

C50, C60, C70, C80, C90 and C100 Tractors

Service Manual Don 7-70900

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Reprinted



Section 1001

1001

SAFETY, GENERAL INFORMATION AND TORQUE SPECIFICATIONS

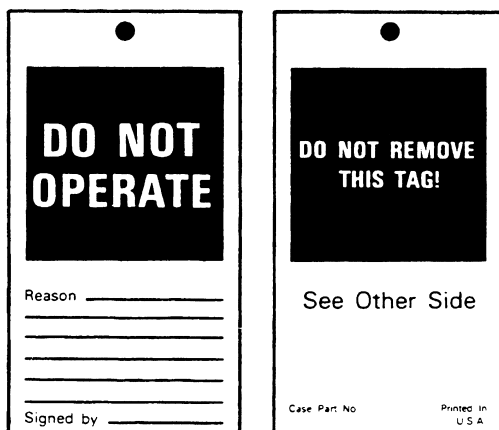
SAFETY



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 key switch 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 operators 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 one a 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 you J.I. 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.

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Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>



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



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



CAUTION: 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.



CAUTION: 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.



CAUTION: 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).



CAUTION: 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.



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



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



DANGER: 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.



DANGER: 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 that 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.



DANGER: Batteries contain acid and explosive gas. Explosions can result from sparks, flames or wrong cable connections. To connect the jumper cables correctly to the battery of this machine see the Operator's Manual. Failure to follow these instructions can cause serious injury or death.

GENERAL INFORMATION

Cleaning

Clean all metal parts except bearings, in mineral spirits 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 kerosene, 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 visual inspection for indications of wear, pitting and the replacement of parts necessary will 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 good solvent or kerosene 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 Operators or Service Manual. Failures due to the use of non specified oils and lubricants are not covered by warranty.

Section 2001

2001

ENGINE REMOVAL AND INSTALLATION

**C50, C60, C70, C80, C90
and C100 Tractors**

SPECIAL TOOLS

CAS30009 SPLITTING STAND

SPECIAL TORQUES

Engine to Speed Transmission Mounting Bolts 101 to 114 Nm

75 to 84 lb ft

ENGINE

NOTE: For Engine Service and Overhaul procedures, refer to your Engine Service Manual.

Removal and Installation

NOTE: For Installation follow the Removal procedure in reverse order.

Before removing the engine it will be necessary to carry out the following:

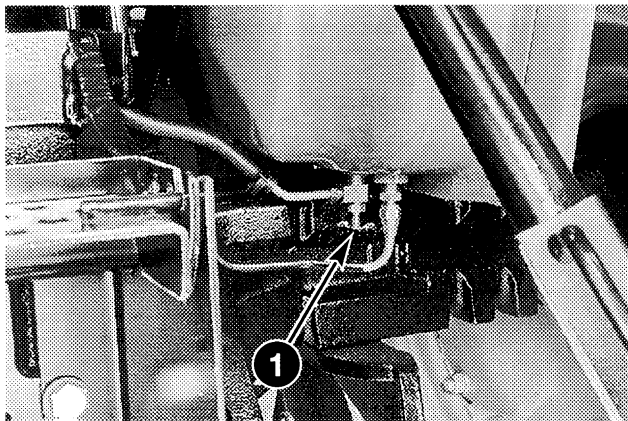
- Park the tractor on hard level ground and apply the parking brake.
- Lower the rear three point hitch.
- Stop the engine and remove the key.
- Put blocks in front of and behind the rear wheels.
- Put wooden blocks between the front axle bolster and front axle.
- Remove the front tractor weights (if equipped).
- Remove the Hood and Side Panels.
- Remove the Exhaust.
- For MFD Tractors, remove the MFD Drive Shaft and Cover.

STEP 1

Disconnect the battery, negative (-) terminal first.

NOTE: For Installation, connect and tighten the positive (+) terminal first.

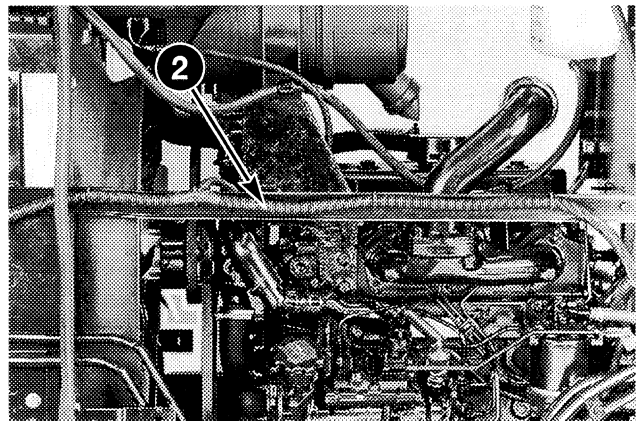
STEP 2



DP97E358

Close fuel supply tap (1) on the fuel tank.

