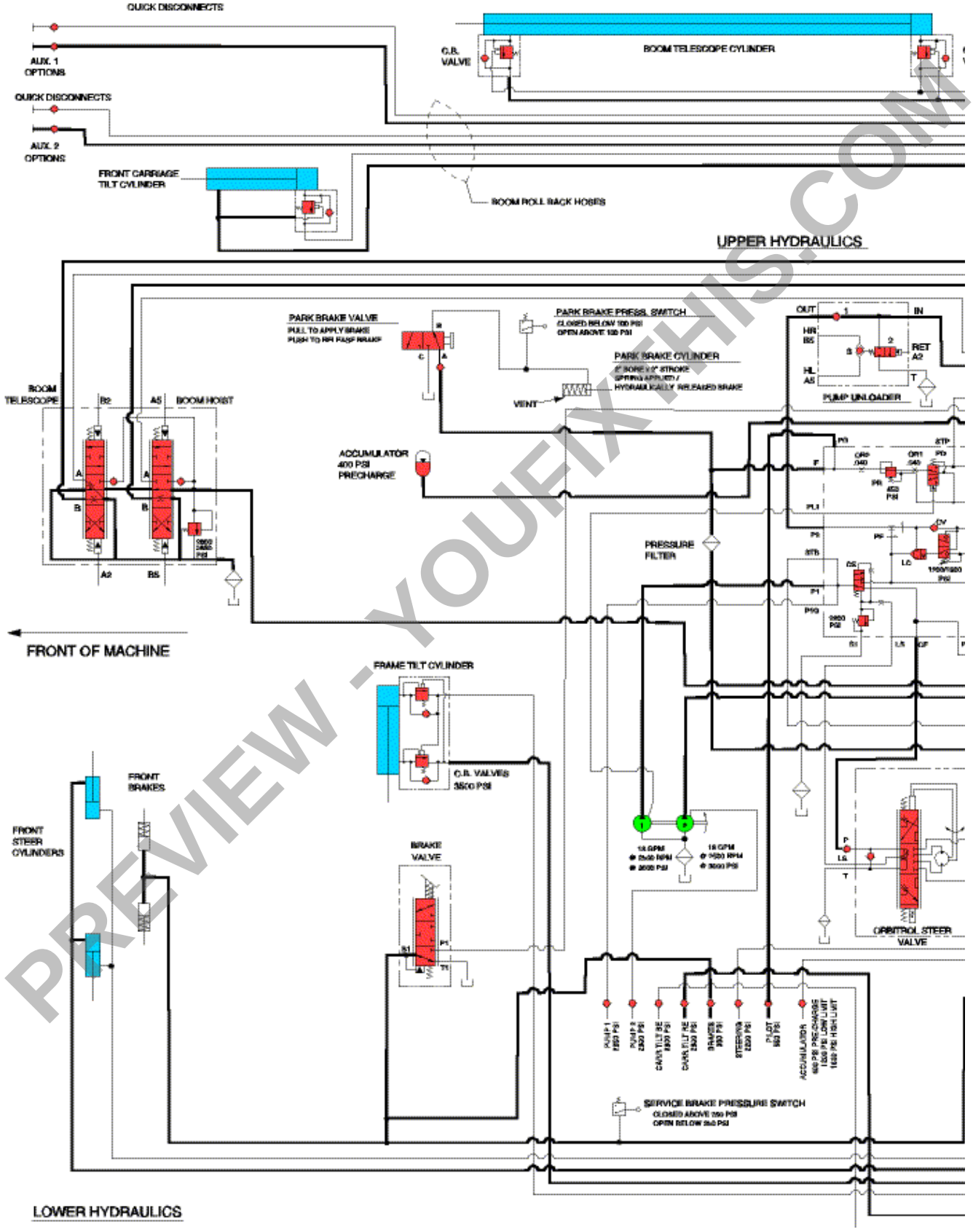
Section 4 — Reference Diagrams

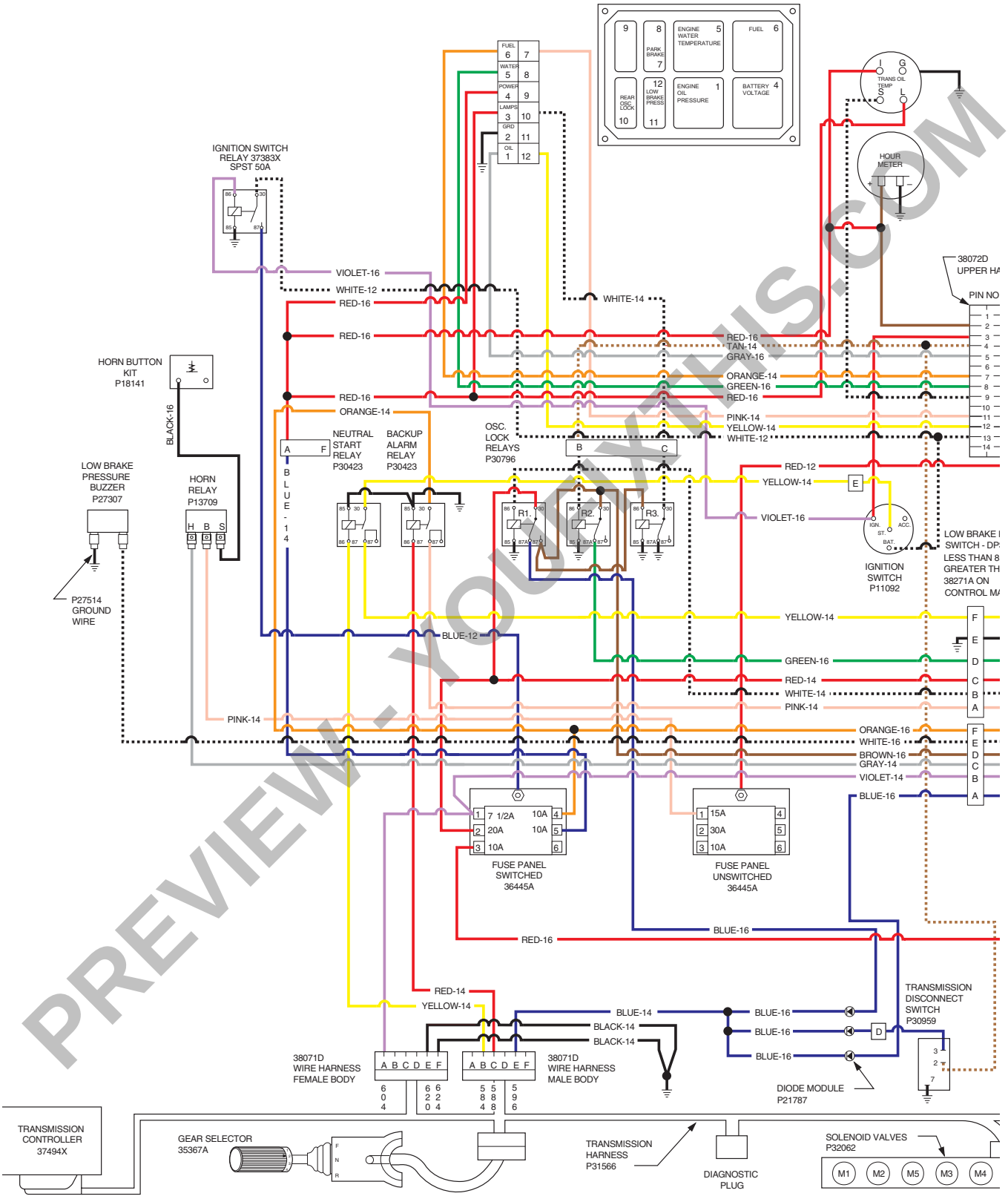
Schematic, Model 644B w/Naturally Aspirated Engine, Control Manifold Hydraulic System-Diagram 1



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Electrical Diagram, Models 644B and 6K w/Control Manifold Hydraulic System - Diagram 6



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(Ref. Fig. 5-9) The following procedure describes removal of the hydraulic reservoir/fuel tank.

1. Follow preparation procedures as outlined in Section 3 of this manual. Be sure to follow the guidelines in this section detailed under “General Hydraulic Maintenance Practices” on page 5-4.
2. Remove the hydraulic reservoir drain plug (Item 19) and drain hydraulic fluid into a suitable container. Dispose of drained fluid properly. Temporarily reinstall drain plug.
3. Remove fuel tank drain plug (Item 18) and drain the fuel into an suitable container. Dispose of drained fuel properly. Temporarily reinstall drain plug.

