Group 5
SPECIFICATIONS

HORSEPOWER* (at 2,200 engine rpm):	SAE	PS
Gross	141	143
Net	131	133

* *Net engine flywheel horsepower is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator, and muffler. The gross engine horsepower is without fan. Gross and net flywheel horsepower ratings are under SAE standard conditions of 500-ft. altitude and 85°F. temperature and DIN 70 020 (non-corrected). Engine maintains rated horsepower up to 10,000 feet (3,000 m) altitude.*

ENGINE:

John Deere Diesel, vertical 6-cylinder, valve-in-head, 4-stroke cycle—turbo-built with turbocharger.

Bore and stroke	4.25x4.75 in. (108x121 mm)
Piston displacement	404 cu. in. (6620 cm)
Compression ratio	16.5 to 1
Maximum torque @ 1,600 rpm	348 lb-ft. (48, 1 kg-m)
N.A.C.C. or A.M.A. (U.S. Tax) horsepower	43.3
Lubrication	Pressure system with full-flow filter
Cooling	Pressurized with thermostat and fixed bypass
Fan	Suction-type
Air cleaner	Dry type, dual element with restriction indicator
Lights and starting system	12-volt with alternator
Batteries, two	Reserve capacity: 180 minutes each

TRANSMISSION:

Twin-turbine torque converter with Power-Shift transmission (4 speeds forward—2 reverse).

TORQUE MULTIPLICATION RATIO ..... 3.2 to 1

DIFFERENTIALS:

Front	"No-Spin" type
Rear	Standard

DRIVE AXLES:

4-wheel drive with inboard-mounted planetary gears to each wheel. Front axle fixed. Rear axle oscillates 22-degree total. 15.3 in. (339 mm) vertical travel at center of tire.

RECOMMENDED TRAVEL SPEEDS:

Forward and reverse ..... 4.5 mph maximum

BRAKES:

Service...Power actuated, 4-wheel, inboard-mounted wet disk. Foot-operated by either right or left pedal.

Parking...10x1.5-in. (254x38 mm) expanding shoe type on transmission output shaft. Adjustable, hand operated with warning light on dash.

STEERING:

Full power steering. Frame articulated 80 degrees by two hydraulic cylinders. Vehicle clearance circle is 36 ft. 10.8 in. (11,25 m).

HYDRAULIC SYSTEMS:

Loader functions system...Live, transmission-driven, vane-type pump delivers 60 gpm (227 lpm) at 2,200 engine rpm and 2,250 psi (158,2 kg/cm^2) relief-valve pressure setting.

Control .....Dual-lever, triple hydraulic system. |
bucket.

Steering and brake systems...Engine-driven, eight-piston, variable-displacement-type pump delivers 26 gpm (98 lpm) at 2,200 engine rpm and 2,250 psi (158.2 kg/cm^2).

LANDFILL BUCKETS:		Capacity	Width
Refuse	Dirt:	2-3/4 cu. yd. (2,10 m^3)	110.77 in. (2,81 m)
.....	Refuse:	4-1/2 cu. yd. (3,44 m^3)	
Light materials		4-1/2 cu. yd. (3,44 m^3)	110.77 in. (2,81 m)
Multi-purpose	Dirt:	2/1/4 cu. yd. (1,72 m^3)	106.4 in. (2,70 m)
.....	Refuse:	3-1/2 cu. yd. (2,68 m^3)	

COMPACTOR WHEELS:

Width	23 in. (584 mm)
Diameter	55 in. (1397 mm)
60° cleats, 32/wheel	5 in. (127 mm)
Encased General tires	13-24, 12 pr
Compaction	Up to 2,898 psi

WHEEL TREADS AND WIDTH:

Front and rear (center-to-center)	81.5 in. (2,07 m)
Width outside wheels	104.5 in. (2,65 m)

CAPACITIES:	U.S.	Liters
Cooling system	9 gal.	34,1
Fuel tank	50 gal.	189,3
Crankcase and filter	17 qt.	16,1
Transmission case and filters	9.75 gal.	36,9
Front differential	6 gal.	22,7
Rear differential	6.5 gal.	24,6
Loader hydraulic sump	17.5 gal.	66,2

OPERATING WEIGHT:	lb.	kg
With refuse bucket	30,012	13625
With multi-purpose bucket	30,282	13747

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Group 25
SEPARATION

SEPARATING LOADER AND ENGINE FRAMES

Disconnect battery ground strap. Operate controls to release hydraulic pressure from loader hydraulic system and steering and brake hydraulic system.

Remove plate on top of compactor oil reservoir and disconnect bucket return-to-dig oil tube from compactor control valve.

Support front and rear sections of loader and engine frames with heavy-duty stands to prevent frames from pivoting. Frames should be supported as evenly as possible to facilitate installation.

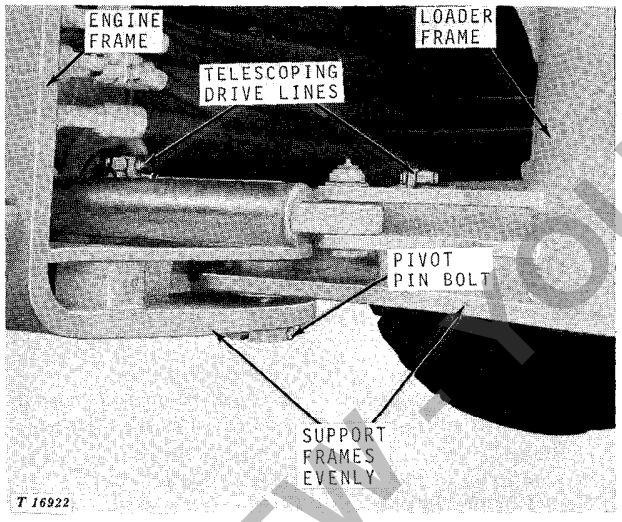


Fig. 1-Separating Frames—Lower Pivot Points

Refer to Figures 1 and 2 and perform the following steps:

1. Disconnect loader hoses, telescoping drive shaft, front lights, and front brake oil line.
2. Remove steering cylinder pivot pins. Keep washers and beveled spacers together for installation.

Do not damage threads on top of pivot pins while driving them out.