STEP 3



DP97G112

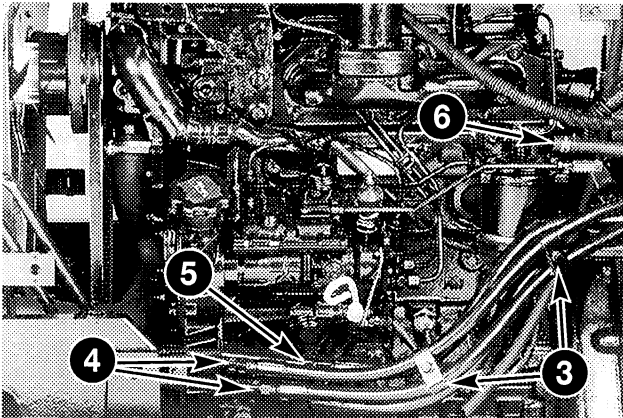
Disconnect the horn and headlamps. Release harness (2) from the rail. Remove the rail between the radiator and battery tray.

NOTE: Follow STEP 4 to STEP 10 and STEP 17 to STEP 24 for removing the engine from C50/60 Tractors.

NOTE: Follow STEP 11 to STEP 16 and STEP 17 to STEP 24 for removing the engine from C70/80/90/100 Tractors.

C50 and C60 Tractors

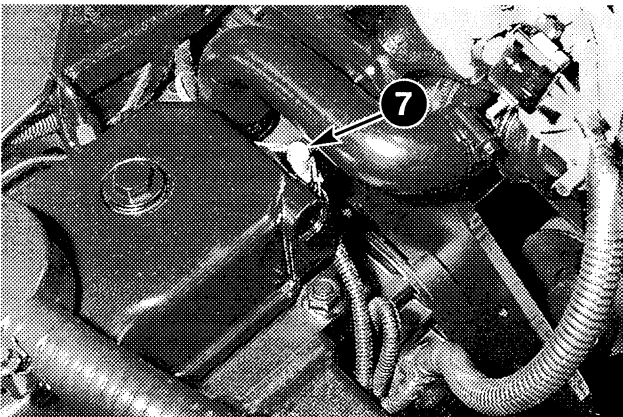
STEP 4



DP97G123

Remove tube clamps (3). Put identification marks on, disconnect and cap steering hoses (4), oil cooler hoses (5) and fuel return hose (6) from the fuel filter.

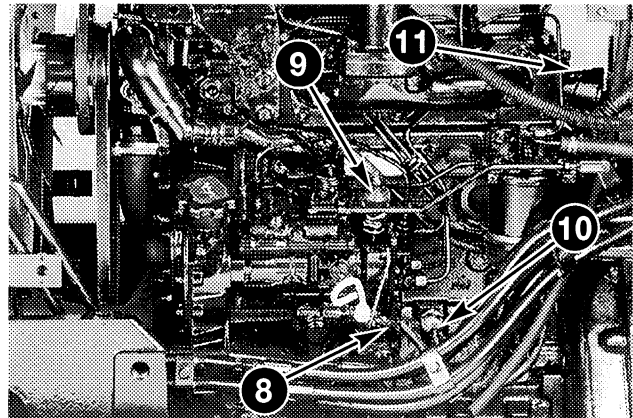
STEP 5



DP97G137

Disconnect water temperature switch (7).

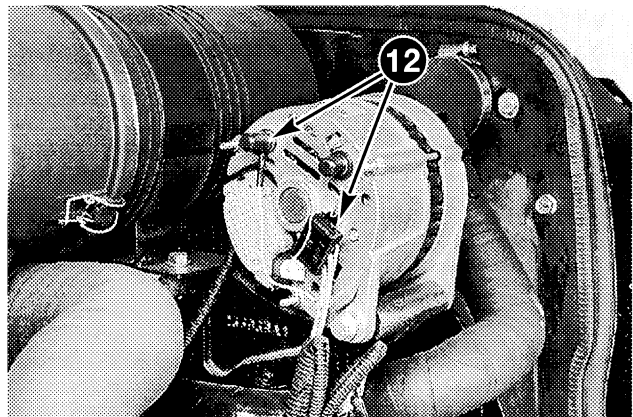
STEP 6



DP97G123

Disconnect the harness from fuel shut off solenoid (8), fuel advance coil (9), engine oil pressure switch (10) and fuel advance temperature switch (11).