WARNING: Fuel is highly combustible. Avoid all possibilities of sparks that could ignite the fuel. Drain the fuel tank in a well ventilated area, away from smoking materials, open flames, or exposed heater parts.

4. Remove two (2) nuts (Item 7) and flatwashers (Item 6) securing wiring harness (Item 8) to fuel sender.
5. Loosen and disconnect swivel nut of swivel branch tee (Item 13) from check valve (Item 14).
6. Tag fuel lines (Items 17 and 5). Remove hose clamps (Items 4 and 16) on fuel lines. Cap elbow (Item 15) and pipe adapter (Item 3).
7. For models with control manifold hydraulics, disconnect the suction tube elbow (Item 21) from the JIC pipe connector (Item 20).
8. For models with mid-inlet hydraulics, remove the four (4) capscrews (Item 26) and lockwashers (Item 27) securing the two (2) flange halves (Item 29) and the hydraulic suction hose (Item 30) to the hydraulic strainer (Item 28). Remove the flange halves.
9. Loosen and remove the return manifold tube (Item 10) connected to the JIC pipe connector (Item 9) on the hydraulic oil return filter (Item 11).

CAUTION: To avoid personal injury and/or damage to the equipment, support the hydraulic tank to ensure that it does not twist or fall when removing or installing it.

10. After ensuring that the tank is properly supported, remove the four (4) each nuts (Item 24) and lockwashers (Item 23) that secure the two (2) tank hold-down straps (Item 1) to the tank support mount (Item 22).
11. Remove the hydraulic reservoir/fuel tank (Item 12) to an appropriate area for cleaning/inspection.
12. Inspect reservoir/fuel tank for damage and replace if necessary.
13. Remove hydraulic reservoir drain plug and perform steps 3 thru 5 under “Reservoir Drain and Refill” on page 5-11.

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Table 3-5: General Torques for Standard Bolts, Capscrews, and Nuts

Size	SAE Grade 2		SAE Grade 5, 5.1, 5.2		SAE Grade 8, 8.2	
8-32	14	in-lbs	22	in-lbs	31	in-lbs
8-36	15	"	23	"	32	"
10-24	21	"	32	"	45	"
10-32	23	"	36	"	51	"
1/4-20	50	"	75	"	108	"
1/4-28	56	"	86	"	120	"
5/16-18	96	"	156	"	216	"
5/16-24	108	"	168	"	240	"
3/8-16	180	"	276	"	35	ft-lbs
3/8-24	204	"	300	"	35	"
7/16-14	288	"	35	ft-lbs	55	"
7/16-20	324	"	40	"	60	"
1/2-13	35	ft-lbs	55	"	80	"
1/2-20	40	"	65	"	90	"
9-16-12	55	"	80	"	110	"
9/16-18	60	"	90	"	130	"
5/8-11	75	"	110	"	170	"
5/8-18	85	"	130	"	180	"
3/4-10	130	"	200	"	280	"
3/4-16	150	"	220	"	320	"
7/8-9	125	"	320	"	460	"
7/8-14	140	"	360	"	500	"
1-8	190	"	480	"	680	"
1-12	210	"	530	"	740	"
UNC Threads in White Rows						
UNF Threads in Gray Rows						

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Section 5 — Supply, Pressure, and Return Hydraulics

General

Major System Components

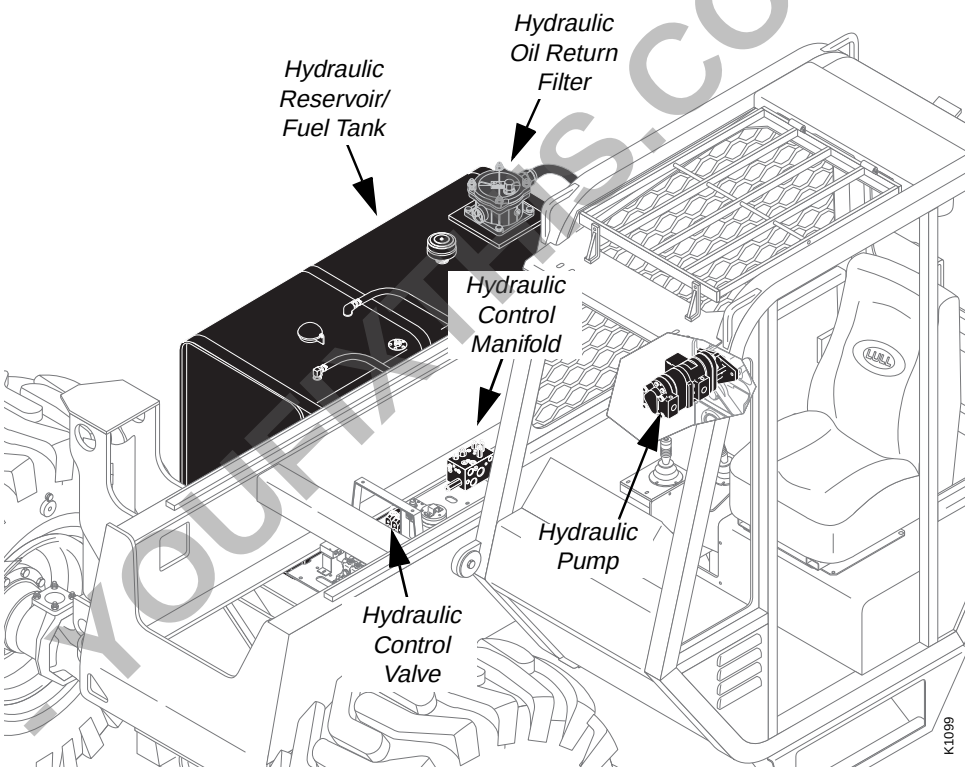


Fig. 5-1: Major Hydraulic Components

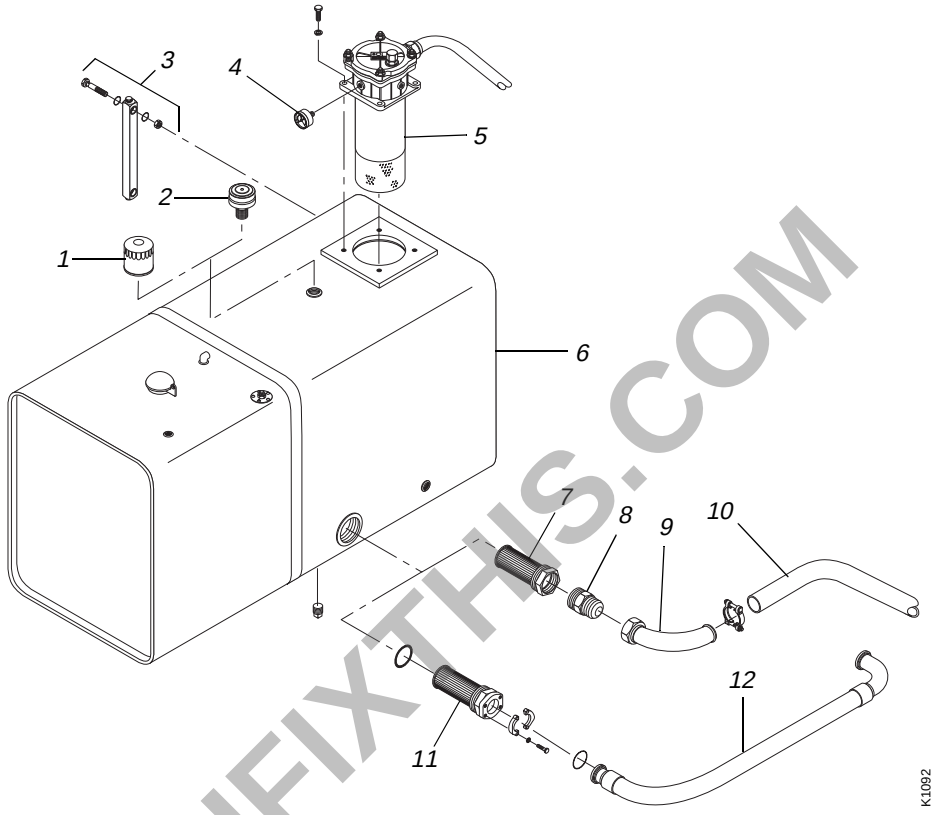
General Description

(Ref. Fig. 5-1) The hydraulic system consists of the following circuits:

- Boom Extension (See Section 6)
- Boom Hoist (See Section 6)
- Carriage Tilt (See Section 6)
- Transfer Carriage (See Section 6)
- Frame Tilt (See Section 7)
- Auxiliary — 1st - Standard, 2nd - Optional (See Section 6)
- Steering
- Service Brakes (See Section 9)
- Rear Axle Oscillation Lock (See Section 6)
- Outriggers (Optional on all models except 1044C-54 and 10K-54)

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#	Description
1	Hydraulic Tank Breather (Models with Mid-Inlet Hydraulics)
2	Hydraulic Tank Breather (Models with Control Manifold Hydraulics)
3	Hydraulic Tank Sight Gauge
4	Pressure Gauge
5	Return Filter Assembly
6	Hydraulic Oil Tank

#	Description
7	Hydraulic Oil Strainer (Models with Control Manifold Hydraulics)
8	Connector
9	Suction Tube
10	Suction Hose
11	Hydraulic Oil Strainer (Models with Mid-Inlet Hydraulics)
12	Suction Line

Fig. 5-5: Hydraulic Reservoir

(Ref. Fig. 5-5) The hydraulic system return filter assembly (Item 5), along with the pressure gauge (Item 4), is located within the return filter housing, located at the top of the reservoir (Item 6).

