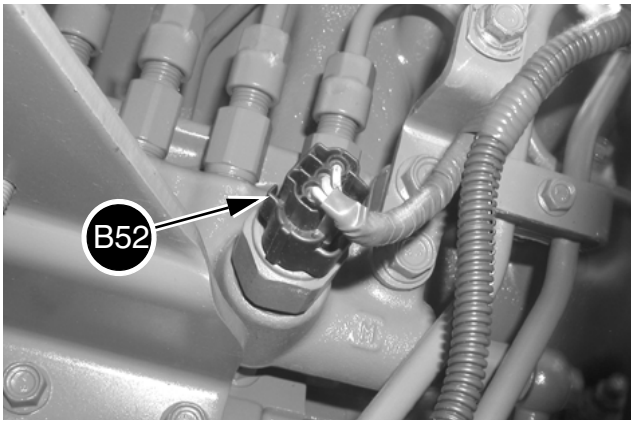
Label and disconnect the electrical supply to the glow plug (R1).

STEP 9



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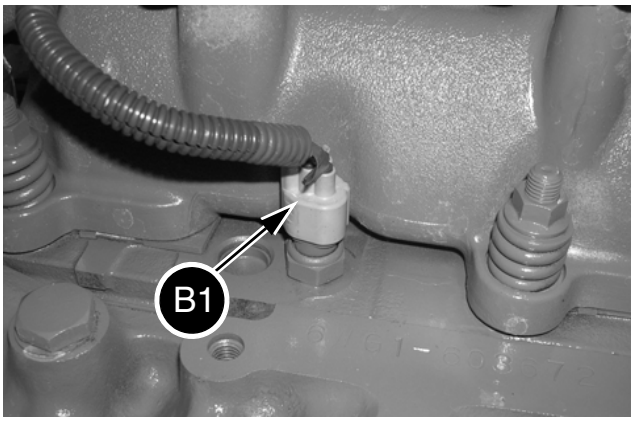
Label and disconnect the connections from the common rail pressure sensor (B52).

STEP 10



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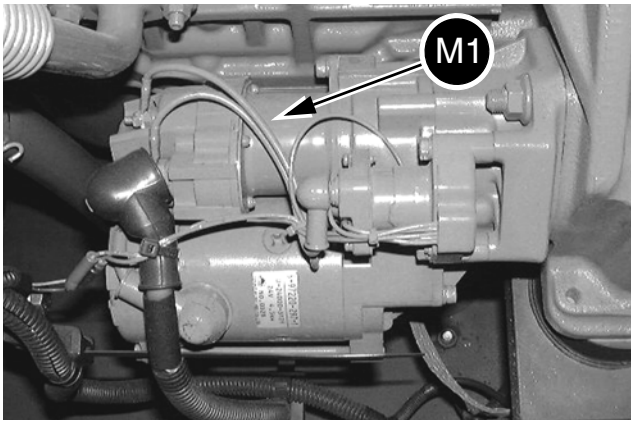
Label and disconnect the coolant temperature switch (B1).

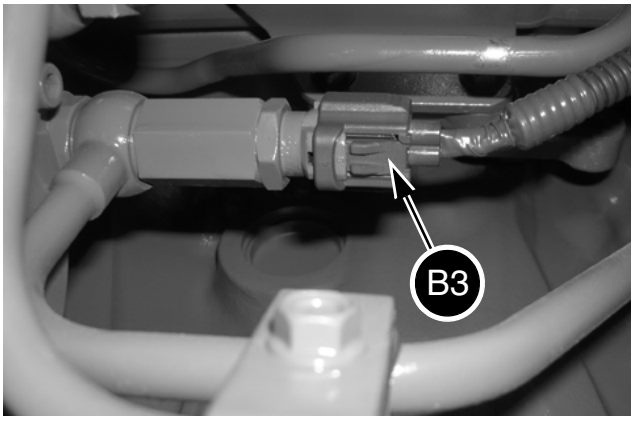
STEP 11



CD00J031

Label and disconnect the electrical connections to the starter motor (M1). Remove the earth cable at the engine end.

STEP 12



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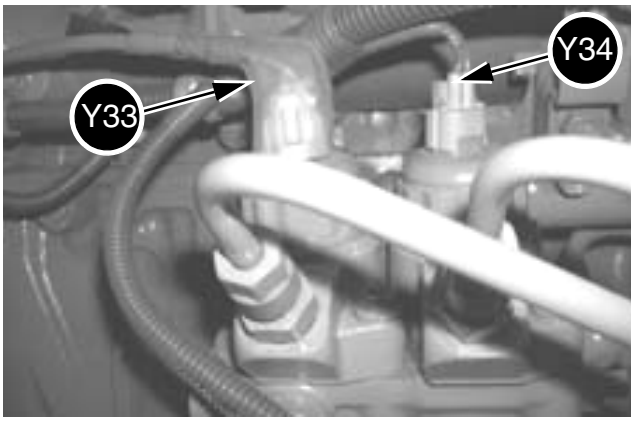
Label and disconnect the electrical connections of the fuel temperature sensor (B3).

STEP 13



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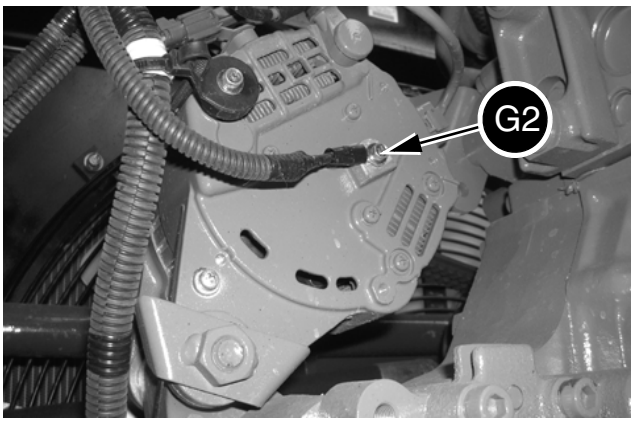
Label and disconnect the supply pump valve PCV1 (Y33) and the supply pump valve PCV2 (Y34).

