300D, 310D, 315D Backhoe Loader Operation and Test

TECHNICAL MANUAL

TM1496 21SEP05 (ENGLISH)

For complete service information also see:

300D, 310D, 315D Backhoe Loaders Repair (Complete)	**TM1497**
300D, 310D, 315D Backhoe Loaders Operation and Test (Complete)	**TM1496**

Worldwide Construction And Forestry Division

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Handle Fluids Safely—Avoid Fires

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



TS227 –UN–23AUG88

DX,FLAME –19–29SEP98–1/1

Prevent Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).



TS204 –UN–23AUG88

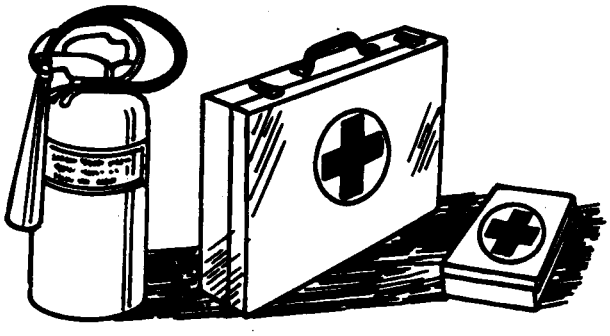
DX,SPARKS –19–03MAR93–1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291 –UN–23AUG88

DX,FIRE2 –19–03MAR93–1/1

9000
02
2

300D Backhoe Loader

Key:	Backhoe	Extendible Dipperstick	
Retracted	Extended		
A—Loading height, truck loading position	10 ft 9 in. (3.29 m)	11 ft 1 in. (3.37 m)	12 ft 9 in. (3.88 m)
B—Reach from center of swing mast	17 ft 3 in. (5.25 m)	17 ft 3 in. (5.25 m)	20 ft 10 in. (6.36 m)
C—Reach from center of rear axle	20 ft 7 in. (6.28 m)	20 ft 7 in. (6.28 m)	24 ft 3 in. (7.39 m)
D—Digging depth (SAE):			
(1) 2 ft (610 mm) flat bottom	13 ft 10 in. (4.21 m)	13 ft 10 in. (4.21 m)	17 ft 8 in. (5.38 m)
(2) 8 ft (2440 mm) flat bottom	12 ft 8 in. (3.87 m)	12 ft 8 in. (3.87 m)	16 ft 10 in. (5.13 m)
E—Maximum digging depth	14 ft (4.27 m)	14 ft (4.27 m)	17 ft 9. in. (5.41 m)
F—Ground clearance, minimum	13 in. (330 mm)	13 in. (330 mm)	13 in. (330 mm)
G—Bucket rotation	160° or 180°	160° or 180°	160° or 180°
H—Transport height	12 ft 0 in. (3.67 m)	12 ft 0 in. (3.67 m)	12 ft 0 in. (3.67 m)
I—Overall length, transport	22 ft 6 in. (6.85 m)	22 ft 6 in. (6.85 m)	22 ft 6 in. (6.85 m)
J—Stabilizer width, transport	7 ft 4 in. (2.23 m)	7 ft 4 in. (2.23 m)	7 ft 4 in. (2.23 m)
K—Stabilizer spread, operating	8 ft 11 in.(2.71 m)	8 ft 11 in. (2.71 m)	8 ft 11 in. (2.71 m)
L—Overall width (less loader bucket)	6 ft 11 in. (2.11 m)	6 ft 11 in. (2.11 m)	6 ft 11 in. (2.11 m)
Digging force, bucket cylinder (power dig position)	10225 lb (45.5 kN)	10250 lb (45.6 kN)	10225 lb (45.5 kg)
Digging force, crowd cylinder	5530 lb (24.6 kN)	5530 lb (24.6 kN)	3365 lb (15.0 kN)
Swing arc	180 degrees	180 degrees	180 degrees
Operator control	Two levers	Right foot treadle	Right foot treadle
Bucket positions	21° or 30° rollback	19° or 28° rollback	22° or 32° rollback
Stabilizer angle rearward	12°	12°	12°
Lifting capacity, maximum boom @ 65°	2700 lb (1225 kg)	2600 lb (1180 kg)	1550 lb (700 kg)
NOTE: Backhoe specifications are with 24-in. (610 mm) standard bucket.			

Key:	Loader With 1.5 yd ^{3}(1.15 m ^{3}) Bucket
M—Wheelbase	83 in. (2100 mm)
N—Dig below ground—bucket level	4 in. (100 mm)
O—Rollback at ground level	40°
P—Dump clearance, bucket at 40°	8 ft. 10 in. (2.69 m)
Q—Maximum height to bucket hinge pin	10 ft. 11 in. (3.33 m)
R—Maximum bucket dump angle	45°
S—Reach at full height, bucket at 40°	28 in. (711 mm)

TX,115,DH1385 –19–17APR93–1/1

9000
03
2

Unified Inch Bolt and Cap Screw Torque Values

SAE Grade and Head Markings	NO MARK	1 or 2[b]	5 5.1 5.2	8 8.2
SAE Grade and Nut Markings	NO MARK	2	5	8

Size	Grade 1				Grade 2[b]				Grade 5, 5.1, or 5.2				Grade 8 or 8.2			
	Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]	
	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft
1/4	3.7	2.8	4.7	3.5	6	4.5	7.5	5.5	9.5	7	12	9	13.5	10	17	12.5
5/16	7.7	5.5	10	7	12	9	15	11	20	15	25	18	28	21	35	26
3/8	14	10	17	13	22	16	27	20	35	26	44	33	50	36	63	46
7/16	22	16	28	20	35	26	44	32	55	41	70	52	80	58	100	75
1/2	33	25	42	31	53	39	67	50	85	63	110	80	120	90	150	115
9/16	48	36	60	45	75	56	95	70	125	90	155	115	175	130	225	160
5/8	67	50	85	62	105	78	135	100	170	125	215	160	240	175	300	225
3/4	120	87	150	110	190	140	240	175	300	225	375	280	425	310	550	400
7/8	190	140	240	175	190	140	240	175	490	360	625	450	700	500	875	650
1	290	210	360	270	290	210	360	270	725	540	925	675	1050	750	1300	975
1-1/8	400	300	510	375	400	300	510	375	900	675	1150	850	1450	1075	1850	1350
1-1/4	570	425	725	530	570	425	725	530	1300	950	1650	1200	2050	1500	2600	1950
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2150	1550	2700	2000	3400	2550
1-1/2	1000	725	1250	925	990	725	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