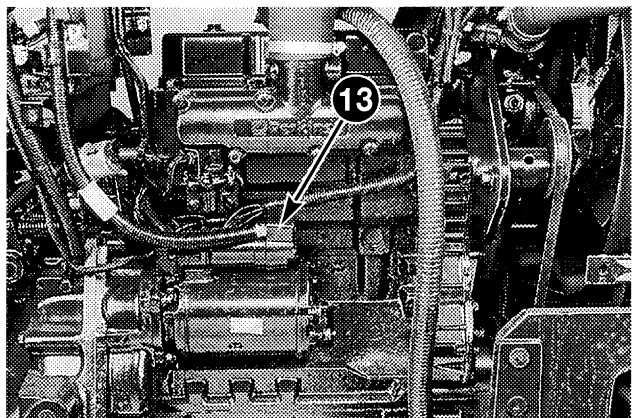
STEP 7



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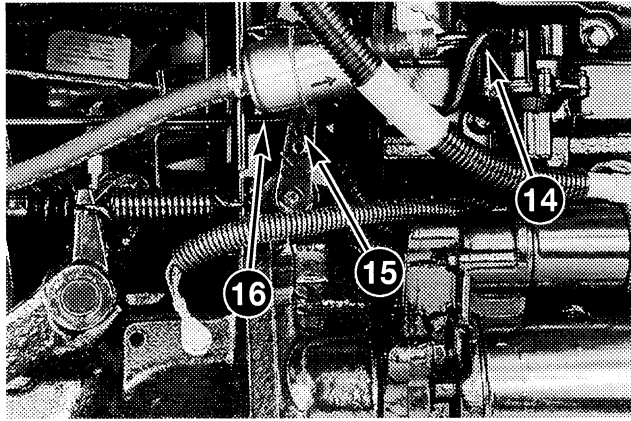
Disconnect harness (12) from the alternator.

STEP 8



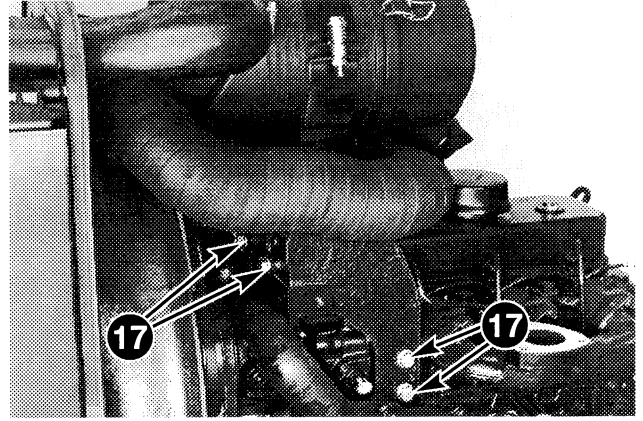
DP97E275

Remove cover (13) and disconnect the cables from the starter motor.

STEP 9

DP97G124

Disconnect and cap fuel supply hose (14) from the fuel lift pump. Remove and discard cotter pin (15) and disconnect throttle linkage (16).

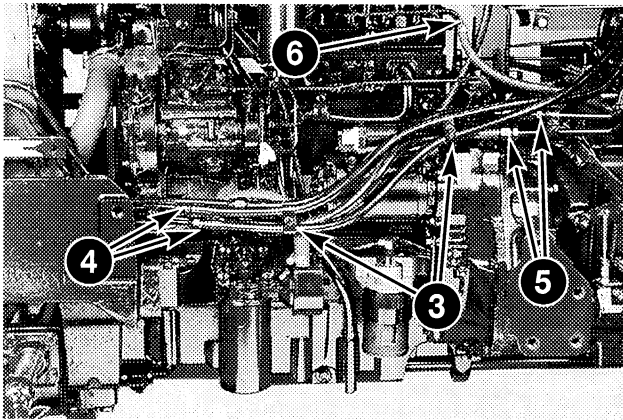
STEP 10

DD97K133

Remove the fan belt. Disconnect the air cleaner hoses. Remove the air cleaner and alternator mounting bracket bolts (17) and remove the air cleaner and alternator mounting bracket assembly from the engine.

C70, C80, C90 and C100 Tractors

STEP 11



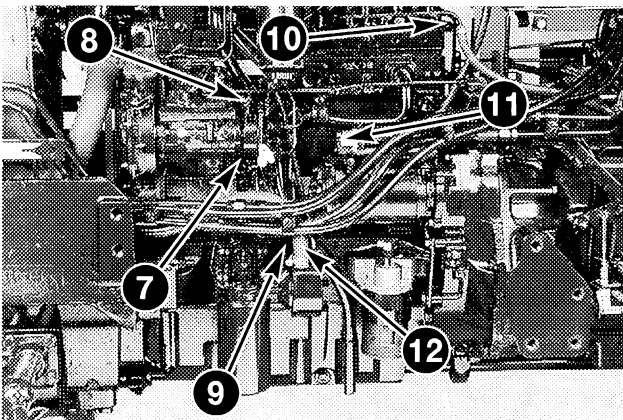
DP97G117

Remove tube clamps (3). Put identification marks on, disconnect and cap steering hoses (4), oil cooler hoses (5) and fuel return hose (6) from the fuel filter.

STEP 12

Disconnect the fuel cooler tubes from the fuel injection pump and the fuel filter.

