Group III
GENERAL SPECIFICATIONS

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with ICED and SAE Standards. Except where otherwise noted, these specifications are based on a unit equipped with 13.00-24, 10-ply-rating, tubeless tires, 13-ft. (3.96 m) moldboard, and standard equipment.

Power (@ 2200 engine rpm):	SAE	
Gross	152 (113.5 kW*)	
Net	142 (106 kW*)	144 PS

*Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating-oil pump, fuel pump, alternator, and muffler. Gross engine power is without fan. Flywheel power ratings are under SAE standard conditions of 500 ft. (150 m) altitude and 85° F (20°C) temperature and DIN 70 020 conditions (non-corrected). No derating is required up to 10,000 ft. (3 000 m)

**In the international system of units (SI), power is expressed in kilowatts (kW).*

Engine: John Deere Turbocharged diesel, vertical 6-cylinder, valve-in-head, 4-stroke cycle.

Bore and stroke	4.75 x 5.00 in. (120.6 x 127 mm)
Piston displacement	531 cu. in (8 702 cm³)
Compression ratio	15.8 to 1
Maximum torque @ 1,400 rpm	440 lb-ft (597 Nm)
NACC or AMA (U.S. Tax) horsepower	54.15
Main bearings	7
Lubrication	Pressure system with full-flow filter
Cooling	Pressurized with thermostat and fixed bypass
Fan	Suction
Air cleaner with restriction indicator	Dry
Electrical system	24 volt (24 V) with alternator
Batteries (2)	Reserve capacity: 360 minutes

Transmission	Power Shift, 8 forward and 4 reverse selections
Differential Lock	Foot-operated, hydraulically-actuated
Final Drives	Inboard planetary

Travel Speeds (2,200 engine rpm, no tire slip, 14.00 - 24 tires)

Shift Lever Position		mph	km/h
Forward	1	2.3	3.7
	2	3.3	5.3
	3	5.2	8.9
	4	6.7	10.8
	5	8.8	14.2
	6	11.5	18.5
	7	14.6	23.6
	8	25.1	40.4
Reverse	1	3.0	4.8
	2	4.2	6.8
	3	6.6	10.6
	4	8.6	13.9

Brakes:

Service	Foot-operated, hydraulically-actuated, wet-disk, effective on 4 tandem wheels
Parking	Foot-operated, mechanical, dry-disk effective on 4 tandem wheels

Steering:

Front	Full hydraulic power system
Rear	Hydraulically-articulated frame steering (25 deg. left or right)
Turning radius	22 ft. (6.7 m)
Range	47.5 deg. left or right

Hydraulic System: Closed-center

Pressure	2,000 psi (138 bar)
Pressure (stand-by)	2,350 psi (162 bar)
Pump	Variable-displacement, 57 gpm (216 L/min. @ 2,200 engine rpm)

Circle: Welded angle, 5 ft. (1.5 m) dia.

Rotation	360 deg.
Drive	Hydraulic motor and worm gear

Drawbar	Welded box, 3.5x7x0.5 in. (89x178x13 mm) wall, w/ball and socket pivot

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Group IV
PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

TEMPORARY UNIT STORAGE

After receiving your unit from the factory and before putting the machine into temporary storage, perform the following checks.

For long term storage information, consult your JD770 Operator's Manual.

1. Check battery electrolyte level and charge the battery, if necessary.
2. Check coolant level in the radiator. The coolant should be maintained at a level 4 inches (102 mm) below the top of the filler neck.
3. Fill the fuel tank.
4. Check crankcase oil level. Oil should be above bottom mark of dipstick after machine has been shut down for 10 minutes.
5. Relieve hydraulic pressure by lowering blade and stopping engine. Operate brake pedals until hydraulic pressure is bled.
6. Reduce shipping pressure of all tires to inflation pressure, shown on page I-IV-9.
7. Cover unit for protection and cleanliness.

PREDELIVERY SERVICE

Because of the shipping factors involved, plus extra finishing touches that are necessary to promote customer satisfaction, proper predelivery service is of prime importance to the dealer and the customer.

Use the following list when preparing a unit for delivery to the customer.

1. Pre-Cleaner

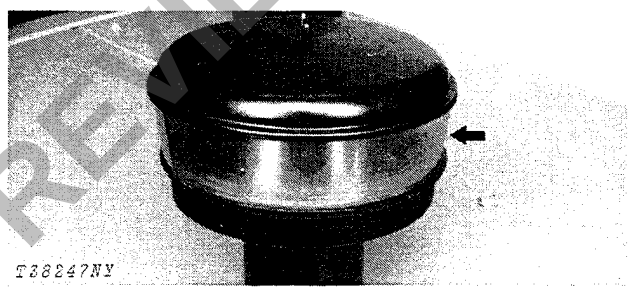


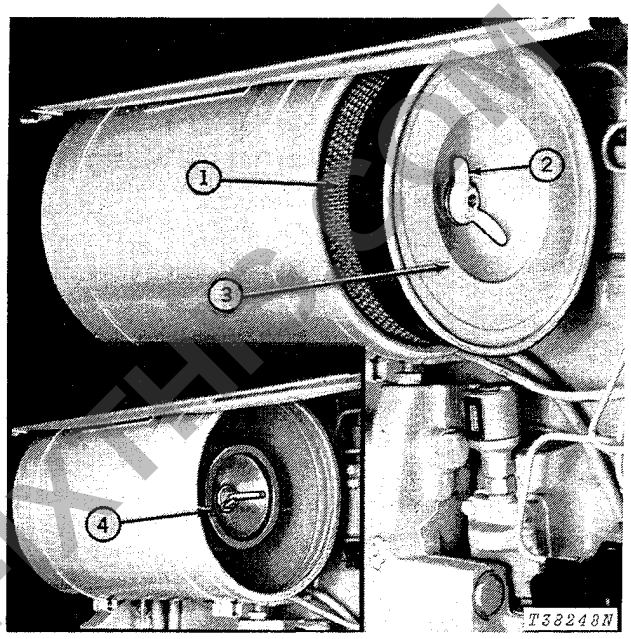
Fig. 1-Pre-Cleaner

Check and clean pre-cleaner bowl.

Pre-cleaner checked and cleaned *Yes* *No*

2. Air Cleaner

Check air cleaner restriction indicator on instrument panel. If indicator shows red, check and clean primary element. Install new elements, if necessary.