The strainer (Item 7 or Item 11) and suction line (Item 8, 9, and 10; or Item 12) are located at the bottom of the back side of the reservoir.

A pressure differential gauge (Item 4) is fitted to the return filter housing to monitor filter condition.

A breather filter assembly (Item 1 or Item 2) is threaded into the top of the reservoir. It allows for expansion of fluid and prevents vacuum in the tank.

Check the hydraulic reservoir daily for the proper oil level. Maintain oil level at the full mark on the sight gauge (Item 3) with all cylinders retracted.

Important: *Do not operate the machine if the oil level falls below the low mark on the sight gauge. Low oil level could damage the pump and other components.*

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Models 644B-37 and 6K-37 (cont'd.)

Specifications

General Operating Specifications

Lift and Carry Capacity	6000 lbs.
Maximum Lift Height (and "Landing Height" for 644B-37)	37 Feet
Boom Elevation Angle	-5° to +70°
TransAction (644B-37)	80 Inches
Maximum Horizontal Forward Reach:	
644B-37	27 Feet
6K-37	20 Feet
Maximum Reach at Maximum Lift (644B-37)	8 Feet
Capacity at Maximum Reach	
644B-37	1000 lbs.
6K-37	3000 lbs.
Below Grade	16 Inches
Drive	4-Wheel
Steer Modes	Front Wheel, 4-Wheel Round, 4-Wheel Oblique
Frame Tilt	12.5° Right and Left
Empty Vehicle Weight:	
644B-37	Approximately 20,860 lbs.
6K-37	Approximately 20,500 lbs.

Dimensions

Note: *Dimensions listed are for forklift with all components fully retracted in travel mode.*

Overall Height	95 Inches
Overall Width	8 Feet
Overall Length	25 Feet, 9 Inches (w/42" Fork)
Wheelbase	124 Inches
Outside Turning Radius	13 Feet, 8 Inches
Ground Clearance	16 Inches

Capacities

Hydraulic System (Including Reservoir)	65 Gallons
Hydraulic Reservoir	44 Gallons
Fuel Tank	40 Gallons
Cooling System	18 Quarts
Engine Crankcase Oil w/Filter (John Deere)	14 Quarts
Transmission Total Capacity	17 Quarts
Drain and Refill	11 Quarts
Differential	12.8 Quarts
Planetary Hubs	3.6 Pints
Friction Modifier	4 Ounces

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Quick Reference

Section	No.
Safety	1
Identification and Specifications	2
General Maintenance	3
Reference Diagrams	4
Supply, Pressure, and Return Hydraulics	5
Boom and Transfer	6
Frame Tilt and Oscillation	7
Transmission	8
Brakes	9
Outriggers	10

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Section 1 — Safety

General

Observing basic safety rules and precautions can eliminate accidents when operating, maintaining, and repairing the forklift. The Operator's Manual contains detailed information regarding safety practices when driving and operating the forklift. Always be alert to potential hazardous situations that could result in injury to yourself or bystanders. Care should also be taken to avoid damage to the equipment. Maintenance should always be done by trained personnel using proper tools.

Caution, Warning, and Danger



W1049

Hazards are identified by the "Safety Alert Symbol" and followed by a signal word: Caution, Warning, or Danger.



CAUTION: Means that a situation COULD be hazardous and MAY result in personal injury if not avoided. CAUTION is also used to alert against unsafe practices that could result in equipment damage.



WARNING: Means that a situation COULD be hazardous and MAY result in serious injury or death if not avoided.



DANGER: Means that a situation IS HAZARDOUS and WILL result in serious injury or death if not avoided.

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Revision Record

Rev. No.	Inserted By	Date
001	Lull (initial release)	12/97
B	JLG(replace branding with JLG)	02/05

Rev. No.	Inserted By	Date

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Axle Serial Number

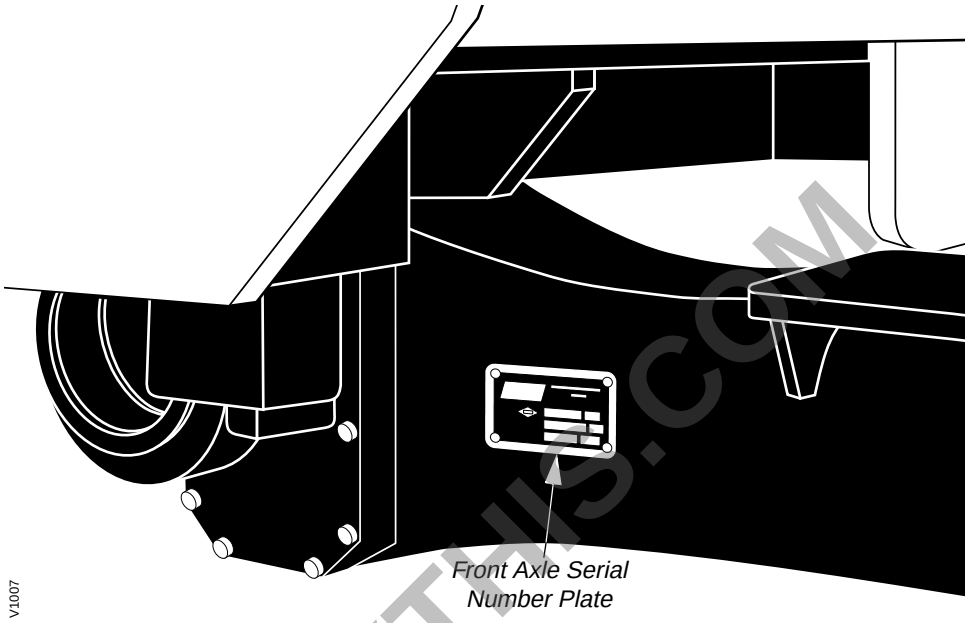


Fig. 2-5: Axle Serial Number

(Ref. Fig. 2-5) The front axle serial number plate is located on the left front side of the axle housing. The rear axle serial number plate is located on the right rear side of the axle housing.

Attachment Serial Number Plate

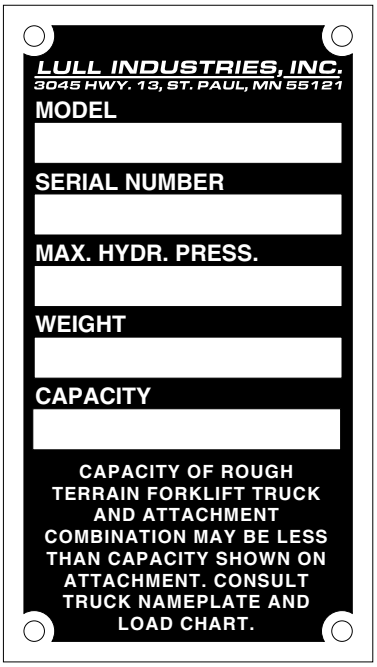


Fig. 2-6: Attachment Serial Number Plate

(Ref. Fig. 2-6) The location of this plate varies with each attachment.

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Adjustable O-ring Fittings

To install straight thread, adjustable O-ring fittings:

1. Check condition of O-ring and replace as necessary. Do not install a fitting with a damaged O-ring.
2. Lubricate O-ring with clean hydraulic fluid.
3. Back off the locknut fully.
4. Screw fitting into port until backup washer contacts face of port.
5. Position fitting by unscrewing a maximum of one turn.
6. Hold the fitting in position with a wrench and torque locknut per Table 3-9.