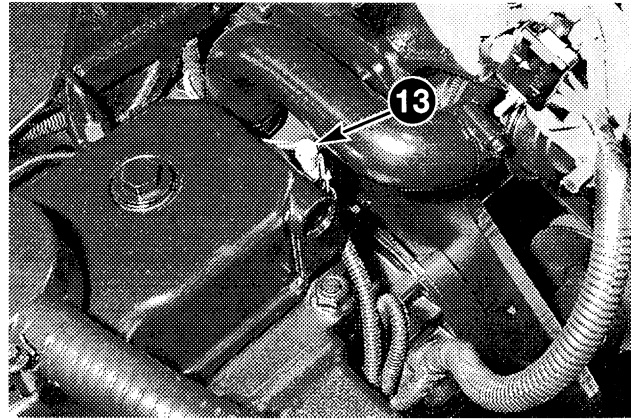
STEP 13



DP97G117

Disconnect the harness from fuel shut off solenoid (7), fuel advance coil (8), engine oil pressure switch (9) and fuel advance temperature switch (10). Remove cover (11) and disconnect the cables from the starter motor. Disconnect the oil cooler hose (12).

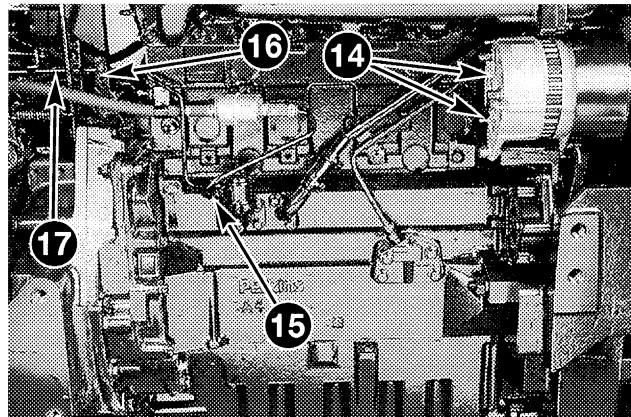
STEP 14



DP97G137

Disconnect the water temperature switch (13).

STEP 15



DP97G119

Disconnect the harness (14) from the alternator. Disconnect and cap the fuel supply hose (15) from the fuel lift pump. Remove and discard the cotter pin (15) and disconnect the throttle linkage (17).

STEP 16

Disconnect the air cleaner hoses and remove the complete air cleaner and mounting bracket from the engine.

All Models

STEP 17

Drain the coolant from the radiator and engine.

IMPORTANT: For Installation, refer to Filling the Coolant System on Page 8.

STEP 18

Disconnect the radiator top and bottom hoses from the water pump, disconnect the recovery bottle feed hose from the radiator filler neck.

STEP 19

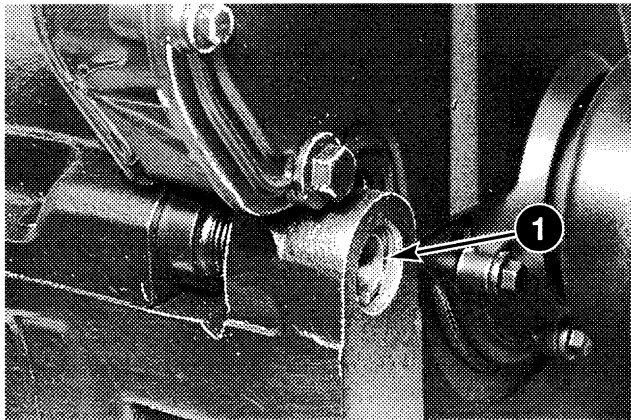
Install two 5/8 x 2 1/2 inch UNC bolts into each side of the front bolster.

STEP 20

Attach suitable lifting equipment to the front bolster. Support the engine using suitable stands. Remove the bolster retaining bolts.

NOTE: Carefully support and remove the front bolster and axle from the engine, take care not to damage the radiator. Support the front bolster and axle assembly on suitable stands.

STEP 21C50 and C60 Tractors

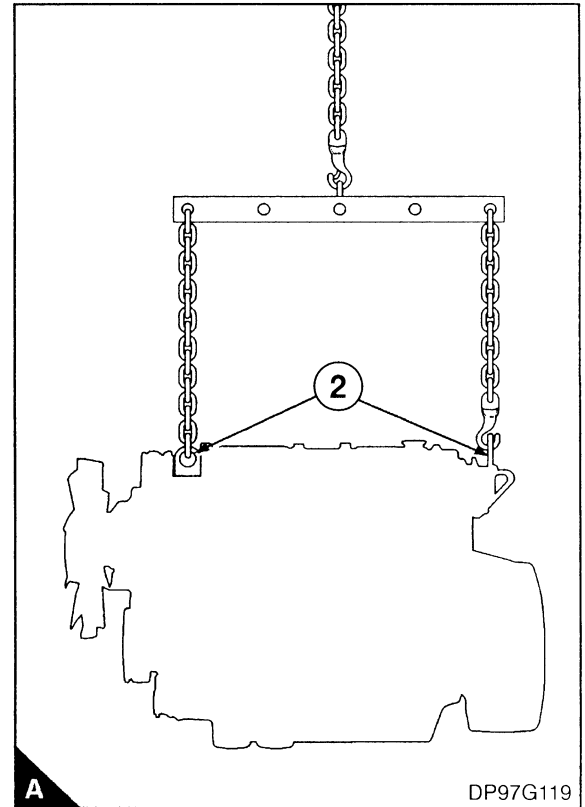


DD97K533

Remove the right hand bolster mounting stud from the engine block to gain access to the threaded spacer (1) (between the engine sump and the bolster mounting plate).