3. Remove cap screw and grease fitting from lower pivot pin and remove pin.
4. Remove the operator's platform.

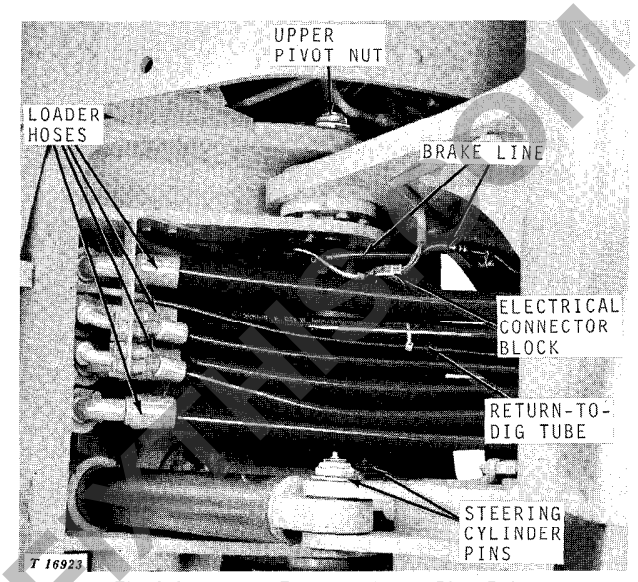


Fig. 2-Separating Frames—Upper Pivot Points

5. Remove upper pivot pin.
6. Attach a hoist to the loader frame and roll it away from the engine frame.

JOINING LOADER AND ENGINE FRAMES

Keep support stands under front and rear of loader and engine frames until installation is completed.

With frame pivot points aligned, install pivot pins. Secure upper pivot pin with plate and large nut and tighten to 1000 ft-lbs torque. See Section 80, Group 5 for checking upper hinge ball-rolling torque.

Install cap screw through bottom of lower pivot pin and secure with self-locking nut. Install grease fitting.

Secure steering cylinders to loader frame with pins and washers. Position spacers on top of self-aligning bushing with beveled side of spacer against bushing. Insert pivot pin (threaded end up) and secure with washer and nut. Tighten nut to 1000 ft-lbs torque. Install operator's platform.

Connect telescoping drive shaft. Connect loader hoses and bucket return-to-dig oil tube.

Connect front lights and brake oil line.

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REMOVING AND INSTALLING ENGINE

Removal

Operate controls to release hydraulic pressure from loader hydraulic system and steering and brakes hydraulic system.

Disconnect battery ground strap and secure locking bar between engine and loader frames.

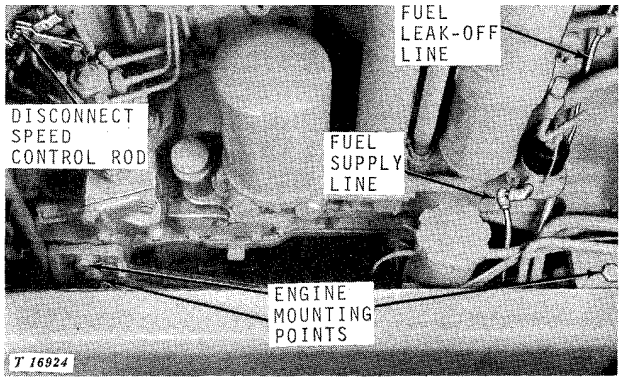


Fig. 3-Left Side of Engine Attaching Points

Remove hood and engine side shields. Drain radiator and disconnect inlet and outlet hoses. Disconnect oil cooler hoses and remove cooler, radiator, and grille.

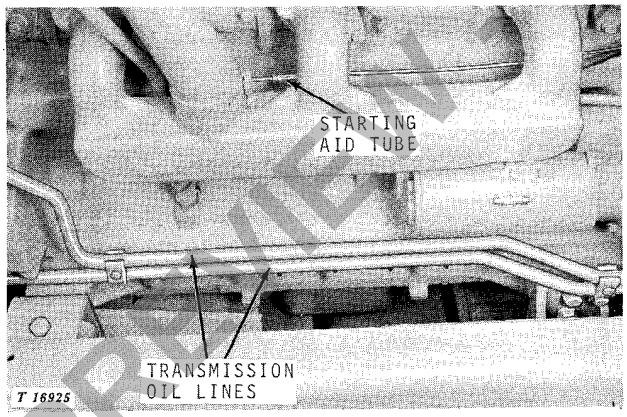


Fig. 4-Right Side of Engine Attaching Points

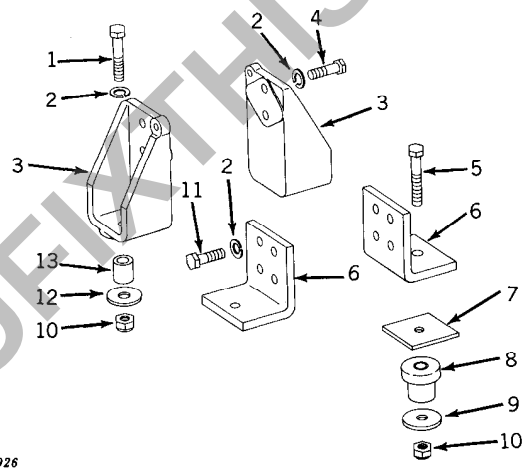
Disconnect all oil lines from engine-mounted hydraulic pump. Remove line clamps to aid in engine removal. Also disconnect seal bleed line at bottom rear of hydraulic pump.

Disconnect fuel line, electrical harness, oil pressure hose, starting aid tube, and speed control rod.

Disconnect transmission drive shaft at front of engine.

Remove cap screws securing engine to frame. Using a hoist and lifting eyes, remove engine from unit. See "Specifications and Special Tools."

Installation



1—Cap Screw (2 used)
2—Lock Washer (14 used)
3—Front Mounting Bracket (2 used)
4—Cap Screw (4 used)
5—Cap Screw (2 used)
6—Rear Mounting Bracket (2 used)
7—Washer (2 used)
8—Rubber Mounting (2 used)
9—Special Washer (2 used)
10—Nut (4 used)
11—Cap Screw (8 used)
12—Washer (2 used)
13—Spacer (2 used)