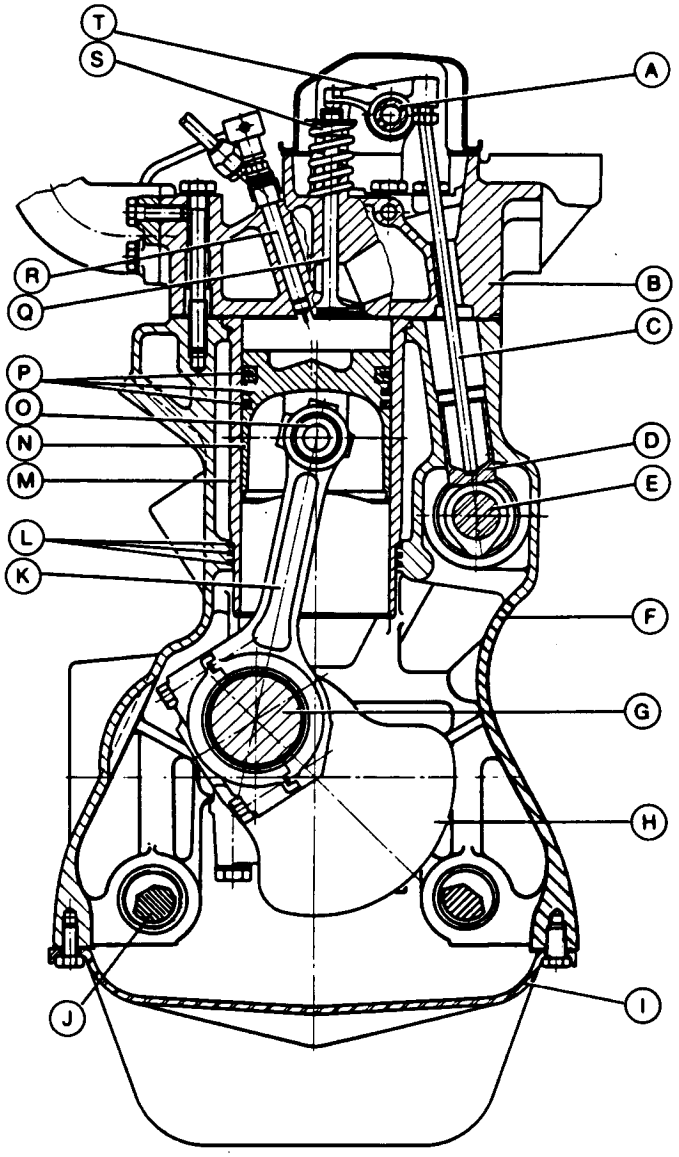
[a] "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

[b] Grade 2 applies for hex cap screws (not hex bolts) up to 152 mm (6-in.) long. Grade 1 applies for hex cap screws over 152 mm (6-in.) long, and for all other types of bolts and screws of any length.

TS1656 –19–02APR97

DX,TORQ1 –19–20JUL94–1/1

Engine—Sectional View



RG7248 –UN–11JUL95

A—Rocker Arm Shaft
B—Cylinder Head
C—Push Rod
D—Cam Follower
E—Camshaft
F—Cylinder Block
G—Crankshaft
H—Crankshaft Counterweight
I—Oil Pan
J—Balancer Shafts
K—Connecting Rod
L—Liner Packing Rings
M—Cylinder Liner
N—Piston
O—Piston Pin
P—Piston Rings
Q—Valve
R—Fuel Injection Nozzle
S—Valve Spring
T—Rocker Arm

S11,2000,EH –19–11JUL95–1/1

Diagnose Engine Malfunctions

NOTE: Diagnostic charts are arranged from most probable and simplest to verify, to least likely and more difficult to verify. Remember the following steps when diagnosing a problem:

Step 1. Operational Checkout Procedure (See Group 9005-10) .

Step 2. Engine Operational Checkout Procedure (See Group 9010-10) . Step 3. Adjustments and/or Tests (See Group 9010-20 and/or 9010-25).

Symptom	Problem	Solution
Engine Will Not Start Or Starts Hard	Fuel tank empty	Check fuel quantity
	Fuel tank vent plugged	Remove cap and listen for sound of air entering tank. Replace cap.
	No electrical power to injection pump solenoid	Turn key switch to "On". Must hear click at injection pump. Replace fuse. Repair wiring.
	Water in fuel or water frozen in fuel line.	Drain water from fuel tank. Inspect fuel filter for water. Change filter.
	Debris in fuel or wrong grade of fuel	Check fuel tank outlet strainer for type of fuel debris. Check bottom of fuel tank for debris.
	Air leak on suction side of fuel system	Check for bubbles in fuel filter and tighten connections. Inspect fuel lines for damage.
	Fuel transfer pump diaphragm leaking	Check engine oil for fuel dilution. Replace fuel pump.
	Slow cranking speed	Check battery and connections. Incorrect engine oil (Cold weather).
	Restricted air filter	Check air filter restriction indicator and air filters. Clean.

Continued on next page

Operational Checkout Procedure

Use this procedure to check all systems and functions on the machine.

This checkout procedure is designed so technician can make a quick check of the operation of machine while sitting in operator's seat.

A location will be required which is level, has adequate space to complete the driving checks and to work machine. The engine, power train and hydraulic oil must be at operating temperature.

Complete the necessary visual checks (oil levels, oil condition, external leaks, loose hardware, loose linkage) prior to doing the checkout procedure.

No special tools or gauges are needed. Always start in the left column and read completely, follow this sequence from left to right. Read each check completely before performing. Make a copy of the Operational Checkout Record Sheet and record the results of each check on this sheet.

