

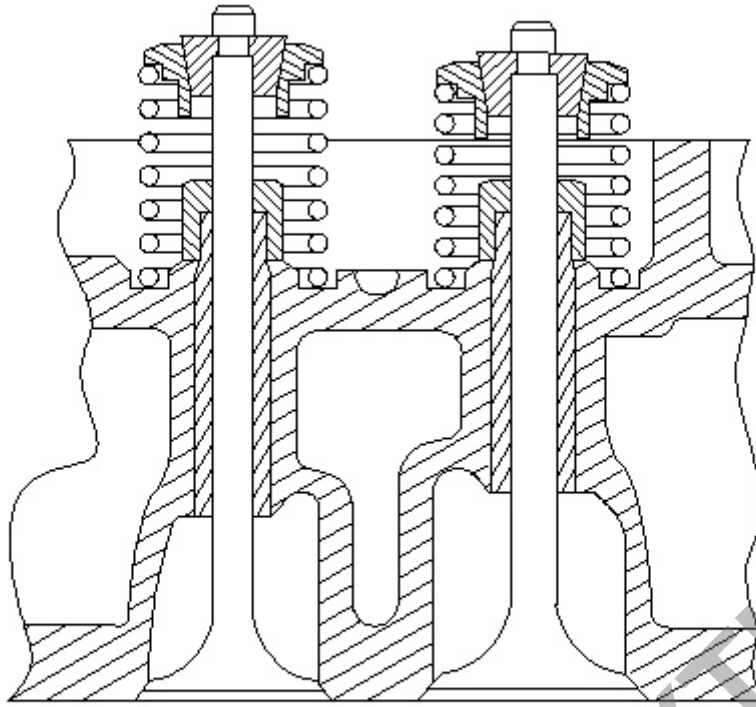


Illustration 2

g00905459

Cross section of the inlet and exhaust valves in the cylinder head (typical example)

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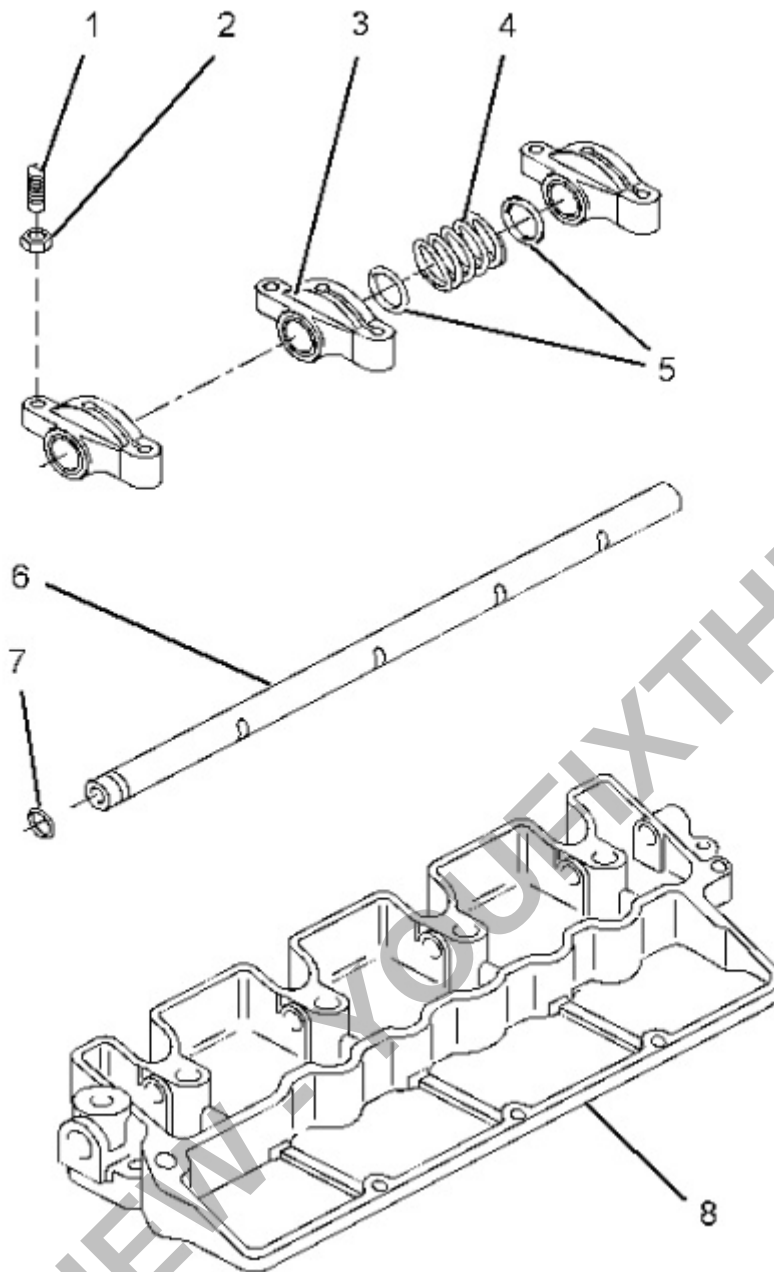


Illustration 1

g01317304

Typical example

2. In order to remove rocker shaft (6), install a suitable bolt into the end of the rocker shaft. Use the bolt to pull the rocker shaft from base (8) .