STEP 14



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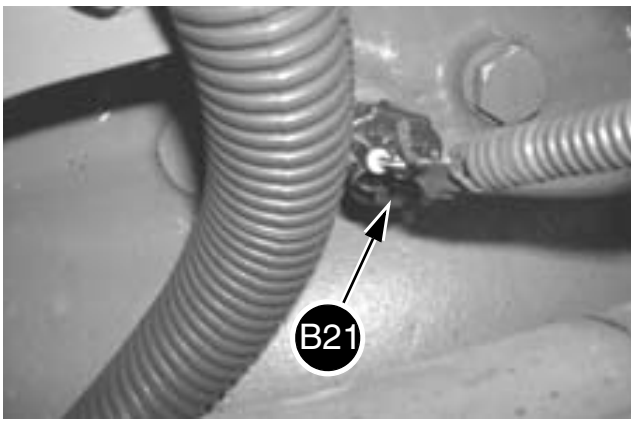
Label and disconnect the electrical connections to the alternator (G2).

STEP 15



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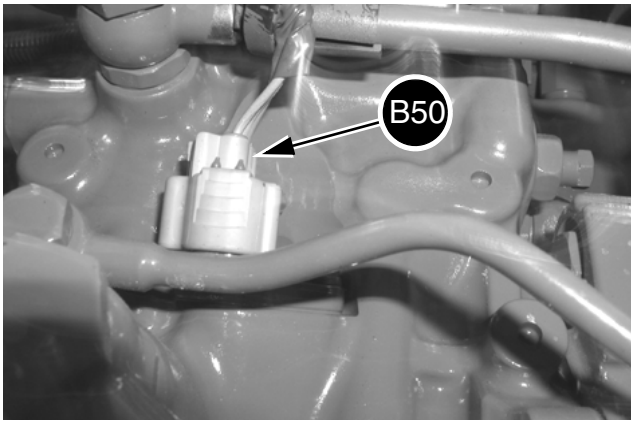
Label and disconnect the engine oil pressure sensor (B21).



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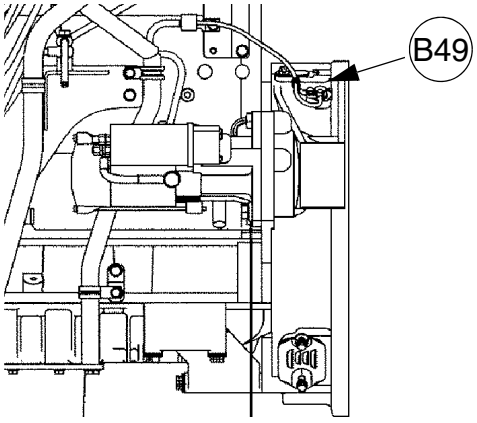
Label and disconnect the camshaft position sensor (B50).

STEP 16



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Label and disconnect the crankshaft position sensor (B49).

STEP 17

Remove all the clips, etc. which attach the electrical harnesses to the engine and move out of the way.

STEP 18

Install a suitable lifting device on the engine lifting rings (for the weight of the engine, see Section 1002).

STEP 19

Remove the engine retaining hardware.

NOTE: *When installing, make a visual inspection of the condition of the rubber flexible mountings and change them if necessary. Tighten the engine retaining screws to the torque specified in Section 1002.*

STEP 20

When there is nothing interfering with the removal of the engine, raise the engine carefully and install it on a suitable repair bench.

STEP 21

Refer to Section 8003 and remove the hydraulic pump.

STEP 22

Remove the silencer assembly with his bracket from the engine.

NOTE: *When installing, tighten the screws to a torque of 109 to 127 Nm.*

NOTE: *When installing the engine in the machine, proceed in the reverse order from removal.*

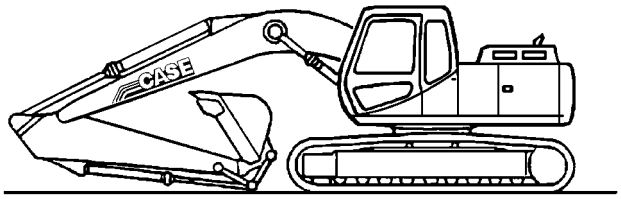
Before operating the machine, carry out the following operations:

- Bleed and prime the fuel system (see Operator's Manual).
- Fill and bleed the engine cooling system (see Operator's Manual).
- Check the hydraulic, fuel and cooling systems for leaks.
- Check the oil level in the hydraulic reservoir. Top up if necessary.

FUEL TANK

Removal

STEP 1



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Park the machine on hard, flat ground. Lower the attachment to the ground.

STEP 2

Reduce the engine speed to idle for 30 seconds, then shut down the engine.

STEP 3

Turn the ignition key to «ON» without starting the engine.

STEP 4

Attach a «DO NOT OPERATE» tag to the ignition key in the cab.

STEP 5

NOTE: *The numbers within brackets refer to the figures on pages 5 and 6.*

Remove the access panel (A) under the fuel tank (1).

STEP 6

Open the filling plug (2) of the tank (1). Bleed the remaining fuel using the valve (3) then remove the latter. Remove the filter (19) and the fuel gauge (20).

STEP 7

Remove the retaining screw (4) of the access ramp (5) then remove the access ramp (5).
Remove the retaining screw (6) of the access ramp (12) then remove the access ramp (12).
Remove the retaining screw (20) of the access ramp (21) then remove the access ramp (21).

STEP 8

Attach identification tags on the electrical connections of the fuel tank filler pump and disconnect them.

STEP 9

Remove and seal all hoses of the fuel tank filler pump and remove the fuel tank filler pump.

STEP 10

Remove the screws (8) and the protective plate (D) from on top of the fuel tank (1).
Remove the screws (11) and the protective plate (C) from on top of the fuel tank (1).
Remove the screws (10) and the protective plate (B) from on top of the fuel tank (1).

STEP 11

Remove the front storage box (7).

STEP 12

Attach labels on the hoses of the fuel tank and remove them.