At the end of each check if no problem is found (OK:), you will instructed to GO TO NEXT CHECK. If problem (NOT OK:) is indicated, you will be given repair required or CTM number. If verification is needed, you will be given next best source of information after GO TO:

Group 10 (System Operational Checks)

Group 15 (System Diagnostic Checks)

Group 20 (Adjustments)

Group 25 (Test)

CTM (Component Technical Manual)

9005
10
1

TX,D300,DS1984 –19–06APR95–1/1

Gauge And Indicator Check With Engine Off

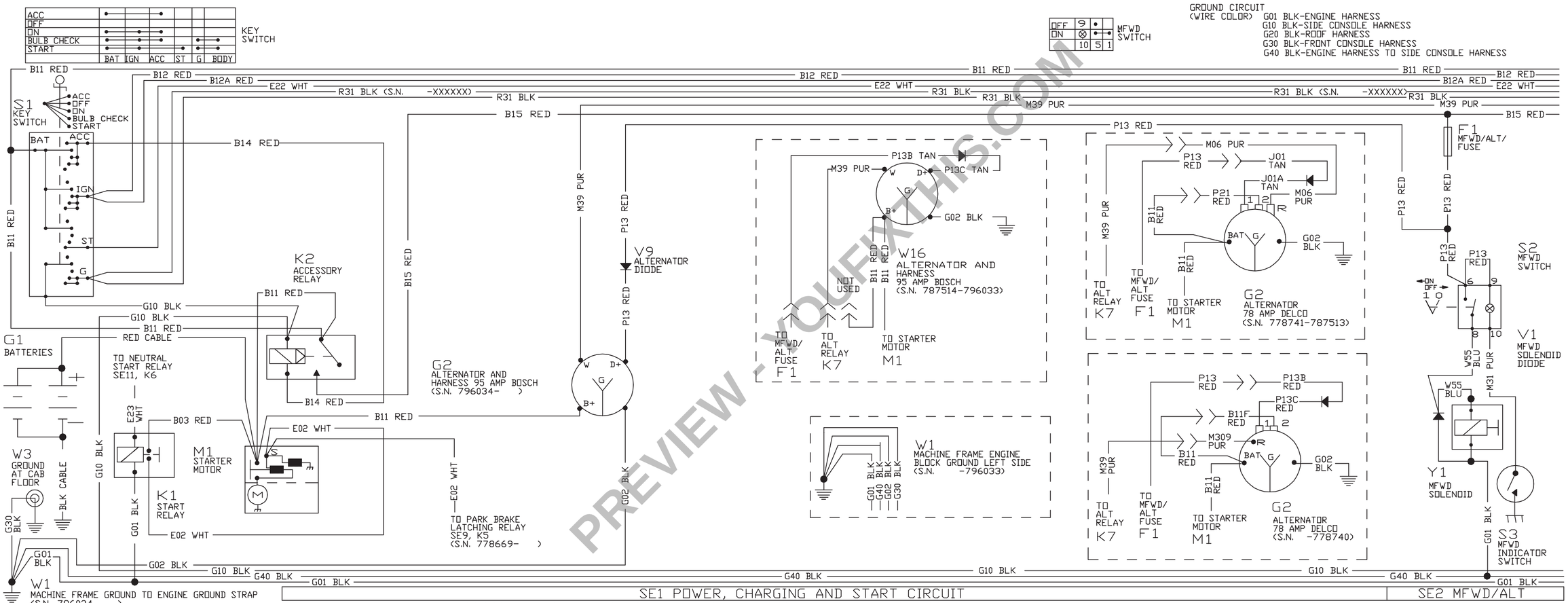
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❶ **Gauge And Indicator Check**	Engage park brake. Move FNR lever to neutral (N) position. Apply slight effort to FNR lever forward and reverse. Turn key switch to ON position. *LISTEN: Solenoid "click" should be heard when key switch is turned to ON position.*	**OK:** Go to next check. **NOT OK:** Go to Group 9015-15 , Gauge and Monitor Circuit (Fuel Gauge Does Not Work or Give Accurate Reading). **NOT OK:** Adjust.

– – –1/1

System Functional Schematic

T8462AB –19–06JAN99



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Torque Converter Speed Test

SPECIFICATIONS	
Fast Idle Speed	2375 ± 25 rpm
Oil Temperature	65 ± 5°C (150 ± 10°F)
300D Minimum Engine Speed	2000 rpm
310D and 315D Minimum Engine Speed	2150 rpm
300D Maximum Engine Speed	2200 rpm
310D and 315D Maximum Engine Speed	2360 rpm

SERVICE EQUIPMENT AND TOOLS
Digital Thermometer
Electronic Tachometer

1. Install electronic tachometer and digital thermometer. (See procedure in this group.)

IMPORTANT: Converter should NOT be stalled longer than 20 seconds or serious converter damage may result. Return FNR lever to neutral position for 10 seconds before doing next stall test.

2. Put transaxle in fourth gear.

3. Apply and hold service brakes throughout test.

4. Move FNR lever to forward position.

5. Run engine at fast idle with speed control pedal.

Specification

Fast Idle—Speed ..... 2375 ± 25 rpm

IMPORTANT: Minimum engine speed listed is for an engine that is broken-in and using No. 2 fuel.

6. When reverser oil temperature is at test specification, record engine speed.

Specification

Oil—Temperature ..... 65 ± 5°C (150 ± 10°F)
300D—Minimum Engine Speed ..... 2000 rpm
310D and 315D—Minimum Engine Speed ..... 2150 rpm
300D—Maximum Engine Speed ..... 2200 rpm
310D and 315D—Maximum Engine Speed ..... 2360 rpm

7. If converter stall speed is low, check for:

- Low engine output. See Group 9010-25.
- Incorrect torque converter (check part number through inspection hole in bottom of reverser housing).
- Failed freewheel clutch in torque converter.