Fig. 5-Engine Supports

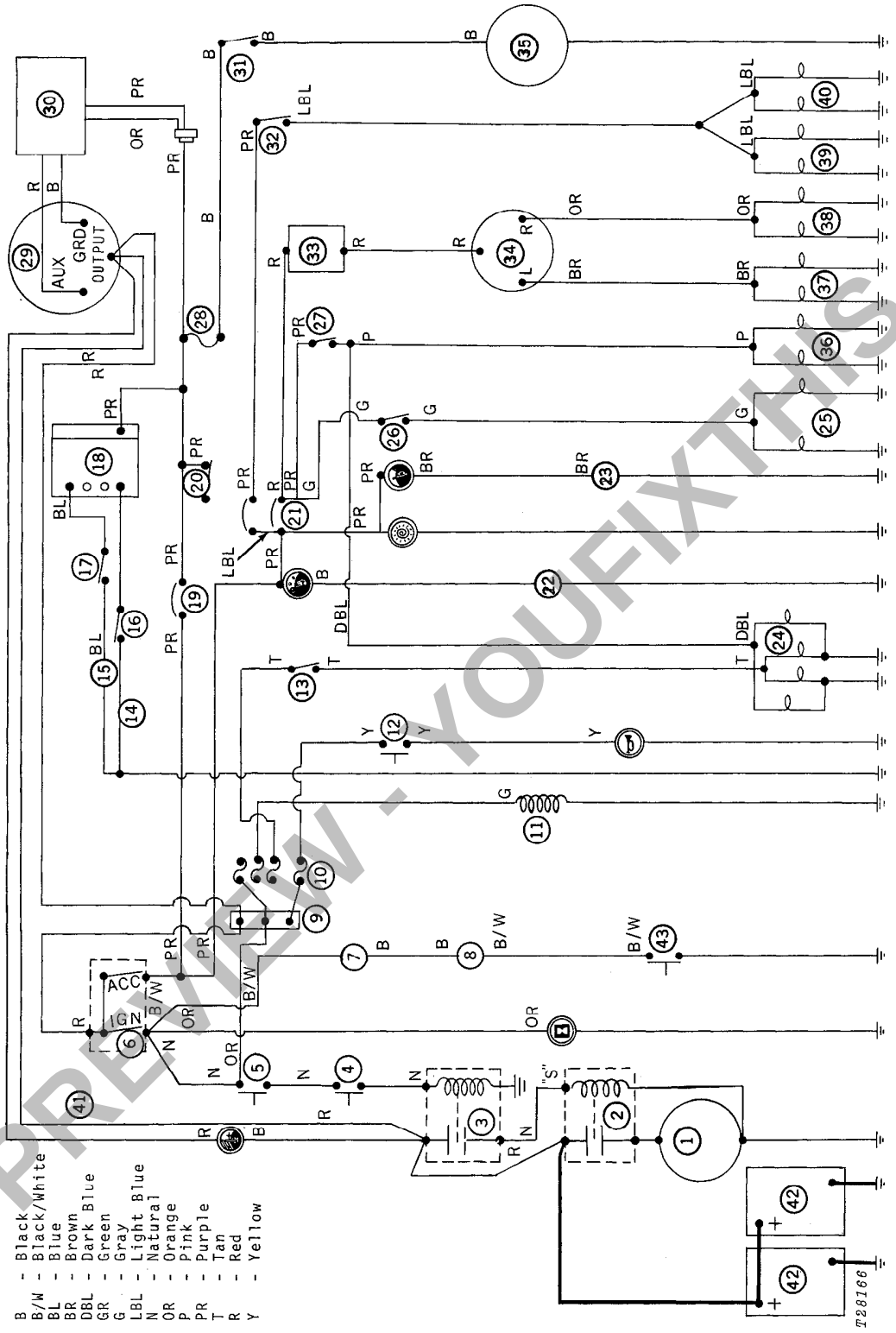
Install engine and tighten attaching cap screws to 170 ft-lbs torque.

Install and connect all parts removed during engine removal.

Start engine and check fuel line, all hydraulic lines, and radiator hoses for leaks.

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1—Starter
2—Starter Solenoid
3—Starter Relay
4—Start-Safety Switch
5—Start Button
6—Ignition Switch
7—Emergency Brake Flasher
8—Emergency Brake Light
9—Terminal Block
10—Instrument Fuse Block
11—Fuel Shut-Off Solenoid
12—Horn Switch
13—Brake Stop Switch
14—Rear Windshield Wiper
15—Front Windshield Wiper
16—Rear Wiper Switch
17—Front Wiper Switch
18—Cab Fuse Block
19—Accessory Circuit Breaker
20—Reverse Warning Switch
21—Light Circuit Breaker (2 used)
22—Fuel Sender
23—Eng. Temp. Sender
24—Stop and Tail Lights
25—Dash Lights
26—Dash Light Switch
27—Headlight Switch
28—Heater Fuse
29—Alternator
30—Regulator
31—Heater Switch
32—Work Light Switch
33—Flasher
34—Turn and Warning Light Switch
35—Heater
36—Front Headlights (2 used)
37—Left Turn and Warning Lights
38—Right Turn and Warning Lights
39—Rear Work Lights
40—Front Work Lights
41—Shunt Wire
42—Batteries
43—Brake Light Switch

Fig. 1-Electrical Schematic

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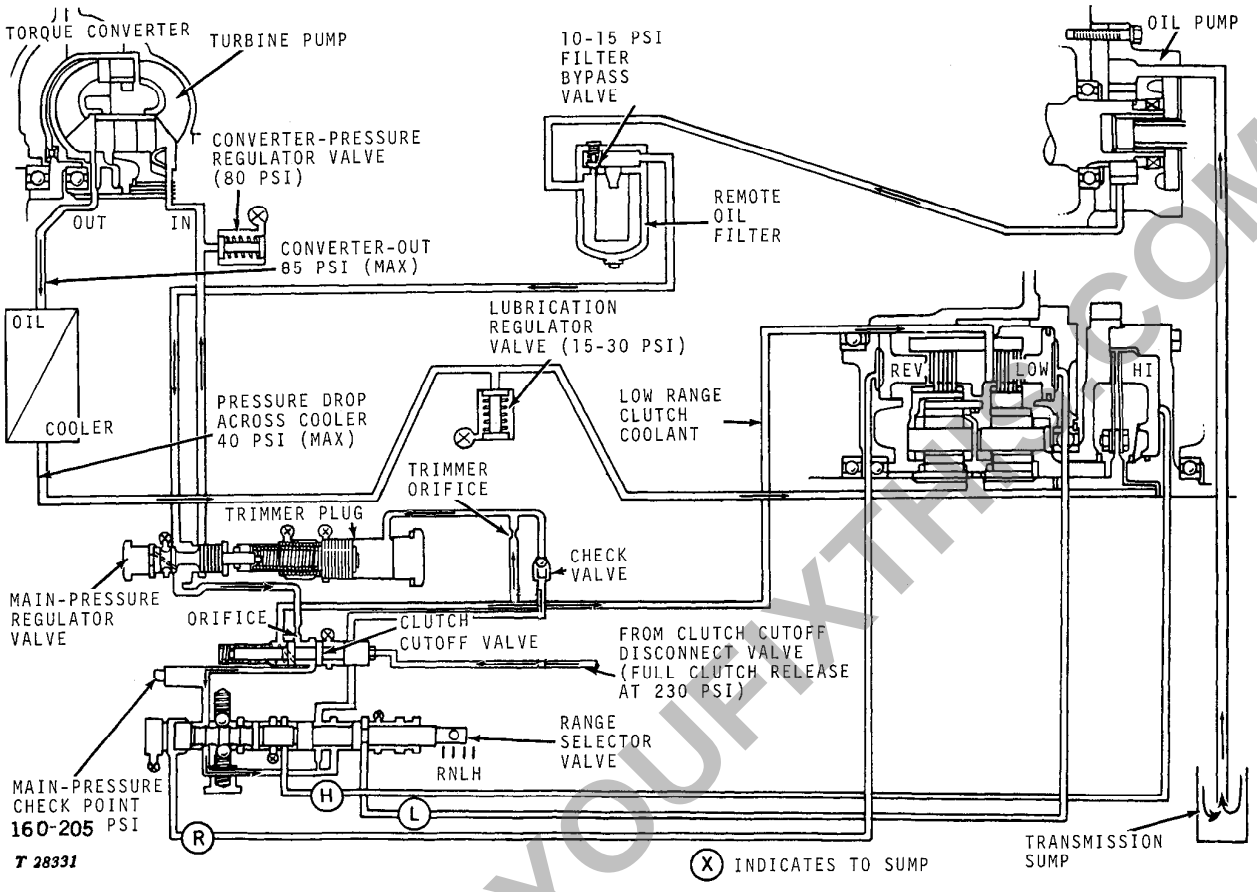