STEP 13

Shift the plastic protection (13) from the fuel sensor (14). Remove the retaining screws (15) then the fuel sensor (14) as well as the seal.

STEP 14

Remove the screws (17) from the fuel tank (1), and the spacer (18).

STEP 15

Remove the fuel tank (1) using a hoist. Remove the shims (22).

STEP 16

See the operator's manual for removing the fuel filter.

Installation

NOTE: *The numbers within brackets refer to the figures on pages 5 and 6.*

STEP 1

Using a hoist, position the fuel tank (1) on the machine.

STEP 2

Install the shims (22) as well as the spacer (18) and the screws (17), tighten the screws to the torque specified on the section 1002. Install and tighten the valve (3).

STEP 3

Install a new seal, then the fuel probe (14) using the five screws (15), reposition the plastic protection correctly (13).

STEP 4

Install the hoses by taking help of the labels attached during removal. Tighten using retaining clips.

STEP 5

Install the front storage box.

STEP 6

Install the fuel tank filler pump and connect al hoses.

STEP 7

Install the protective plate (B) on top of the fuel tank (1). Tighten the screws (10).

Install the protective plate (C) on top of the fuel tank (1). Tighten the screws (11).

Install the protective plate (D) on top of the fuel tank (1). Tighten the screws (10).

STEP 8

Install the access ramp (21) using the retaining screws (20).

Install the access ramp (12) using the retaining screws (6).

Install the access ramp (5) using the retaining screws (4).

STEP 9

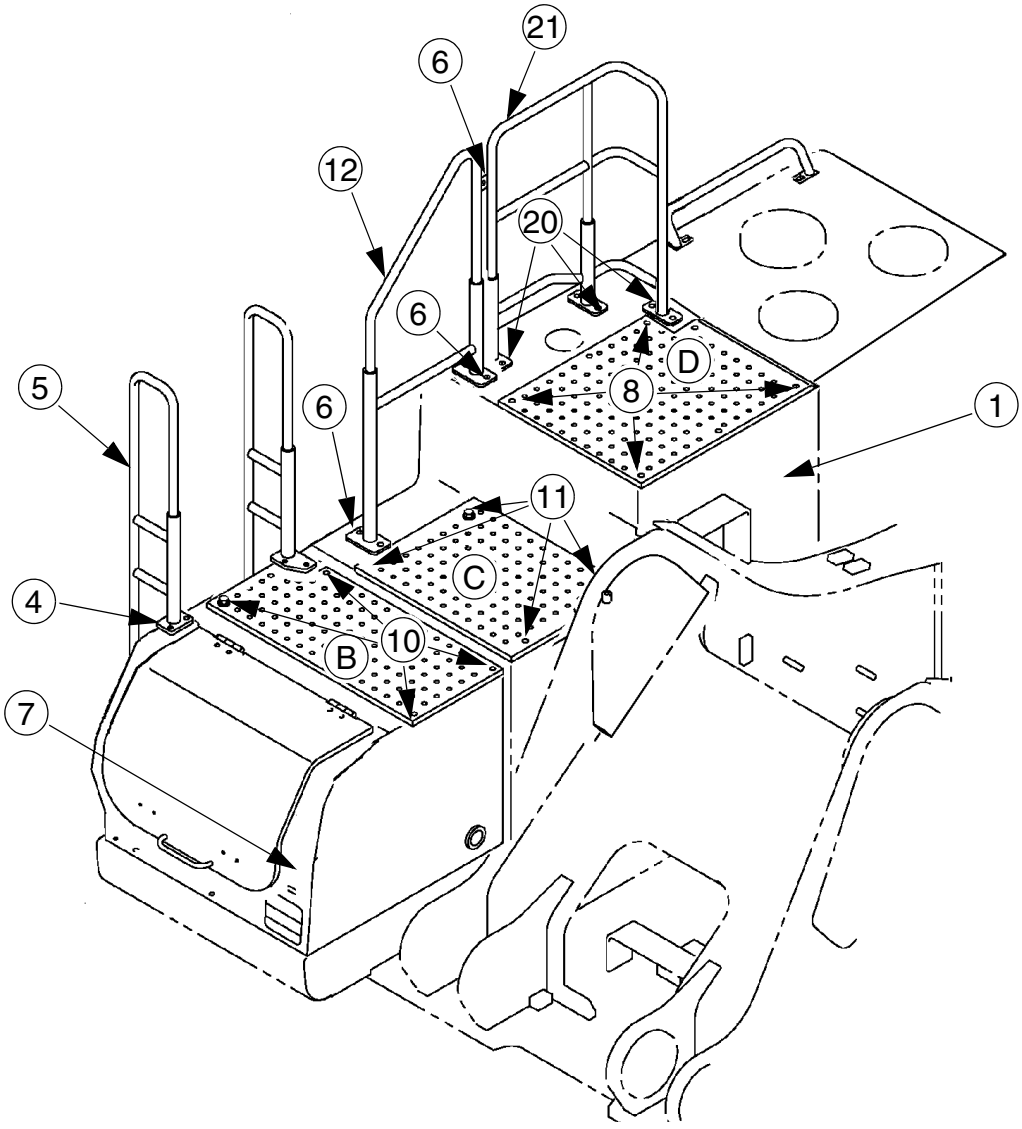
Fill the fuel tank (see the operator's manual) and make sure that there are no leaks.

STEP 10

Reinstall the protective plate (A) under the fuel tank (1).