Table 3-9: Torque for Adjustable O-ring Fittings

Size	SAE Port Thread Size	Min. Torque		Max. Torque	
-2	5/16-24	60	in-lbs	70	in-lbs
-4	7/16-20	160	"	180	"
-6	9/16-18	25	ft-lbs	29	ft-lbs
-8	3/4-16	40	"	44	"
-10	7/8-14	58	"	63	"
-12	1 1/16-12	75	"	85	"
-16	1 5/16-12	109	"	121	"
-20	1 5/8-12	213	"	237	"
-24	1 7/8-12	238	"	262	"

O-ring Plugs

To install straight thread O-ring plugs:

1. Check condition of O-ring and replace as necessary. Do not install a plug with a damaged O-ring.
2. Lubricate O-ring with clean hydraulic fluid and torque per Table 3-10.

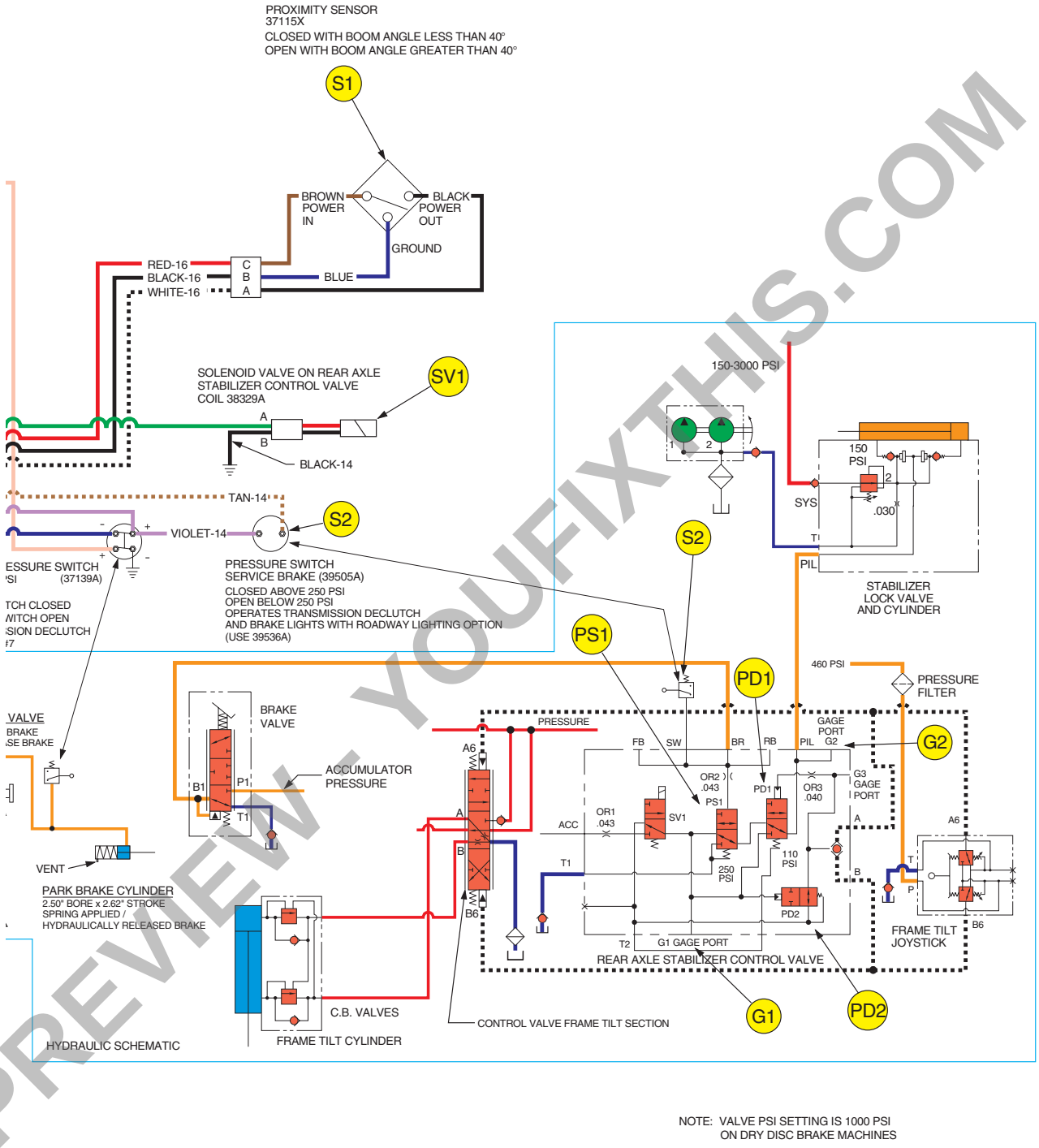
Table 3-10: Torque for O-ring Plugs

	SAE Port	Hollow Hex Head				Hex Head			
Size	Thread Size	Min. Torque		Max. Torque		Min. Torque		Max. Torque	
-2	5/16-24	30	in-lbs	40	in-lbs	85	in-lbs	95	in-lbs
-4	7/16-20	125	"	145	"	205	"	235	"
-6	9/16-18	210	"	230	"	25	ft-lbs	29	ft-lbs
-8	3/4-16	44	ft-lbs	48	ft-lbs	46	"	50	"
-10	7/8-14	70	"	80	"	85	"	95	"
-12	1 1/16-12	80	"	90	"	105	"	115	"
-16	1 5/16-12	129	"	141	"	154	"	166	"
-20	1 5/8-12	213	"	237	"	213	"	237	"
-24	1 7/8-12	238	"	262	"	238	"	262	"

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Rear Oscillation Lock System Operation, Mid-Inlet Hysraulic System - Diagram 9



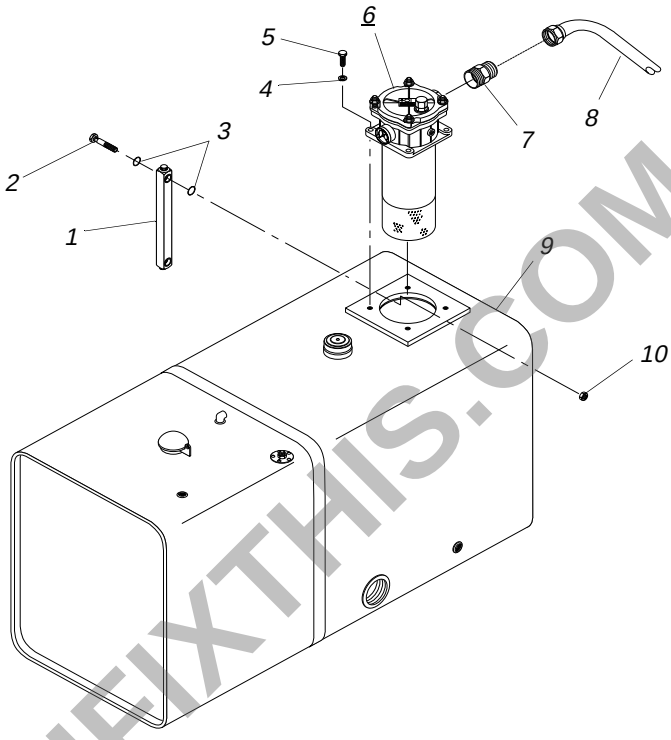
NOTE: VALVE PSI SETTING IS 1000 PSI
ON DRY DISC BRAKE MACHINES

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Removal

Sight Gauge



#	Description
1	Hydraulic Sight Gauge
2	Hollow Hex Head Bolt
3	O-Ring
4	Lockwasher
5	Capscrew

#	Description
6	Hydraulic Oil Return Filter Assy
7	JIC Pipe Connector
8	Return Manifold Tube
9	Hydraulic Reservoir
10	Nut

Fig. 5-11: Reservoir Sight Gauge Installation

(Ref. Fig. 5-11) The following procedures describes removal of the reservoir sight gauge.

1. Follow preparation procedures as outlined in Section 3 of this manual. Be sure to follow the guidelines in this section detailed under “General Hydraulic Maintenance Practices” on page 5-4.
2. Remove the hydraulic reservoir drain plug (Item 19) and drain hydraulic fluid into a suitable container. Dispose of drained fluid properly.
3. Disconnect return manifold tube (Item 8) connected to the JIC pipe connector (Item 7) on the hydraulic oil return filter assembly (Item 6).
4. Remove four (4) each capscrews (Item 5) and lockwashers (Item 4) that secure the hydraulic oil return filter assembly (Item 6) to the hydraulic reservoir (Item 9). Remove the hydraulic oil return filter assembly.
5. Reaching inside the opening for the hydraulic oil return filter assembly in the hydraulic fluid reservoir, remove the two (2) nuts (Item 10) that secure the sight gauge to the hydraulic reservoir.

