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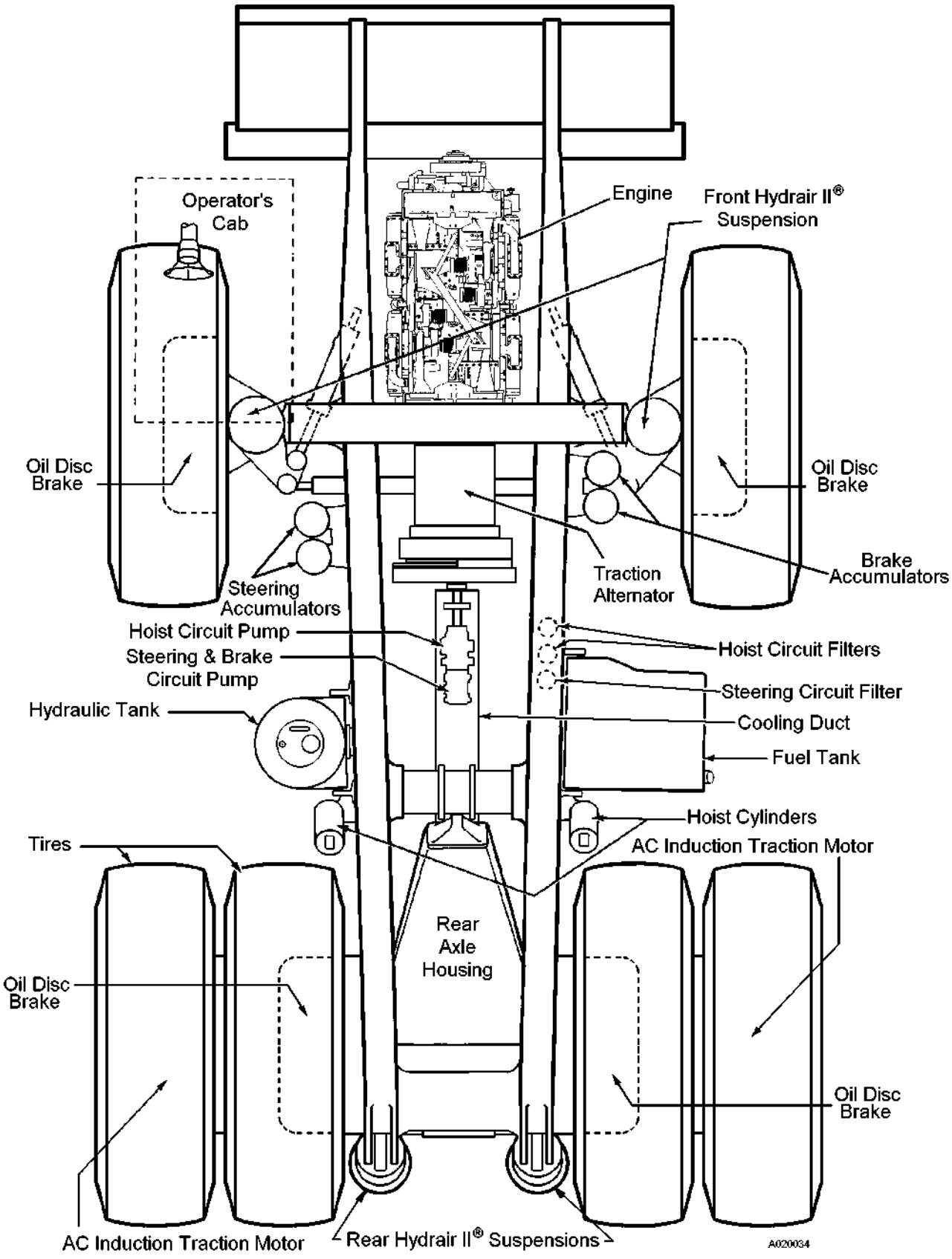

Operator's Cab
Engine
Front Hydrair II®
Suspension
Oil Disc Brake
Oil Disc Brake
Brake Accumulators
Traction Alternator
Steering Accumulators
Hoist Circuit Pump
Steering & Brake Circuit Pump
Hoist Circuit Filters
Steering Circuit Filter
Hydraulic Tank
Cooling Duct
Fuel Tank
Hoist Cylinders
Tires
AC Induction Traction Motor
Rear Axle Housing
Oil Disc Brake
Oil Disc Brake
AC Induction Traction Motor
Rear Hydrair II® Suspensions
A020034

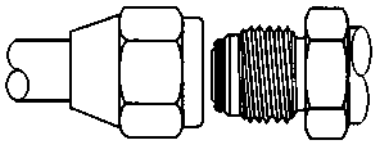


TABLE IV.
TORQUE CHART FOR JIC 37° SWIVEL NUTS
WITH OR WITHOUT O-RING SEALS

SIZE CODE	TUBE SIZE (O.D.)	THREADS UNF-2B	TORQUE ft lbs
– 2	0.125	0.312 – 24	4 ±1
– 3	0.188	0.375 – 24	8 ±3
– 4	0.250	0.438 – 20	12 ±3
– 5	0.312	0.500 – 20	15 ±3
– 6	0.375	0.562 – 18	18 ±5
– 8	0.500	0.750 – 16	30 ±5
– 10	0.625	0.875 – 14	40 ±5
– 12	0.750	1.062 – 12	55 ±5
– 14	0.875	1.188 – 12	65 ±5
– 16	1.000	1.312 – 12	80 ±5
– 20	1.250	1.625 – 12	100 ±10
– 24	1.500	1.875 – 12	120 ±10
– 32	2.000	2.500 – 12	230 ±20

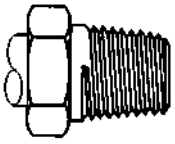


TABLE V.
TORQUE CHART FOR
PIPE THREAD FITTINGS

SIZE CODE	PIPE THREAD SIZE	WITH SEALANT ft lbs	WITHOUT SEALANT ft lbs
– 2	0.125 – 27	15 ±3	20 ±5
– 4	0.250 – 18	20 ±5	25 ±5
– 6	0.375 – 18	25 ±5	35 ±5
– 8	0.500 – 14	35 ±5	45 ±5
– 12	0.750 – 14	45 ±5	55 ±5
– 16	1.000 – 11.50	55 ±5	65 ±5
– 20	1.250 – 11.50	70 ±5	80 ±5
– 24	1.500 – 11.50	80 ±5	95 ±10
– 32	2.000 – 11.50	95 ±10	120 ±10