NOTE: For Installation, tighten the threaded spacer (1) to a torque of 15 Nm (11 lbft).

STEP 22



Install engine lifting eyes (2) if required (supplied with the tractor) and attach suitable lifting equipment to the engine.

NOTE: The engine dry weight is as follows:
C50 and C60 = 358 kg (789 lb)
C70, C80, C90 and C100 = 454 kg (1000 lb)

STEP 23

Remove the engine to speed transmission housing bolts and carefully separate the engine from the speed transmission, making sure that all hoses, tubes, cables and harnesses have been disconnected.

NOTE: For Installation, tighten the engine to speed transmission bolts to a torque of 101 to 114 Nm (75 to 84 lb ft).

NOTE: For Installation, follow the Removal procedure in reverse order.

STEP 24

Before connecting the engine to transmission, lubricate the splines of the clutch friction plate and pressure plate with MOLYKOTE D321R or equivalent.

Filling the Cooling System

STEP 25

Only use coolant solution as specified, refer to Operators Manual.

IMPORTANT: *NEVER put coolant into a hot engine, the engine block or cylinder head can crack because of the difference in temperature between the metal and coolant.*

NOTE: *When filling the cooling system on C50 and C60 Tractors the vents on the thermostat housing must be opened until all air is removed from the cooling system.*

STEP 26

Fill the coolant recovery reservoir to the "Normal" mark with coolant. Install the radiator and coolant reservoir caps.

NOTE: *For C50 and C60 Tractors, close the thermostat housing vents.*

STEP 27

Start the engine and run at low idle for one minute. Stop the engine and add coolant to radiator and coolant recovery reservoir as necessary, install the radiator and reservoir caps.

STEP 28

If necessary, cover the radiator core to raise the engine temperature quickly. Start the engine and run at high idle without load to increase the coolant to normal operating temperature.

NOTE: *For C50 and C60 Tractors, continue to run the engine at 1700 rpm for 3 minutes after the thermostat has opened.*

STEP 29

Stop the engine and allow the coolant to cool. Remove the temporary cover (if used, See STEP 28) from the radiator core.

NOTE: *For C50 and C60 Tractors, open the thermostat housing vents to remove any air and close the thermostat housing vents.*

STEP 30

After the engine has cooled, remove the radiator and reservoir caps. Fill the radiator to the correct level and fill the reservoir to the upper marking. Install the radiator and coolant reservoir caps.

Section 4001

ELECTRICAL TROUBLESHOOTING AND SCHEMATICS

**C50, C60, C70, C80, C90
and C100 Tractors**

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GENERAL INFORMATION



WARNING: *Never operate the engine in a closed building. Proper ventilation is required under all circumstances.*

IMPORTANT: *All electrical checks must be made with the tractor parked on hard level ground with the parking brake engaged and the engine OFF unless otherwise stated.*

IMPORTANT: *Put blocks in front of and behind the rear wheels.*

IMPORTANT: *The battery must be at full charge and all connections must be clean and tight before testing. Only use a HIGH IMPEDENCE multimeter for the tests. Do not use a test lamp or damage to the switches may occur.*

NOTE: *When testing diodes and diode modules use the multimeter diode test function.*

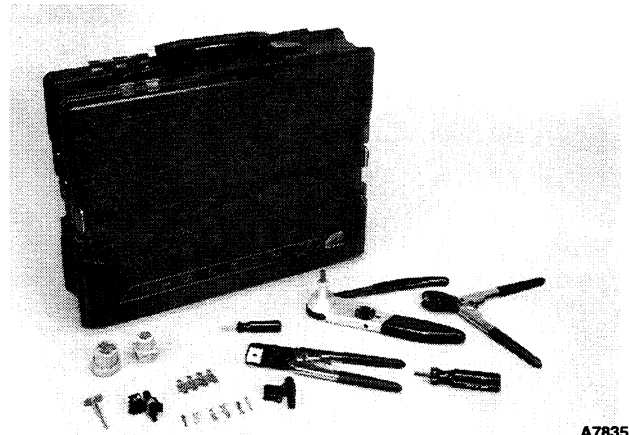
NOTE: *All components, wires and connectors disconnected during any electrical checks must be connected when the checks are completed.*

SPECIAL TOOLS



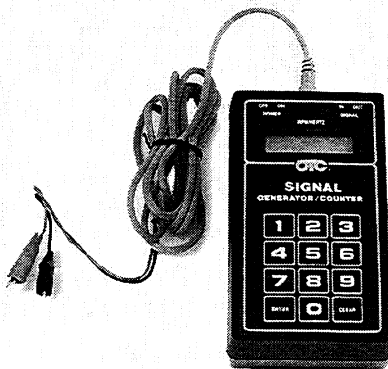
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1. MULTIMETER CAS1559