WARNING

Personal injury can result from being struck by parts propelled by a released spring force.

Disassembly and Assembly

236B3, 242B3 and 252B3 Skid Steer Loaders, 257B3 Multi Terrain Loader and 259B3 Compact Track Loader Engine Supplement

Media Number -UENR0248-02

Publication Date -01/10/2012

Date Updated -18/10/2012

i02783657

Radiator and Hydraulic Oil Cooler - Install

SMCS - 1353-012; 1374-012

Installation Procedure

Table 1

Required Parts			
Tool	Part Number	Description	Qty
A	138-7573	Link Bracket	3

Failure of an electrical component can cause the failure of one or more components. Always attempt to find the cause of a problem and correct the problem before replacing a component.

Use the single screw in the center of the harness in order to remove the harness from the ECM.

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Troubleshooting

259B3 Compact Track Loader, 247B3 and 257B3 Multi Terrain Loaders and 216B3, 226B3, 236B3, 242B3 and 252B3 Skid Steer Loaders Machine Electronic Control System

Media Number -UENR0255-01

Publication Date -01/01/2013

Date Updated -17/01/2013

i03978049

MID 039 - CID 1627 - FMI 06

SMCS - 4493-038-QF

Conditions Which Generate This Code:

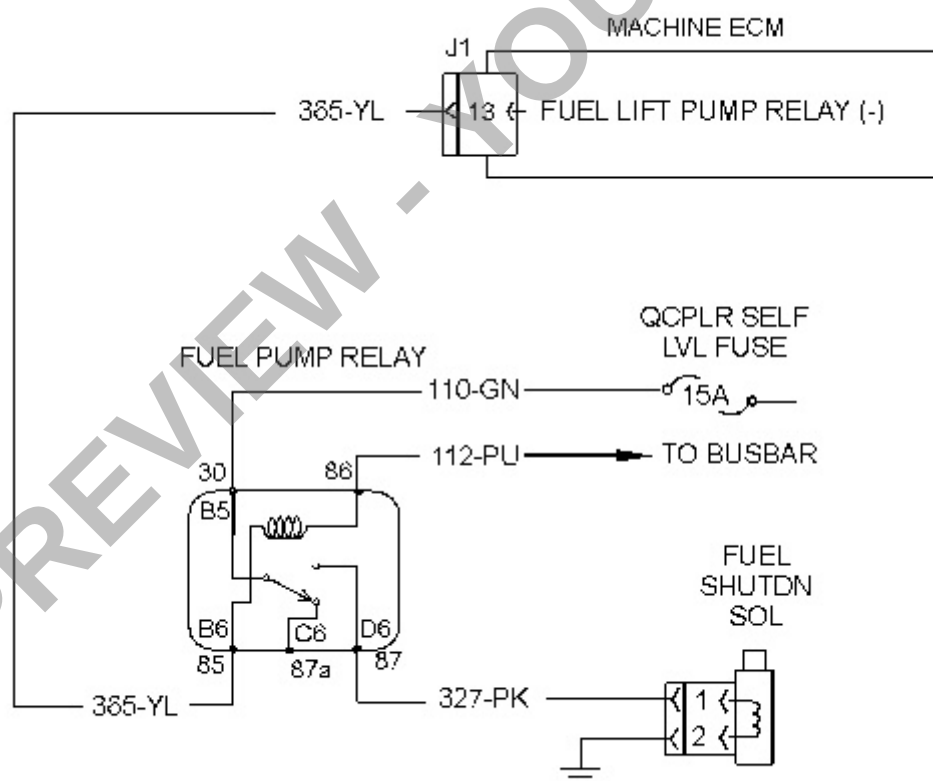


Illustration 1

g02164233

Schematic of the fuel pump relay

Drain the engine oil. Replace the engine oil filter. Install the correct type of engine oil.

6. The oil supply line from the engine oil pan is restricted.

The oil supply line must be repaired or replaced.

7. The bearings of the turbocharger are worn.

Replace the turbocharger.

8. Excessive dirt exists in the compressor housing.

Clean the compressor housing.

9. The engine rpm increases too rapidly when the engine is started.

Check the fuel injection pump for correct operation and settings.

10. The period of time at high idle is insufficient.

Check the fuel injection pump for correct operation and settings.

11. Engine oil is leaking from the oil supply line.

The oil supply line must be repaired or replaced.

12. A restriction exists in the bearing housing of the turbocharger.

The bearing housing must be repaired or the turbocharger must be replaced.

13. A restriction exists in the engine oil filter.

Clean the engine oil filter base and the housing for the engine oil filter. Check the operation of the engine oil bypass valve in the engine oil filter base. Replace the engine oil filter.