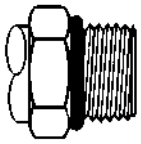


TABLE VI.
TORQUE CHART FOR
O-RING BOSS FITTINGS

SIZE CODE	TUBE SIZE (O.D.)	THREADS UNF-2B	TORQUE ft lbs
– 2	0.125	0.312 – 24	4 ±2
– 3	0.188	0.375 – 24	5 ±2
– 4	0.250	0.438 – 20	8 ±3
– 5	0.312	0.500 – 20	10 ±3
– 6	0.375	0.562 – 18	13 ±3
– 8	0.500	0.750 – 16	24 ±5
– 10	0.625	0.875 – 14	32 ±5
– 12	0.750	1.062 – 12	48 ±5
– 14	0.875	1.188 – 12	54 ±5
– 16	1.000	1.312 – 12	72 ±5
– 20	1.250	1.625 – 12	80 ±5
– 24	1.500	1.875 – 12	80 ±5
– 32	2.000	2.500 – 12	96 ±10

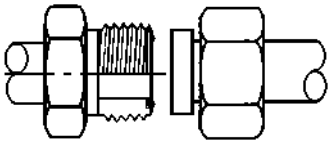


TABLE VII.
TORQUE CHART FOR
O-RING FACE SEAL FITTINGS

SIZE CODE	TUBE SIZE (O.D.)	THREADS UNF-2B	TORQUE ft lbs
– 4	0.250	0.438 – 20	11 ±1
– 6	0.375	0.562 – 18	18 ±2
– 8	0.500	0.750 – 16	35 ±4
– 10	0.625	0.875 – 14	51 ±5
– 12	0.750	1.062 – 12	71 ±7
– 16	1.000	1.312 – 12	98 ±6
– 20	1.250	1.625 – 12	132 ±7
– 24	1.500	1.875 – 12	165 ±15

Disassembly

⚠ IMPORTANT ⚠

To aid in removal of the tubes, clean the radiator prior to disassembly. Heating the seals with hot water helps to loosen the grip on the tubes. Cleaning the radiator prior to disassembly also reduces the risk of internal contamination. After cleaning, spray lubricating oil at the top end of the tubes.

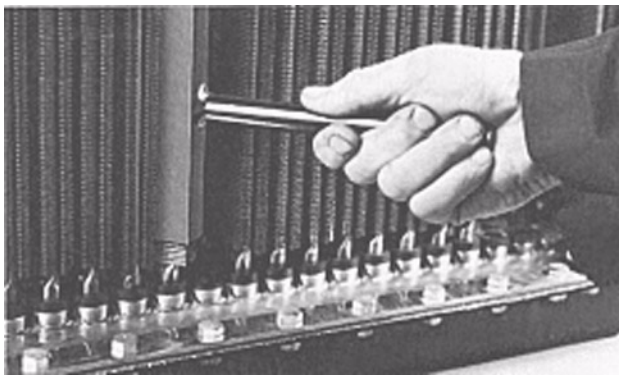


FIGURE 3-6. BREAKER TOOL (XA2307)

1. Start at the top row of tubes. Use the breaker tool (XA2307) to loosen the tube to be removed. When using the breaker tool, position it at the top or bottom of the tube. Never position it in the middle of the tube or damage may result. Use the breaker tool to lightly twist the tube back and forth within the seals to loosen the grip. Refer to Figure 3-7.

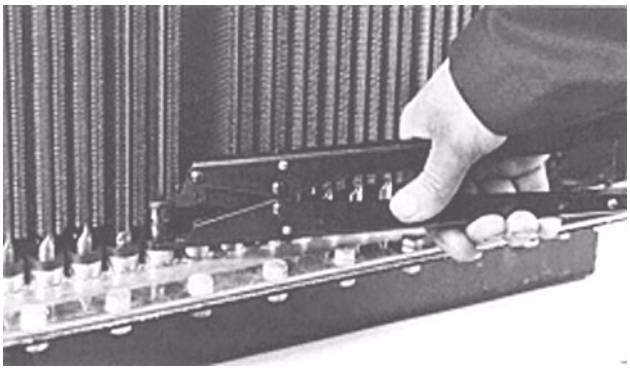


FIGURE 3-7. INSTALLATION TOOL (VJ6567)

2. After the tube is loose, position the installation tool (VJ6567) at the bottom of the tube to be removed. Refer to Figure 3-8. The upper jaw of the installation tool should be positioned just below the rectangular section of the tube. The bottom jaw should rest on the seal. Squeeze the installation tool just enough to allow the bottom of the tube to be removed from the bottom seal.

NOTE: To ease in the removal of tubes, use the breaker tool and installation tool simultaneously.

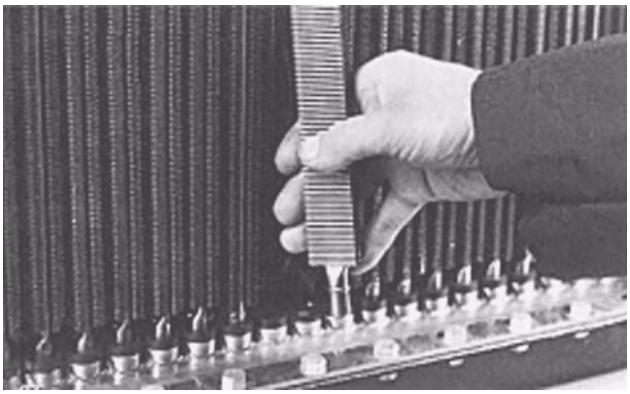


FIGURE 3-8. ANGLING TUBE DURING REMOVAL

3. Pull the tube from the top seal while simultaneously twisting the tube. Angle the tube only far enough to clear the radiator. Refer to Figure 3-9. Removing the tube at an excessive angle may cause damage to the tube.
4. Remove all the top tubes before removing the bottom tubes. After all of the tubes are removed, use pliers to remove the seals from the tanks. Discard all seals. New seals must be used for assembly.