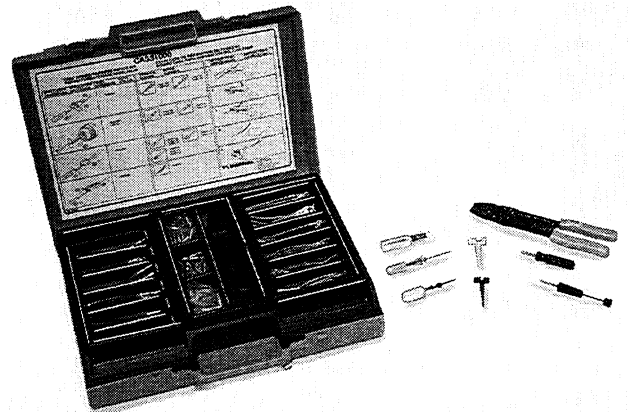
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3. HARNESS REPAIR KIT AJI1400004



DP97J166

2. SIGNAL GENERATOR/COUNTER CAS2109

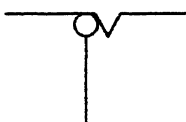
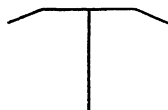
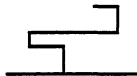
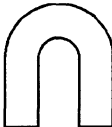
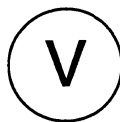
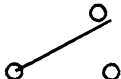
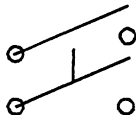
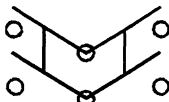


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3. HARNESS REPAIR KIT CAS31000
(EUROPE ONLY)

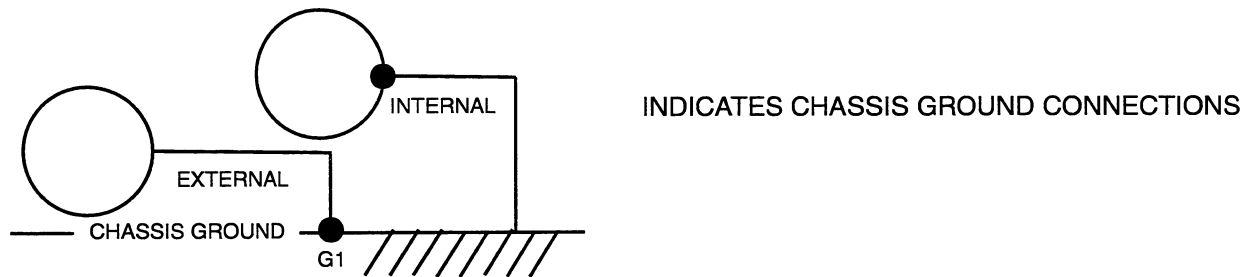
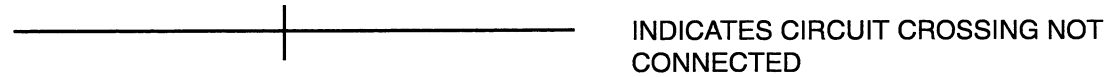
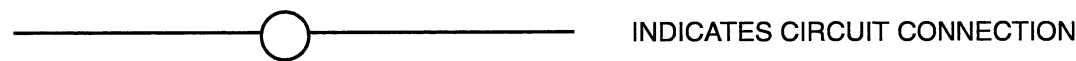
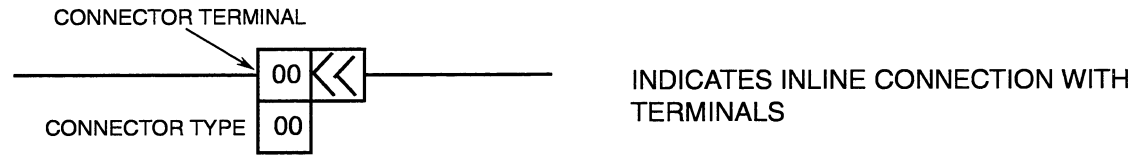
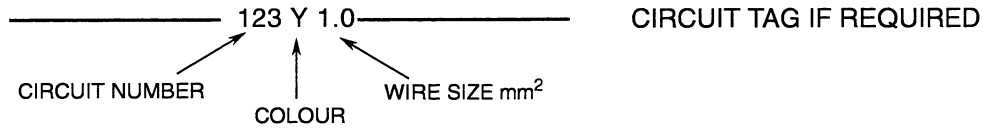
SCHEMATIC SYMBOLS AND LEGENDS

Schematic Symbols

ACTUATORS				
				
LEVER	HAND	FOOT	TEMPERATURE	
				
LIQUID LEVEL FLOAT	PRESSURE	COIL	DIODE	
			CONTACTS  MOMENTARY  MAINTAINED	
VARIABLE RESISTOR	RESISTOR	MAGNETIC		
HOUSINGS				
				
VACUUM SWITCH	PRESSURE SWITCH	TEMPERATURE SWITCH	MOTOR	LAMP
SWITCH CONTACT CONFIGURATION				
				
S.P.S.T. (SINGLE POLE SINGLE THROW)	S.P.D.T. (SINGLE POLE DOUBLE THROW)	D.P.S.T. (DOUBLE POLE SINGLE THROW)	D.P.D.T. (DOUBLE POLE DOUBLE THROW)	
MISCELLANEOUS SYMBOLS				
				
FUSE	CIRCUIT BREAKER			

NOTE: All schematics are shown with tractor parked, park brake engaged, transmission lever in neutral and power OFF.