Description

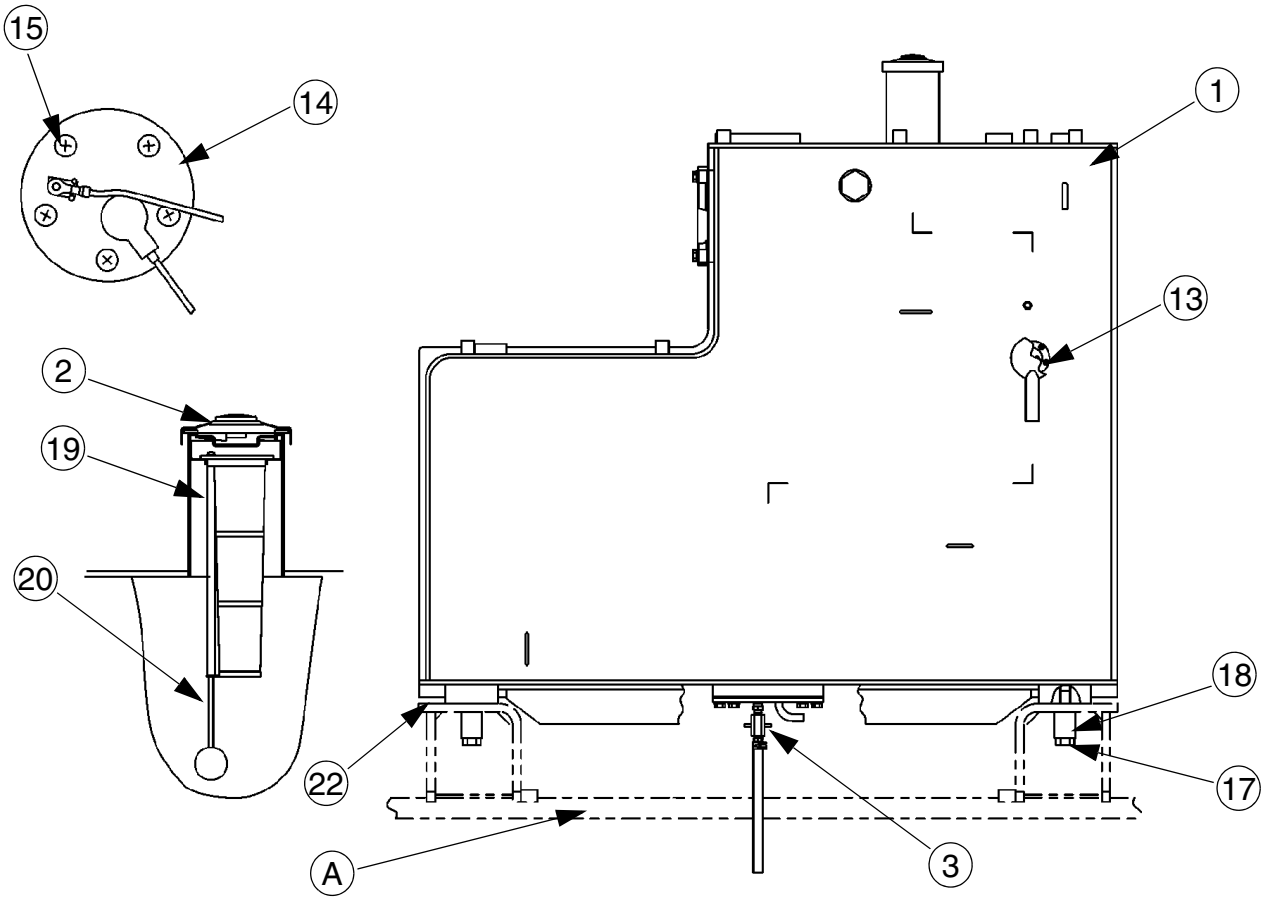
Location



CRPH06A013G02

4 SCREW
5 ACCESS RAMP
6 SCREW
7 BOX
8 SCREW
10 SCREW
11 SCREW
12 ACCESS RAMP
20 SCREW
21 ACCESS RAMP

Fuel tank



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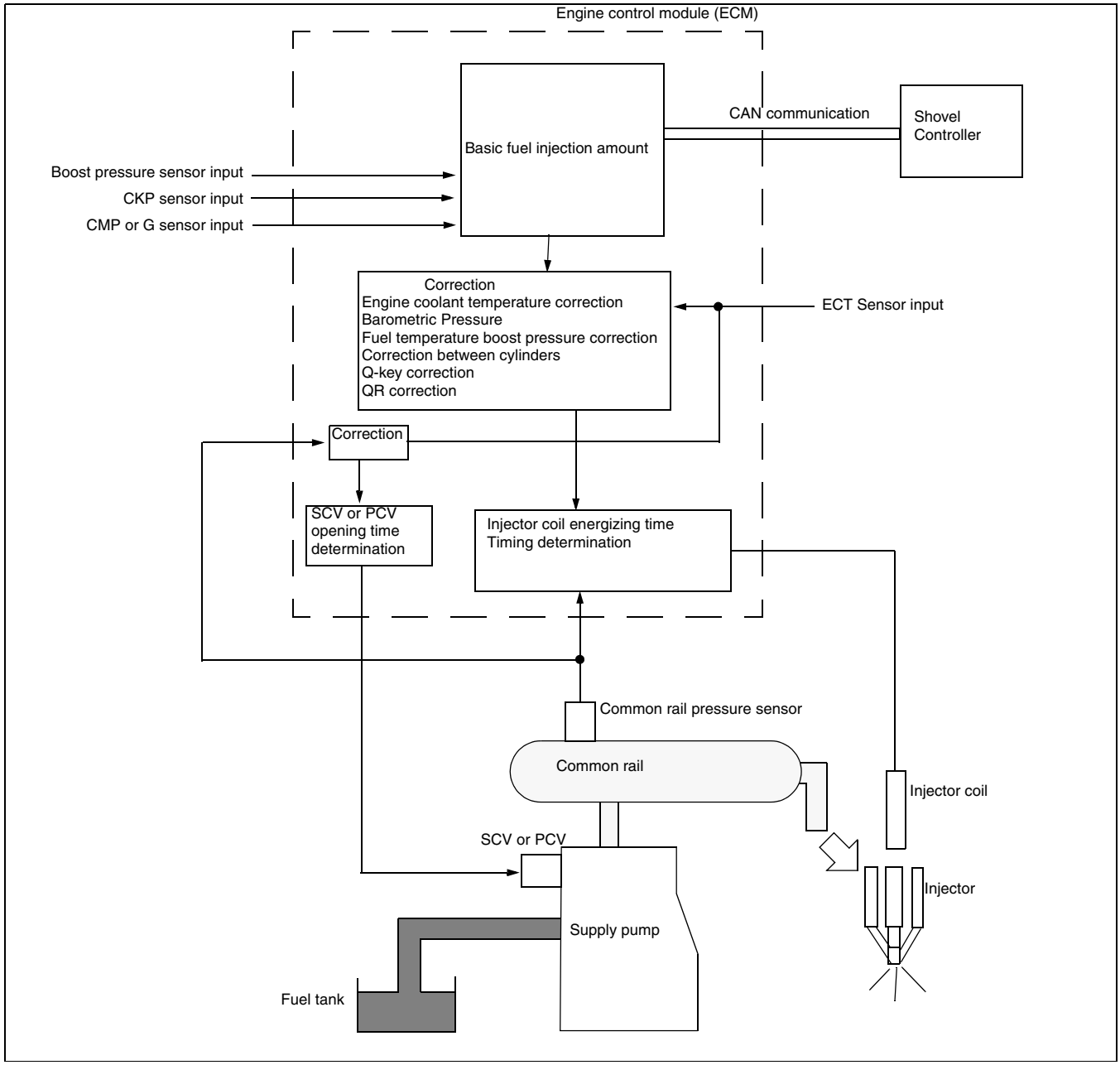
1	FUEL TANK	15	SCREW
2	PLUG	17	SCREW
3	VALVE	18	SPACER
13	PLASTIC PROTECTION	19	FILTER
14	FUEL PROBE	22	SHIM