14. The engine stopped too soon from a high load condition.

Check the following components for correct operation or damage:

- Compressor impeller of the turbocharger
- Cooling system
- Fuel injection pump
- Air/fuel ratio control
- Valve lash
- Fuel injection nozzles

Damaged to the turbine

Probable Cause

Disassembly and Assembly

259B3 Compact Track Loader, 247B3 and 257B3 Multi Terrain Loaders and 216B3, 226B3, 236B3, 242B3 and 252B3 Skid Steer Loaders Machine Systems

Media Number -UENR0252-01

Publication Date -01/10/2012

Date Updated -18/10/2012

i03909316

Accumulator - Remove and Install

SMCS - 4263-010; 4331-010; 5077-010-YW; 5077-010; 7336-010

Removal Procedure

Start By:

- A. Release the hydraulic system pressure.
- B. Raise the cab.



WARNING

Personal injury can result from hydraulic oil pressure and hot oil.

Hydraulic oil pressure can remain in the hydraulic system after the engine has been stopped. Serious injury can be caused if this pressure is not released before any service is done on the hydraulic system.

Make sure all of the work tools have been lowered to the ground, and the oil is cool before removing any components or lines. Remove the oil filler cap only when the engine is stopped, and the filler cap is cool enough to touch with your bare hand.

Specifications

C2.2 Engines For Caterpillar Built Machines

Media Number -KENR6946-01

Publication Date -01/10/2012

Date Updated -04/10/2012

102618548

Fuel Transfer Pump

SMCS - 1256

S/N - -

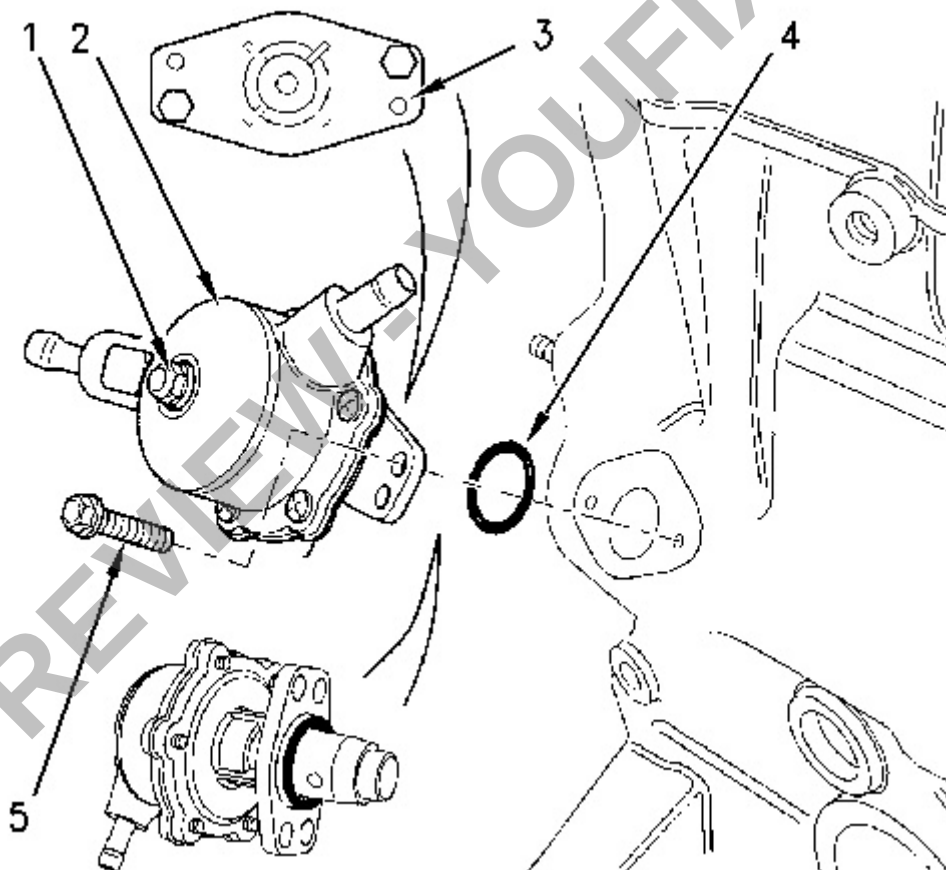


Illustration 1

g00819278

(1) Tighten the adjustment screw for the fuel transfer pump to the following torque. ... 2.5 N·m (1.8 lb ft)

Testing and Adjusting

259B3 Compact Track Loader, 247B3 and 257B3 Multi Terrain Loaders and 216B3, 226B3, 236B3, 242B3 and 252B3 Skid Steer Loaders Machine Systems

Media Number -UENR0250-01

Publication Date -01/12/2012

Date Updated -13/12/2012

i03937390

Hydraulic System Troubleshooting

SMCS - 5050-035



WARNING

Personal injury or death can result from sudden machine movement.

Sudden movement of the machine can cause injury to persons on or near the machine.