1—Primary Element
2—Wing Nut
3—Air Cleaner Cover
4—Safety Element

Fig. 2-Air Cleaner

Air cleaner checked *Yes* *No*
New elements installed *Yes* *No*

3. Fuel Filters

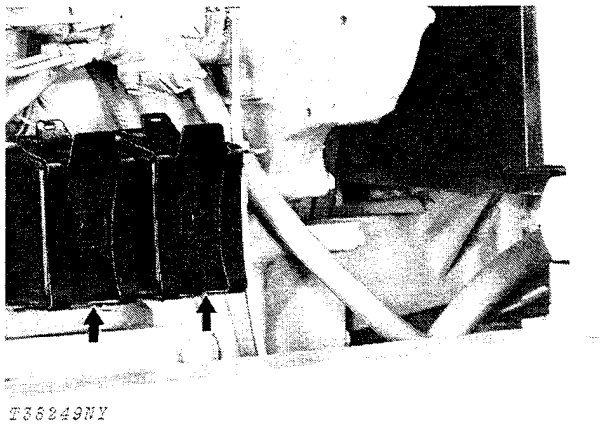


Fig. 3-Fuel Filters

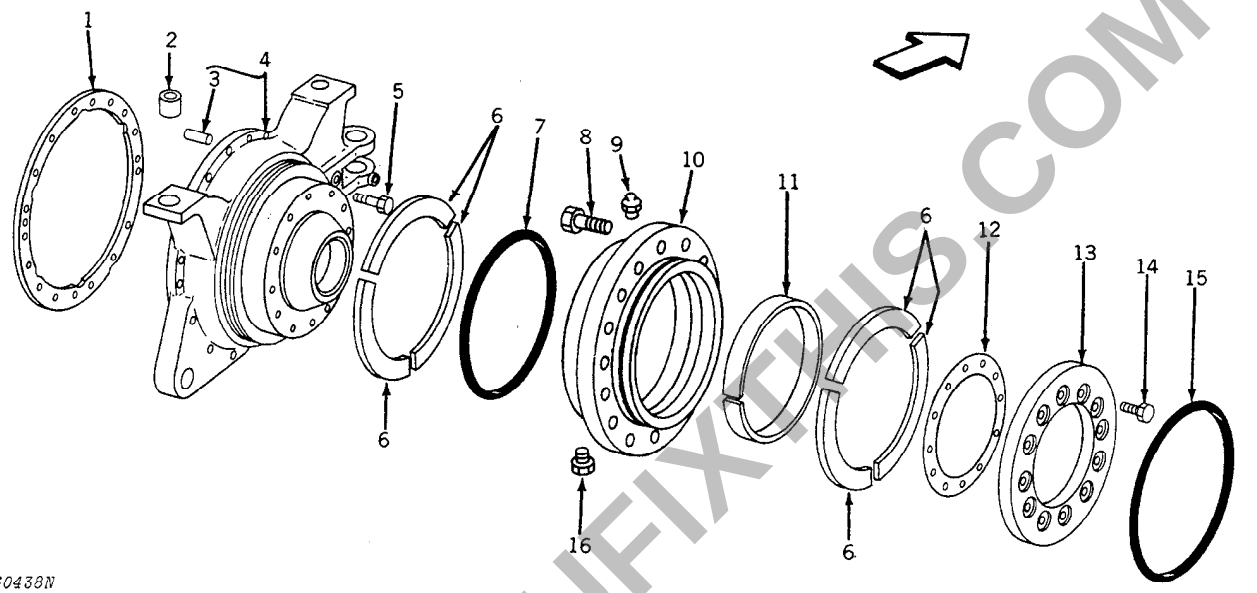
Check fuel filters for sediment. Drain if necessary.

Sediment present in filters *Yes* *No*

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REPAIR

Pivot Housing



1—Gasket
2—Hollow Dowel (2 used)
3—Dowel Pin (3 used)
4—Final Drive Housing
5—Cap Screw (16 used)
6—Thrust Washer (6 used)
7—O-Ring
8—Special Cap Screw (2 used)
9—Grease Fitting
10—Tandem Pivot Housing
11—Tandem Pivot Bushing
12—Shim (use as required)
13—Pivot Retainer
14—Special Cap Screw (12 used)
15—O-Ring
16—Pipe Plug

Fig. 6-Final Drive and Pivot Housing Assembly

All parts must be cleaned to permit effective inspection.

All metallic parts should be cleaned thoroughly with volatile mineral spirits, or by the steam-cleaning method. Do not use a caustic soda solution for steam cleaning.

Parts should be dried with compressed air. Steam cleaned parts should be oiled immediately after drying.

Inspect all parts for excessive wear, cracks or other damage. Replace as needed.

Lubricate O-rings (7 and 15) with John Deere Multi-Purpose Grease or an equivalent before installing.

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WHEEL AXLE HOUSINGS, TANDEM HOUSING AND PIVOT HOUSING

REMOVAL

Wheel Axle Housing

NOTE: It is not always necessary for the tandem drive chains to be disconnected when servicing components of the final drive system.

The tandem drive chains are not required to be broken when:

1. Removing wheel axle housing assemblies (3, Fig. 2) from tandem housing (4).

2. Removing tandem housing (with or without wheel axle housings) from pivot housing, providing the double sprocket is retained with the tandem housing by sliding it from the splined tandem drive shaft.

To remove the double sprocket from the tandem drive shaft, remove the round inspection plate with step from the outboard center of the tandem housing. Remove the two cap screws securing the retaining plate and double sprocket to the tandem drive shaft. The double sprocket and drive chains may now be removed with the tandem housing.

The tandem drive chains must be disconnected when:

1. Replacing the double sprocket.

2. Removing the tandem housing with the double sprocket remaining on the tandem drive shaft.

To disconnect the tandem drive chains, refer to page 0250-2.

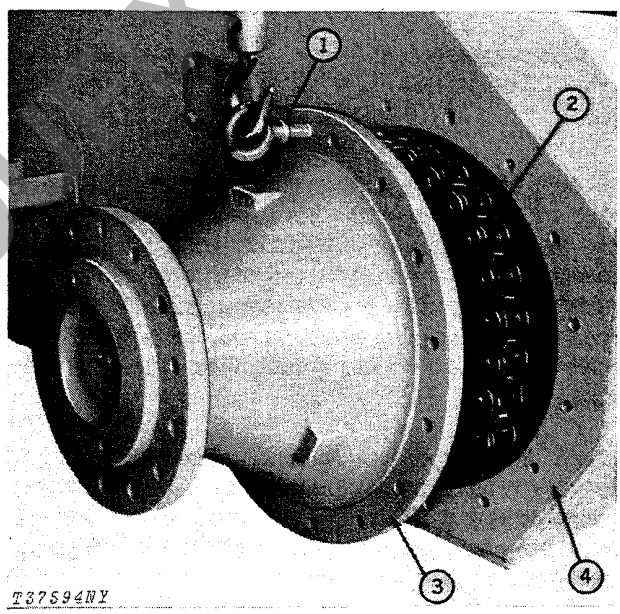
Disconnect battery ground strap.

Raise and block the rear of the motor grader so the tandem drive wheels on the side you are servicing are clear of the ground.

Refer to Group 0110 and remove wheels from hubs.

Remove plug and drain oil from the tandem housing. *NOTE: Approximately 5 gal. (19 L) of oil will be drained.*

Attach a 3/4 inch eyebolt (1, Fig. 2) to the top of the wheel axle housing (3) in tapped hole provided on outer flange. Remove cap screws securing wheel axle housing to tandem housing (4) and with the aid of a hoist remove wheel axle housing far enough to permit it to move toward the center of the tandem drive housing.



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1—3/4" Eyebolt
2—Drive Chain and Sprocket
3—Wheel Axle Housing
4—Tandem Housing

Fig. 2-Removing Wheel Axle Housing

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DIFFERENTIAL OR BEVEL DRIVE

SPECIFICATIONS AND TORQUE VALUES—Continued

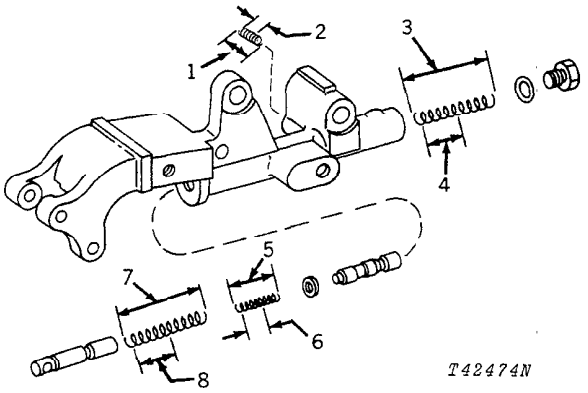


Fig. 13-Differential Lock Valve Springs

1 - Check valve spring free length . . . . . 0.62 in. (15.7 mm)

2 - Check valve spring test length . . . . . 0.38 inches (9.7 mm) when compressed with 4.0 to 5.0 oz. (1.1 to 1.4 N) of force.

3 - Return spring free length . . . . . 2.56 inches (65.0 mm)

4 - Return spring test length . . . . . 1.31 inches (33.3 mm) when compressed with 9.5 to 11.5 lbs (42 to 51 N) of force.

5 - Plunger spring (smallest) free length . . . . . 2.18 inches (55.4 mm)

6 - Plunger spring (smallest) test length . . . . . 1.80 inches (45.7 mm) when compressed with 25 to 31 lbs (111 to 138 N) of force.

7 - Plunger spring (largest) free length . . . . . 2.28 inches (57.9 mm)

8 - Plunger spring (largest) test length . . . . . 1.92 inches (48.8 mm) when compressed with 103 to 125 lbs (458 to 556 N) of force.