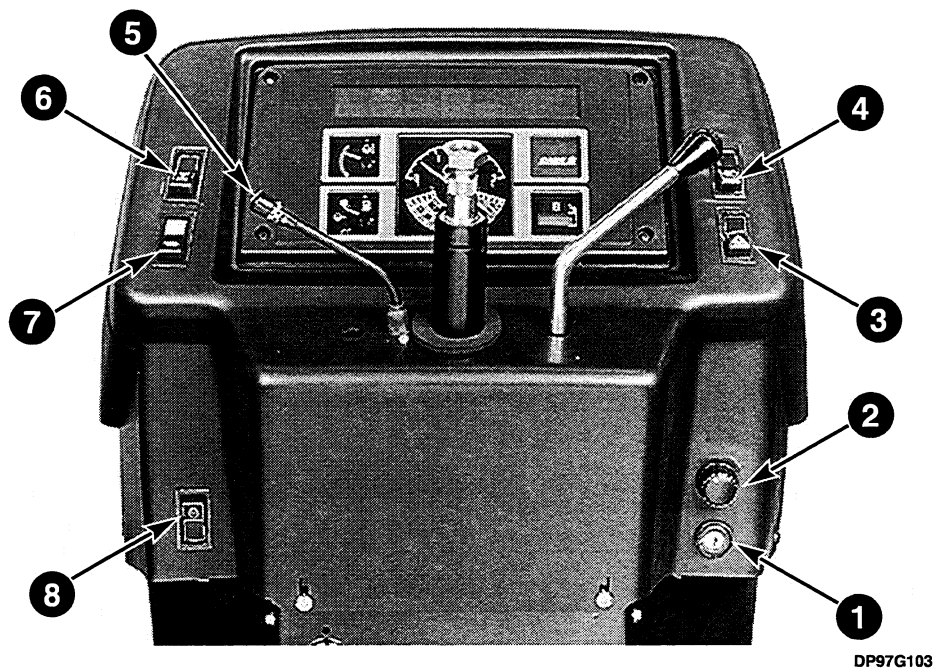
Schematic Legend



Wire Colour Code

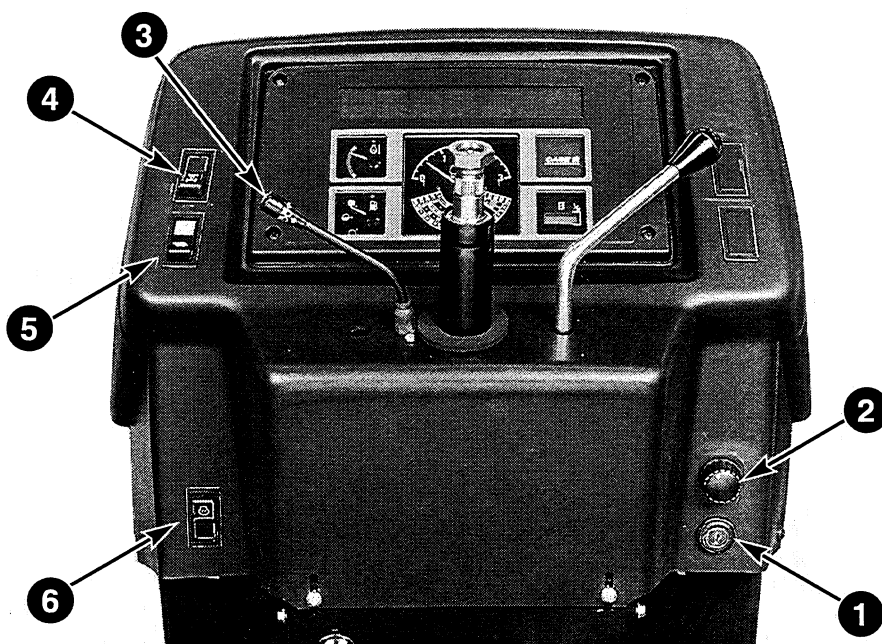
R.....	RED
T.....	TAN
W.....	WHITE
Y.....	YELLOW
B.....	BLACK
G.....	GRAY
O.....	ORANGE
P.....	PINK
V.....	VIOLET (PURPLE)
BR.....	BROWN
DB.....	DARK BLUE
DG.....	DARK GREEN
LB.....	LIGHT BLUE
LG.....	LIGHT GREEN