BODY-UP SWITCH

Body-up switch (3, Figure 3-8) is located inside the right frame rail near the front of the body. It must be adjusted to specifications to ensure that the proper electrical signal is obtained when the body is raised or lowered. The body-up switch is designed to prevent propulsion in REVERSE when the dump body is not resting on the frame rails. The switch also prevents forward propulsion with the body up unless the override button is depressed and held.

Operation

When the body is resting on the frame, actuator arm (4) causes the electrical contacts in the magnetically operated switch to close. When the body is raised, the arm moves away from the switch, opening the contacts. The electrical signal is sent to the control system and the body-up relay.

The switch must be properly adjusted at all times. Improper adjustment or loose mounting bolts may cause false signals or damage to the switch assembly.

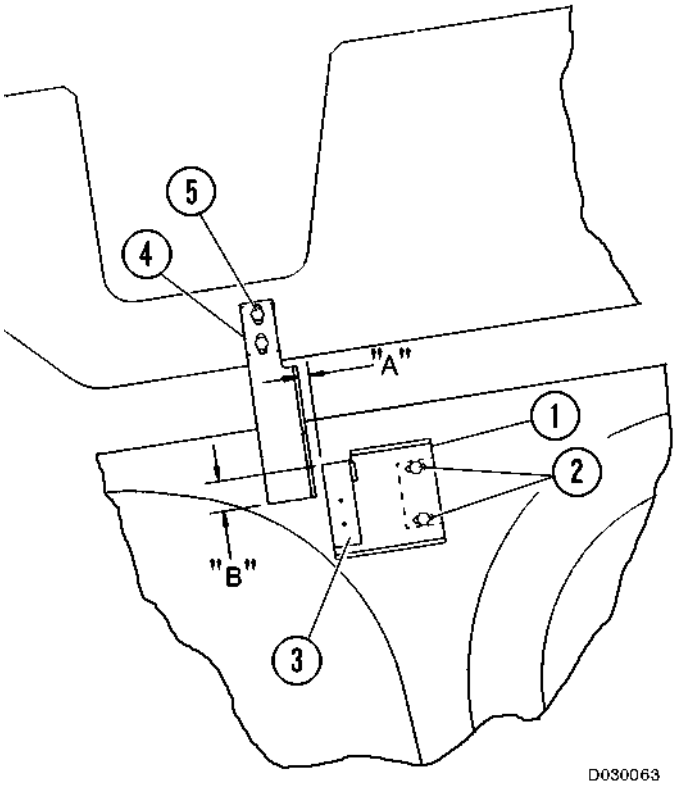
Adjustment

Before adjusting the body-up switch, inspect the body pads for wear and damage. Replace the body pads if required. The body must be resting on the frame in the normal body down position when adjustments are made.

1. Loosen capscrews (2, Figure 3-8) and adjust proximity switch bracket (3) to achieve an air gap (dimension “A”) of 12.7 to 15.9 mm (0.50 to 0.62 in.) between the sensing area (crosshatched area as marked on the switch) and actuator arm (4). Tighten the capscrews after the adjustment.
2. If necessary, loosen actuator arm mounting capscrews (5), and position arm until centered over sensing area of switch. Vertical set up dimension (“B”) should be 1.63 in. (41.5 mm). Tighten the capscrews.

Service

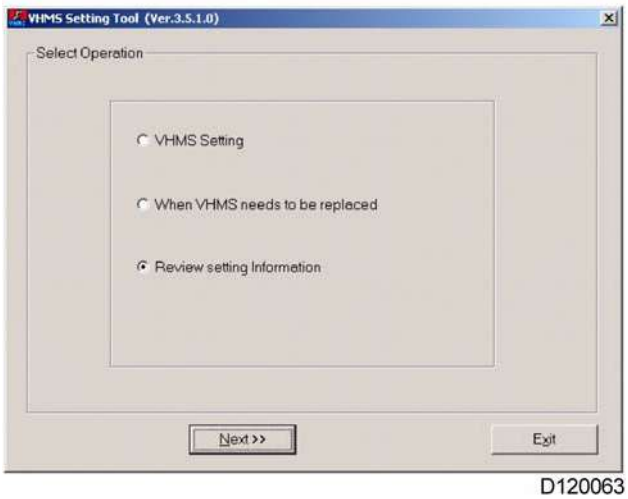
Keep the sensing area clean and free of metallic dust and other debris that may damage or inhibit operation of the switch. If the switch is damaged or not functioning, the switch must be replaced.



1. Switch Mounting Bracket
2. Adjustment Capscrews
3. Proximity Switch
4. Actuator Arm
5. Adjustment Capscrews

FIGURE 3-8. BODY-UP SWITCH

8. Start the *VHMS Setting Tool* program by clicking on the icon on the laptop PC screen.
9. Select the [Review setting information] function and then click the [Next] button.



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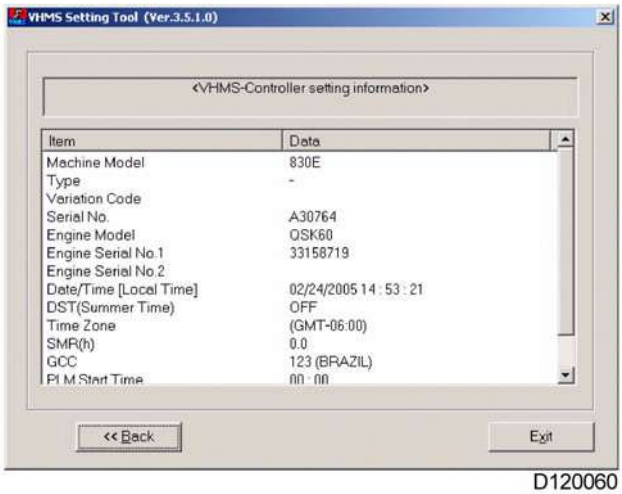
10. Review the settings for accuracy.

- If everything is correct, click the [Exit] button. The checkout procedure is complete.
- If a setting is not correct, click the [Back] button, select the appropriate category and reset the information to the correct settings. Then proceed to the next step.



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11. If any one of the following settings was changed, a new VHMS Initialization Form must be filled out and submitted to Komatsu America Service Systems Support Team.