Fig. 6-Transmission Hydraulic System

Converter-Out, Cooler, And Lubrication Circuits

Oil flowing out of the torque converter is directed to the oil cooler.

From the cooler, oil flows to the power steering and brakes pump for use "on demand." Oil then flows to all outlets in the lubrication circuit. A lubrication system opens to return all oil, in excess of that required to maintain lubrication pressure, to the transmission sump.

Clutch Cutoff Valve Circuit

Main pressure oil, supplied from the main-pressure regulator valve, flows through an orifice to the clutch cutoff valve bore and then to the manual selector valve. The orifice functions in conjunction with the trimmer.

The clutch cutoff valve is normally in the position shown and functions only when the vehicle brakes are applied. A spring holds the valve rightward, allowing main oil pressure to flow through the valve bore and to the manual selector valve.

Hydraulic brake pressure acts directly against a plug which moves the clutch cutoff valve leftward during brake application. When in this position, the clutch cutoff valve interrupts the flow of main pressure oil to the manual selector valve. It allows the charged clutch to exhaust to the sump through a port shown at the top center of the valve bore. Thus, when the vehicle brakes are applied, the driving clutch in the transmission releases.

Manual Selector Valve Circuit

Main-pressure oil from the clutch cutoff valve flows into the manual selector valve bore and surrounds the valve in the area of the detent notches.

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Group 30
SPECIFICATIONS AND SPECIAL TOOLS

SPECIFICATIONS

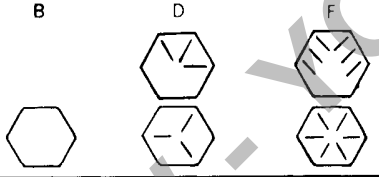
Item	Specification
Rear Differential Oscillating End Play	0.001 to 0.036 in.

	(Ft-lbs) (Torque)
Upper Pivot Pin Nut	1000*
Steering Cylinder Pin Nut	300
Engine Brackets to Engine Frame	170
Engine Brackets to Cylinder Block	170
Rear Pump Support to Engine Block	170
Transmission Brackets to Engine Frame	170
Oscillating Supports to Engine Frame	260
Converter—Out and Return Line to Transmission Hose Clamps	25

	(Ft-lbs) (Torque)
Wheel Attaching Hex. Nuts	525
Loader Frame to Axle Housing	445
Cross Bar to Battery Compartment	85
Cross Bar to Loader Reservoir	85
Canopy-to-Loader Frame Front Screws	445
Canopy-to-Loader Frame Rear Screws	300
Axle Housings to Differential Housing	250
Drive Shaft Universal Joints to Yokes	50

* *Retighten upper pivot pin nut to 1000 ft-lbs annually or every 1000 hours.*

RECOMMENDED TORQUE IN FT-LBS
COARSE AND FINE THREADS



Bolt Diameter	Plain Head	Three Dashes	Six Dashes
1/4	Not used	10	14
5/16	Not used	20	30
3/8	Not used	35	50
7/16	35	55	80
1/2	55	85	120
9/16	75	130	175
5/8	105	170	240
3/4	185	300	425
7/8	160	445	685
1	250	670	1030
1-1/8	330	910	1460
1-1/4	480	1250	2060

T25227N

Fig. 1-Standard Torque Requirements

The types of bolts and cap screws are identified by head markings as follows:

Plain head: regular machine bolts and cap screws.

3-dash head: tempered steel high-strength bolts and cap screws.

6-dash head: tempered steel extra high-strength bolts and cap screws.

The standard torque requirements chart (Fig. 1) is based on manufacturer's recommendations and should be observed in all cases where specific requirements are not mentioned.

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Group 5
DIAGNOSIS

GENERAL INFORMATION

The engine is a 6-cylinder, valve-in-head, vertical in-line, four-cycle engine.



For basic theory of engine operation see the FOS-30 "Engines" manual.

DIAGNOSING ENGINE MALFUNCTIONS

Will Not Start

Electrical System Malfunction-See Section 40
- Weak battery.
- Faulty or loose wiring.
- Faulty key switch.
- Faulty safety start switches.
- Faulty fuel shut off solenoid.

Fuel System Malfunction-See Section 30
- Foreign matter in fuel system.
- Faulty fuel pump.
- Incorrect engine timing.
- Faulty fuel injection pump.
- Faulty fuel injectors.
- Improper fuel.
- Fuel shut-off at tank.
- Restricted air intake system.
- Plugged fuel filter.

Uneven Running or Frequent Stalling

Fuel System Malfunction-See Section 30
- Low fuel supply.
- Faulty or leaking fuel injector tips.
- Fuel filter or lines restricted.
- Faulty fuel pump.
- Exhaust system restricted.
- Faulty fuel injection pump.

Engine Misses

Fuel System Malfunction-See Section 30
- Water in fuel.
- Air in fuel system.
- Faulty fuel injection nozzles.
- Faulty fuel injection pump.
- Fuel injection nozzle improperly installed.
- Fuel injection nozzle gasket leaking.
- Worn or faulty fuel pump.
- Detonation or pre-ignition.

Lack of Power

Incorrect Service-See Section 10
- Wrong viscosity crankcase oil.

Fuel System Malfunction-See Section 30
- Dirty or obstructed air cleaners.
- Restricted air intake passage.
- Sub-standard fuel.
- Fuel filter restricted.
- Faulty fuel pump.
- Faulty fuel injection pump.
- Faulty fuel injectors.
- Obstructed fuel line.

Power Train Malfunction-See Section 50
- Clutch slipping.

Leakage of Air or Gases-See Section 30
- Leakage at manifold or turbocharger.
- Leakage of compressed air between turbocharger and engine.