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Group 0230
NON-POWERED WHEEL AXLES

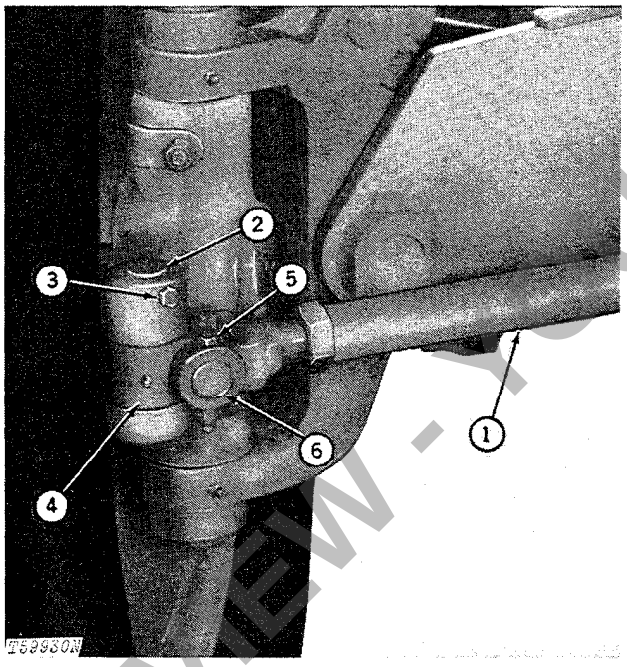
GENERAL INFORMATION

The front axle consists of a welded frame which provides mountings for steering, wheel lean and axle oscillation.

All linkage and cylinders are mounted with no connections to the main frame except for hydraulic lines.

The front axle features 20° wheel lean and 15° axle oscillation.

REMOVAL



1—Tie Rod (2 used)
2—Pin (2 used)
3—Cap Screw (2 used)
4—Connector (2 used)
5—Cap Screw (2 used)
6—Outer Yoke Pin (2 used)

Fig. 1-Removing Tie Rods

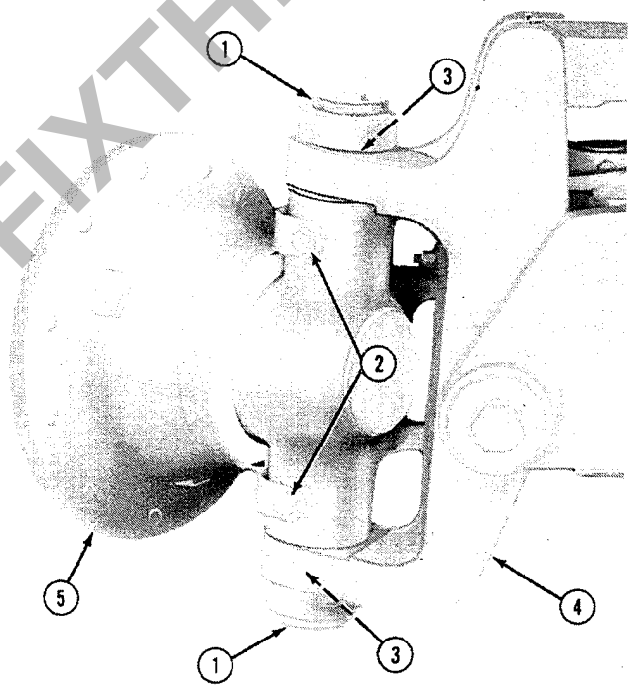
Remove cap screw (3, Fig. 1) and drive out pin (2). Swing tie rod (1) away from its mounting.

Disconnect tie rod from other wheel assembly.

Refer to Group 0120 and remove front wheels.

Relieve hydraulic pressure in steering and wheel lean cylinders. Disconnect hydraulic lines from steering cylinders and wheel lean cylinders. Cap and plug all hydraulic hoses and lines to keep dirt or other foreign material from entering the hydraulic system.

NOTE: Block wheel lean assemblies to prevent rotation when hydraulic lines are disconnected.



1—Plug (4 used)
2—Cap Screw (4 used)
3—Spindle Pin (4 used)
4—L.H. Wheel Lean Yoke
5—Front Wheel Hub with Spindle

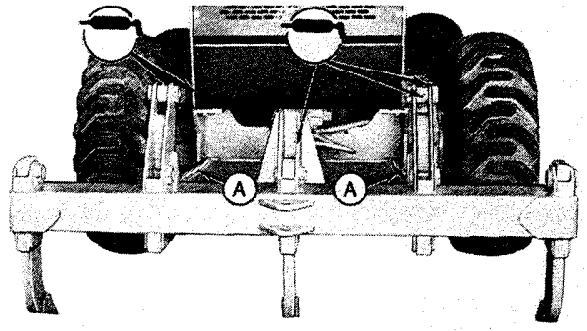
Fig. 2-Removing Front Wheel Hub with Spindle

Remove plugs (1, Fig. 2) and cap screws (2) from bottom and top of spindles.

Install a slide hammer or an equivalent in tapped hole of spindle pin (3) and remove spindle pin.

Remove front wheel hub with spindle (5) as an assembly from wheel lean yokes (4).

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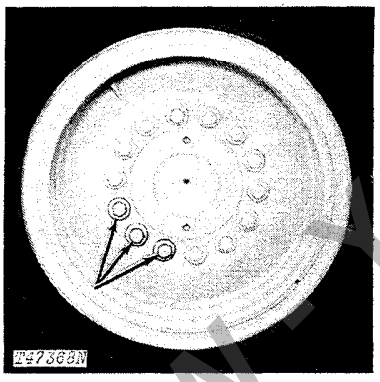
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Fig. 40-Ripper Lubrication (if equipped)

Pivot pins on the ends of both plates marked A.
Lower end of lift cylinder. In all, ten points should be lubricated.

Lubricant required *Yes* *No*

28. Wheel Retaining Cap Screws



T47368M

Fig. 41-Wheel Retaining Cap Screws

Check all wheel retainer cap screw torque. Tighten wheel retaining cap screws to 300 lb-ft (407 Nm).

Wheel retaining cap screws tightened *Yes* *No*

29. Check Accumulator Action

Check the accumulator reserve capacity as follows: Start engine and run approximately one minute. Stop engine. Operate brake pedal twenty applications. After twenty applications, pedal travel should not be excessive with a firm but moderate pedal effort if the brake accumulator is functioning correctly.

Accumulator checked *Yes* *No*

30. Fluid Leakage

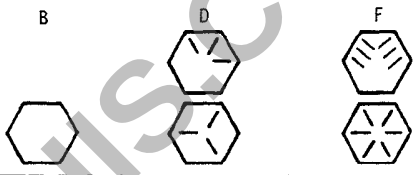
Check the following systems for leakage due to poor or faulty connections and broken hoses or lines.

A. Cooling system checked *Yes* *No*
B. Hydraulic system checked *Yes* *No*
C. Transmission system checked *Yes* *No*
D. Fuel system checked *Yes* *No*

31. Accessible Hardware Torque Values

Check all accessible bolts and nuts for proper tightness. If hardware is loose, tighten it to the proper torque. The table below gives correct torque values for various bolts and cap screws. Most hardware used is high-strength (note dashes on hex. heads).

RECOMMENDED TORQUE IN LB-FT (Nm)
COARSE AND FINE THREADS



Bolt Diameter	Plain Head	Three Dashes	Six Dashes
1/4	Not used	10 (14)	14 (19)
5/16	Not used	20 (27)	30 (41)
3/8	Not used	35 (47)	50 (68)
7/16	35 (47)	55 (75)	80 (108)
1/2	55 (75)	85 (115)	120 (163)
9/16	75 (102)	130 (176)	175 (237)
5/8	105 (142)	170 (230)	240 (325)
3/4	185 (251)	300 (407)	425 (576)
7/8	160 (217)	445 (603)	685 (929)
1	250 (339)	670 (908)	1030 (1396)
1-1/8	330 (447)	910 (1234)	1460 (1979)
1-1/4	480 (651)	1250 (1695)	2060 (2793)

T41359

Fig. 42-Torque Chart

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.
Machine bolts and cap screws 7/8-inch and larger are sometimes formed hot rather than cold, which accounts for the lower torque.

All accessible hardware torqued *Yes* *No*

32. Final Check

The final predelivery procedure is the overall clean-up of the motor grader. Make the motor grader LOOK like a new motor grader with the proper touch-up of chipped paint and a good wash job. Deliver to the customer a motor grader anyone would be proud to own.