To prevent injury or death, make sure that the area around the machine is clear of personnel and obstructions before operating the machine.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Caterpillar Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Caterpillar products.

Dispose of all fluids according to local regulations and mandates.

Troubleshooting

259B3 Compact Track Loader, 247B3 and 257B3 Multi Terrain Loaders and 216B3, 226B3, 236B3, 242B3 and 252B3 Skid Steer Loaders Machine Electronic Control System

Media Number -UENR0255-01

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Date Updated -17/01/2013

i03969463

MID 039 - CID 2211 - FMI 05

SMCS - 5479-038-AX

Conditions Which Generate This Code:

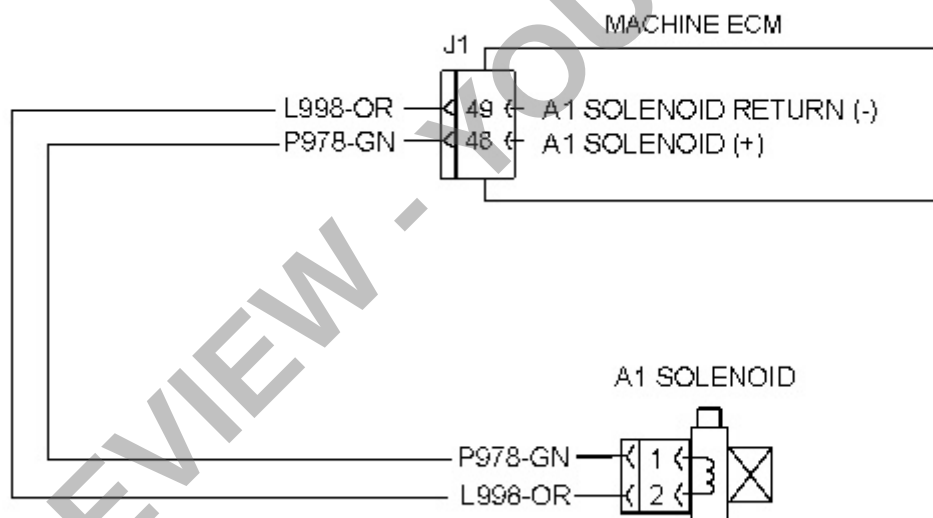


Illustration 1

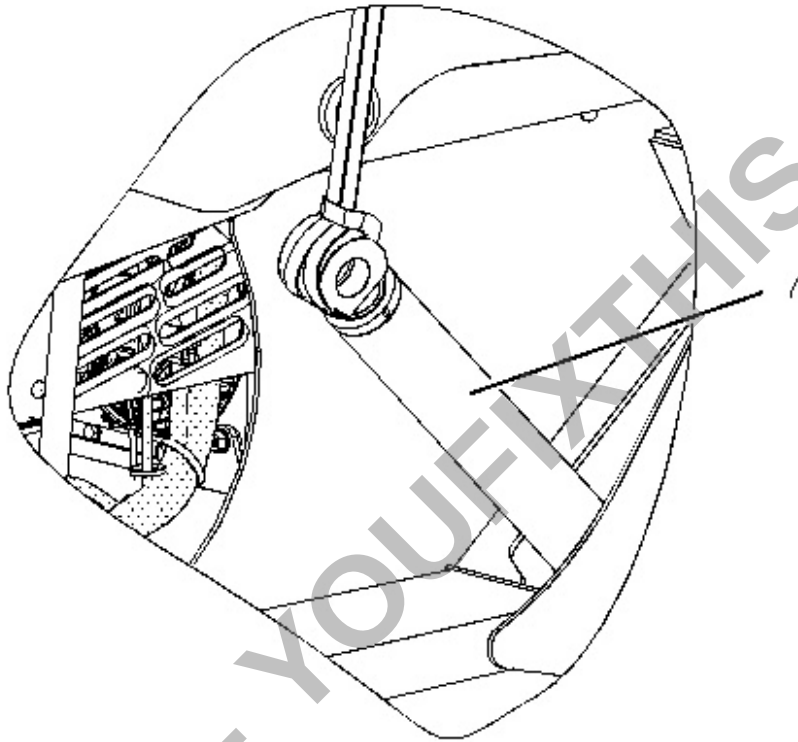
g02162114

Schematic for the auxiliary one solenoid circuit

This diagnostic code is associated with the auxiliary one solenoid. This diagnostic code is recorded when the ECM detects an incomplete electrical path from the ECM to the solenoid and back to the ECM. The return circuit is connected for all solenoids. The return circuit connects to contact J1-49 (wire L998-OR) of the Machine ECM.

The possible causes of the diagnostic code are listed:

5. Attach a suitable lifting device to lift arms (5), as shown. Use the suitable lifting device with Tooling (B) to raise the lift arms by approximately 305 mm (12.0 inch). Lower lift arms (5) onto suitable cribbing (6), as shown.



6. Attach a suitable lifting device with Tooling (B) to lift cylinder (7). The weight of lift cylinder (7) is approximately 33 kg (73 lb).