    •VHMS controller replaced

    •Engine or alternator replaced

    •Adjusted time or time zone

12. Select [Apply] and exit the *VHMS Setting Tool* program. Click [YES] when prompted to reset the controller.
13. E-mail or fax the completed VHMS Initialization form to Komatsu America Service Systems Support Team.

VHMS Controller Checkout Procedure

1. Connect the serial cable from the PC to the serial port of the VHMS controller.
2. Start the serial communications software (Tera Term).
3. Setup the serial communications software by selecting the appropriate serial COM port, and baud rate equal to 19200.
4. After completing the setup, wait for 5 seconds then while holding the CTRL key, type VHMS (Notice that nothing will display on the screen while typing).
5. After VHMS has been typed, some text followed by a prompt, >, will be displayed. This confirms that proper communication between the pc and VHMS has been established.
6. At the prompt, >, type "ver". Something similar to the following will be displayed:

>ver

VHMS OS Ver 1.6.5.1 Mar 01 2004 16:37:25

>

Table 3: DID PANEL FAULT CODES (Codes Received from Inverter 1 & 2)

EVENT NUMBER	EVENT DESCRIPTION	EVENT RESTRICTION	DETECTION INFORMATION
146/246	INVERTER, TACH 2 (NR)	None	
:01	tach2 one channel		Tach 2 single channel operation
148/248	INVERTER, CHOPPER 1 (NR)	None	
:01	chop1 fb not off		Chopper 1 feedback is not off.
:02	chop1 fb not on		Chopper 1 feedback is not on.
:03	chopA temp short		ChopA thermistor short
:04	chopA temp open		ChopA thermistor open
:05	chopA temp warm		ChopA thermistor warm
:06	chopA temp hot		ChopA thermistor hot
:07	DB1 fb not off S		Chopper 1 not off with DC volts
150/250	INVERTER, CHOPPER 2 (NR)	None	
:01	chop2 fb not off		Chopper 2 feedback is not off.
:02	chop2 fb not on		Chopper 2 feedback is not on.
:03	chop B temp short		Chop B thermistor short
:04	chop B temp open		Chop B thermistor open
:05	chop B temp warm		Chop B thermistor warm
:06	chop B temp hot		Chop B thermistor hot
:07	DB2 fb not off S		Chopper 2 not off with DC volts
151/251	MISCELLANEOUS	INV1 (INV2) off	
:01	tach differential		Too much speed difference
153/253	INVERTER, MOTOR	INV1 (INV2) off	
:01	motor open		Motor connection open
:02	motor short		Motor connection short
154/254	INVERTER MOTOR FAULTS (NR)	None	
:01	rotor temp hi		Motor rotor temperature is high.
:02	stator temp hi		Motor stator temperature is high.
155/255	INVERTER, SECOND LOAD	None	
:01	second load open		Second load connection open
175/275	INV 1 GENERIC EVENT	None	Inverter shutdown with no event code
176/276	INV 1 GENERIC EVENT	INV1 (INV2) off	

REAR AXLE MOUNTING

PIVOT PIN

Removal

1. Park the truck on firm, level surface and block the front and rear of all tires.

⚠WARNING

The truck body must be empty and resting on the frame before attempting this procedure.

2. Release all brakes.
3. Charge the rear suspensions with nitrogen until the pistons are fully extended.
4. Place blocks or stands under each frame member beneath the hoist cylinders.

⚠WARNING

Blocks must be securely in place before lowering the frame. Check the blocks on the wheels to make sure they are in place.

5. Release the nitrogen from the front suspensions.
6. Release the nitrogen from the rear suspensions.
7. Attach a hoist to the lift eye at the top of the pivot eye to control downward movement of the front of the axle housing.
8. Disconnect the pivot eye bearing lube line. Remove the ground wire between the pivot eye and frame.
9. Remove capscrew (2, Figure 4-1) and lockwasher (3).
10. Remove capscrews (1). Remove locking plate (16).
11. Install puller using tapped holes (11) in head of pin. Remove pin (10).

NOTE: Placing a pry bar or jack between the mounting structure and pivot eye may be necessary to push the pivot eye downward and away from the mount structure. Spacers (13) will fall free.

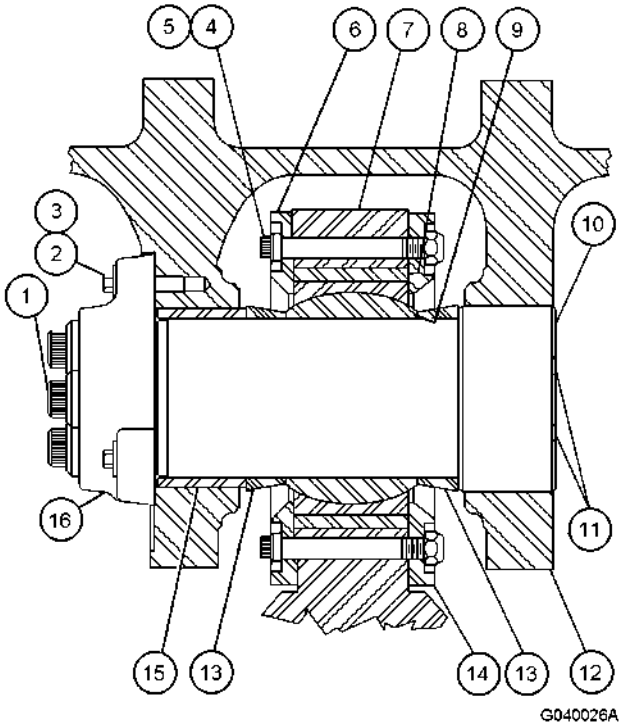


FIGURE 4-1. PIVOT PIN ASSEMBLY

1. Capscrew
2. Capscrew
3. Lockwasher
4. Capscrew
5. Locknut
6. Bearing Retainer
7. Pivot Eye
8. Bearing Carrier
9. Bearing
10. Pivot Pin
11. Puller Holes
12. Truck Frame
13. Spacer
14. Bearing Retainer
15. Sleeve
16. Locking Plate

NOTE: Some trucks may not be equipped with bearing carrier (8).