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JD770 MOTOR GRADER

Technical Manual
TM-1123 (Dec-82)

SECTIONAL CONTENTS OF THIS MANUAL

Section I - General Information
Section 1 - Wheels and Tires
Section 2 - Axles and Suspension Systems
Section 3 - Transmission
Section 4 - Engine
Section 5 - Engine Auxiliary Systems
Section 7 - Disconnect Clutch — NOT USED
Section 8 - Transfer Drive
Section 9 - Steering Systems
Section 10 - Service Brakes
Section 11 - Parking - Emergency Brakes
Section 15 - Equipment Attaching
Section 16 - Electrical Systems
Section 17 - Frame, Chassis or Supporting Structure
Section 18 - Operator's Station
Section 19 - Sheet Metal

(Continued on page 3)

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Group 0199
SPECIFICATIONS AND SPECIAL TOOLS
POWERED WHEELS AND FASTENINGS

SPECIFICATIONS AND TORQUE VALUES



Fig. 1-Wheel Retaining Cap Screw

1 - Powered tandem wheel cap screws ..... 300 lb-ft (407 Nm)

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DIFFERENTIAL OR BEVEL DRIVE

SPECIFICATIONS AND TORQUE VALUES—Continued

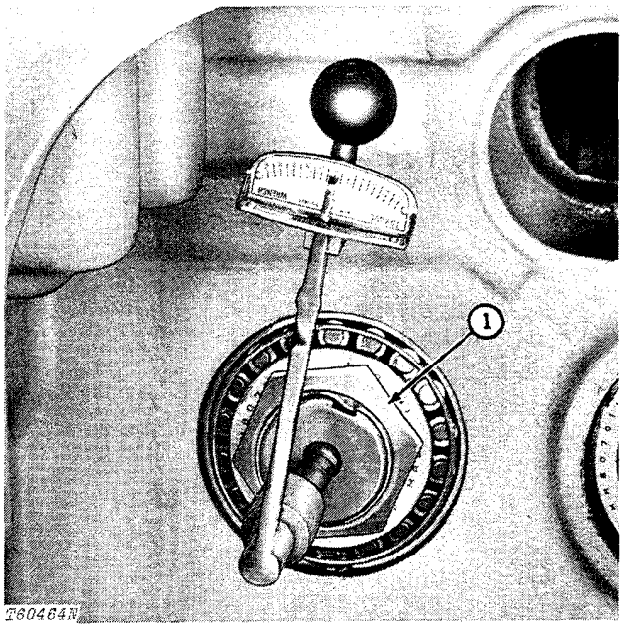


Fig. 6-Pinion Shaft Adjustment

1 - Pinion shaft special nut
torqued to ..... 400 lb-ft (542 Nm)

with a rolling torque of ..... 17 to 27 lb-in. (1.9 to 3.1 Nm)

NOTE: Refer to page 0210-5 for cone point adjustment. Refer to page 0210-16 for adjusting the spiral bevel pinion rolling torque.

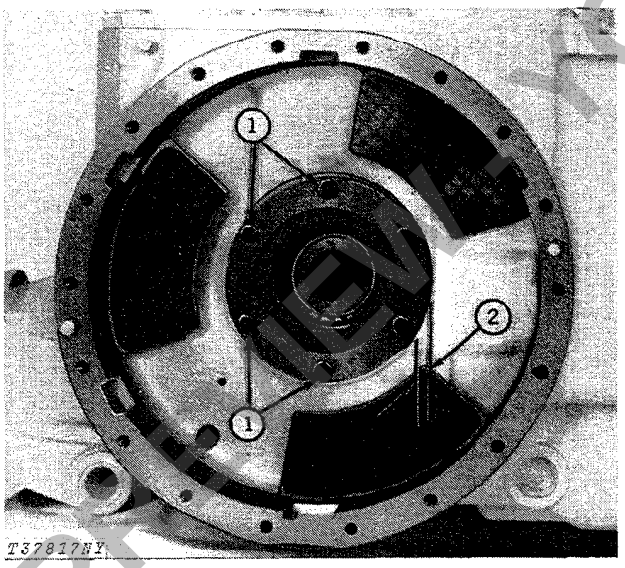


Fig. 7-Differential Bearing Quill

1 - Differential bearing quill-to-differential case cap screws ..... 85 lb-ft (115 Nm)

2 - Differential bearing preload .. 0.002 to 0.005 in. (0.05 to 0.13 mm)

NOTE: Refer to page 0210-17 for adjusting differential preload.

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TRANSMISSION MODULATING VALVE

GENERAL INFORMATION

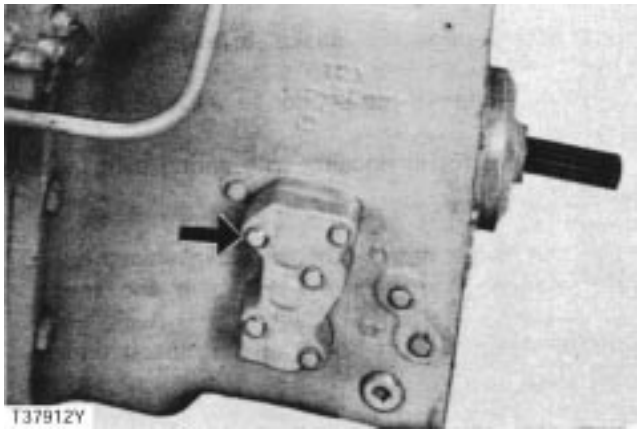
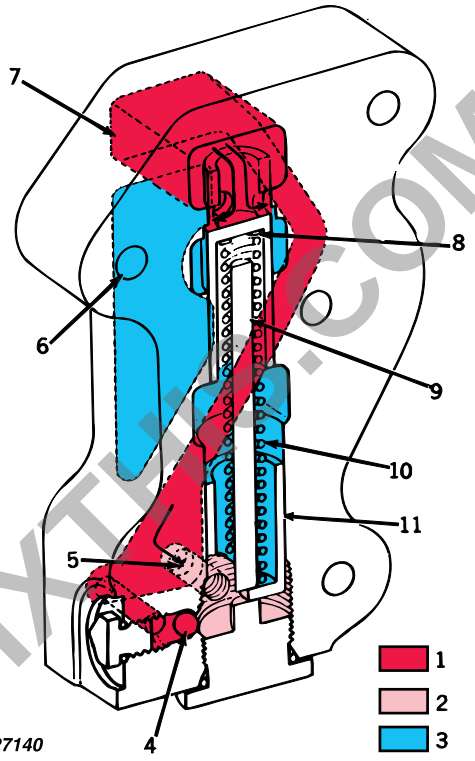


Fig. 12-Modulating Valve

The modulating valve (Fig. 12) is located on the left-hand side of the clutch housing. It allows a gradual build up of oil pressure to reduce shock loads to transmission when shifting into a gear which requires clutch element C-1 to be engaged.

During engagement of C-1, pressure oil enters a cavity at the top of the modulating valve (Fig. 13). This oil passes through holes at base of cavity and enters the sump through a passage around the valve. Some of the pressure oil travels to the base of the modulating valve, seats check ball, and enters chamber beneath the piston through an orifice. Pressure builds under piston moving entire assembly upward. As pressure builds and assembly rises, relief to the sump is restricted causing greater build up of pressure beneath the piston. This pushes assembly higher and causes greater restriction of oil flow to the sump. This process continues until no oil can pass to sump at this point full system pressure is achieved.

When C-1 element is disengaged, system pressure drops and pressure below the piston pushes check ball from its seat, allowing oil to escape quickly as the spring returns the piston to its original position.



1—Charge Pressure Oil
2—Low Pressure Oil
3—Return Oil
4—Check Ball
5—Orifice
6—To Sump
7—To C-1 Clutch Element
8—Valve
9—Shaft
10—Spring
11—Piston

Fig. 13-Modulating Valve (Start of C-1 Engagement)

REMOVAL

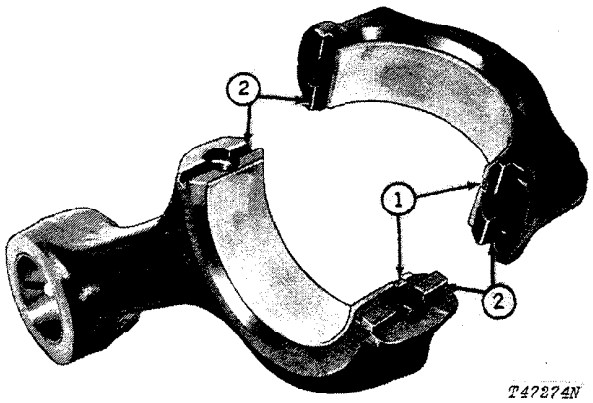
Remove attaching hardware and remove modulating valve.