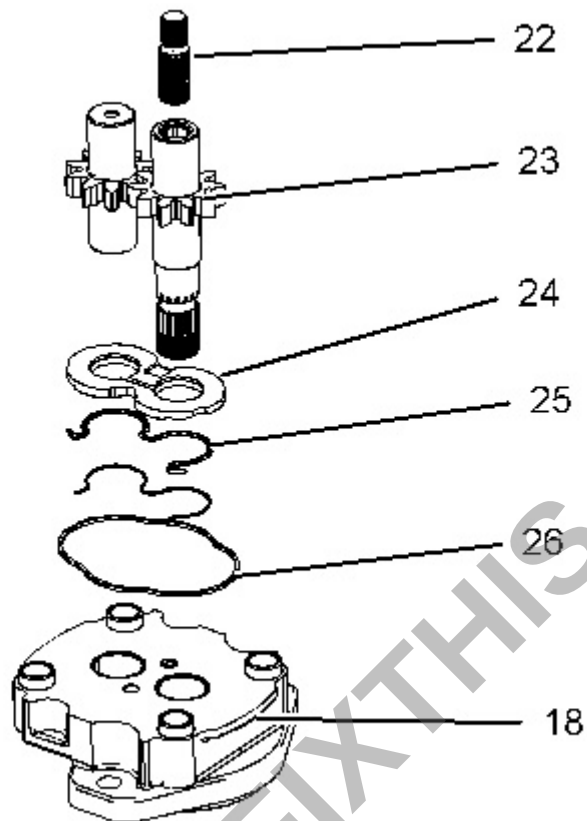


Illustration 2

g01037033

2. Position O-ring seal (26) .
 3. Position bearing (24) and seals (25) onto body (18) .
 4. Install gears (23) and coupling (22) .
-

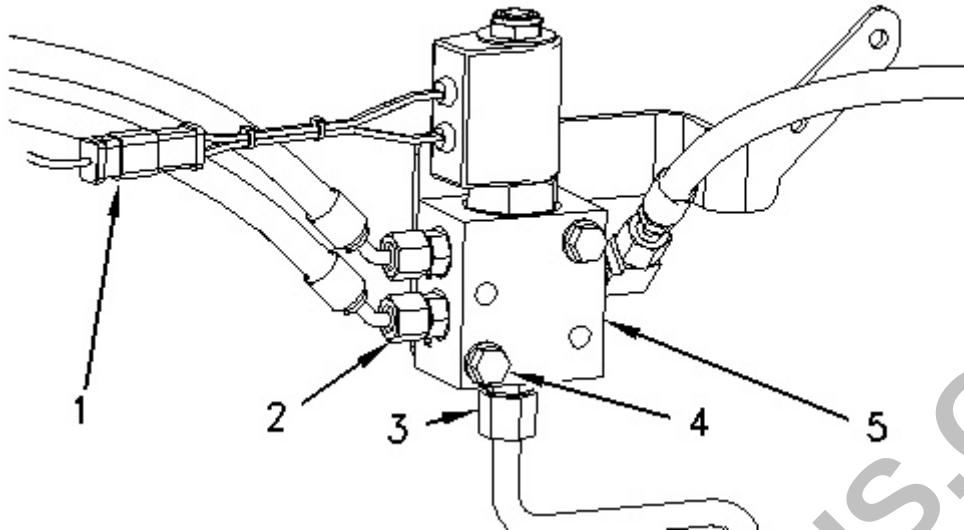


Illustration 4

g00924155

Typical example.

4. Install coupler valve (5). Install bolts (4). Connect tube assembly (3). Connect hose assemblies (2). Connect harness assembly (1).
5. Check the hydraulic oil level. Refer to Operation and Maintenance Manual, "Hydraulic Oil Level - Check".

End By: Tilt the cab. Refer to Disassembly and Assembly, "Cab - Tilt".

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Note: Always remove the engine oil relief valve before removing or installing the crankshaft. Damage to the engine oil relief valve or damage to the crankshaft may occur.

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3. Install gear motor (1) into the machine. Install gear motor (1) onto support housing (5). Install bolts (4). Connect hose assemblies (6) and (7) .