Assembly

1. Install sleeves (17, Figure 3-10) in the bores in the top of valve body (2).
2. Install plungers (16) in the sleeves as shown in Figure 3-10.
3. Apply a film of oil to O-rings (18) and position them in the grooves on top of the valve body.
4. Position manifold body (1) on valve body (2) by aligning the marks that were made during disassembly.
5. Secure the manifold to the valve body with two socket head capscrews (20). Tighten the capscrews finger-tight only.
6. Preassemble upper spring seat (15), spring (14) and lower spring seat (13). Insert this assembly into the bore from the bottom of the valve. Make sure that the upper spring seat is positioned against plunger (16). Repeat for the other bore.
7. Install sleeve packing seal (10). Refer to Details “A” and “B” in Figure 3-10 and install O-rings (22) and (24) and backup rings (21) and (23) in the grooves of sleeve (9).
8. Apply a light film of oil to the sleeve seals. Carefully push sleeves (9) into their respective bores in the valve body until the flange at the base of each sleeve contacts the valve body.
9. Preassemble regulator spool (12) as follows:
   a. Insert spool springs (11) into the spool bore.
   b. Insert reaction plungers (8) into the spool bores and springs.
10. Install the regulator spool assemblies into their respective sleeve bores. The spherical end must be inserted toward the spring seat. Push them into the bore until contact is made with the lower spring seat.
11. Install sleeve retainer plug packing (4) in the valve body.
12. Verify that spring seats (13) and (15) are positioned properly in regulator springs (14) and that reaction plunger (8) slides smoothly in its bore. Install retaining plug (5) in the valve body counterbore.
13. Position sleeve retainer (6) on the valve body. Install four capscrews and washers (7). Tighten the capscrews evenly to properly seat plug (5) in the counterbore. Then tighten the capscrews to a final torque of **16 - 17 N·m (140 - 150 in lbs)**.
14. Tighten two capscrews (3) that hold manifold body (1) to valve body (2) to **20 - 21 N·m (180 - 190 in lbs)**.
15. Install plugs (19) in the manifold body ports. Tighten the larger plugs to **31 - 34 N·m (275 - 300 in lbs)**. Tighten the smaller plugs (installed in the “TC1” and “TC2” ports) to **10 - 11 N·m (90 - 100 in lbs)**.

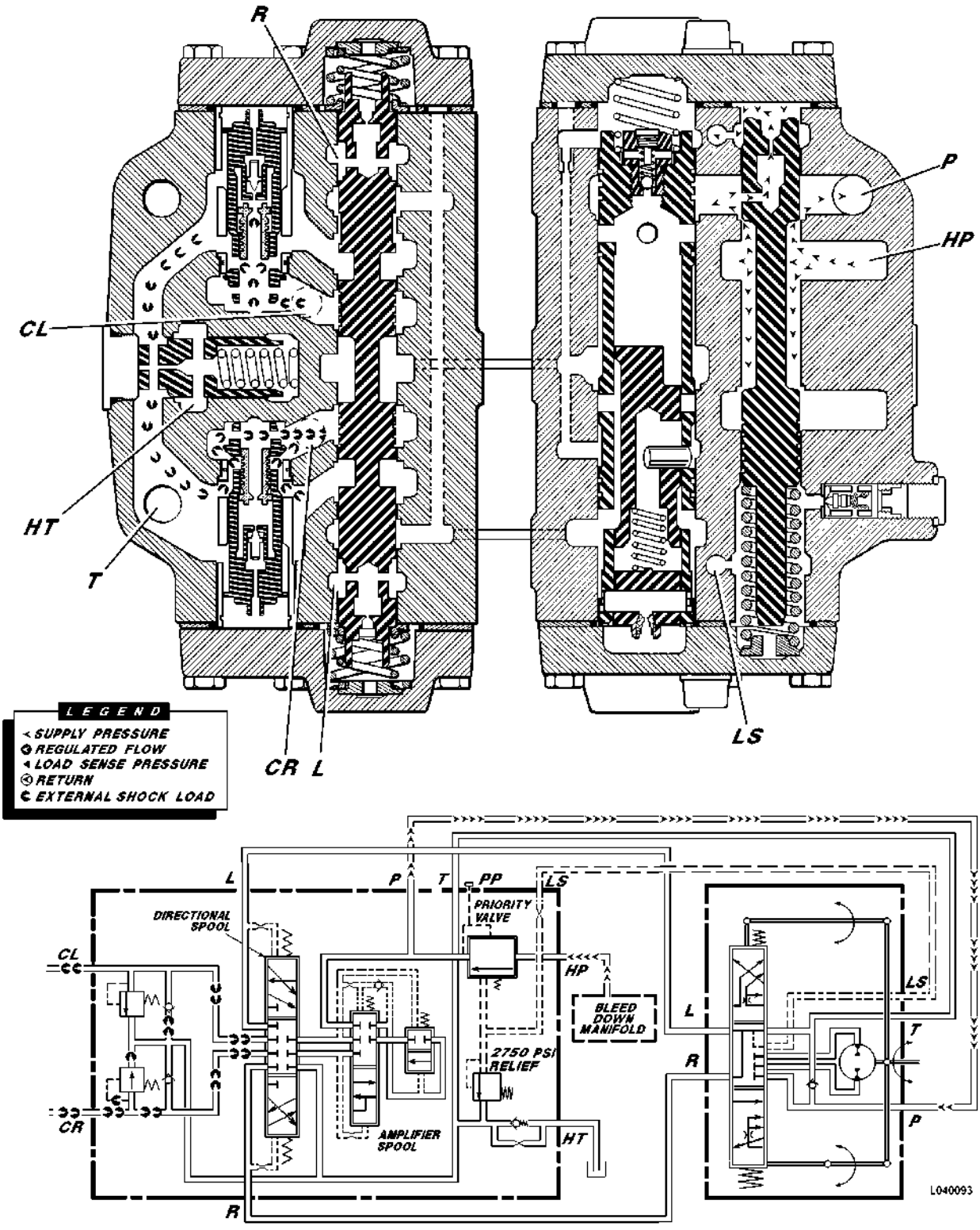


FIGURE 4-10. FLOW AMPLIFIER - NO STEER, EXTERNAL SHOCK LOAD

10. If removed, install the charging valve onto gas manifold (14). Then tighten small hex nut (4, Figure 6-19) to **5 N·m (45 in. lbs.)**.