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(Ref. Fig. 5-36) The following procedure describes disassembly of the Combination Relief and Anti-Cavitation Check Assembly (CRA).

1. Loosen and remove four (4) each socket head capscrews, 33 lockwashers (Item 2), and bearing washers (Item 3).
2. Remove positioner housing (Item 4). Tag or mark housing; note location of fitting port(s).
3. Remove square cut seal (Item 5) from housing (Item 6). Discard square cut seal.
4. Loosen and remove relief assembly (Items 7 thru 21) from housing.
5. Loosen and remove acorn nut (Item 7), jam nut (Item 8), and adjustable stem (Item 9) from adjustable relief cap (Item 10).
6. Loosen and remove adjustable relief cap from relief body (Item 18).
7. Remove relief poppet (Item 16), shims (Item 15), spring (Item 14), and piston (Item 12) from adjustable relief cap.
8. Remove piston ring (Item 17) from relief poppet, O-ring (Item 13) from piston, and O-ring (Item 11) from adjustable relief cap. Discard O-rings.
9. Remove anti-cavitation poppet (Item 22) and spring (Item 23) from housing.
10. Remove poppet retainer (Item 24) from housing. Then remove poppet (Item 28) and check spring (Item 27).
11. Remove two (2) backup washers (Item 25) and O-ring (Item 26) from poppet retainer.
12. Remove O-ring (Item 21) and backup washer (Item 20) from middle of relief body.
13. Remove O-ring (Item 19) near head of relief body.
14. Discard all O-rings and backup washers.
15. Clean all remaining parts with solvent and dry with compressed air. Inspect and replace any damaged parts.

Note: *In the CRA assembly, only the O-rings, backup washers, and square cut seal are replaceable. If other parts become damaged, it will be necessary to replace the complete CRA assembly.*

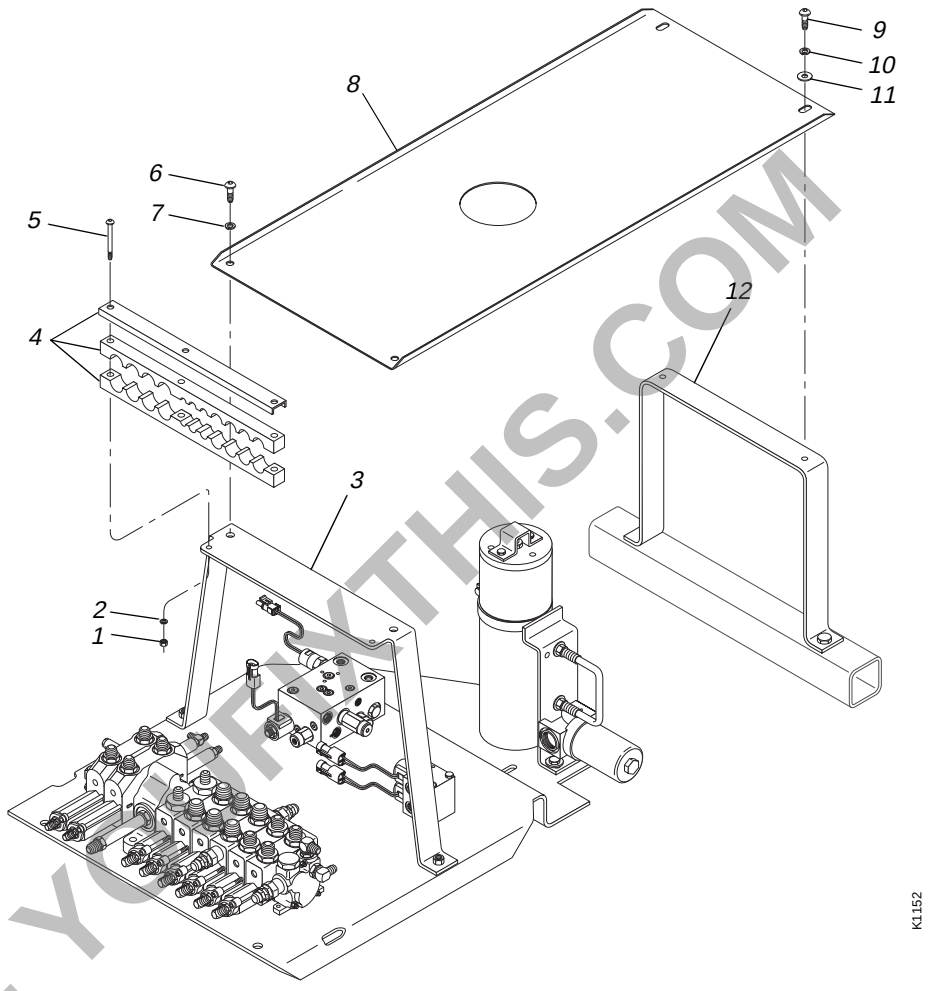
Note: *In the positioner assembly, only the O-ring, hollow hex capscrews, lockwashers, and bearing washers can be purchased separately. If other parts become damaged, it will be necessary to replace the complete positioner assembly.*

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Models with a Mid-Inlet Hydraulic System

6K-37 (S/N 318–)
6K-42 (S/N 120–)
8K-42 (S/N 221–)
10K-42 (S/N 107–)
10K-54 (S/N 104–)
644B-37 (S/N 591, 667–)
644B-42 (S/N 208–)
844C-42 (S/N 622–)
1044C-42 (S/N 117–)
1044C-54 (S/N 155–)



#	Description
1	Nut
2	Lockwasher
3	Front Hose Tray Support Bracket
4	Hose Mount
5	Button Head Socket Capscrew
6	Button Head Socket Capscrew

#	Description
7	Lockwasher
8	Roll-Back Hose Tray
9	Button Head Socket Capscrew
10	Lockwasher
11	Flatwasher
12	Rear Hose Tray Support Bracket

Fig. 5-62: Roll-Back Tray Installation - Mid-Inlet Hydraulics

(Ref. Fig. 5-62) The following procedure describes removal of the roll-back hose tray used in models with a mid-inlet hydraulic system.

1. Remove the two (2) each button head socket capscrews (Item 6) and lockwashers (Item 7) securing the roll-back hose tray (Item 8) to the front hose tray support bracket (Item 3).
2. Remove the two (2) each button head socket capscrews (Item 9), lockwashers (Item 10), and flatwashers (Item 11) securing the roll-back hose tray to the rear hose tray support bracket (Item 12).
3. Remove the roll-back hose tray from the machine.

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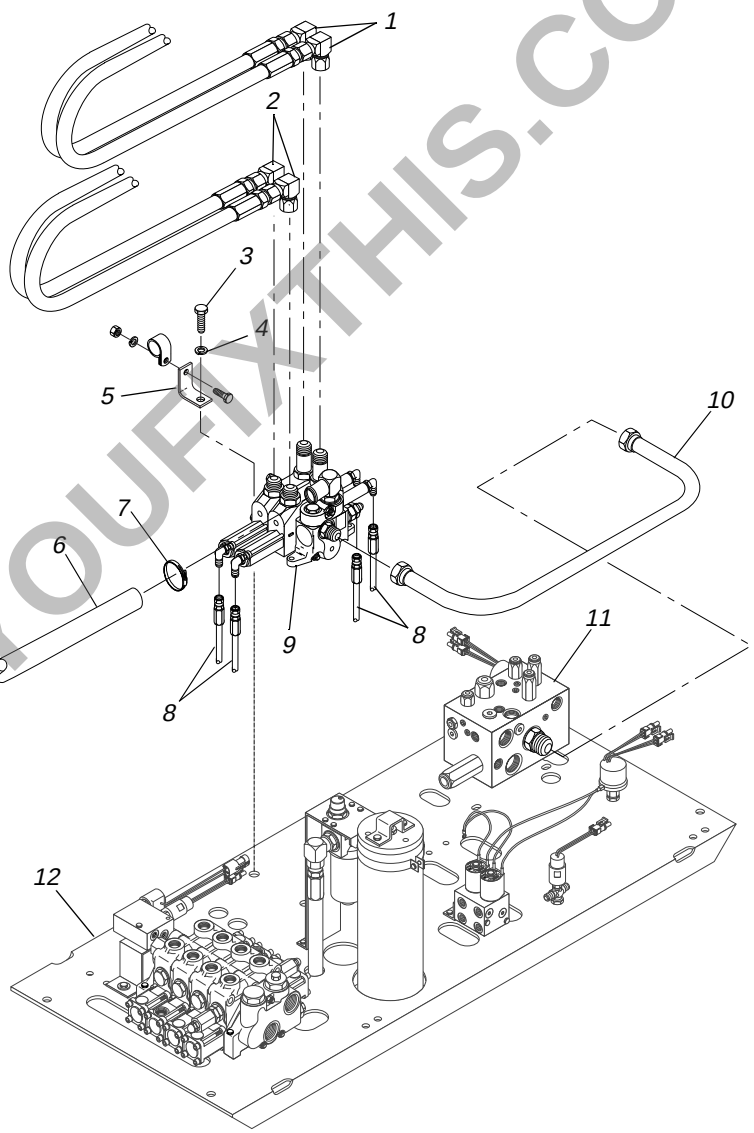
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The boom hydraulic control valve is located near the middle of the machine on the valve plate. It controls fluid flow to the boom hoist and telescope cylinders when operating the hoist/telescope joystick control.