ENGINE CONTROL

Fuel Injection Control (Common rail type)

1. Process to determine quantity of fuel injection

1) System diagram



2) Operation

Engine controller (ECM) gets information (signal from mounted sensors) such as engine speed and engine load.

Based on the information, ECM sends electric signals to supply pump and to injector to make a proper control of fuel injection quantity and injection timing for each cylinder.

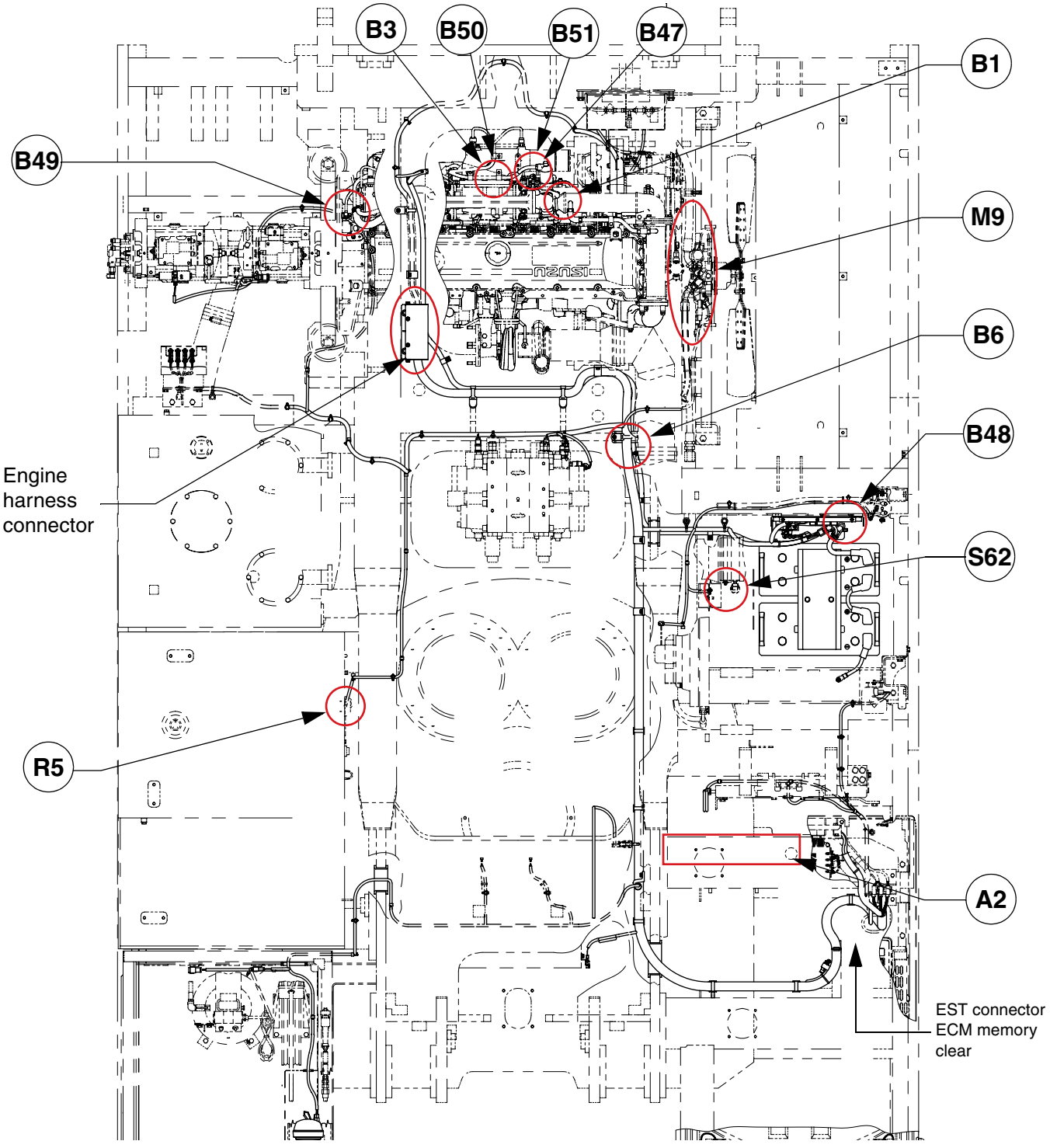
1) Injection quantity control
Based mainly on engine speed and load given to actual machine, Injection rate control is carried out for optimum injection by controlling fuel injector.

2) Injection pressure control
Injection pressure is controlled by control of fuel pressure in the common-rail.
The right pressure in the common-rail is calculated by using engine speed and fuel injection quantity.
The supply pump and the pressure control valve are controlled according to the calculated pressure so that it can discharge proper quantity of fuel to pressure-feed into the common-rail for control.