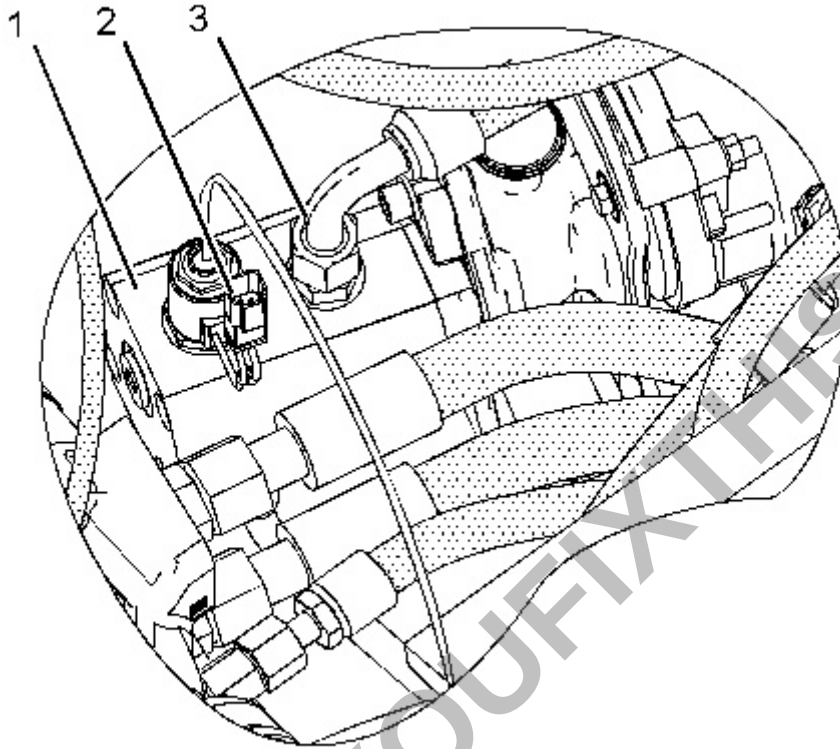


Illustration 4

g01037813

4. Connect harness assembly (2). Connect hose assembly (3) to gear motor (1) .

End By: Install the piston pump. Refer to Disassembly and Assembly, "Piston Pump - Install" for more information.

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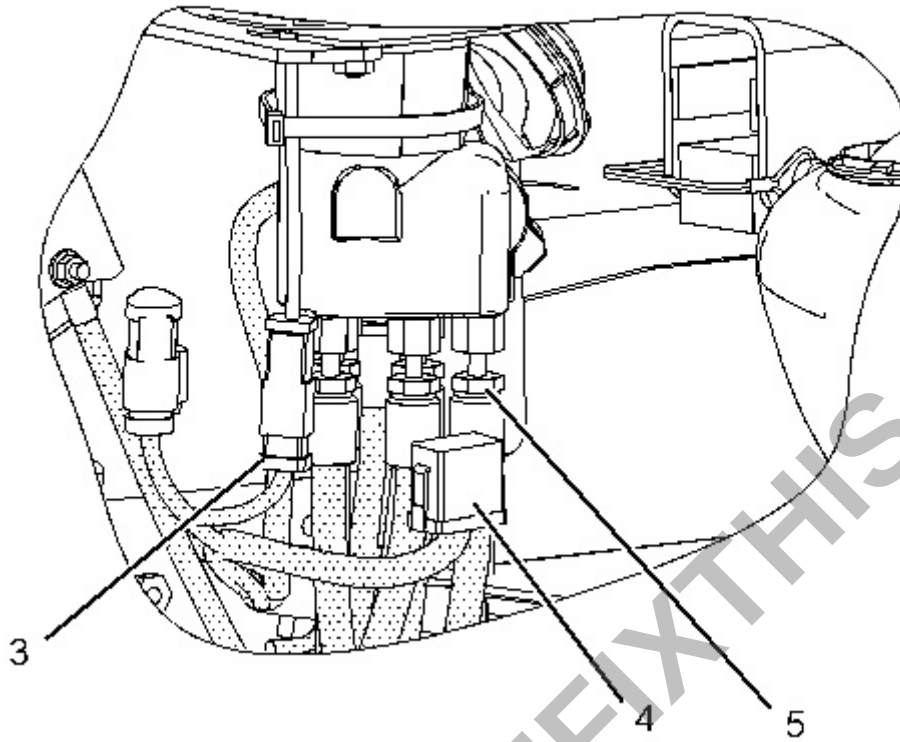


Illustration 2

g01051364

2. Disconnect harness assemblies (3) and (4). Disconnect hose assemblies (5) .
-

The receiver-dryer stores a small amount of refrigerant. This stored refrigerant is used in order to compensate for the changing system demands. These system demands can result from changing the speeds on the compressor, varying heat loads, or small losses of refrigerant.

A high pressure relief valve (3) is located on most receiver-dryers. The valve allows the refrigerant to be released to the atmosphere if the pressure increases to approximately 3450 kPa (500 psi). Most receiver-dryers also have a low pressure cutoff switch (1). If the system pressure lowers to approximately 175 kPa (25 psi), the switch opens. This will open the electric circuit to the magnetic clutch and the compressor will not operate.

Some receiver-dryers will have a moisture indicator (5). This moisture indicator is used in order to determine the relative moisture in the system. If the moisture indicator is blue, the system is dry. If the moisture indicator is pink or white, then the receiver-dryer must be replaced. Refer to Disassembly and Assembly, SENR5664, "Receiver-Dryer Remove and Install".

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Testing and Adjusting

All Products Air Conditioning and Heating R134a for All Caterpillar Machines

Media Number -SEN5664-22

Publication Date -01/08/2012

Date Updated -13/08/2012

103863033

Manifold Gauge Set (Refrigerant) - Remove

SMCS - 7465-011



WARNING

Personal injury can result from contact with refrigerant.