Removal

Boom Hydraulic Control Valve (Control Manifold System)

644B-37 (S/N 101–590, 592–666)
644B-42 (S/N 101–207)
6K-37 (S/N 101–317)
6K-42 (S/N 101–119)
844C-42 (S/N 101–621)
8K-42 (S/N 101–220)
1044C-42 (S/N 101–116)
1044C-54 (S/N 101–154)
10K-42 (S/N 101–106)
10K-54 (S/N 101–103)



#	Description
1	Hydraulic Hoses (Upper)
2	Hydraulic Hoses (Lower)
3	Hex Head Capscrew
4	Lockwasher
5	Mounting Bracket
6	Hydraulic Return Hose

#	Description
7	Hose Clamp
8	Hydraulic Hoses
9	Boom Hydraulic Control Valve
10	Hydraulic Tube
11	Hydraulic Control Manifold
12	Valve Plate

Fig. 6-18: Boom Hydraulic Control Valve Installation

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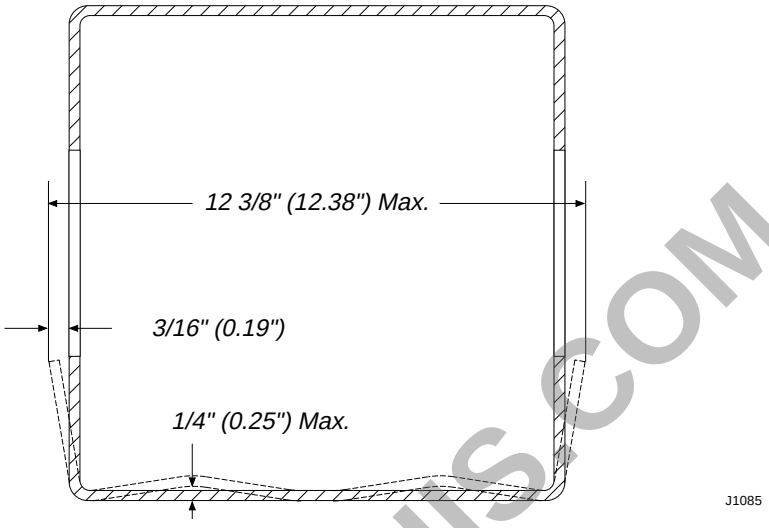


Fig. 6-66: Inner Boom Cross-Section at Window

2. (Ref. Fig. 6-66) Place a straight edge against the bottom surface of the inner boom section. Measure the distance from the straight edge to the bottom surface of the boom tube. This distance should not exceed 1/4" (0.25"). The maximum deflection will be found just in front of the outer boom section.
3. (Ref. Fig. 6-66) The side walls may also deflect outward at the window areas. Take this measurement across the boom tube, through the windows. Maximum allowable deflection is 3/16" (0.19) per side. The maximum allowable boom tube width is 12-3/8" (12.38"), measured through the windows.
4. Retract the boom.

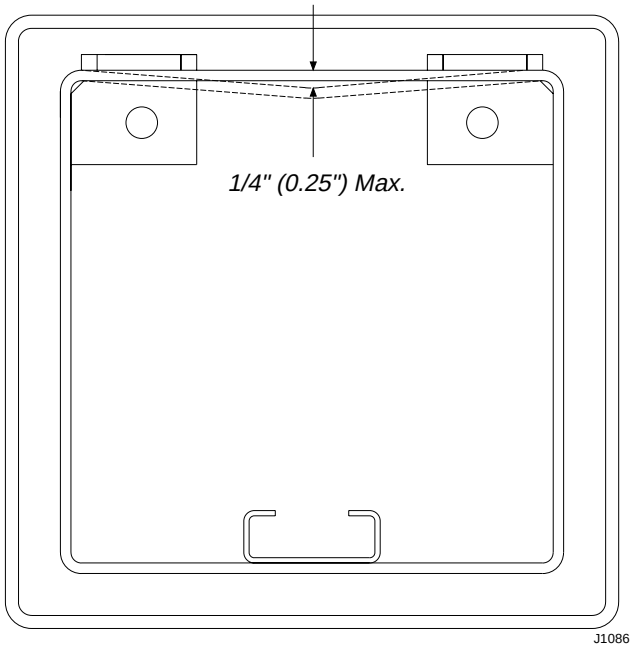
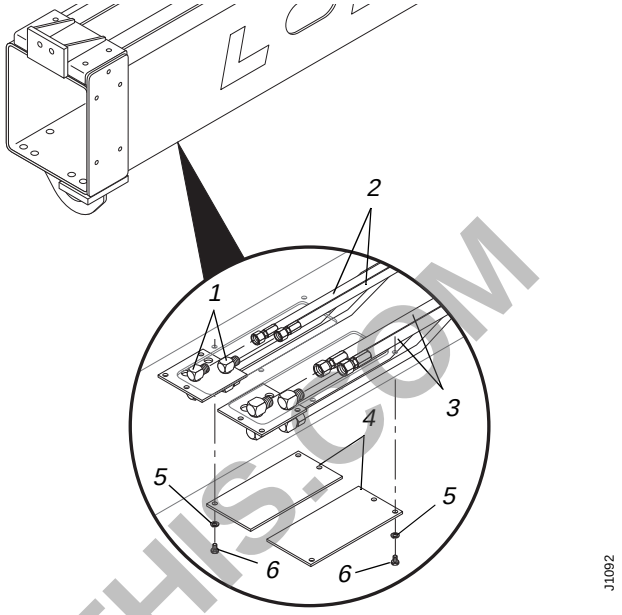


Fig. 6-67: View at Rear of 2-Section Boom

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#	Description	#	Description
1	Bulkhead Elbows	4	Access Cover
2	Auxiliary Hydraulic Hoses	5	Lockwasher
3	Carriage Tilt Hoses	6	Capscrew

Fig. 6-112: Hose Connections, Outer Boom

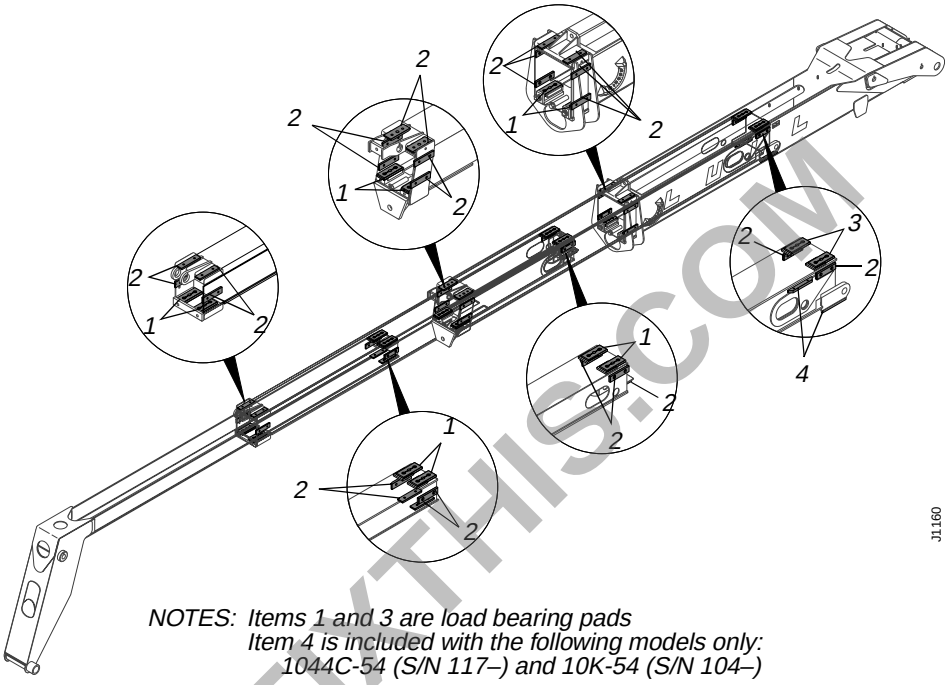
17. (Ref. Fig. 6-112) Remove three (3) capscrews (Item 6) and lockwashers (Item 5) from each access cover (Item 4) to the outer boom section. Remove the access covers.
18. Park the machine on a firm, level surface. Set the park brake, lock the shift selector in the NEUTRAL position, shut off the engine and remove the ignition key. Block all wheels.
19. Position a crane next to the machine.
20. Remove the boom elevation proximity switch (see “Removal” in Section 7).