REPAIR

Refer to Fig. 14 and disassemble the modulating valve.

Note the number of adjusting shims (9) between valve and spring.

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1—Small Tang and Recess 2—Large Tang and Slot

Fig. 12-Rod and Bearing Assembly

Apply engine oil to bearing inserts and crankshaft rod journals. Small tangs on each half of the inserts must fit in recesses in rod and cap (1, Fig. 12).

NOTE: Rod cap must be installed on same connecting rod from which it was removed.

Install rod caps so that large slot in cap fits into large tang (2, Fig. 12).

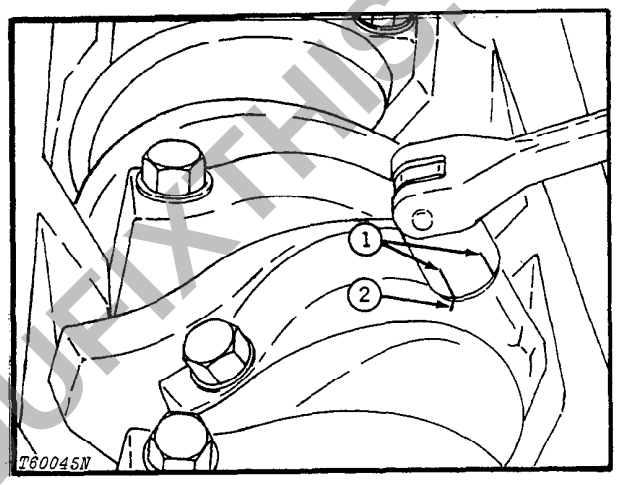
Use new connecting rod cap screws. DO NOT reuse cap screws.

NOTE: Dip connecting rod cap screws in oil before installing.

IMPORTANT: Using pneumatic wrenches to install cap screws can cause damage to the threads.

Tighten each connecting rod cap screw to 55 lb-ft (75 Nm) (7.6 kg-m).

IMPORTANT: Scribe two marks 90 degrees apart on the socket (1, Fig. 13) and one mark on the connecting rod cap (2) to use as an indicator.



1—Two Marks 2—One Mark

Fig. 13-Rotation Indicator Marks

Tighten each cap screw an additional 90 + 10 – 0 degrees.

Rotate crankshaft several revolutions to be sure there is no binding of parts. Check cylinder liners for deep scratches which would indicate an improperly installed or broken piston ring.

Install oil pump and oil pan (Group 0407) and engine frame bottom guard (Group 1746) if equipped.

Install cylinder head (Group 0409).

Perform engine break-in (page 0499-1).

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Group 0420
FUEL FILTER

GENERAL INFORMATION

The fuel filters are mounted on the engine block. Fuel enters the bottom of the fuel filter body and leaves at the top of the fuel filter body.

A hand primer pump attached to the fuel filters is used primarily for bleeding the fuel system. Its secondary function is to prevent fuel from draining out of the system while the engine is not in operation.

FUEL FILTER

Removal

To remove filter elements (11, Fig. 1) remove retaining springs (12) and pull off elements.

To remove fuel filter body (8), disconnect and cap fuel lines, remove filter elements, and remove cap screws (10), and washers (3). Pull off body.

Repair

Replace filter elements as required.

Clean fuel passages in body.

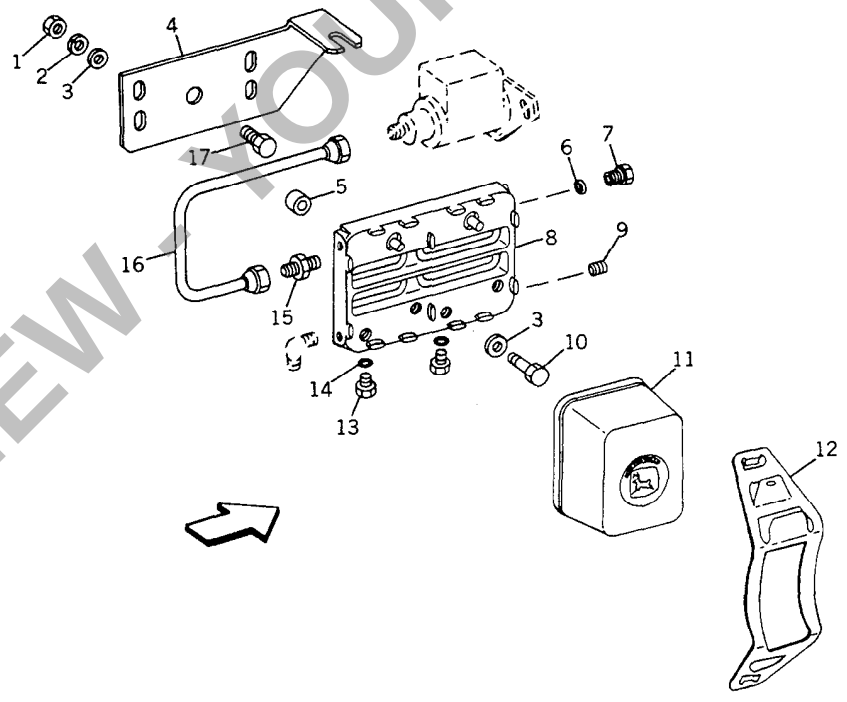
Check fuel lines for damage. Replace if necessary.

Installation

Follow removal procedure in reverse order.

Bleed the fuel system.

If inlet fitting or pipe plug (9, Fig. 1) were removed tighten to 150 lb-in (16.9 Nm) (1.7 kg-m).



T60086N

1—Nut (4 used)
2—Lock Washer (4 used)
3—Washer (8 used)
4—Fuel Filter Bracket
5—Spacer (4 used)
6—O-Ring
7—Special Screw
8—Fuel Filter Body
9—Pipe Plug
10—Cap Screw (4 used)
11—Fuel Filter Element (2 used)
12—Retaining Spring (2 used)
13—Bleed Screw (2 used)
14—Packing (2 used)
15—Pipe Nipple
16—Fuel Filter Line
17—Cap Screw

Fig. 1-Fuel Filter

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REPAIR

Examine all parts for bent or broken conditions.

Check bushings (13 and 22, Fig. 1) for excessive wear or deterioration.

When replacing bushings, press flush to outside of casting.

INSTALLATION

Use Fig. 1 as a guide to installing the speed control linkage.

NOTE: Use care when connecting cable (21) to the injection pump to avoid too sharp a bend in the cable.

Tighten special cap screw (11) until 8 lbs. (36 N) pull is required at the end of the speed control lever to move the lever.

Adjust throttle stop so speed control lever makes full contact with stop in low idle position.

Place speed control lever (4) in low idle position. Position injection pump lever to low idle. Attach swivel to cable and injection pump lever.

Attach rod (17) to accelerator pedal (20) and outer arm (16). Adjust rod so decelerator pedal (19) is parallel to foot rest. Adjust decelerator pedal stop screw in foot rest to contact bottom of decelerator pedal.

Adjust high idle stop screw in control console to obtain high idle.

Check engine shut-off by moving speed control lever rearward and to the left.