8. If converter stall speed is too high, check for:

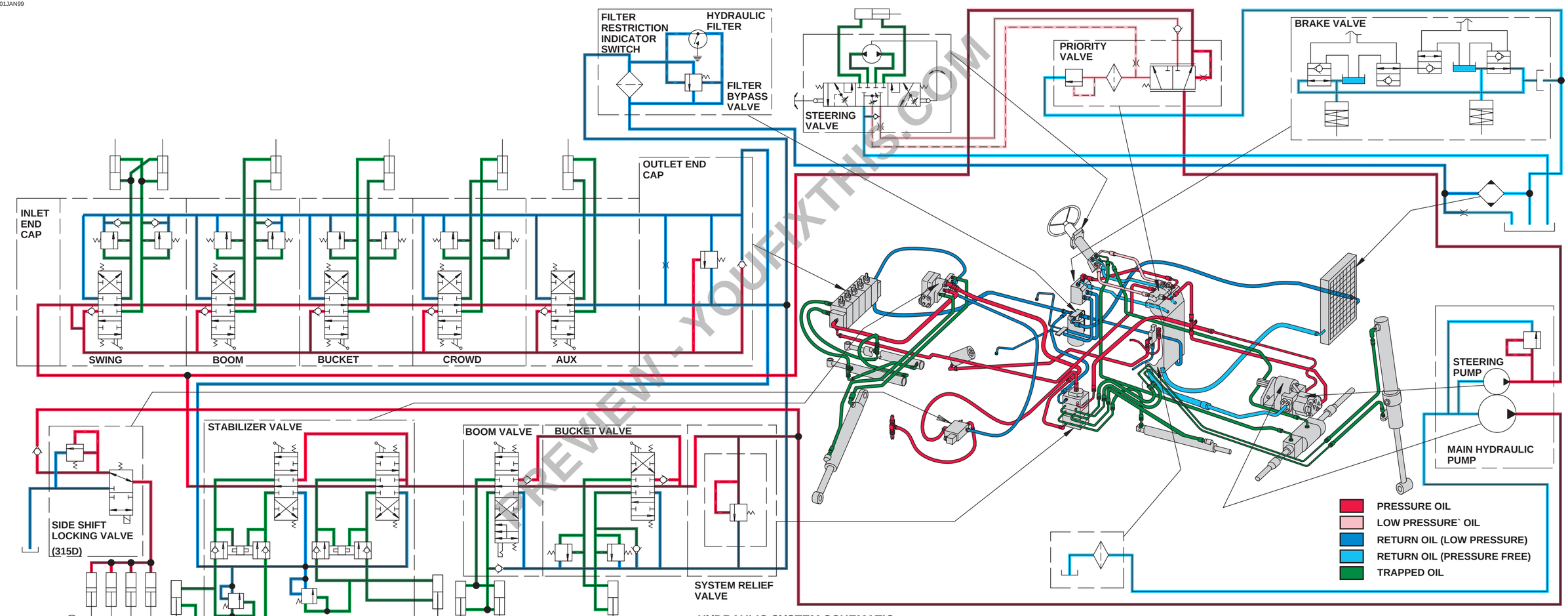
- Incorrect oil temperature.
- Low oil level.
- Incorrect oil in machine.
- Restricted suction screen. See repair manual.
- Incorrect torque converter (check part number through inspection hole in bottom of reverser housing).
- Engine over fueled. See Turbocharger Boost Pressure-Engine Performance Test—310D, 315D in Group 9010-25.
- Converter failed.
- Failed reverser clutch disk.
- Low system (pump) pressure in reverser.

9020
25
5

TX,300D,1952 –19–12JUL94–1/1

Hydraulic System Component Location And System Schematic (300D, 310D, S.N. — 802199) (315D, All Machines)

T7932AC –19–01JAN99

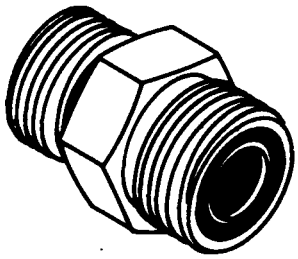


HYDRAULIC SYSTEM SCHEMATIC

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Service Recommendations for Flat Face O-Ring Seal Fittings



T6243AD –UN–18OCT88

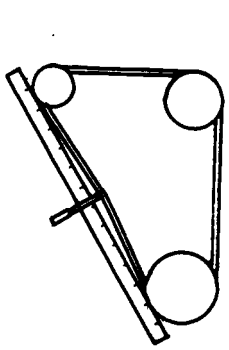
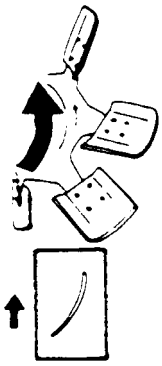
1. Inspect the fitting sealing surfaces. They must be free of dirt or defects.
2. Inspect the O-ring. It must be free of damage or defects.
3. Lubricate O-rings and install into groove using petroleum jelly to hold in place.
4. Push O-ring into the groove with plenty of petroleum jelly so O-ring is not displaced during assembly.
5. Index angle fittings and tighten by hand pressing joint together to insure O-ring remains in place.
6. Tighten fitting or nut to torque value shown on the chart per dash size stamped on the fitting. Do not allow hoses to twist when tightening fittings.

FLAT FACE O-RING SEAL FITTING TORQUE

Nominal Tube O.D.		Dash Size	Thread Size in.	Swivel Nut		Bulkhead Nut	
mm	in.	N•m	lb-ft	N•m	lb-ft		
6.35	0.250	-4	9/16-18	16	12	5.0	3.5
9.52	0.375	-6	11/16-16	24	18	9.0	6.5
12.70	0.500	-8	13/16-16	50	37	17.0	12.5
15.88	0.625	-10	1-14	69	51	17.0	12.5
19.05	0.750	-12	1 3/16-12	102	75	17.0	12.5
22.22	0.875	-14	1 3/16-12	102	75	17.0	12.5
25.40	1.000	-16	1 7/16-12	142	105	17.0	12.5
31.75	1.250	-20	1 11/16-12	190	140	17.0	12.5
38.10	1.500	-24	2-12	217	160	17.0	12.5

NOTE: Torque tolerance is +15 -20%.

04T,90,K67 –19–01AUG94–1/1

❹ **Fan And Fan Shroud Check**	  T6171CA –UN–25MAY89 T6171CB –UN–25MAY89 Inspect fan and shroud clearance. Inspect fan blades for damages. Check fan belts for tightness. *LOOK/FEEL: Fan belt deflection should be about 7/16 in. with 25 lbs of push.* *LOOK: Fan blades must not have any nicks or bends.* *LOOK: Make sure there is no oil or grease on fan belt or pulleys.* *LOOK: Inside surface of fan belt must not have any cracks or contact bottom of pulley groove.* *NOTE: If the fan blade has been installed backwards about 50% of its capacity is lost.* *LOOK: Cupped portion of fan blades must be away from radiator.*	**OK:** Check complete. **NOT OK:** Adjust belt tension. Go to Group 9010-20. **NOT OK:** If fan blades have any bends, replace fan. If fan has nicks, locate interference and repair. Go to repair manual. **NOT OK:** Replace fan belt. Go to repair manual. **NOT OK:** If fan is on backwards, remove and install. Go to repair manual. – – –1/1