Speed Control Linkage Misadjusted-See Section 20

Engine Overheats

Incorrect Service-See Section 10
- Engine overloaded.
- Crankcase oil level low.

Fuel System Malfunction-See Section 30
- Injection pump delivering too much fuel.
- Incorrect engine timing.
- Improper type of fuel.

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JD646 COMPACTOR

TECHNICAL MANUAL
TM-1073 (Mar-74)

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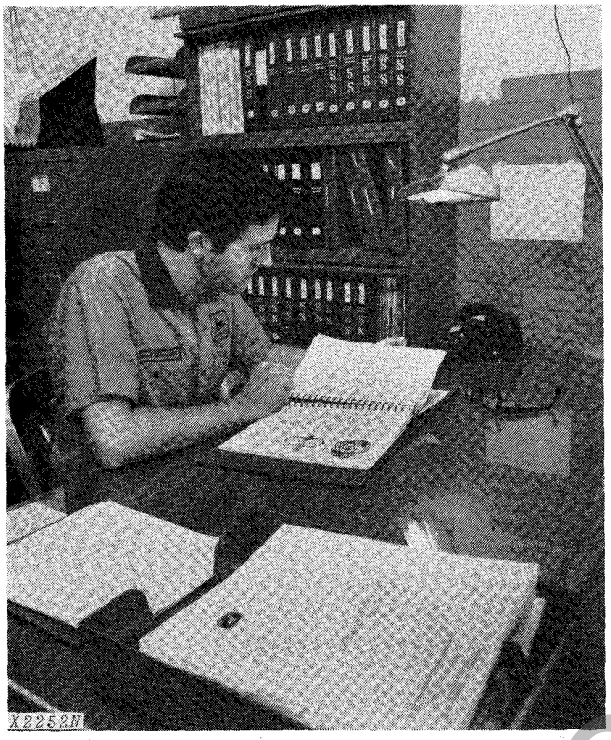
The specifications and design information contained in this manual were correct at the time it was printed. It is John Deere's policy to continually improve and update our machines. Therefore, the specifications and design information are subject to change without notice. Wherever applicable, specifications and design information are in accordance with SAE and IEMC standards.

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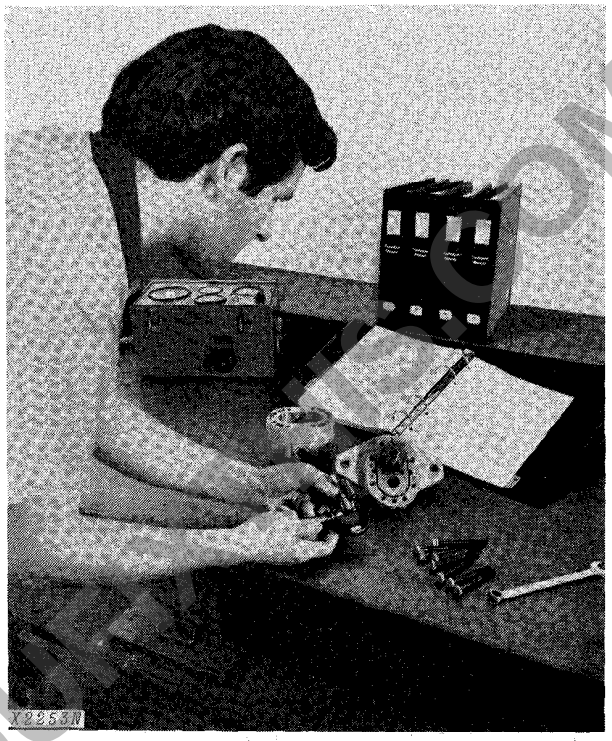
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INTRODUCTION



Use FOS Manuals for Reference



Use Technical Manuals for Actual Service

This technical manual is part of a twin concept of service:

- **FOS Manuals—for reference**
- **Technical Manuals—for actual service**

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

Fundamentals of Service (FOS) Manuals cover *basic* theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failures and their causes. FOS Manuals are for training new men and for reference by experienced men.

Technical Manuals are concise service guides for a *specific* machine. Technical Manuals are on-the-job guides containing only the vital information needed by a journeyman mechanic.



When a serviceman should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the TM to identify the reference.

Some features of this technical manual:

- *Table of contents at front of manual*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications grouped for easy reference*

This technical manual was planned and written for you—a journeyman mechanic. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.

This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

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BASIC ENGINE—Continued

ENGINE BREAK-IN

NOTE: Whenever possible, use a dynamometer to provide a more accurate break-in, assuring proper initial seating of new piston rings.

Time	Load*	Engine Speed	Remarks
5 Minutes	No Load	800 rpm (Slow Idle)	Check oil
5 Minutes	No Load	1500 to 2000 rpm (1/2 Throttle)	Pressure,
5 Minutes	1/4 Load	1900 to 2200 rpm	Coolant
10 Minutes	1/2 Load	(3/4 Throttle)	Temperature,
10 Minutes	1/2 to 3/4 Load		and leakage.
10 Minutes**	3/4 to Full Load		
100 Hours +	All Loads		Field Only

* *Loads can be simulated in the field by controlled machine operation.*

***After this run, loosen cylinder head bolts 5 to 10 degrees; then retighten bolts one at a time, in sequence to 130 ft-lbs. Check and reset valve clearance per specifications.*

\+ *Refer to the operator's manual for proper operation and service. After break-in, drain crankcase oil, and remove filter. Install new filter and fill crankcase with oil of proper viscosity and service classification.*