    If a new charging valve was installed, the valve stem must be seated as follows:

    a. Tighten small hex swivel nut (4, Figure 6-19) to **14 N·m (10 ft. lbs.)**.

    b. Loosen the small hex swivel nut.

    c. Retighten the small hex swivel nut to **14 N·m (10 ft. lbs.).**

    d. Loosen the small hex swivel nut again.

    e. Finally, tighten small hex swivel nut to **5 N·m (45 in. lbs.)**.

11. Install charging valve cap (1) finger-tight. Install the charging valve cover,. Tighten the capscrews to **40 N·m (25 ft. lbs.)**.
12. Install new O-ring (16, Figure 6-17) on gas valve manifold (14). Hold the bladder valve stem with a wrench and install gas valve manifold (14) securely.
13. While holding hydraulic port assembly (2) by the threaded end, insert the poppet end into the shell fluid port. Lay the complete assembly inside the shell.
14. Fold anti-extrusion ring (3) to enable insertion into the shell. Once the anti-extrusion ring has cleared the fluid port opening, place the anti-extrusion ring on the hydraulic port assembly with the steel collar facing toward the shell fluid port.
15. Pull the threaded end of the port assembly through the shell fluid port until it seats solidly into position on the shell fluid port opening.
16. Connect the nitrogen charging kit to the charging valve. With the hydraulic port assembly firmly in place, slowly pressurize the bladder using dry nitrogen and a sufficient pressure of approximately 275 - 345 kPa (40 - 50 psi) to hold the port assembly in place so that both of your hands are free to continue with the assembly.
17. Install metal O-ring backup washer (6) over the hydraulic port assembly. Push it into the shell fluid port to bottom it out on the anti-extrusion ring.
18. Install O-ring (7) over the hydraulic port assembly. Push it into the shell fluid port until it bottoms out against metal O-ring backup washer (6). Ensure that the O-ring does not twist.
19. Install O-ring back-up (8) over the hydraulic port assembly. Push it into the shell fluid port until it bottoms out against the O-ring.
20. Insert spacer (9) with the smaller diameter of the shoulder facing the accumulator shell.
21. Install locking ring (10) on the hydraulic port assembly and tighten it securely. This will squeeze the O-ring into position. Use an appropriate wrench on the flats on the port assembly to ensure that the unit does not turn.
22. Install bleed plug (12) into the hydraulic port assembly.
23. Verify that all warning labels are attached to the shell and that they are legible. Install new labels as required.
24. Precharge the accumulator to 690 - 827 kPa (100 - 120 psi). Refer to the Steering Accumulator Charging Procedure.
25. After precharging is completed, install a plastic cover over the hydraulic port to prevent contamination. **Do not use a screw-in type plug.**

⚠WARNING

Always store bladder accumulators with 690 - 827 kPa (100 - 120 psi) nitrogen precharge pressure. This amount of pressure fully expands the bladder and holds oil against the inner walls for lubrication and rust prevention. Do not exceed 827 kPa (120 psi). Storing accumulators with too much pressure is not safe due to possible leakage.

Refer to Accumulator Storage Procedures in this section for more information about properly storing bladder accumulators.