9010
10
3

Air System Checks

– – –1/1

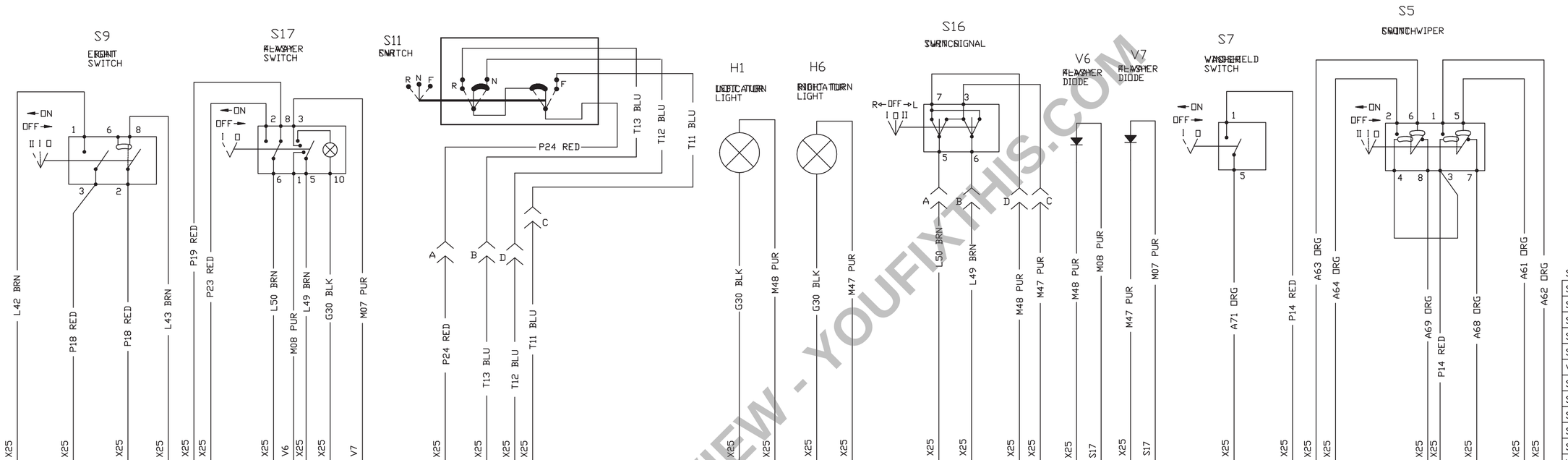
❶ **Air Filter Restriction Indicator Switch Check**	Run engine at slow idle. Slowly cover air intake tube *LOOK: Engine air filter restriction monitor light must come on.*	**OK:** Check complete. **NOT OK:** Check engine air filter restriction light and switch. Go to Group 9015-15. – – –1/1

Lubrication System Checks

– – –1/1

Front Console Harness (W7) Wiring Diagram

T7915BM –19–05MAR99



X25

FRONT CONSOLE HARNESS CONNECTOR (S.N. -778668)

REAR CONSOLE SIDE CONSOLE HARNESS CONNECTOR (S.N. 778669-)

S5	A61 ORG	1
S5	A62 ORG	2
S5	A63 ORG	3
S5	A64 ORG	4
S7	A71 ORG	5
S7, S5	P14 RED	6
V7, S16	M47 PUR	7
S5	A69 ORG	8
S17	P23 RED	9
S17	P19 RED	10
S17	L50 BRN	11
S17	L49 BRN	12
V6, S16	M48 PUR	13
H6	G30 BLK	14
H1, S17		
S11	T11 BLU	15
S11	T13 BLU	16
S11	P24 RED	17
		18
S5	A68 ORG	19
S9	P18 RED	20
S9	L43 BRN	21
S9	P18 RED	22
S9	L42 BRN	23
S11	T12 BLU	24

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TX,9015,QQ2674 –19–31AUG95–1/1

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Indicator Circuit Operational Information

The Indicator Circuit has TWO modes of operation:

- Bulb check mode
- Failure mode

The following conditions must exist for indicator circuit to function in bulb check mode:

Key switch moved to BULB CHECK position

The following conditions must exist for indicator circuit to function in a failure mode:

Engine must be running for a failure to be indicated on a display module light. An indicator switch or alternator relay senses a failure and supplies a ground for an indicator light, warning light and buzzer.

TX,901515,QQ534 –19–07DEC90–1/1

Park Brake/Clutch Disconnect Circuit Theory Of Operation

The Park Brake/Clutch Disconnect Circuit consists of FNR/park brake fuse, park brake dash switch, park brake latching relay, FNR switch, loader lever switch, gear shift lever switch, park brake solenoid, clutch disconnect solenoid, reverser pressure switch, park light relay and park brake sensing switch.

NOTE: The park brake applies automatically when machine is mechanically shut down or when key switch is turned off. Park brake dash switch must be cycled first to applied position (ON), then to released position (OFF) before park brake can be released when engine is running.

Key OFF:

Park brake cannot be hydraulically released if there is a blown fuse or key switch is OFF.

Key ON: Park Brake Dash Switch in ON Position. FNR Lever in Neutral:

Power flows from terminal 1 to terminal 6 of park brake dash switch and then to park brake latching relay terminal 85, energizing relay K5 causing it to latch terminals 30 and 87. Ground is supplied to the park brake latching relay through the reverser pressure switch. Power is disconnected from park brake solenoid, and clutch disconnect solenoid de-energizing solenoids. This applies the park brake and puts the reverser in neutral. When the park brake is applied the park brake sensing switch closes providing a ground for the park brake dash switch light.

NOTE: For (S.N. —778824)—ground is supplied to the park brake latching relay through the reverser switch.

For (S.N.778669—)—ground is supplied to the park brake latching relay from the "S" terminal of the starter motor.

Key ON: Park Brake Dash Switch in ON position. FNR Lever Shifted Out of Neutral:

With the park brake dash switch ON, and the FNR lever shifted out of neutral the park light relay K3 is de-energized connecting terminals 30 and 87A causing red light and alarm to come ON.

Key ON: Engine running.

With machine mechanically shut down the reverser pressure switch opens a contact removing ground for park brake latching relay, de-energizing park brake latching relay connecting terminals 30 and 87A. Power is then removed from terminals 6 and 8 of park brake dash switch, de-energizing park brake solenoid and clutch disconnect solenoid. Park brake is applied.

NOTE: For component identification code description, see Wiring and Schematic Diagrams Legend , Group 9015-10.

TX,9015,QQ2705 –19–31AUG95–1/1

CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace it last.