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Shimming Procedures

4-Section Boom



NOTES: Items 1 and 3 are load bearing pads
Item 4 is included with the following models only:
1044C-54 (S/N 117–) and 10K-54 (S/N 104–)

#	Description
1	Boom Pad, 1" Thick x 3" Wide
2	Boom Pad, 9/16" Thick x 2" Wide
3	Boom Pad, 3/4" Thick x 3" Wide

#	Description
4	Boom Pad, 3/4" Thick x 1-1/4" Wide

Fig. 6-154: Boom Slide Pad Locations – 4-Section Boom

1. Park machine on firm, level surface and apply park brake. Level the frame. Level and fully retract the boom. Shut off engine.
2. Determine if all boom slide pads are serviceable. (See “Slide Pad Inspection” on page 6-48). Have replacement pads ready as required.

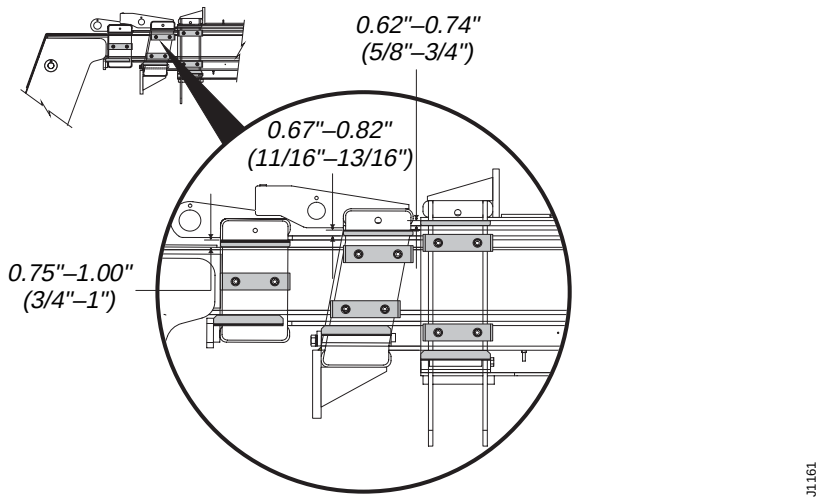
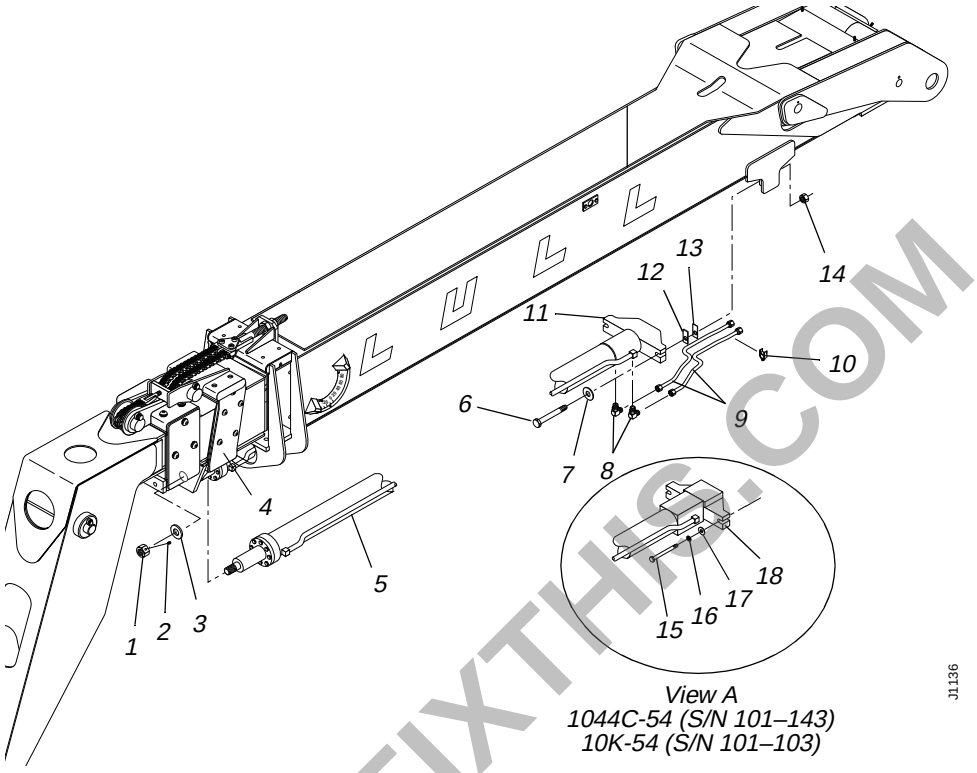


Fig. 6-155: Boom Section Gaps – Front of 4-Section Boom

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View A
1044C-54 (S/N 101–143)
10K-54 (S/N 101–103)

#	Description
1	Rod Nut
2	Socket Setscrew
3	Extension Cylinder Rod Boss
4	Middle (Rear) Boom Section
5	Boom Extension Cylinder
6	Capscrew
7	Flatwasher
8	Elbow
9	Hydraulic Tube

#	Description
10	Cushion Clamp
11	Extension Cylinder Base Mount
12	Shim
13	Shim
14	Nut
15	Capscrew
16	Lockwasher
17	Flatwasher
18	Extension Cylinder Base Mount

Fig. 6-200: Extension Cylinder Installation

3. (Ref. Fig. 6-200) Install extension cylinder on outer boom section as follows:

   a. Using sling(s), crane, or other suitable means, position rod end of cylinder (Item 5) in its proper location on the middle (rear) boom section (Item 4).

WARNING: To avoid personal and/or equipment damage, make sure the cylinder is properly supported until it is completely installed.

   b. Secure cylinder to outer boom section with hardware as follows.

   For Models 1044C-54 (S/N 101–143) and 10K-54 (S/N 101– 103) (See View A):

   Use two (2) each flatwashers (Item 17), lockwashers (Item 16), and capscrews (Item 15) to secure extension cylinder base mount (Item 18) to rear of outer boom section. Torque capscrews to 200 ft-lbs.

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WARNING: To avoid personal and/or equipment damage, support the transfer carriage assembly when lifting and reinstalling it back on the machine. Make sure that the transfer carriage assembly is supported until it is completely installed.

b. Install the transfer carriage (Item 5) to rear of the main frame using the two (2) each transfer rollers (Item 12), roller bushings (Item 11), spindles (Item 10), thrust washers (Item 9), spacer washers (Item 8), and spindle nuts (Item 7). Torque spindle nuts to 3466 ft-lbs.

Note: *The quantity of spacer washers used with each machine may vary.*

c. Secure each spindle nut with two (2) setscrews (Item 6).

d. Install the two (2) slide blocks (Item 4) to the front of the transfer carriage with four (4) each capscrews, (Item 3) lockwashers (Item 2), and nuts (Item 1). Torque the nuts to 130 ft-lbs.

e. Install the boom as described elsewhere in this section.

f. Install the rear carriage tilt cylinder (See page 6-25).

g. Install the boom hoist cylinder (See page 6-13).

4. Move transfer carriage backward until the threaded port of transfer cylinder rod can be inserted in its mounting hole.

5. (Ref. Fig. 6-232) Install transfer cylinder rod nut and washer. Torque cylinder rod nut to 1641 ft-lbs. Secure rod nut with two (2) setscrews.

6. (Ref. Fig. 6-236) Reconnect hydraulic hoses (Item 1) to the hydraulic tube elbows. Torque the swivel nuts on the hoses 79–88 ft-lbs.