This system is under pressure at all times, even if the engine is not running. Heat should never be applied to a charged system.

Contact with refrigerant can cause frost bite. Keep face and hands away to help prevent injury.

Protective goggles must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty of refrigerant.

Always use caution when a fitting is removed. Slowly loosen the fitting. If the system is still under pressure, evacuate the system recovering the refrigerant before removing the fitting.

Personal injury or death can result from inhaling refrigerant through a lit cigarette.

Inhaling air conditioner refrigerant gas through a lit cigarette or other smoking method or inhaling fumes released from a flame contacting air conditioner refrigerant gas, can cause bodily harm or death.

Do not smoke when servicing air conditioners or wherever refrigerant gas may be present.

Before any checks of the air conditioning and heating system are made, move the machine to a smooth horizontal surface. Lower all implements to the ground. Make sure the transmission is in neutral or park and that the parking brake is engaged. Keep all other personnel away from the machine or where they can be seen.

- Inspect and replace refrigerant high-pressure and/or low-pressure cut out switches if necessary.
- Inspect compressor and clutch assembly and replace clutch if necessary.

The system is not controlling the cab temperature properly

- Inspect the cab air temperature sensor.
- Verify that the recirculation vent inlet is not obstructed. Inspect and replace recirculation vent air filter if necessary.
- Inspect and replace recirculation vent air filter, if necessary.
- Change the setpoint temperature in small increments.
- Verify that the water valve is working properly. Refer "No Heat"(see No Heat).
- Verify that the compressor clutch is working properly. Refer "No Cooling".

The evaporator core is icing up and restricting airflow

- Inspect the evaporator core probe.
- Verify that the probe is making good contact with the evaporator fins and is not loosely inserted.
- Reposition the probe and check the core temperature during operation using the advanced diagnostics.
- Replace the evaporator core if necessary.

Automatic Temperature Control Troubleshooting

Use this procedure to troubleshoot the performance of the HVAC system for machines equipped with automatic temperature control.

Connect Electronic Technician (ET) and check for diagnostics associated with the HVAC system. Refer to the Machine Troubleshooting Guide if any of the following codes are active.

259B3 Compact Track Loader, 247B3 and 257B3 Multi Terrain Loaders and 216B3, 226B3, 236B3, 242B3 and 252B3 Skid Steer Loaders Machine Systems

Media Number -UENR0250-01

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Date Updated -13/12/2012

105272714

Hydrostatic System - Test and Adjust

SMCS - 4350-025; 4350-081

Table 1

Required Tools		
Part number	Description	Quantity
6V-4143	Quick Connect Coupler	10
177-7861	Hose As	5
6V-3989	Fitting As	6
6V-3966	Fitting As	2
8T-0855	Pressure Gauge 0 to 4000 kPa (580 psi)	3
8T-0854	Pressure Gauge 0 to 1000 kPa (145 psi)	1
8T-0860	Pressure Gauge 0 to 40000 kPa (5802 psi)	1
186-2613	Pressure Gauge 0 to 70000 kPa (10153 psi)	2
1U-5796	Pressure Differential Tool Gp	1
164-3310	Infrared Thermometer	1
9U-7400	Multitach Tool Gp	2
1U-6602	Photo-Tachometer	1
1U-6605	Reflective Tape	1
7X-2444	Swivel Tee	1
4J-5477	O-Ring Seal	1
5P-2937	O-Ring Adapter	1
3J-7354	O-Ring Seal	1

Install a **6V-4143** Quick Connect Coupler to each end of the **177-7861** Hose As . Install a **6V-3989** Fitting to the **8T-0855** Pressure Gauge . Install a **6V-3989** Fitting to the **8T-0854** Pressure Gauge . You will also need to install a **6V-3989** Fitting to the **186-2613** Pressure Gauge .

Disassembly and Assembly

259B3 Compact Track Loader, 247B3 and 257B3 Multi Terrain Loaders and 216B3, 226B3, 236B3, 242B3 and 252B3 Skid Steer Loaders Power Train

Media Number -UENR0251-04

Publication Date -01/04/2013

Date Updated -24/04/2013

i02787466

Control Manifold and Solenoid (Parking Brake) - Remove and Install

SMCS - 5264-010; 5479-010

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
ZZ	6V-9508	Face Seal Plug (11/16 - 16 THD)	3
	6V-9829	Cap Assembly (11/16 - 16 THD)	3
	6V-9509	Face Seal Plug (13/16 - 16 THD)	2
	6V-9830	Cap Assembly (13/16 - 16 THD)	2

Start By:

- Release the hydraulic system pressure. Refer to Disassembly and Assembly, "Hydraulic System Pressure - Release".
- Tilt the cab. Refer to Disassembly and Assembly, "Cab - Tilt".