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

1. **Filling batteries in a well-ventilated area.**
2. **Wearing eye protection and rubber gloves.**
3. **Avoiding breathing fumes when electrolyte is added.**
4. **Avoiding spilling or dripping electrolyte.**
5. **Use proper jump start procedure.**

If you spill acid on yourself:

1. **Flush your skin with water.**
2. **Apply baking soda or lime to help neutralize the acid.**
3. **Flush your eyes with water for 10—15 minutes. Get medical attention immediately.**

If acid is swallowed:

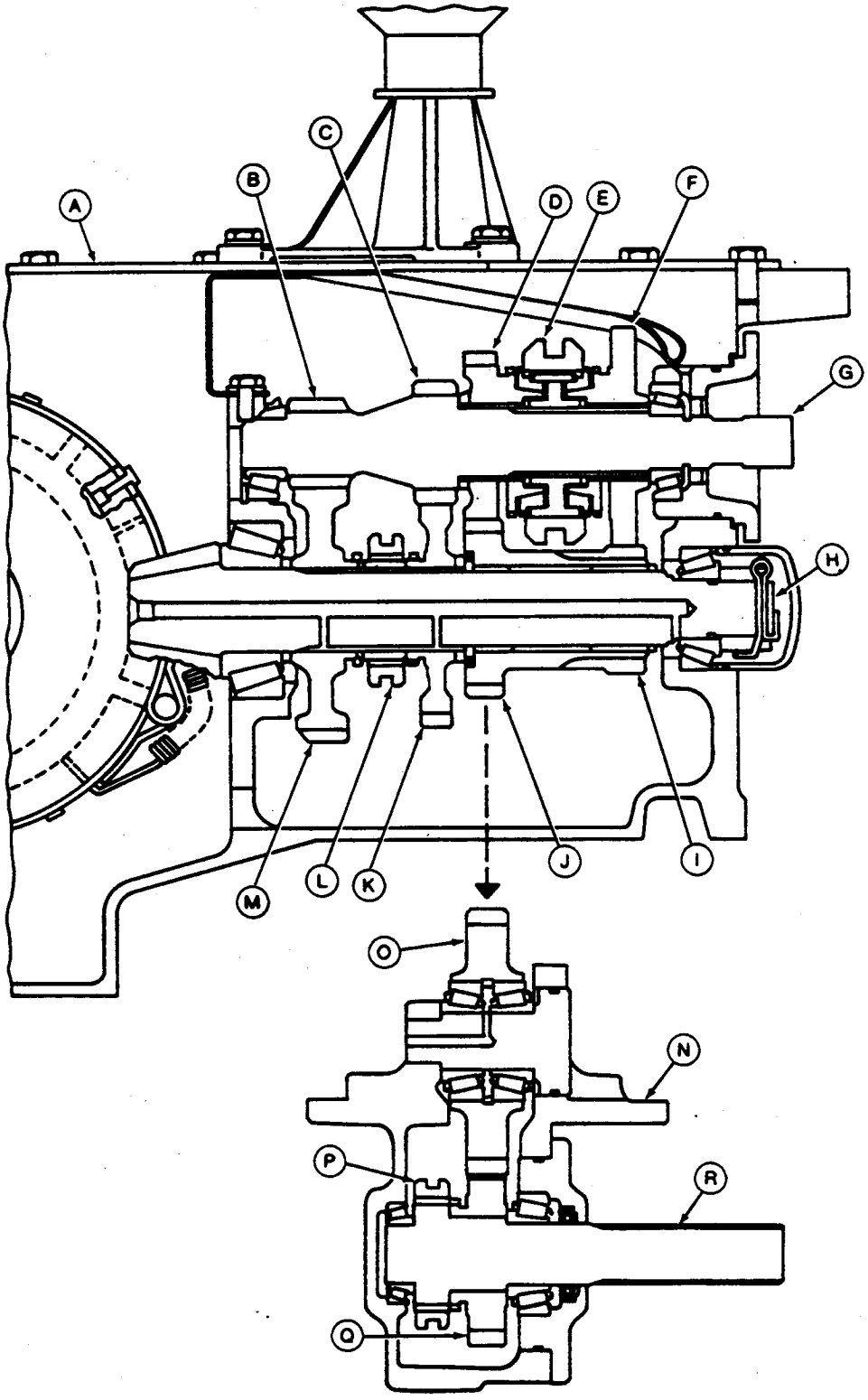
1. **Drink large amounts of water or milk.**
2. **Then drink milk of magnesia, beaten eggs, or vegetable oil.**
3. **Get medical attention immediately.**

IMPORTANT: During freezing weather, batteries must be charged after water is added to prevent battery freezing. Charge battery using a battery charger or by running the engine.

3. Fill each cell to within specified range with distilled water. DO NOT overfill.

TX,9015,QQ1696 –19–01SEP95–2/2

MFWD System Operation



T6771AF –UN–19OCT88

Continued on next page

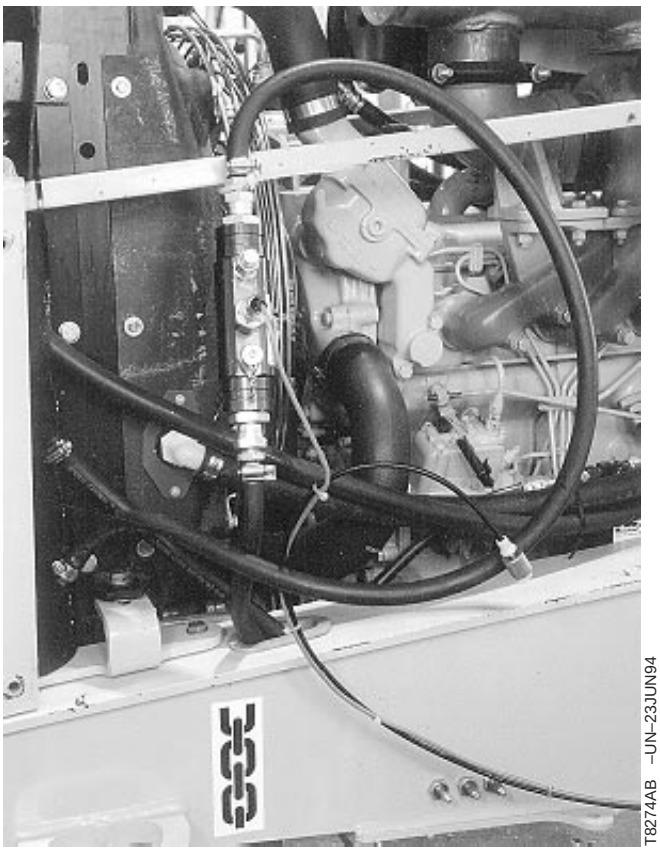
TX,300D,1977 –19–07DEC90–1/2

Transaxle Pump Flow Test

SPECIFICATIONS	
Oil Temperature	40 ± 4°C (104 ± 7°F)
Engine Speed	1500 ± 25 rpm
Oil Minimum Flow	11.3 L/m (3 gpm)

ESSENTIAL TOOLS
(1/2 Male NPT x 1/2 Male) (Parker No. 30182-8-8) Push-Lok Connector (2 used)

SERVICE EQUIPMENT AND TOOLS
Flowmeter
Digital Thermometer
Electronic Tachometer



T8274AB –UN–23JUN94

9020
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1. Make test connections.