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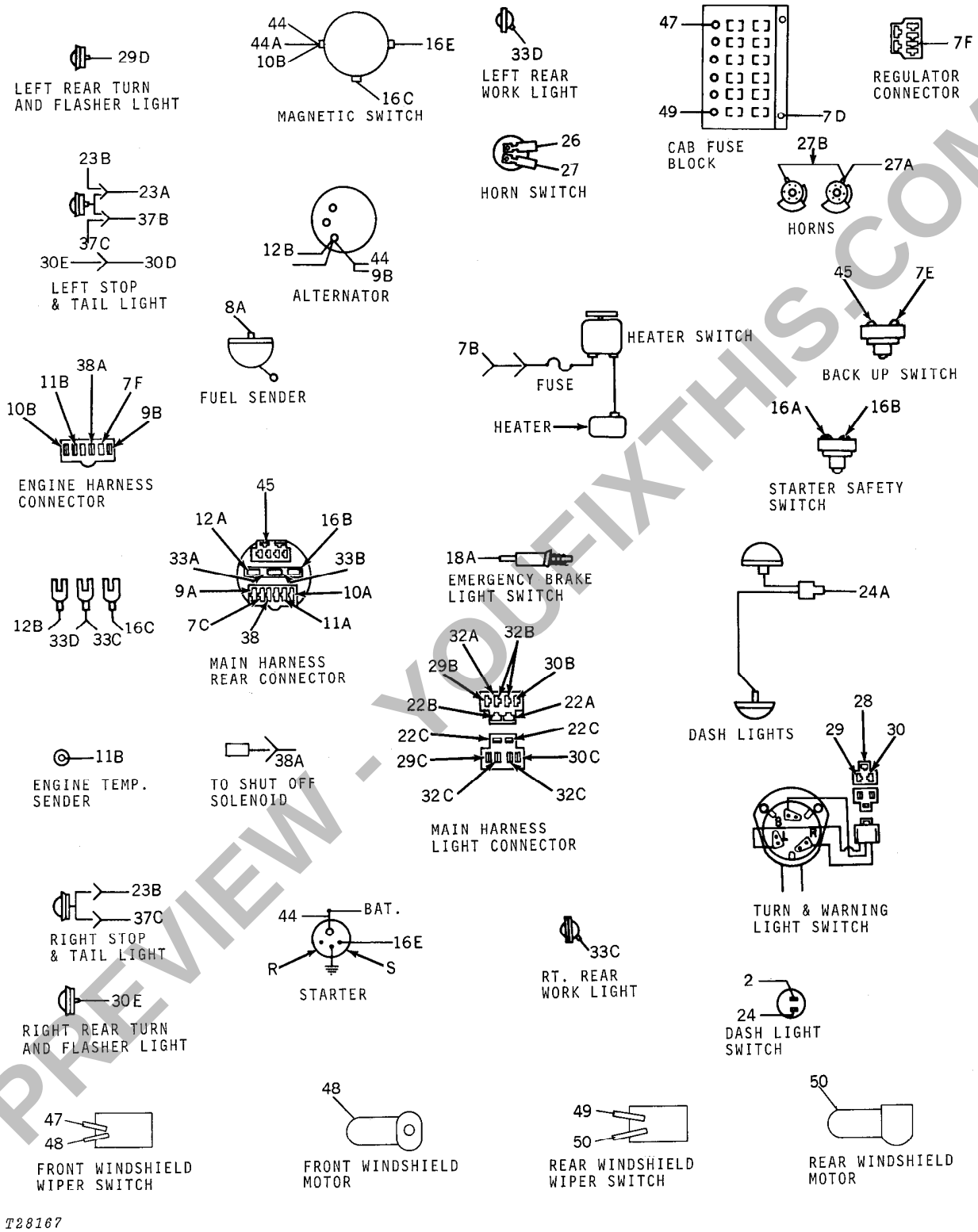


Fig. 2-Wiring Component Chart (Part 1)

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GAUGES AND SENDERS SPECIFICATIONS

Gauge-Sender	Needle Position	Nominal Pressure or Temperature Level*	Nominal Sender Resistance
Engine oil pressure gauge (mechanical)	Red line White zone	18 psi 18 to 75 psi	--- ---
Transmission oil pressure gauge (mechanical)	Low red line High red line	145 psi 190 psi	--- ---
Transmission oil temperature gauge (mechanical)	Left index mark High red line	38°F. 250°F.	--- ---
Engine coolant temperature gauge and sender	Middle index mark Red line	190°F. 222°F.	160 ohms 90 ohms
Fuel gauge and sender	Empty Half full Full	Empty 25 gal. 50 gal.	0 ohms 15 ohms 30 ohms

* *Gauge reading tolerance: Plus or minus 10 percent for electrical gauges; 5 percent for mechanical gauges.*

REPLACING FLASHERS

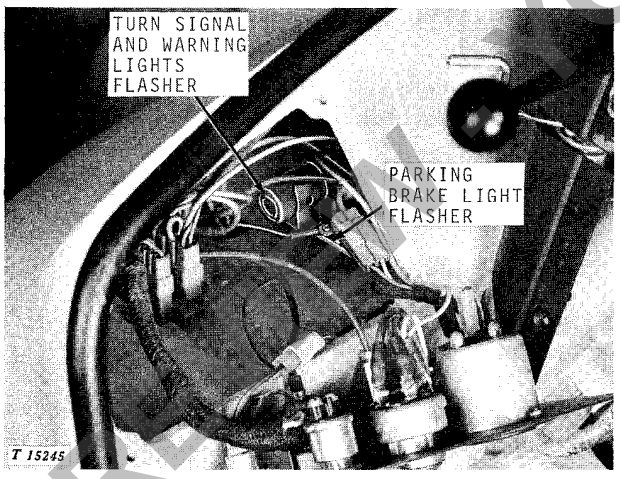


Fig. 1-Warning Light and Parking Brake Light Flashers

The warning light flasher (Fig. 1) is held in place by a clip behind the left instrument panel. It is easily removed for replacement.

The parking brake light flasher (Fig. 1) is located behind the warning light flasher and is plugged into a block. The block holds the flasher in place and also is the electrical connection for the flasher.

ADJUSTMENTS

Parking Brake Switch

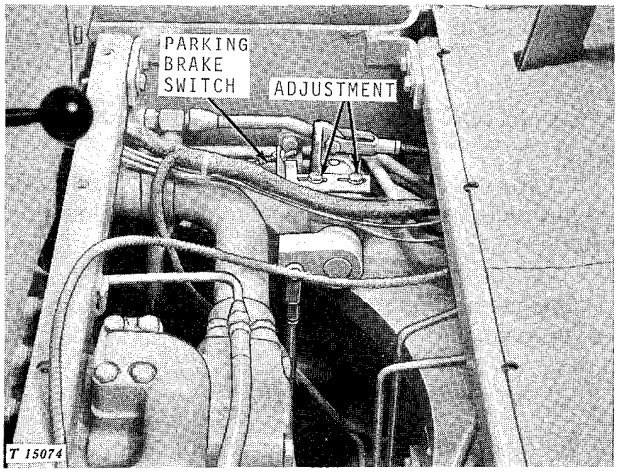


Fig. 2-Parking Brake Switch Adjustment

With hand brake lever released (furthermost down and forward), adjust switch so button end is 5/16-inch from hex end on switch.

FUSES

One 30-amp and three 10-amp fuses in fuse block are located under left instrument panel.

A 5-amp fuse in the heater circuit is located on seat panel.

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Inspect the oil seal (10, Fig. 20). If replacement is necessary, remove the seal by driving or pressing it toward the front (accessory mounting face) of the pump.

Assembly

If the dowel pin (8) was removed, press a *new* pin into pump body as specified.

If the oil seal (10) was removed, coat the outer circumference of the new seal with nonhardening sealer. Install the seal, spring-loaded lip first, into the pump body. Press the seal until it seats lightly on the shoulder in the body bore.