Note: SERVICE DATA: TOOLING (ZZ) WILL NOT BE IDENTIFIED IN PHOTOGRAPHS IN THE REMOVAL OR THE INSTALLATION. THIS TOOLING IS SHOWN IN ORDER TO ASSIST THE EXPERIENCED SERVICEMAN.



WARNING

Personal injury can result from hydraulic oil pressure and hot oil.

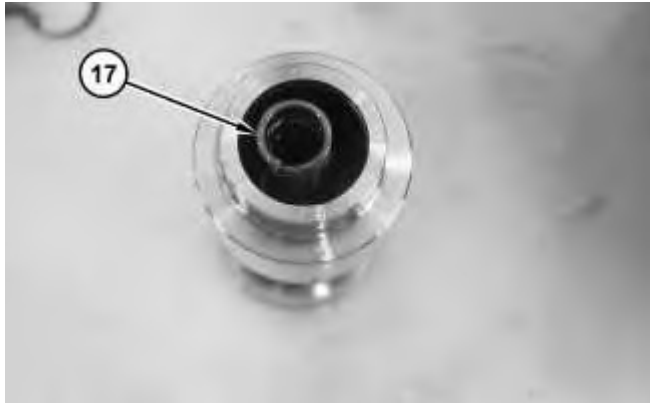


Illustration 6

g02744457

11. Remove spring (17) .

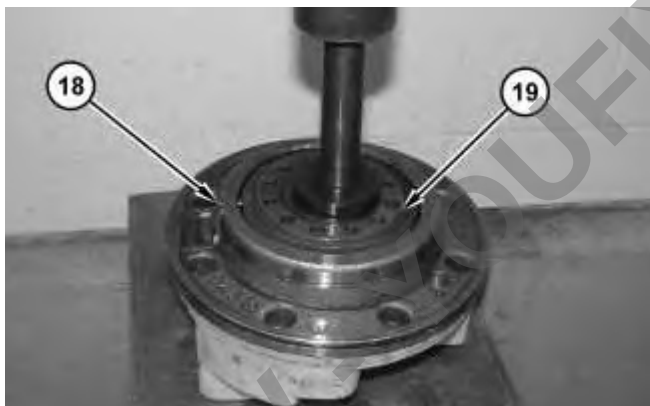


Illustration 7

g02745158



WARNING

Personal injury can result from being struck by parts propelled by a released spring force.

Make sure to wear all necessary protective equipment.

Follow the recommended procedure and use all recommended tooling to release the spring force.

12. Use a suitable press in order to remove pin (18) .
13. Remove valve (19) .

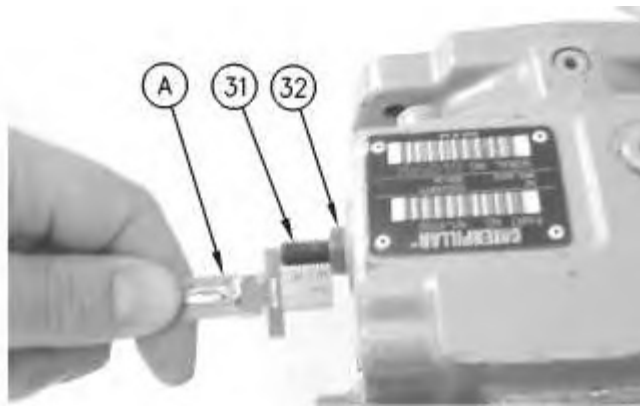


Illustration 26

g00905035

Note: Align the mark on the housing with the notch in stud (31) .

43. Install stud (31) and nut (32) . Set the distance to the recorded measurement from the disassembly.
44. Use Tooling (A) to measure the distance from stud (31) to nut (32) . Tighten the nut to a torque of 30 ± 2 N·m (22 ± 1 lb ft).
45. Repeat Step 43 and Step 44 for the other stud.

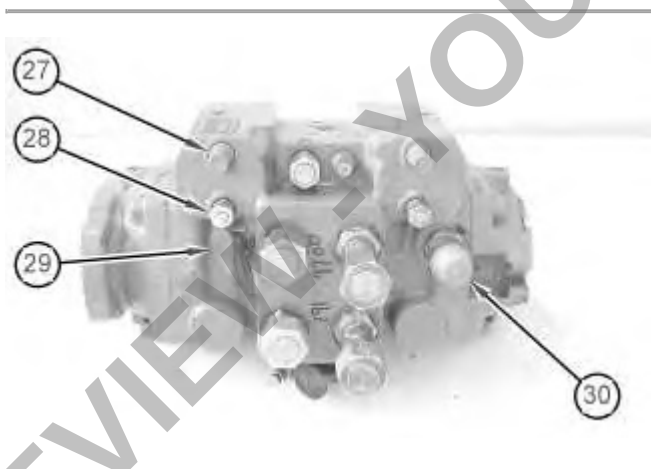


Illustration 27

g01178123

46. Install adapter (30) .
47. Install fitting (29) .
48. Install connectors (28) . Tighten the connectors to a torque of 22 ± 1 N·m (16 ± 1 lb ft).
49. Install caps (27) .

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