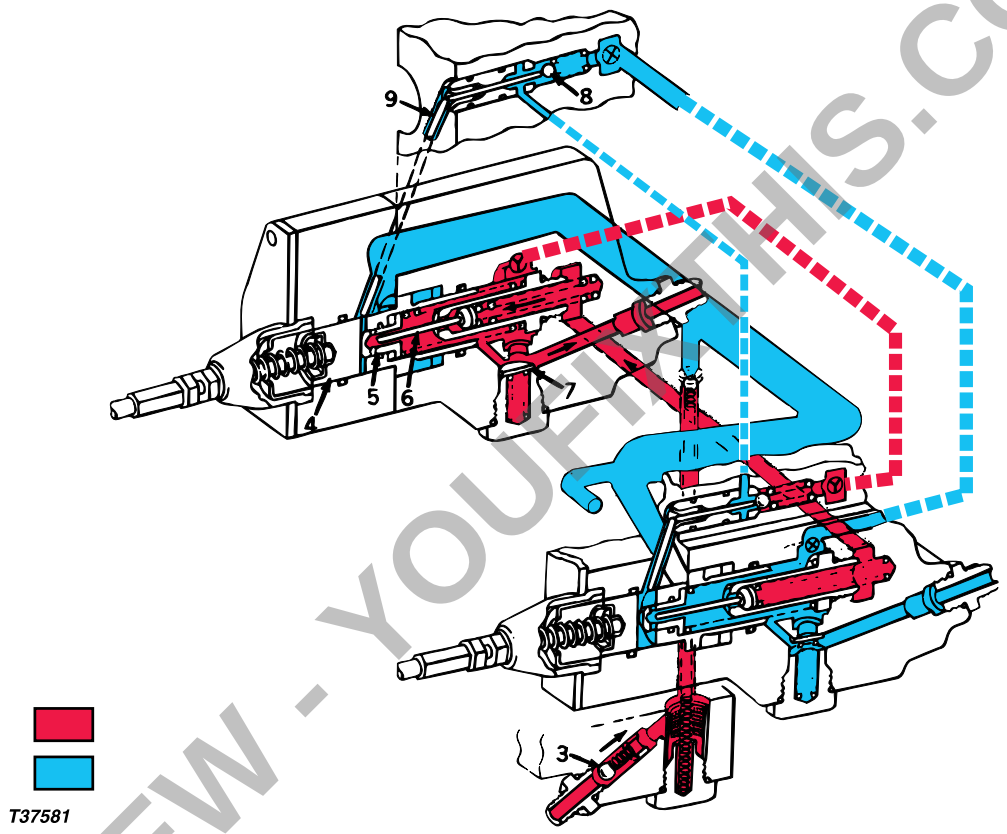
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Group 1060
BRAKES HYDRAULICS

BRAKE VALVE
GENERAL INFORMATION



1—Pressure Oil
2—Return Oil
3—Inlet Check Valve
4—Operating Rod Guide
5—Brake Valve Plunger
6—Brake Valve
7—Check Valve Disk
8—Equalizing Valve
9—Equalizing Valve Pin

Fig. 1-Power Brake Operation

The brake valve assembly contains operating valves to direct the flow of hydraulic oil to the brake cylinders. The operating valves can be operated separately or together.

Equalizing valves between the operating valves assure equal pressure to the brakes when both operating valves are open.

Individual Braking (Fig. 1)

As one brake is applied, the equalizing valve opposite of it is opened in the first 3/4 inch (19 mm) of pedal travel.

Further travel of the pedal of approximately 1/8 inch (3 mm) causes the operating rod (4) to move brake valve plunger (5) down and open the brake valve (6).

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To remove work or drive light switches, remove four instrument panel mounting screws and pull panel out, remove switch hex. nut on front of instrument panel, pull out switch from back of panel, disconnect wires and remove switch.

To remove the turn light switch, remove the bottom left console cover. Loosen set screw holding switch handle to switch. Pull up on switch handle until handle is off switch. Remove set screw on switch coupler and remove coupler. Loosen hex nut from front of switch, disconnect switch harness connector and pull switch back and down. Remove switch with wires and harness connector.

The dimmer switch is located in the left front floor panel. To remove the switch, remove floor mat (if equipped) from area of switch button, pull off top boot and remove two screws. Open left front window (if equipped), remove small left front floor plate, reach under floor, disconnect wires and pull down on switch to remove.

The stop light switch is located above the brake pedals. To remove the switch, disconnect wires, depress brake pedal, remove attaching hardware and remove switch.

The flasher is located outside the operator's station under the front console cover. To remove the flasher, remove front console cover, disconnect wires from flasher, remove attaching hardware and remove flasher.

Repair

The switches and flasher cannot be repaired. If defective, the switches or flasher must be replaced.

If switches are not operating properly wire connections may be loose or dirty. Check connections before replacing switch.

Installation

Follow removal procedures in reverse order.

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Group 1821
SEAT

GENERAL INFORMATION

A foam-padded suspension seat is provided as regular equipment on the JD770. A steel compression spring and shock absorber provide comfort and allow for adjustments. The semi-circular lower backrest and flexibly mounted upper backrest add to the operator's comfort and safety.

A bench seat is available as optional equipment. The seat cushion tips back vertically to allow the operator to stand comfortably during operation.

Refer to Group 9030 for seat adjustments.

SUSPENSION SEAT

Removal

Remove hardware attaching seat links to cab. Lift seat from the platform.

Seat can be removed from cab without total disassembly.

Repair

Refer to Figs. 1 - 3 during disassembly and assembly of the suspension seat.

Note the following during assembly:

Tighten cap screws (6 and 27, Fig. 3) with 40 lb-ft (54 Nm) torque.

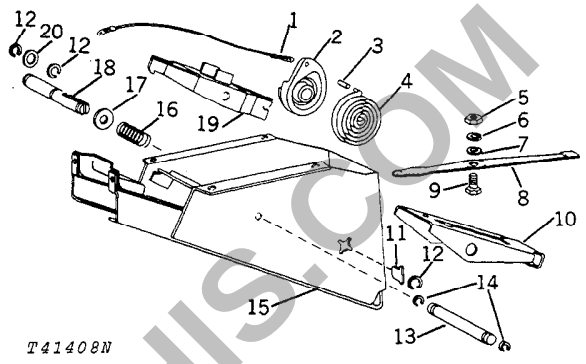
Apply multi-purpose grease to bushings (17) before installing bearings (16).

Install shims (2) to provide 0.005 to 0.030 inch (0.13 to 0.76 mm) side play.

During disassembly of seat, release tension on spring (4, Fig. 1) by performing the following:

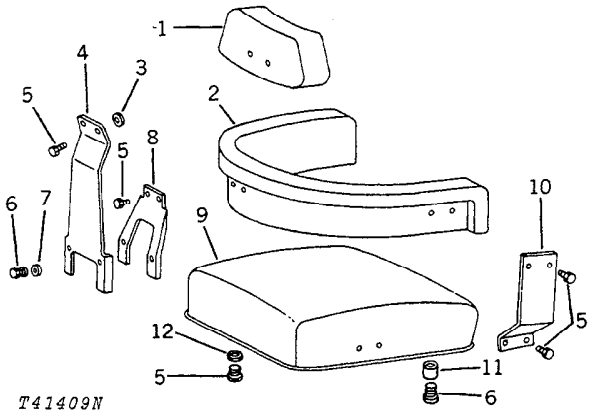
Disconnect cable (1) from reel (2). Push latch (11) into slot in shaft (18).

With a screwdriver, turn shaft clockwise to release tension on spring (4).



1—Wire Cable
2—Seat Counterbalance Reel
3—Spring Pin
4—Spring
5—Nut
6—Lock Washer
7—Washer
8—Lever
9—Special Screw
10—Handle
11—Latch
12—Snap Ring (3 used)
13—Shaft
14—Retaining Ring (2 used)
15—Seat Support
16—Spring
17—Washer
18—Shaft
19—Seat Latch
20—Washer (2 used)

Fig. 1-Seat Counterbalance Reel



1—Upper Seat Back
2—Seat Back
3—Washer (2 used)
4—Upper Seat Back Support
5—Cap Screw (12 used)
6—Cap Screw (4 used)
7—Lock Washer (2 used)
8—Seat Back Rear Support
9—Seat Cushion
10—Seat Back Front Support
11—Spacer (2 used)
12—Washer (2 used)

Fig. 2-Seat and Supports

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DRAFT FRAME

GENERAL INFORMATION

The draft frame is attached to the main frame in front by a ball retainer assembly. The rear of the draft frame supports the circle assembly.

REMOVAL

Lower blade to the ground and relieve hydraulic pressure.

Remove lift and side-shift cylinders as directed in Group 3460.

Remove four-function valve as directed in Group 3460.

Remove circle drive gearbox as directed in Group 3450.

Support draft frame with blocks or moveable jacks.