If the needle bearing (5) was removed from the driven gear (4) install new bearing with part number end out. Press bearing into place as specified.

Install the driven gear assembly over the gear shaft (6) and in the pump body. Install the drive gear in the pump body.

See "SPECIFICATIONS" for correct installation of the driven gear (4) and drive gear (7). *NOTE: If end faces of the gears are below the flush line of the pump body, the pump will not perform satisfactorily.*

Fill the pump assembly with transmission oil and install the cover gasket and cover.

Position the pump assembly rear upward, until ready for installation on the transmission housing.

Transmission Rear Cover

Disassembly

If replacement of seal (4, Fig. 21) is necessary, drive the seal out of the rear of the rear cover (5). Clean the bore from which the oil seal (4) was removed.

Assembly

Coat outer circumference of seal with nonhardening sealer. Install seal (4), spring-loaded lip first, in the rear of the cover bore.

Using a tool which completely covers the oil seal, press the seal into the bore as specified (see "SPECIFICATIONS").

Torque Converter Drive Cover

Disassembly

Using a puller, remove ball bearing (8, Fig. 21) from input shaft (11).

If necessary the input shaft (11) may be removed from the torque converter cover (13).

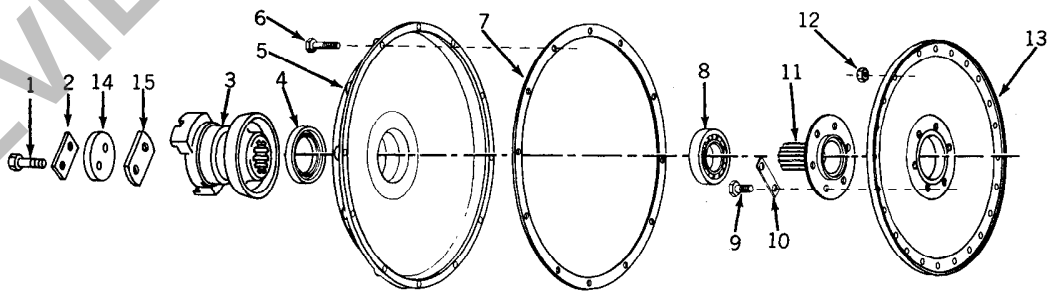
Assembly

Install input shaft (11) on torque converter cover (13). Secure with six bolts (9) and three lock strips (10).

Seat bearing (8) on input shaft (11), against shaft shoulder.

Install flange (3) onto splined shaft. Install the retaining washer (14) and the two self-locking bolts (1). Tighten bolts sufficiently to draw flange into its final position on shaft.

Remove the two bolts and retaining washer. Select shims (15) to allow 0.005 to 0.009 inch clearance between shim pack and retainer.



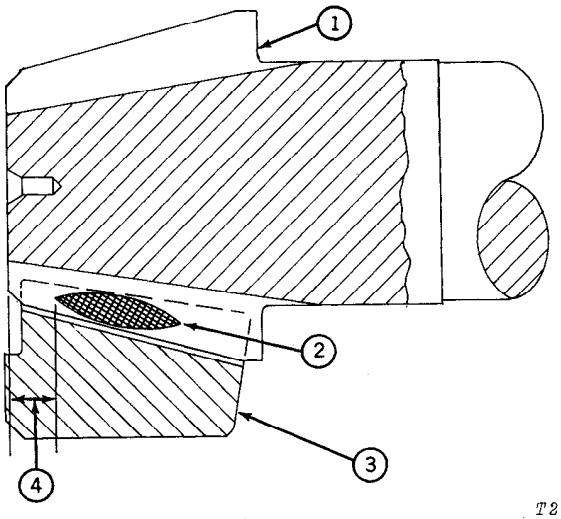
1—Flange Retaining Screw (2 used)
2—Locking Strip
3—Input Flange
4—Seal
5—Rear Cover
6—Cap Screw (12 used)
7—Cover Gasket
8—Ball Bearing
9—Cap Screw (6 used)
10—Locking Strip (3 used)
11—Input Shaft
12—Hex. Nut (24 used)
13—Torque Converter Cover
14—Flange Retaining Washer
15—Shim (as required)

Fig. 21-Transmission Rear Cover and Torque Converter Cover

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Differential Spiral Bevel Gear and Pinion Tooth Pattern (new parts only) (including case and quill)



1—Bevel Pinion
2—Tooth Bearing Pattern
3—Spiral Bevel Gear
4—0.43 ± 0.12 inch

Fig. 12-Tooth Pattern

Check the tooth pattern of the differential spiral bevel gear with pinion and adjust the differential drive and bevel pinion shaft bearing cup shims (15-16, Fig. 1), or (23, Fig. 2), if necessary to correct tooth pattern as specified (Fig. 12).

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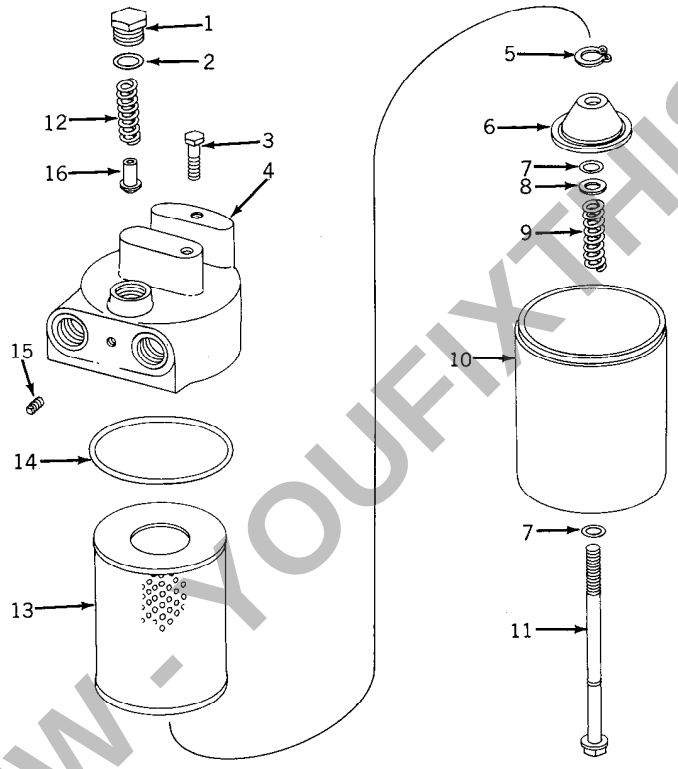
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Group 15

FILTERS, OIL COOLER, AND ACCUMULATORS

FILTERS

GENERAL INFORMATION



1—Plug
2—O-Ring
3—Cap Screw
4—Base
5—Retaining Ring
6—Retainer
7—O-Ring
8—Washer
9—Spring
10—Cover
11—Special Cap Screw
12—Spring
13—Element
14—Packing
15—Pipe Plug
16—Bypass Valve

Fig. 1-Exploded View of Filter Assembly

The transmission and power steering full-flow filters contain a replaceable micronic filter element. If the filter clogs, a bypass valve in the filter base opens to maintain a full flow of oil to vital hydraulic components.