IMPORTANT: Open flowmeter loading valve before starting unit to prevent damage to system.

2. Open flowmeter loading valve.

3. Raise machine off ground using loader and stabilizers.

4. Heat oil to specifications.

Specification

Oil—Temperature ..... 40 ± 4°C (104 ± 7°F)
Engine—Speed ..... 1500 ± 25 rpm

(See procedure in this group.)

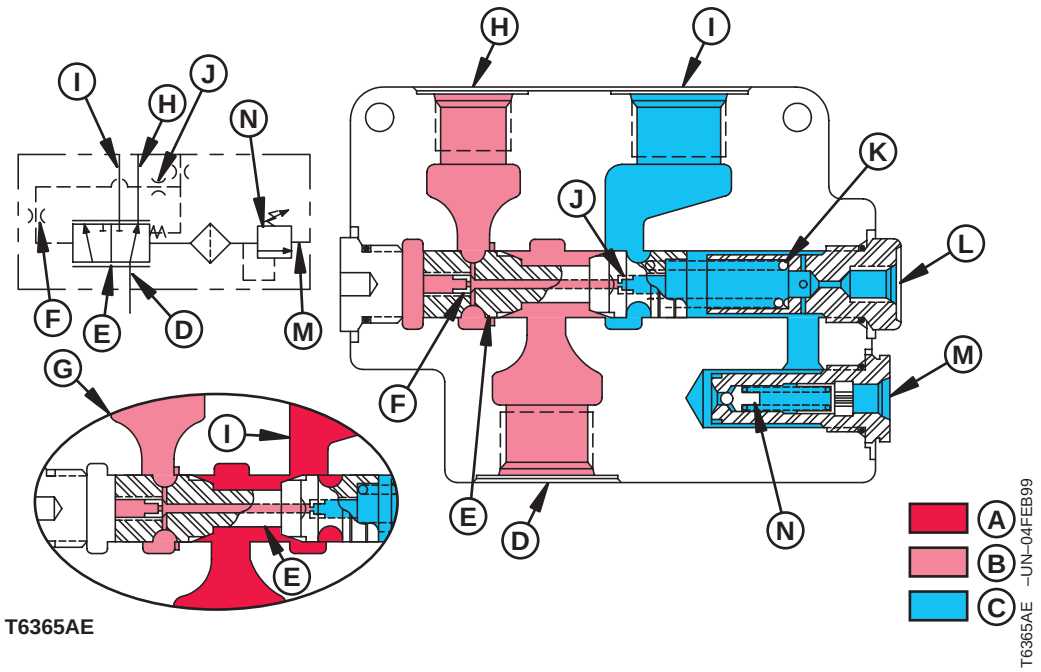
5. Put transaxle in neutral and FNR lever in forward. Adjust engine speed to specification. Record flow rate.

Specification

Oil—Minimum Flow ..... 11.3 L/m (3 gpm)

If flow rate is low, remove and repair or replace pump.

TX,9020,YY925 –19–12JUL94–1/1



T6365AE

Engine Running—Steering In Neutral

A—High Pressure Oil
B—Reduced Pressure Oil
C—Return Oil
D—From Steering Pump
E—Spool
F—Orifice
G—Backhoe Activated
H—To Steering
I—To Backhoe
J—Orifice
K—Spring
L—Load Sensing Line
M—To Return
N—Relief Valve Poppet

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When the machine is first started, all pump flow is routed to the steering valve (H) which blocks the flow. With the flow blocked, the pressure increases. Pressure at the steering valve inlet is sensed at the load sensing line (L) on the priority valve. This causes the spool to shift to the right against the spring and open to backhoe (I). As long as the steering valve is in neutral, just enough pressure is maintained at the steering valve to keep the priority valve spool shifted to the right.

The operating pressure in the backhoe circuit has no effect on operation of the priority valve. With the backhoe activated (G) in relief, the priority valve spool will not shift to the left unless the machine is steered.

Flow from the steering port (H) is routed through orifice (J) in the priority valve spool in the load sensing line (L). It flows through the steering valve, which is in neutral, to return. This provides flow to the steering valve warm-up circuit which prevents binding of the steering valve caused by extreme oil temperature variation.

Continued on next page

TX,D300,DS2093 –19–21JUL94–2/4

CAUTION: To avoid injury from escaping fluid under pressure, stop engine and relieve the pressure in the system before disconnecting or connecting hydraulic or other lines. Tighten all connections before applying pressure.

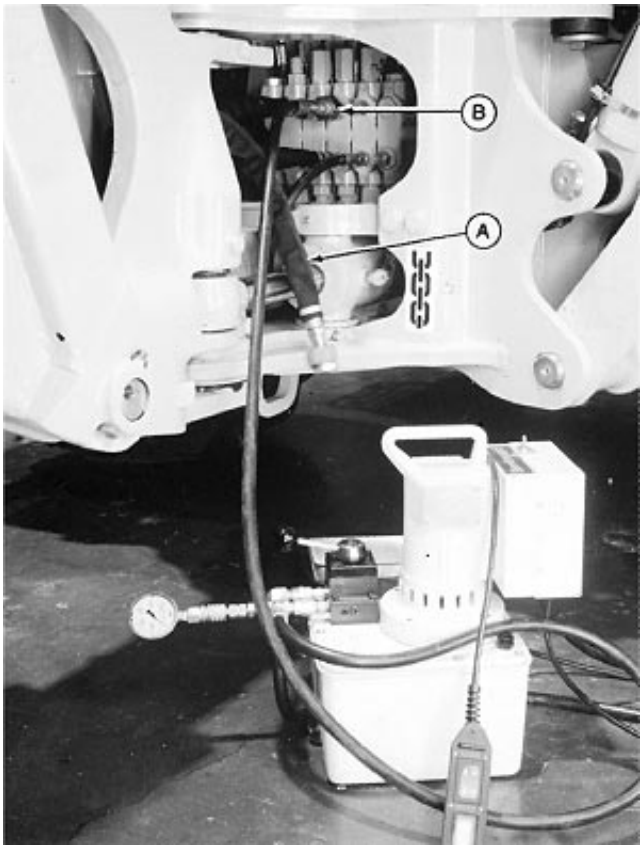
2. Disconnect pressure line (A) at inlet port of relief valve to be tested. Cap line.