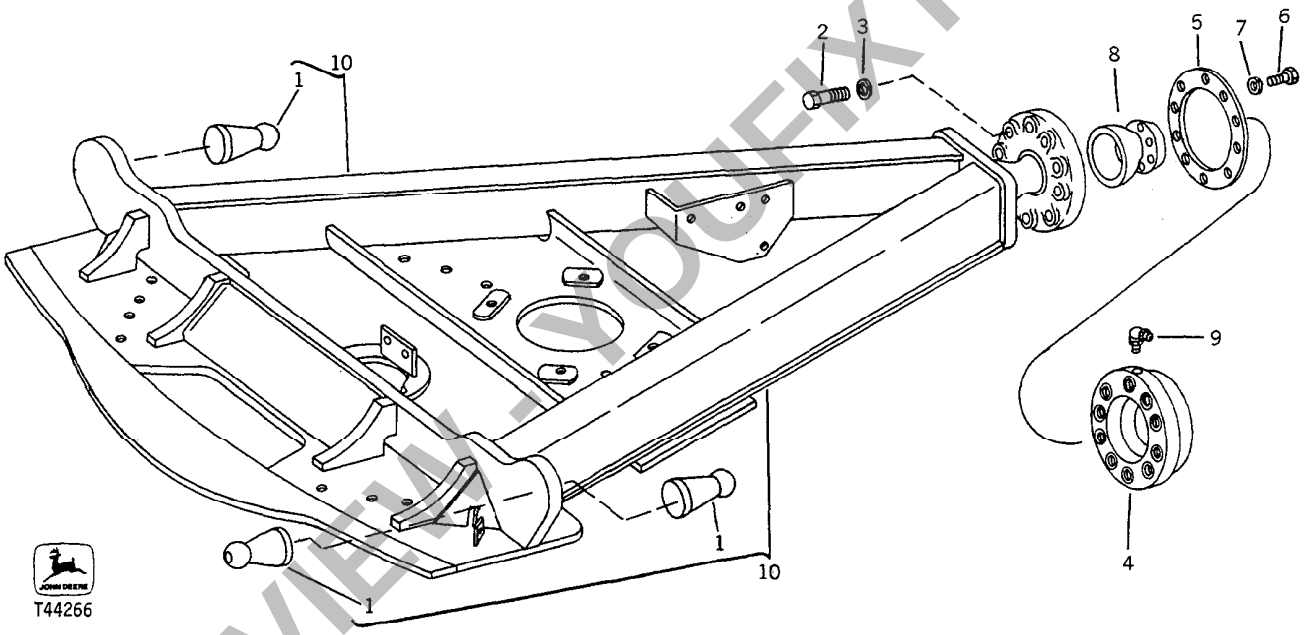
Remove cap screws attaching circle assembly to draft frame.

Remove hardware from ball retainer.

If necessary, slide draft frame out and away from the unit.

REPAIR

Refer to Fig. 4 during disassembly and assembly. Replace parts as necessary.



1—Ball (3 used)
2—Cap Screw (10 used)
3—Lock Washer (10 used)
4—Ball Retainer
5—Draft Shim (Use as required)
6—Cap Screw (6 used)
7—Special Washer (6 used)
8—Ball Retainer
9—Grease Fitting
10—Draft Frame

Fig. 4-Draft Frame

INSTALLATION

Use reverse of removal procedure to install draft frame. Grease fitting (9, Fig. 4) before resuming operation.

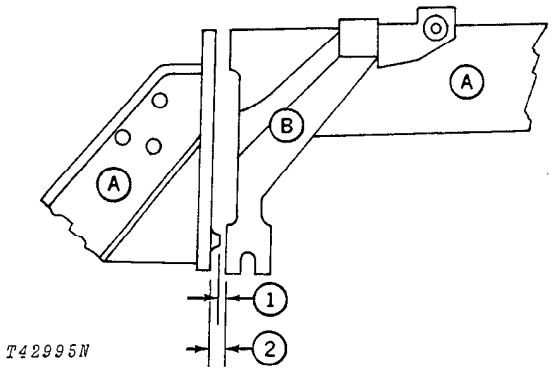
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Group 3499
SPECIFICATIONS AND SPECIAL TOOLS

GRADING DEVICE FRAMES
SPECIFICATIONS AND TORQUE VALUES

Lift Arm Assembly



A—Main Frame **B—Lift Arm**

Fig. 1-Lift Arm Clearance

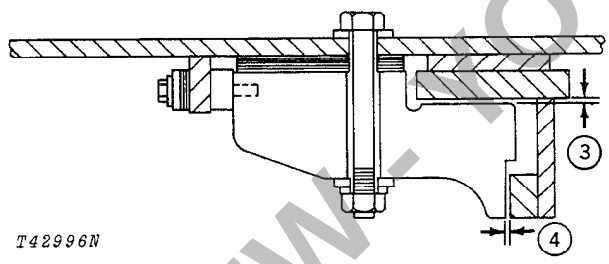
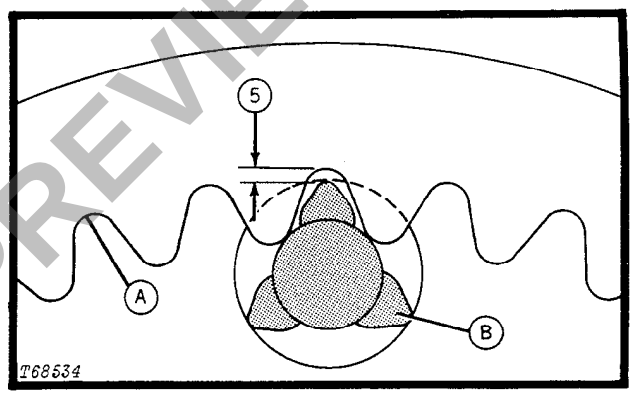


Fig. 2-Circle Clearance



A—Circle **B—Pinion Tooth**

Fig. 3-Circle Tooth Clearance

1 - Distance between main frame plate and back side of lift arm (measured at milled pad) ..... 0.38 to 0.44 in. (9.7 to 11.1 mm)

2 - Distance between locking pin housing and lift arms (measured from milled pad) .... 0.06 to 0.12 in. (1.5 to 3 mm)

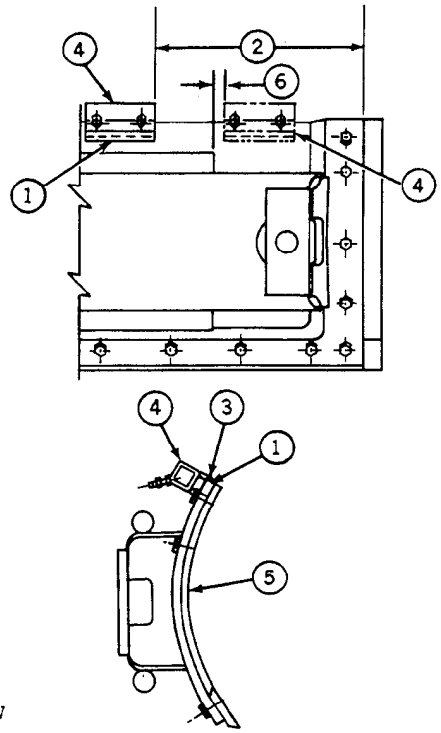
3 - Vertical clearance between front and rear circle supports and circle ..... 0.02 to 0.10 in. (1 to 2.5 mm)

4 - Horizontal clearance between rear circle supports and circle ..... 0.07 in. maximum (1.8 mm)

5 - Clearance between tip of drive pinion tooth and root of circle tooth ..... 0.12 to 0.32 in. (3.0 to 8.0 mm)

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1—0.38 in. (9.5 mm) Fillet Weld
2—12 in. (305 mm) (See note)
3—Overlap Blade Edge 1/2 of the Bracket Material Thickness
4—Grade Mount Bracket
5—Blade
6—1 in. (25.4 mm) (See note)

Fig. 4-Grade Mount Bracket

NOTE: The grade mount bracket may be placed in either location shown in Fig. 4. If the ABC system will be used primarily with a stringline, the bracket may be placed toward the center of the blade. If the system will be used primarily with a wheel follower, the bracket may be placed toward the outside of the blade.