7. (Ref. Fig. 6-236) Install the hose cover (Item 2) on the transfer carriage with four (4) each capscrews (Item 4) and lockwashers (Item 3). Torque the capscrews to 75 in-lbs.

8. (Ref. Fig. 6-233) Install boom elevation proximity switch as follows:

   a. Work the wiring harness along the hydraulic tubes on the transfer carriage.

   b. Reconnect connection wire to boom proximity switch and wiring harness.

   c. Secure wiring harness to hydraulic tubes with wire ties.

9. (Ref. Fig. 6-235) For models with a 4-section boom, install the boom extension proximity switch as follows:

   a. If necessary, install the proximity mounting plate (Item 7) with two (2) each lockwashers (Item 9) and capscrews (Item 10). Torque the capscrews to 276 in-lbs.

   b. Work the wiring harness along the hydraulic tube s on the transfer carriage and up to the top of the boom.

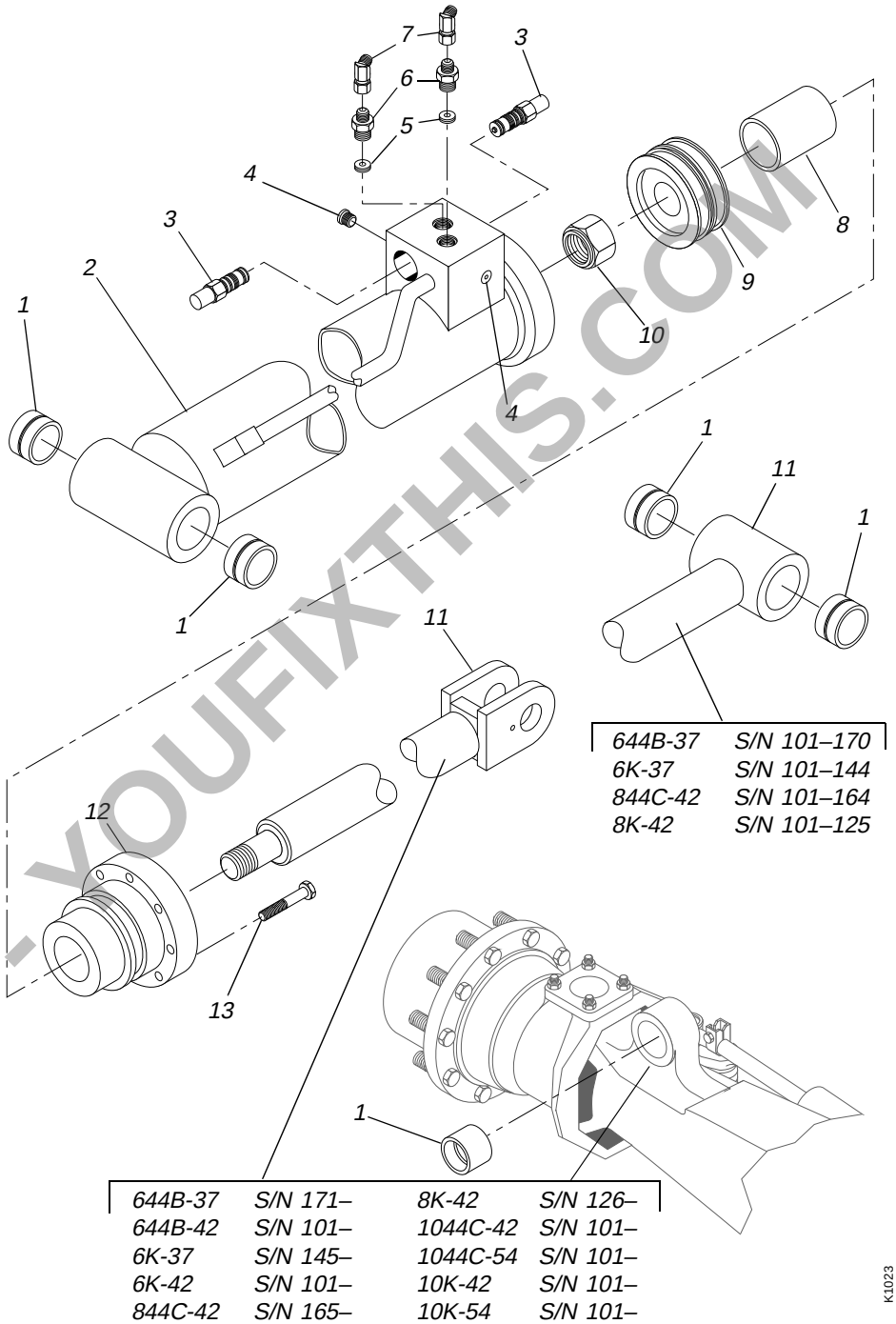
   c. Connect the proximity switch connection wire (Item 6) to the proximity switch (Item 8) and the wiring harness (Item 5).

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Overhaul

Frame Tilt Cylinder



#	Description
1	Bushing
2	Barrel
3	Counterbalance Valve Cartridge
4	O-Ring Plug
5	Orifice
6	Fitting, O-Ring
7	Swivel Fitting

#	Description
8	Stroke Limiter
9	Piston
10	Rod Nut
11	Rod
12	Head
13	Capscrew

Fig. 7-7: Frame Tilt Cylinder (Exploded View)

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9. Check transmission pressure. Control pressure should be 230–260 psi (16–18 bar). See “ZF Transmission Pressure Checks” on page 8-23.

Testing ZF Transmission Electrical System

ZF Transmission with DW-2 Shifter

644B-37 (S/N 101–880)
6K-37 (S/N 101–397)
6K-42 (S/N 101–131)
644B-42 (S/N 101–241)
844C-42 (S/N 101–783)
8K-42 (S/N 101–261)
1044C-42 (S/N 101–121)
10K-42 (S/N 101–107)
1044C-54 (S/N 101–25)
10K-54 (S/N 101–107, 109)

If an electrical supply problem is suspected, the operator may also experience circuit failures, alternator/charging problems, or starting problems. These problems should be addressed and corrected prior to proceeding with diagnosis of the ZF transmission electrical system. Once this is done, proceed with the following steps:

1. Check battery integrity to ensure that it has not discharged.
2. Check battery cable connections.
3. Check 30 amp circuit breaker to ensure that it is not defective or stuck in open position.
4. Check battery post connection at ignition switch.
5. Check the ignition switch as follows:
   a. With the ignition switch in the “OFF” position, only the Bat. Post should be active.
   b. With the ignition switch in the “ACC” position, only the Bat. Post and the Acc Post should be active.
   c. With the ignition switch in the “ON” position, only the Bat. Post, Acc Post, and the Ign Post should be active.
   d. With the ignition switch in the “ST.” position, only the Bat. Post, Ign Post, and St. Post should be active.
6. Check ignition switch relay (if equipped).
7. Check 7.5 amp fuse (8 amp fuse for early production models) and fuse holder.
8. Check shifter signals. See “DW-2 Speed Range/Direction Signal Test” on page 8-7.
9. Check shifter signals at the transmission solenoid assembly. See “DW-2 Signals from EST-19 to Transmission Solenoid Assembly Test” on page 8-8.
10. Check park brake switch, service brake pressure switch, and proximity switch. See pages 8-17, 8-18, and 8-20.

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Precautions

WARNING: Never fill an accumulator with oxygen! An explosion could result if oil and oxygen mix under pressure. **Always fill an accumulator with dry nitrogen.** Nitrogen gas is free of water vapor and oxygen which makes it harmless to parts and is safe to use.

CAUTION: Never fill an accumulator with air. When air is compressed, water vapor condenses and can cause corrosion. This may damage seals and ruin the accumulator.

CAUTION: Never charge an accumulator to a pressure more than that specified. Pressure should be 375–425 psi.

WARNING: Always release all hydraulic pressure before removing an accumulator from the system.

CAUTION: Before disassembling an accumulator, release both gas and hydraulic pressure. When disassembling an accumulator, make sure that dirt and abrasive materials do not enter any openings.

Pre-Charging Accumulator

Note: *Replacement accumulators shipped from the factory are not pre-charged.*

Make sure the nitrogen bottle, as well as the charging and gauging assembly used, is compatible with the gas valve assembly. The nitrogen source and all components must be rated for a pressure at least as high as the nitrogen source. It is strongly recommended that the nitrogen bottle has a high pressure regulator. Nitrogen gas bottles for water-pumped nitrogen have right-hand valve threads and are used with accumulators up to 3000 psi.

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