3. Connect test pump pressure hose (B) to inlet port using adapters. Install gauge.

4. Start pump to pressurize valve inlet.

NOTE: Take reading when pressure on gauge starts to decrease. The point at which pressure decreases is the opening pressure of the relief valve.

5. Adjust or replace as required.



T8187AJ –UN–18FEB94

Specification

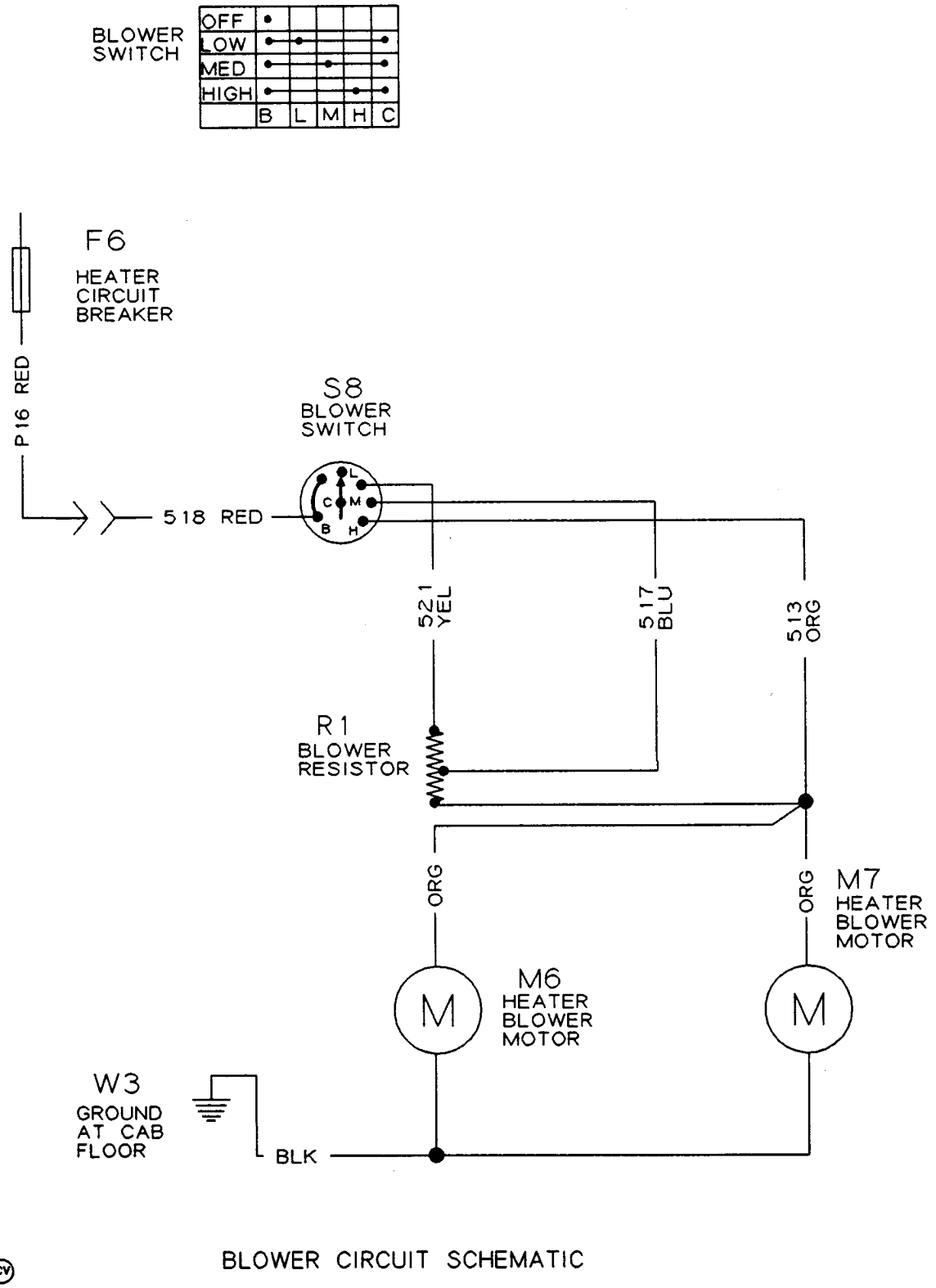
Pressure—Set Tolerance	+1380 -0 kPa (+13.8 -0 bar) (+200 -0 psi)
388D, 310D, 315D Gresen/Husco Loader Circuit—Pressure (Auxiliary Extend (S.N. 802200—))	19 200 kPa (192 bar) (3000 psi)
Pressure (Bucket Curl)	22 060 kPa (220 bar) (3200 psi)
Pressure (Bucket Dump)	22 060 kPa (220 bar) (3200 psi)
Pressure (Boom Up (S.N.802200—))	26 200 kPa (262 bar) (3800 psi)
(300D, S.N. —802199) Gresen Backhoe Circuit—Pressure (Crowd Out)	22,000 kPa (220 bar) (3200 psi)
Pressure (Bucket Curl)	18,600 kPa (186 bar) (2700 psi)
Pressure (Boom Down)	13,700 kPa (138 bar) (2000 psi)
Pressure (Swing Left)	18,100 kPa (181 bar) (2625 psi)
Pressure (Swing Right)	18,100 kPa (181 bar) (2625 psi)
Pressure (Boom Raise)	22,000 kPa (220 bar) (3200 psi)
Pressure (Bucket Dump)	22,064 kPa (220 bar) (3200 psi)
Pressure (Crowd In)	17,235 kPa (172 bar) (2500 psi)
(300D, S.N.802200—) Husco Backhoe Circuit—Pressure (Crowd Out)	22,000 kPa (220 bar) (3200 psi)
Pressure (Bucket Curl)	22,000 kPa (220 bar) (2750 psi)
Pressure (Boom Down)	12,900 kPa (129 bar) (1875 psi)
Pressure (Swing Left)	19 000 kPa (190 bar) (2750 psi)
Pressure (Swing Right)	19 000 kPa (190 bar) (2750 psi)
Pressure (Boom Raise)	22,000 kPa (220 bar) (3200 psi)
Pressure (Bucket Dump)	22,000 kPa (220 bar) (3200 psi)
Pressure (Crowd In)	19 000 kPa (190 bar) (2750 psi)

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Continued on next page

TX,9025,BS419 –19–22JUL94–4/5

Blower Circuit Schematic



T7857AD –19–30SEP92

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TX,901515,QQ809 –19–17JUN94–1/1

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