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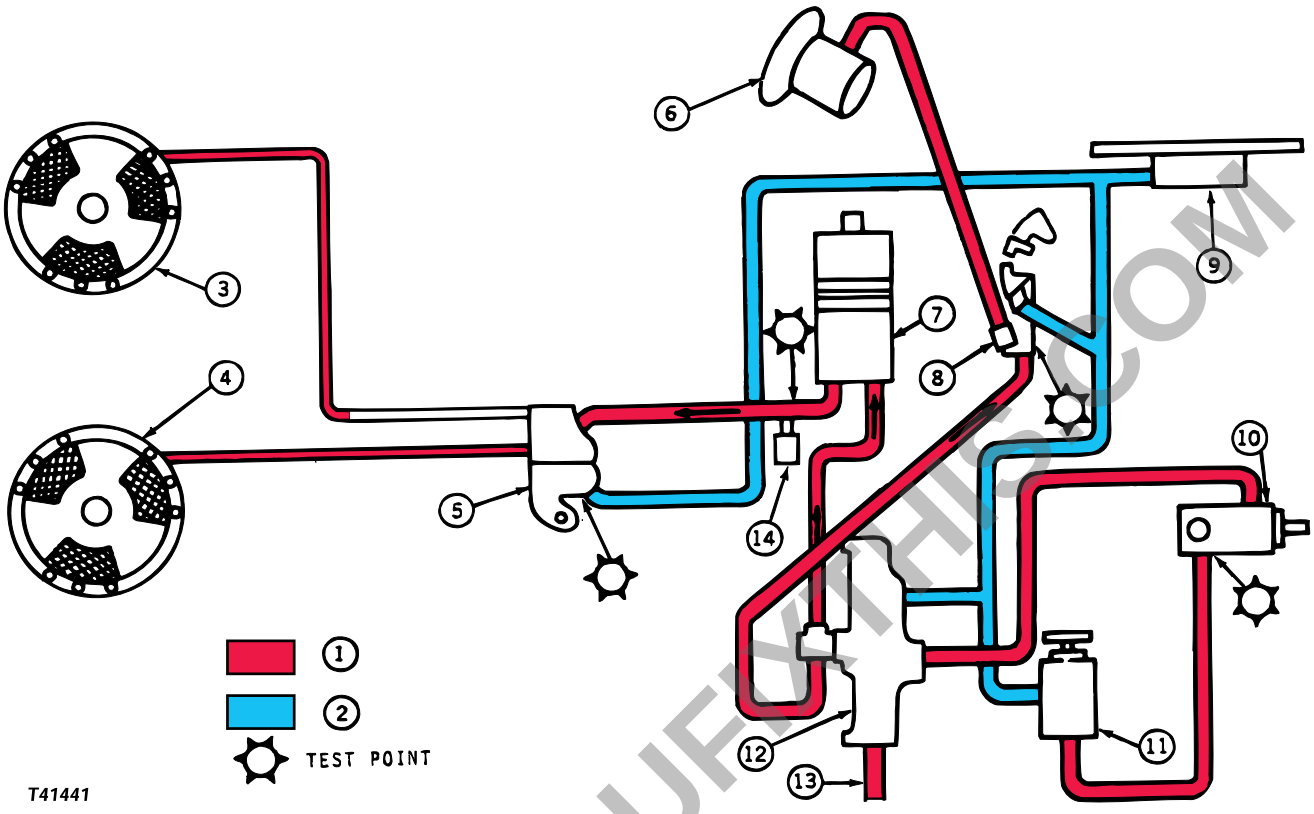
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The following is a continuation of the routing of the wiring as shown in Figures 8, 9, 10 and 11:

No.	Color	Routing
424C	White	Gauge back-light connector to engine oil pressure gauge back-light.
424D	White	Gauge back-light connector to fuel gauge back-light.
424E	White	Gauge back-light connector to gauge back-light connector.
424F	White	Gauge back-light connector to transmission lube pressure gauge back-light.
424G	White	Gauge back-light connector to transmission temperature gauge back-light.
424H	White	Gauge back-light connector to transmission temperature gauge back-light.
425	White	Dimmer switch to high beam cab driving lights.
425A	White	Dimmer switch to high beam left front driving lights with or without cab.
425B	White	Left front driving light high beam without cab to right front driving light high beam without cab.
426	White	Dimmer switch to low beam cab driving lights.
426A	White	Dimmer switch to low beam left front driving lights with or without cab.
426B	White	Left front driving light low beam without cab to right front driving light low beam without cab.
429	White	High beam indicator light to splice with 425A at front light harness connector.
430	White	High beam indicator light to ground on transmission temperature gauge.
433A	White	Work light switch to rear work lights.
433B	White	Left rear work light to right rear work light.
433C	White	Work light switch to front main frame work lights.
433D	White	Under cab work light to splice with 433C at instrument panel harness covering.
433E	White	Under cab work light #1 to under cab work light #2.
433F	White	Left main frame work light to main frame work light connector.
433G	White	Right main frame work light to main frame work light connector.
433H	White	Work light switch to work light switch and 433C.
436	White	Turn light flasher to turn light switch.
510	Green	Horn to ground.
511	Green	Horn switch to cigar lighter resistor.
511A	Green	Cigar lighter resistor to cigar lighter.
512	Green	Key switch accessory terminal to accessory relay.

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1—Pressure Oil
2—Return Oil
3—Left-Hand Brake
4—Right-Hand Brake
5—Brake Valve
6—Differential Lock
7—Brake Accumulator
8—Differential Lock Valve
9—Parking Brake
10—Lift Arm Locking Pin
11—Lift Arm Locking Pin Valve
12—Pressure Control Valve
13—From Main Hydraulic Pump
14—Low Pressure Warning Switch

Fig. 6-Brakes. Differential Lock and Lift Arm Locking Pin Hydraulic Schematic

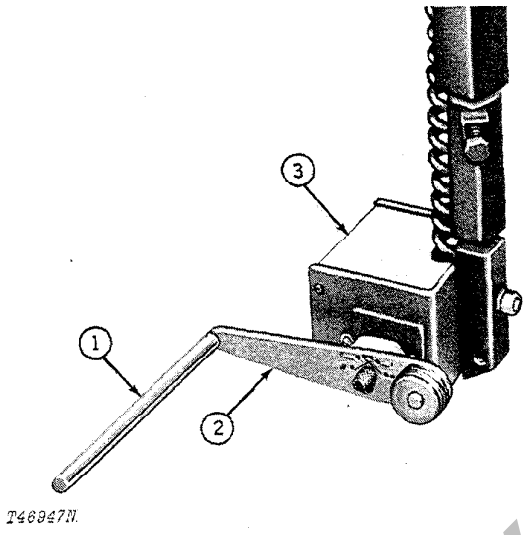
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Grade Sensor

The grade sensor (Fig. 4) senses changes in grade by means of an attached stringline follower assembly that traces a stringline. The stringline follower is also used with the wheel follower unit for tracing a hard reference surface.

The grade sensor is part of the grade control assembly.



1—Contact Tube **3—Grade Sensor**
2—Grid

Fig. 4-Grade Sensor

Fig. 5 is a representation of the internal make-up of the grade sensor. A, B, C, D, E, and F represent pins of the Bendix MS type connector.

Excitation obtained from the console amplifier is suppled between pins A and B, energizing the primaries of two coils.

One secondary is wired between pins C and D, the other between pins E and F. The shaft extends through each end of the transducer housing, where it accepts a hub on each end.

NOTE: Transducer is any device that changes one form of energy to another (such as mechanical force to electrical voltage).

The housing and hub are not shown.

Within the housing, mounted on the shaft, the rotor resembles the illustration in Fig. 5.

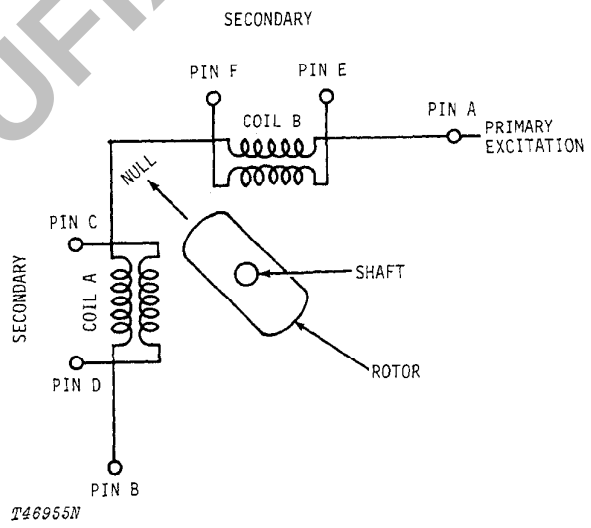


Fig. 5-Grade Sensor Schematic

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