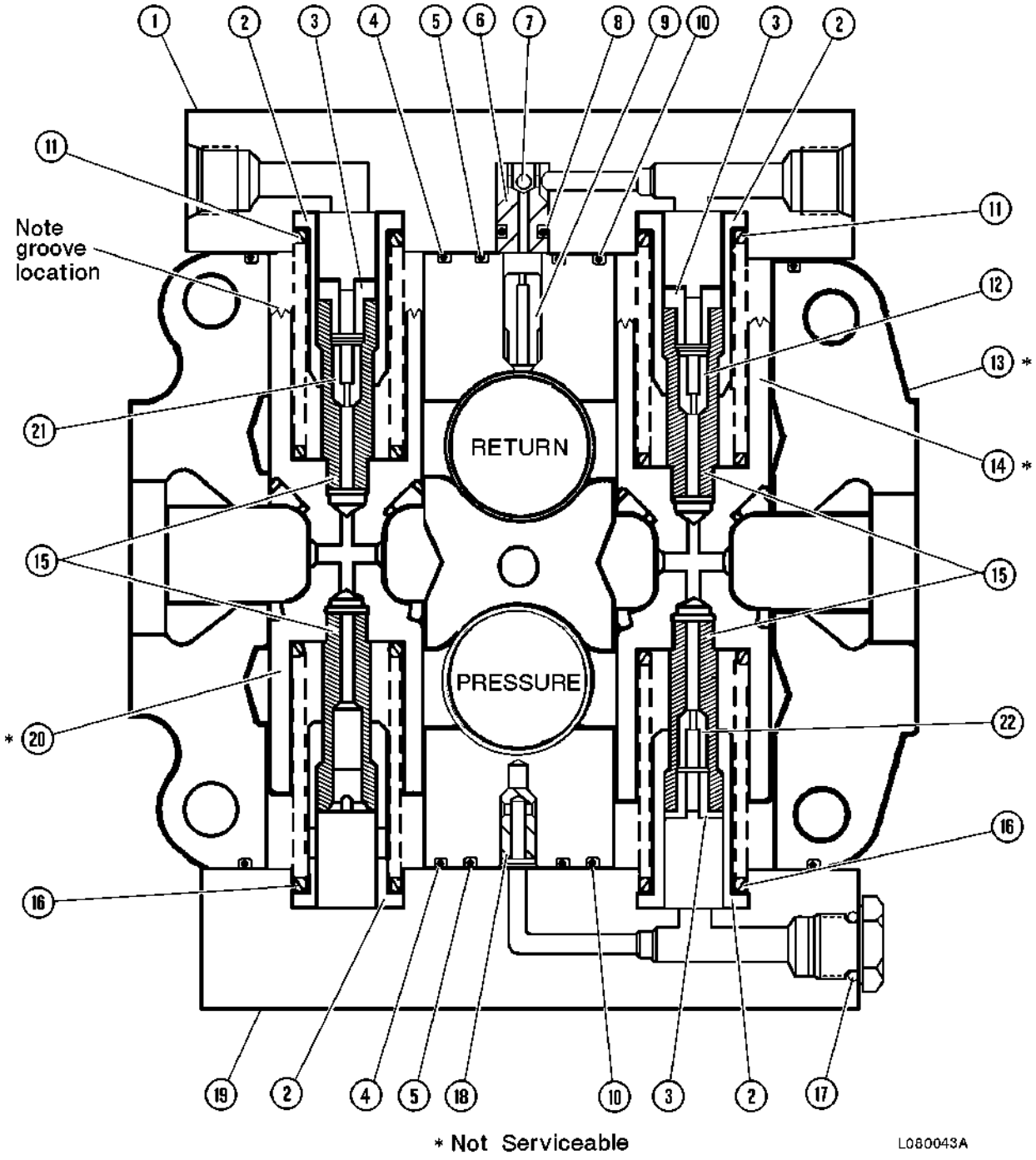


FIGURE 8-9. WORK PORTS SPOOL SECTION ASEMBLY

1. Spool Cover
2. Spring Seat
3. Plug
4. O-Ring
5. O-Ring
6. Poppet
7. Ball
8. O-Ring
9. Restrictor Poppet
10. O-Ring
11. Spring
12. Restrictor Poppet (Red)
13. Spool Housing
14. Spool Assembly
15. Spool End
16. Spring (Blue)
17. O-Ring
18. Poppet
19. Spool Cover
20. Spool Assembly
21. Restrictor Poppet (Green)
22. Restrictor Poppet (White)

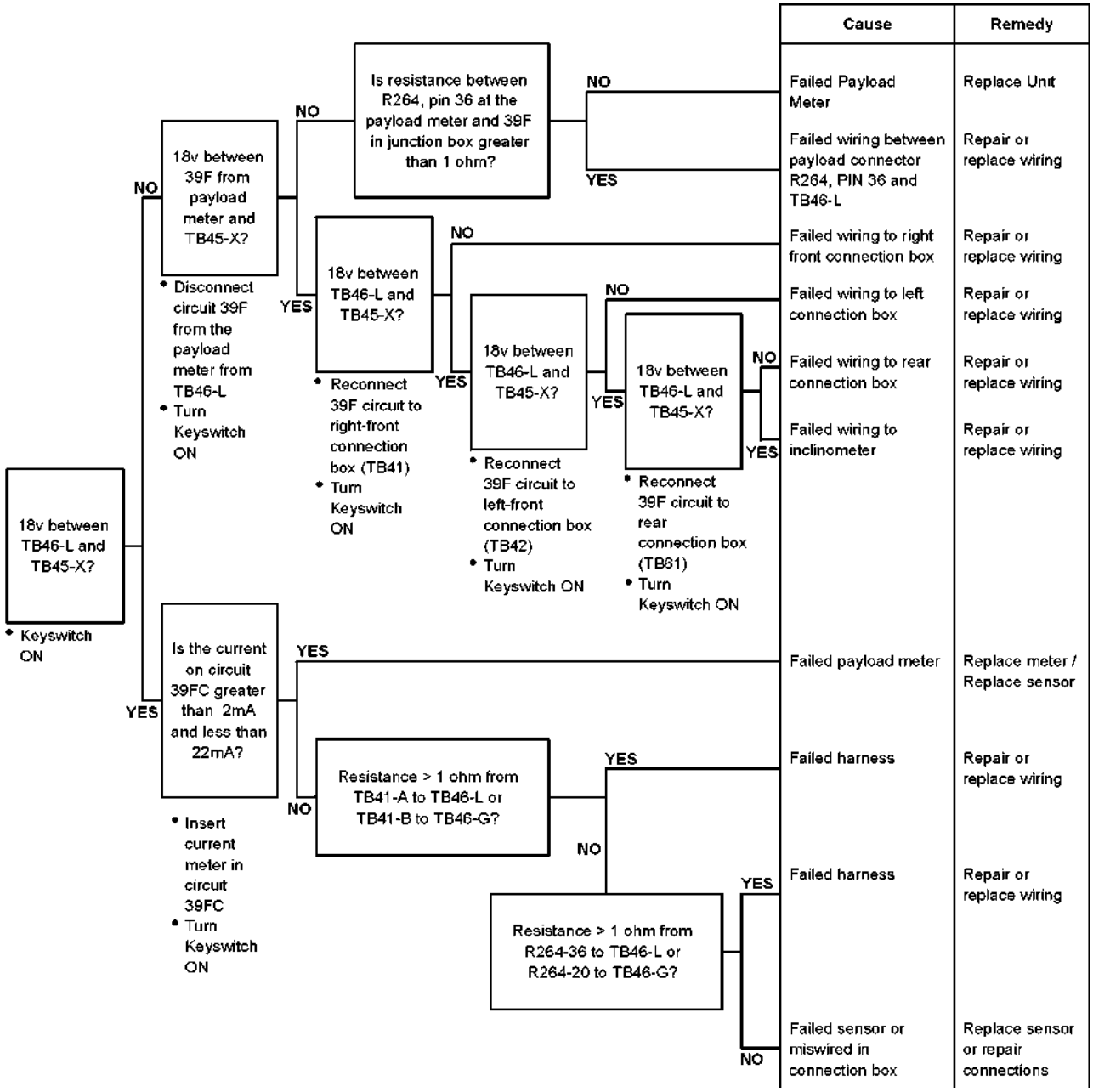
Alarm 3 - Right Front Pressure High

Alarm 4 - Right Front Pressure Low

Troubleshoot Wiring to Right Front Suspension

These alarms indicate that the current being read by the payload meter is higher than 22ma or lower than 2ma. The pressure sensor is designed to output 4-20ma over a pressure range of 4000 psi.

- Confirm 18v sensor supply at TB46-L in payload junction box.
- Confirm proper connection of signal circuit 39FC from right suspension connection box, TB41-B to payload junction box TB46-G to payload meter connector R264, pin 20.



OPERATOR SEAT

The operator's seat provides a fully adjustable cushioned ride for the driver's comfort and ease of operation.

Adjustment

The following adjustments must be made while sitting in the seat.