INSTRUMENT PANEL SWITCHES (For European Tractors)



Switch	Identification
1	KEY SWITCH
2	LAMP SWITCH
3	HAZARD WARNING LAMP SWITCH
4	WORK LAMP SWITCH
5	STALK SWITCH (TURN/HORN/DIP)
6	MFD SWITCH
7	POWERSHIFT SWITCH
8	COLD START SWITCH (THERMOSTART)

INSTRUMENT PANEL SWITCHES (For North American Tractors)



DP97G104

Switch	Identification
1	KEY SWITCH
2	LAMP SWITCH
3	STALK SWITCH (TURN/HORN/DIP)
4	MFD SWITCH
5	POWERSHIFT SWITCH
6	COLD START SWITCH (ETHER START)



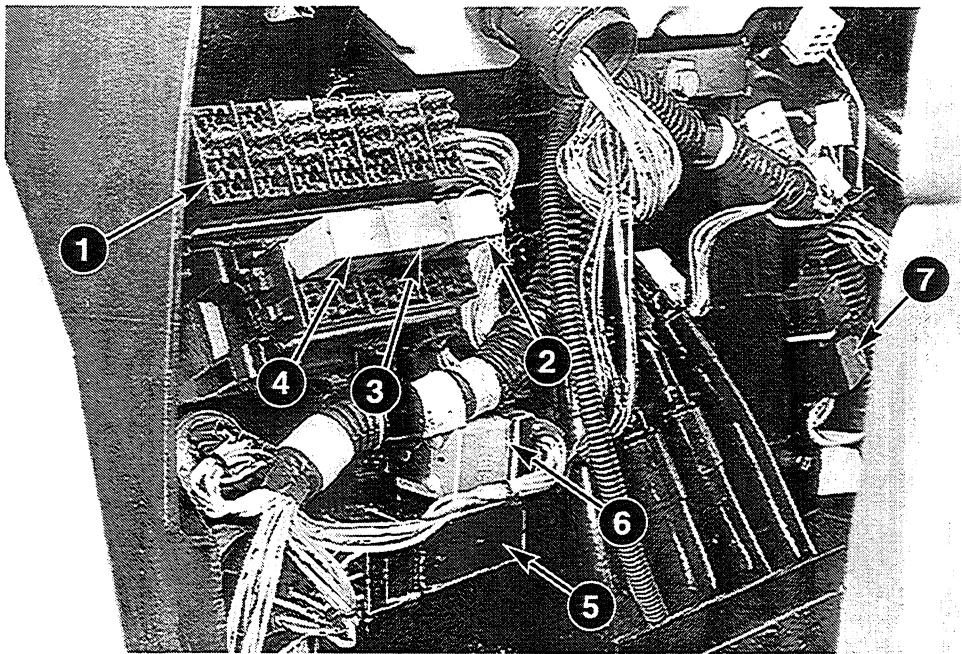
Suggest:

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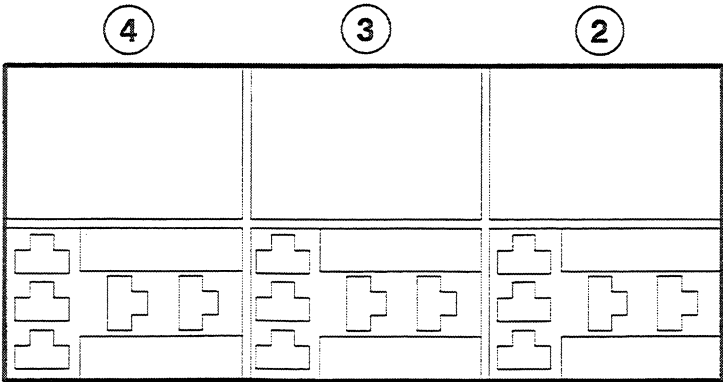
FUSE AND RELAY IDENTIFICATION
(For European Tractors)



DP97G100

FUSE AND RELAY BLOCKS VIEWED FROM THE ENGINE SIDE OF THE INSTRUMENT PANEL

1	☐	7	☐	☐	6	☐	☐	5	☐	☐	4	☐	☐	3	☐	☐	2	☐	☐	1	☐
	☐	14	☐	☐	13	☐	☐	12	☐	☐	11	☐	☐	10	☐	☐	9	☐	☐	8	☐
	☐	21	☐	☐	20	☐	☐	19	☐	☐	18	☐	☐	17	☐	☐	16	☐	☐	15	☐
	☐	28	☐	☐	27	☐	☐	26	☐	☐	25	☐	☐	24	☐	☐	23	☐	☐	22	☐



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1. FUSE BOX

2. RELAY '4' POWERSHIFT

3. RELAY '5' WORK LAMP

4. RELAY '6' BRAKE LIGHT
5. FLASHER RELAY

6. HEADLAMP DIPPING RELAY

7. STARTER RELAY

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