3) Injection timing control
The control substitutes timer function and an appropriate fuel injection timing is calculated by mainly using engine speed and fuel injection quantity to control the injector.

4) Injection rate control
In order to improve fuel consumption in the cylinder, a small amount of fuel is injected (pre injection) for ignition at first, then 2nd time injection (main injection) into the ignited cylinder is carried out.
In this control, the injection quantity control in section 1) and the injection timing control in section 3) are carried out by controlling injector.

2. Mounting position of accessories related to engine



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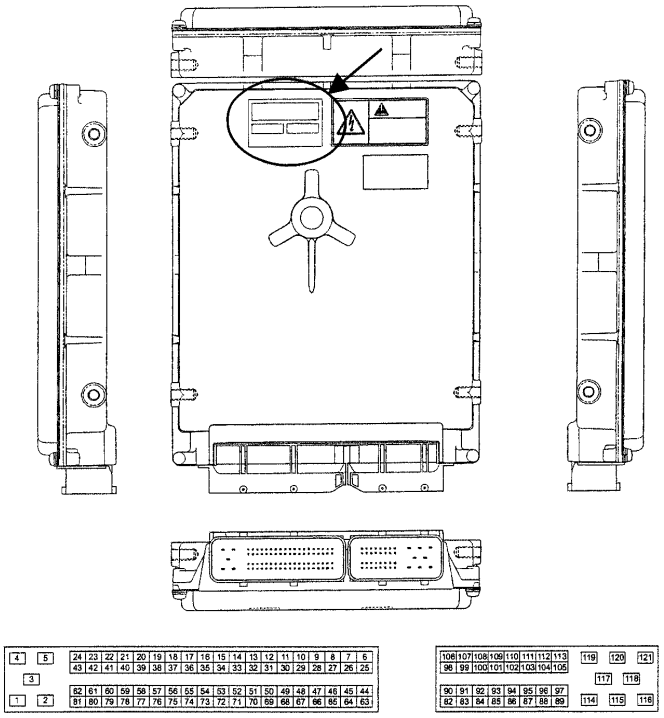
A2 Engine controller
B1 Coolant temperature sensor
B3 Fuel temperature sensor
B6 Air intake temperature sensor
B47 Boost pressure sensor
B48 Atmospheric pressure sensor
B49 Crankshaft position sensor (or engine speed sensor (flywheel mounted))
B50 Camshaft position sensor (or G sensor: cylinder recognition sensor (detects rotation of cam shaft))
B51 Boost temperature sensor
M9 Air conditioner condenser fan motor
R5 Fuel sensor
S62 Air cleaner sensor

3. Appearances of accessories related to the Tier 3 emission control regulation

A2. Engine controller (ECM)



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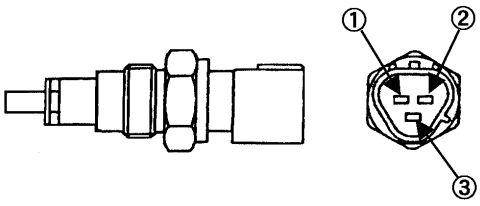
Controller for the engine meeting Tier 3 emission control regulation (hardware is common to the vehicle).

Quantity of pin is 121 as against 104 for the engine meeting Tier 2 emission control regulation.

In area indicated by an arrow, ISUZU part number and TRANSTRON part number, and serial number are recorded.

B1. Coolant temperature sensor



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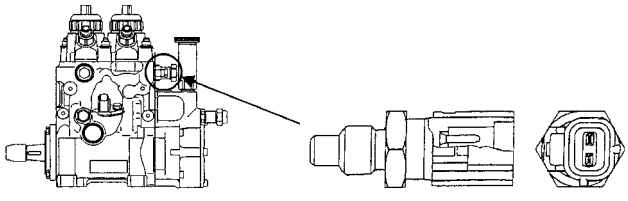
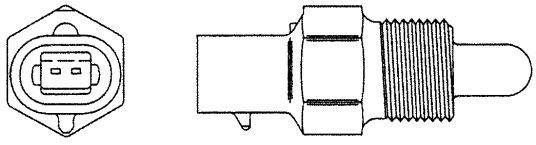
1 Power, positive (+)
2 Power, negative (-)
3 For water temperature indicator (not in use)

B3. Fuel temperature sensor



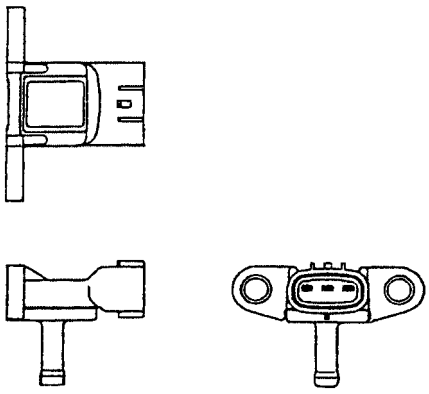
700.1.04.01.23AI

B6. Intake air temperature sensor



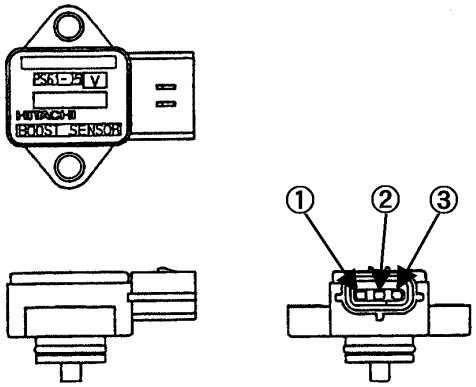
700.1.04.01.23AH

B47. Boost pressure sensor



700.1.04.01.23AK

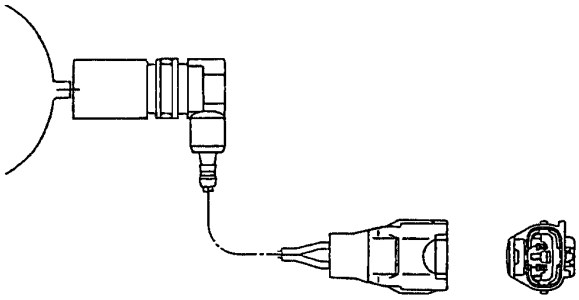
B48. Atmospheric pressure sensor



700.1.04.01.23AJ

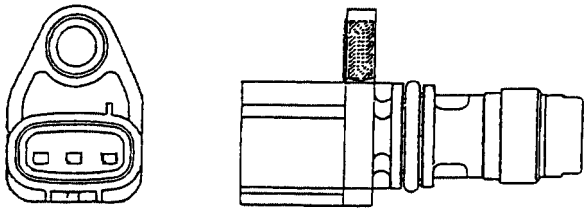
1 Power, positive (+)
2 Power, negative (-)
3 Output