1. **Headrest**: Move up, down, fore, or aft by moving headrest (1, Figure 3-5) to desired position.
2. **Armrests**: Rotate adjusting knob until armrest is in desired position.
3. **Backrest**: Lift handle (3) to release and select backrest angle; release control handle to set.
4. **Seat Belt**: Operator should always have seat belt (4) buckled in place and properly adjusted whenever vehicle is in motion.
5. **Seat Slope**: Lift lever (5) and hold to adjust the slope of seat. Release lever to lock adjustment.
6. & 7 **Air Lumbar Support:** Each rocker switch (6 or 7) controls an air pillow. Switch (7) controls the lower air pillow and switch (6) controls the upper air pillow. To inflate, press on top of rocker switch and hold for desired support, then release. To deflate, press on bottom of rocker switch and hold for desired support, then release. Adjust each pillow for desired support.
8. **Seat Suspension**: Move rocker switch (8) up to increase ride stiffness and down to decrease ride stiffness.
9. **Horizontal Adjustment:** Lift control lever (9) and hold. Bend knees to move seat to a comfortable position; release control lever to lock adjustment
10. **Seat Height**: Lift lever (12) and hold to adjust the height of the seat. Release lever to lock adjustment.

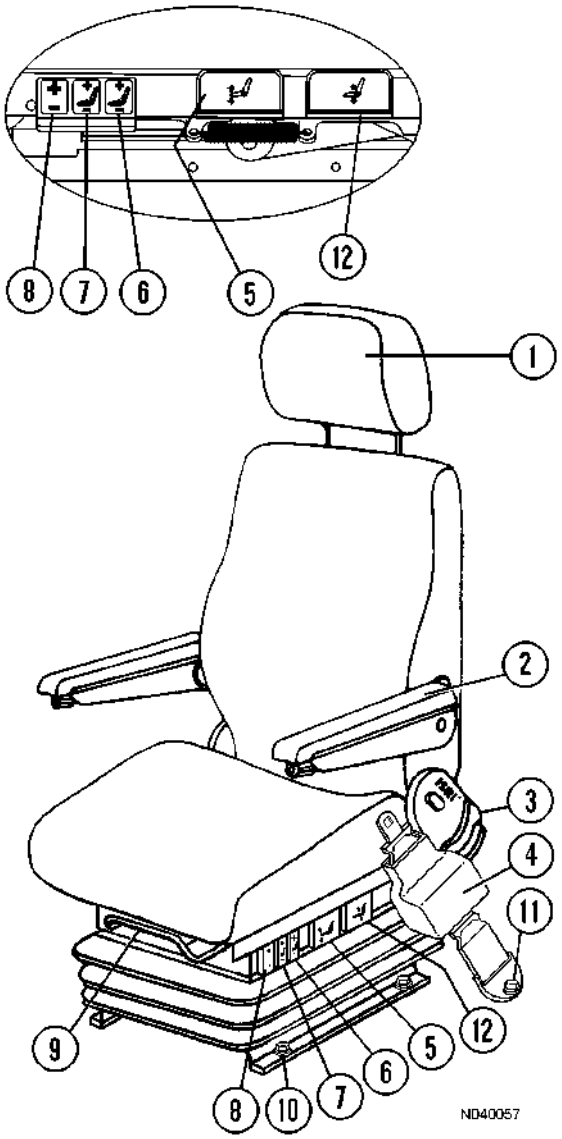


FIGURE 3-5. OPERATOR'S SEAT ADJUSTMENT CONTROLS

1. Headrest
2. Armrest Adjustment
3. Backrest Adjustment
4. Seat Belt
5. Seat Slope Adjustment
6. Upper Air Pillow Lumbar Support
7. Lower Air Pillow Lumbar Support
8. Suspension Adjustment
9. Horizontal Adjustment
10. Mounting Cap Screws and Hardware
11. Seat Tether Cap Screw
12. Seat Height Adjustment

GENERAL INSTRUCTIONS

LUBRICANT REQUIRED FOR SYSTEM

Grease requirements will depend on ambient temperatures encountered during truck operation:

- **Above 32°C (90°F) - Use NLGI No. 2 multipurpose grease (MPG).**
- **-32° to 32°C (-25° to 90°F) - Use NLGI No. 1 multipurpose grease (MPG).**
- **Below -32°C (-25°F) - Refer to local supplier for extreme cold weather lubricant requirements.**

System Priming

The system must be full of grease and free of air pockets to function properly. After maintenance, if the primary or secondary lubrication lines were replaced, it will be necessary to prime the system to eject all entrapped air.

1. Fill lube reservoir with lubricant, if necessary.
2. To purge air from the main supply line, remove the main supply line at the grease canister. Connect an external grease supply to the line.
3. Remove plugs from each injector group in sequence (right front, left front, and rear axle).
4. Using the external grease source, pump grease until grease appears at the group of injectors and re-install the pipe plug. Repeat for remaining injector groups.
5. Remove the caps from each injector and connect an external grease supply to the zerk on the injector and pump until grease appears at the far end of the individual grease hose or the joint being greased.

Filter Assembly

Filter element (5, Figure 3-4) must be replaced if bypass indicator (2) shows excessive element restriction.

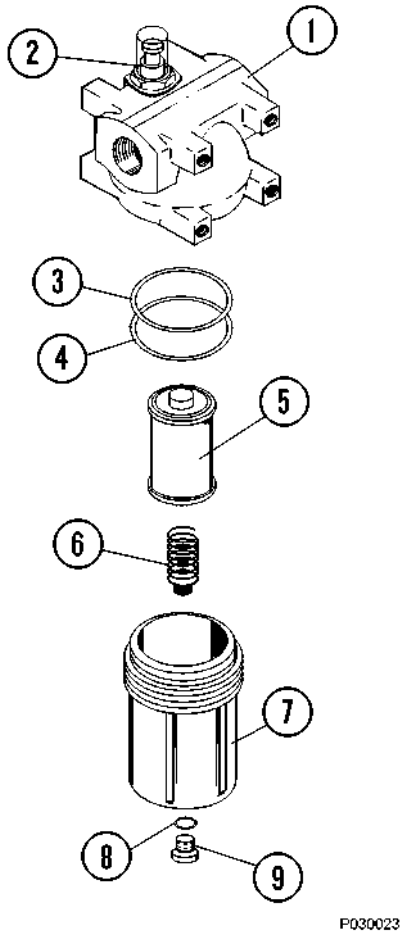


FIGURE 3-4. FILTER ASSEMBLY

1. Housing
2. Bypass Indicator
3. O-Ring
4. Backup Ring
5. Element
6. Spring
7. Bowl
8. O-Ring
9. Plug