Repair

Remove filter cover, element, and O-ring packings.

Check bypass valve spring for free length of 1-13/16 inch and test length of 9/16 inch when compressed with 11 pounds of force.

Install new element and O-ring packings.

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Group 30

SPECIFICATIONS AND SPECIAL TOOLS

POWER STEERING AND BRAKE TEST SPECIFICATIONS

SPECIFICATIONS

Item	Specification
Stand-by pressure (3.0 cu. in.)	2300 to 2400 psi at 2400 rpm
Minimum pump flow (3.0 cu. in.)	26 gpm at 2000 psi (2400 rpm)
Return oil pressure from transmission to main pump	15 to 30 psi at fast idle with no load
Pressure in line between transmission and main pump	Maximum 85 psi at fast idle with no load Minimum 40 psi at fast idle and stall in high range
Time required to turn steering wheel lock to lock	
At 1000 rpm engine speed	4 sec.
At engine fast idle	2-1/2 sec.
Number of degrees unit should turn with engine shut off, accumulator charged and steering wheel turned 1/3 revolution to the left and back	6 to 10° from center and back
Time lapse before applying brakes for accumulator check (after engine is stopped)	2 min.
Brake pedal cycle times (minimum with engine stopped)	20 strokes
Approximate pressure used to apply strokes	50 to 100 lbs.
Waiting period between strokes	5 sec.
Maximum brake pedal travel with 20 brake applications (engine stopped and accumulator charged)	2 in.
Brake valve outlet line pressure (with brakes applied)	2000 (min.) psi
(without brakes applied)	0 psi
Residual brake line pressure (minimum to disconnect transmission)	250 psi

SPECIAL TOOLS

Convenience Tools

The following fittings, hoses, gauges, and test units are suggested for use in testing the power steering and brake systems:

Part Number		
O.T.C.	Nuday	Name
Y 3021	D 89	Connector
Y 21-10	D 91	Hose (2 used)
....	D 96	Adapter (2 used)
Y 3016	D 99	Adapter
Y 3022	D 102	Adapter
Y 90	ND 1575	Hydraulic Tester

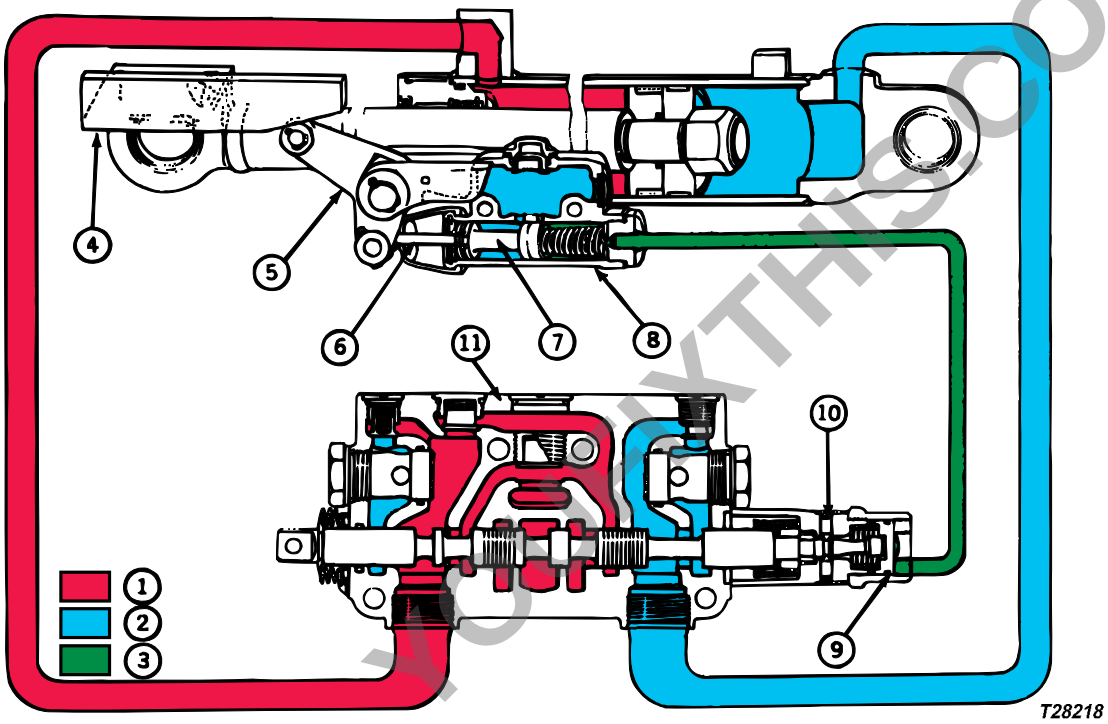
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Group 25
RETURN-TO-DIG VALVE

GENERAL INFORMATION



1—Pressure Oil
2—Reservoir Pressure Oil
3—Trapped Oil
4—Bucket Actuator Cam
5—Actuator Crank
6—Push Rod
7—Piston
8—Return-to-Dig Valve
9—Piston
10—Detent
11—Bucket Valve Section

Fig. 1-Return-to-Dig Valve Circuit

With the bucket valve spool rearward in a detent position, oil is flowing to the rod end of the cylinder, and retracts the bucket. As the rod end of the cylinder recedes into the barrel, an actuator cam, bolted to the top side of the piston rod eye, contacts the actuator crank roller on the return-to-dig valve (Fig. 1). At this point, the bucket cutting edge is at the preset position and the actuator crank depresses the push rod in the return-to-dig master cylinder.

The return-to-dig piston forces oil through a flexible tube to the detent cap on the rear of the control valve bucket spool. A piston within the detent cap is moved forward, releasing the spool from the retract detent position. This initial movement plus spring pressure will return the spool to a neutral position.

Moving the spool to neutral stops the flow of oil to the cylinders. The bucket is held until the bucket control valve spool is manually moved from neutral.

The piston in the detent cap has a cavity on one side. When the bucket valve spool is manually moved rearward to retract the bucket to a full roll-back position, the spool detent screw will bottom in the piston cavity since the detent cap piston is still under pressure. The spool detent position cannot be reached. However, enough spool movement is possible to allow oil to flow to the rod end of the bucket cylinders.

Oil is returned through the flexible tube to the master cylinder when the bucket is extended and the actuator crank roller loses contact with the actuator cam.

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