B49. Crankshaft position sensor



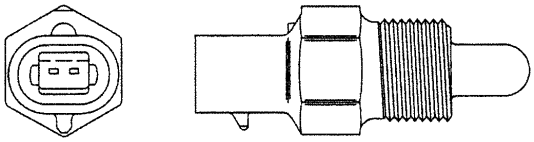
700.1.04.01.23AL

B50. Camshaft position sensor (or G sensor)



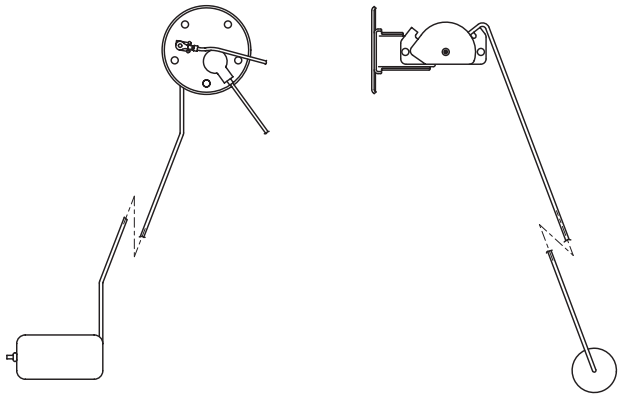
700.1.04.01.23AM

B51. Boost temperature sensor



700.1.04.01.23AH

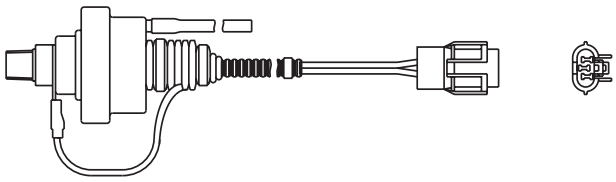
R5. Fuel level sensor



700.1.04.01.23AO

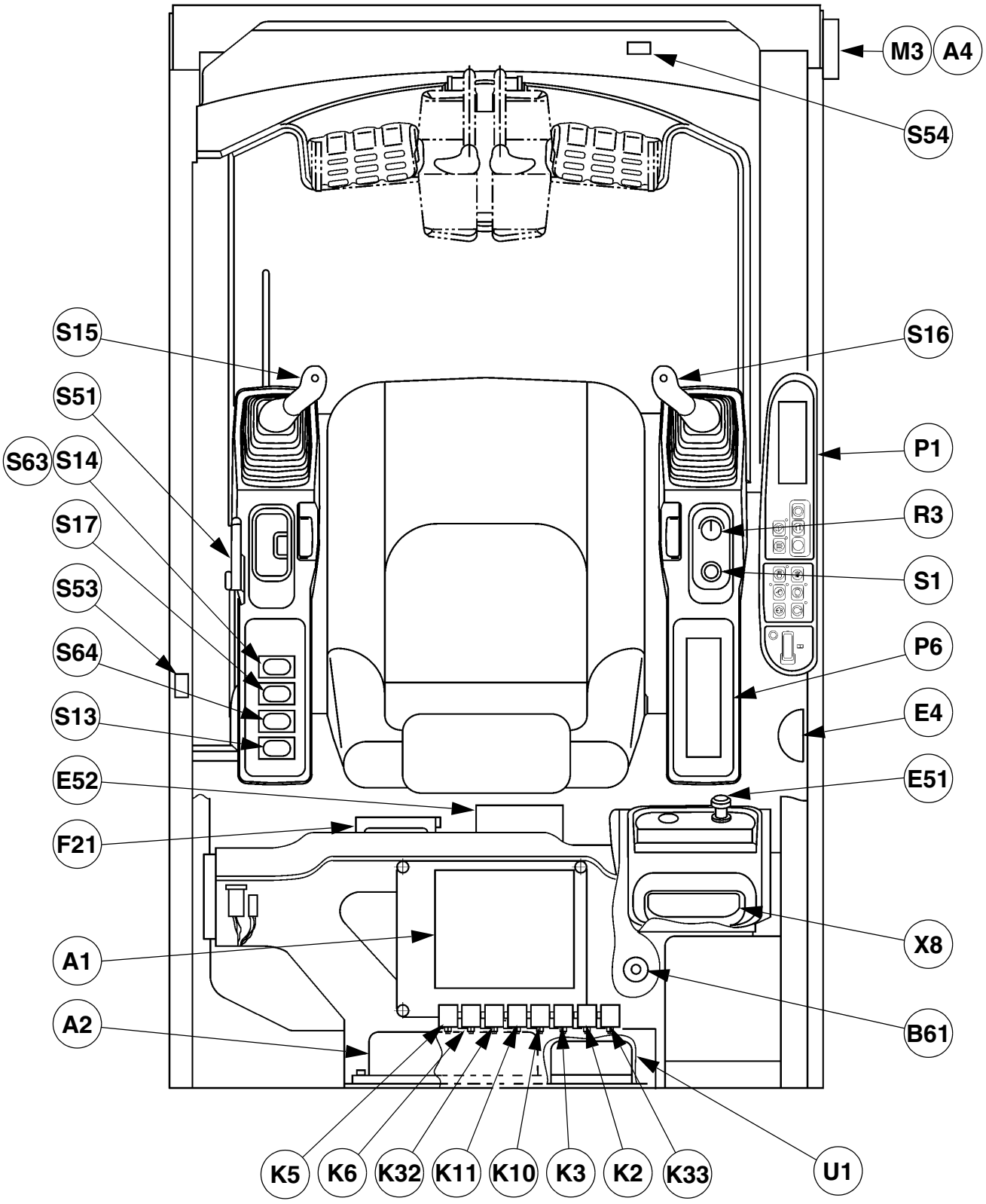
S62. Vacuum sensor

Operating negative pressure: 6.27 ± 0.29kPa.



700.1.04.01.23AN

GENERAL LOCATION OF THE COMPONENTS (INSIDE THE CAB)



CS01M598A

A1 Computer
A2 Engine controller
A4 Wiper controller
B61 Sunload sensor

Suggest:

If the above button click is invalid.

Please download this document

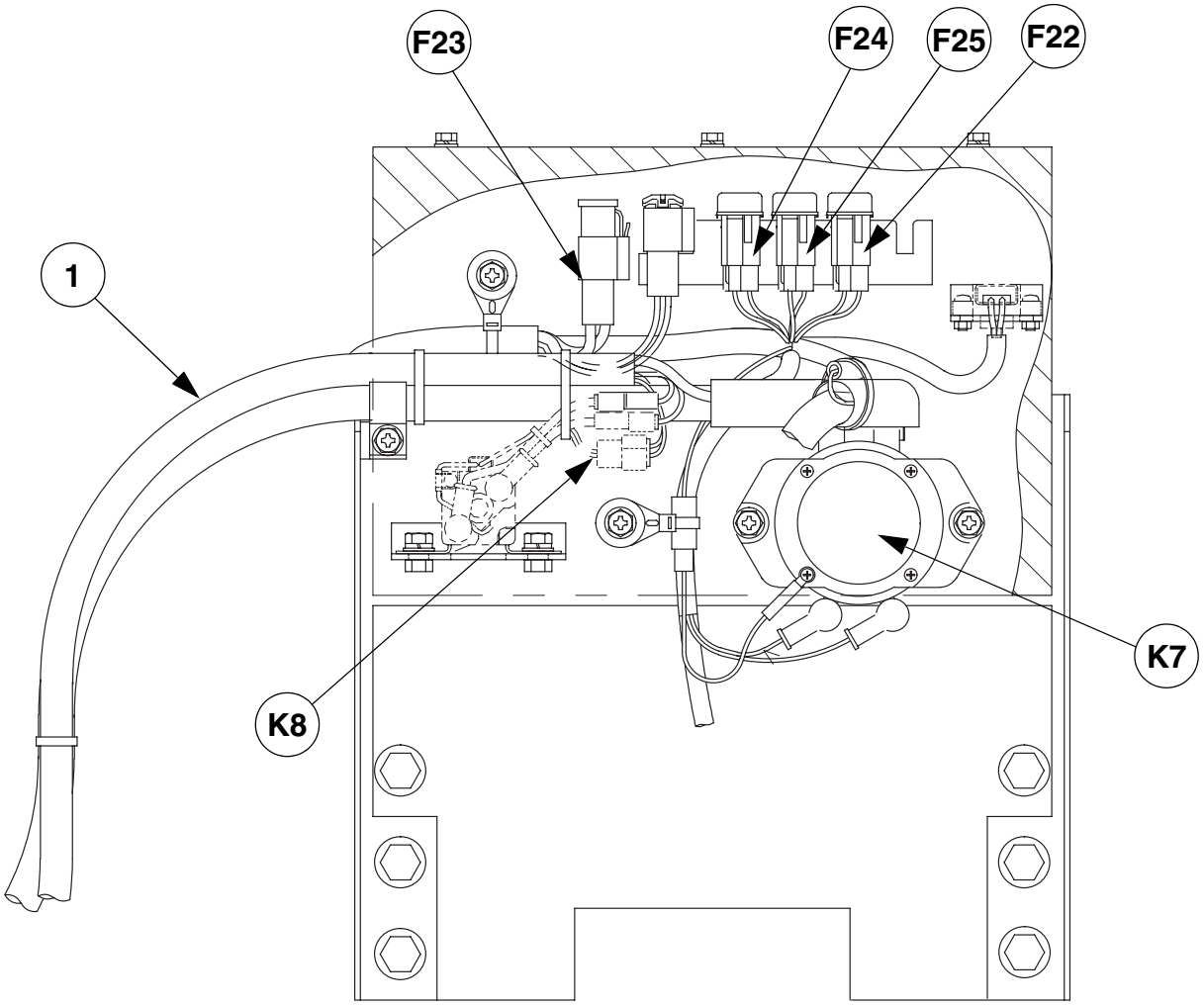
first, and then click the above link

to download the complete manual.

Thank you so much for reading

E4 Cab light
E51 Cigarette lighter
E52 Air conditioner
F21 Fuse box
K2 Relay-glow plug
K3 Relay-horn
K5 Relay-rotary light
K6 Relay-air conditioner condenser fan
K10 Relay-working light (upperstructure/attachment)
K11 Relay-working light (cab)
K32 Relay, hydraulic fan
K33 Main relay
M3 Wiper motor
P1 Instrument panel
P6 Air conditioner control panel
R3 Throttle volume
S1 Key switch
S13 Overload switch
S14 Breaker/crusher switch
S15 Horn switch
S16 One touch idle
S17 Boom raising priority switch
S51 Hydraulic function cancellation lever switch
S53 Door limit switch
S54 Front window limit switch
S64 Cooling hydraulic motor switch
U1 DC-DC (24 V-12 V) converter
X8 Radio connector

RELAYS AND MAIN FUSES (BATTERY COMPARTMENT)



700.1.04.07.20A2

1 Battery cable
F22 Fuse 20 A; main fuse for F11 and F12 circuits
F23 Fuse 65 A; main fuse for F3 to F10 and F13 to F20 circuits
F24 Fuse 20 A; main fuse for F2 circuit
F25 Fuse 20 A; main fuse for F1 circuit
K7 Relay battery
K8 Relay safety