PREVIEW - YOUFIXTHIS.COM

Litho in U.S.A.

Download full manual at youfixthis.com

4 - Turn yoke, at caliper, until holes in yoke are in line with outside hole (J) in caliper lever. Install pin in yoke.

5 - Apply parking brake. Brake should be tight when locking pawl (K) reaches first or second notch on pedal ratchet with 70 lb. (311 N) force applied to brake pedal.

6 - Release brake. Pedal should return to top of slot in dash. Brake disk should turn freely.

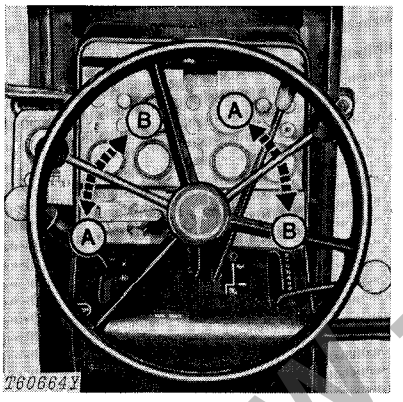
7 - Lubricate linkage.

8 - Install new brake pads when friction material measures less than 0.10 inch (2.5 mm).

Parking brake checked	*Yes*	*No*
Parking brake adjustment changed	*Yes*	*No*

25. Control Levers and Switches

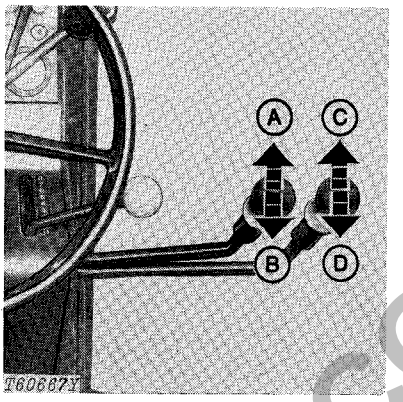
Check operation of all control levers and switches.



A—Frame Steer Left (L.H.) **B—Frame Steer Right (R.H.)**

Fig. 127-Frame Steering Levers

Move either lever to aid turning. Frame will articulate 25 degrees left (L.H.) or right (R.H.).



A—Lower Left (L.H.) End of Blade
B—Raise Left (L.H.) End of Blade
C—Lower Right (R.H.) End of Blade
D—Raise Right (R.H.) End of Blade

Fig. 128-Blade Lift Levers

Move one lever at a time or both levers together.

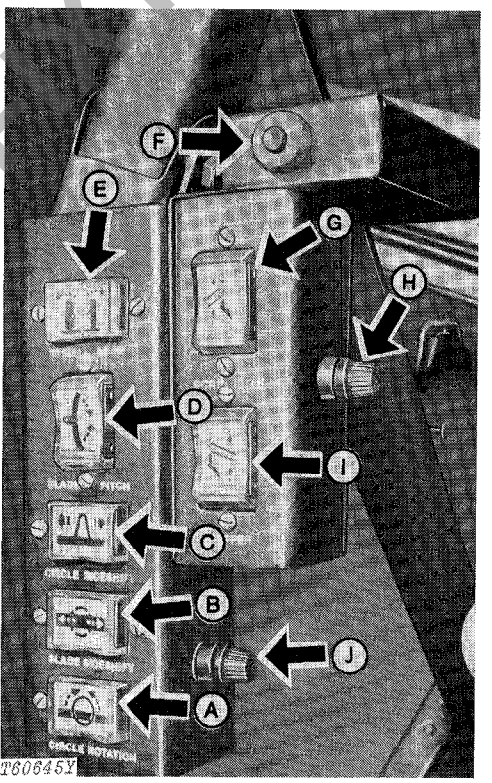


Fig. 129-Main Control Box and Auxiliary Control Box

NOTE: Label on each switch shows direction of functional movement.

A - Circle Rotation Switch: Rotates circle clockwise or counterclockwise.

B - Blade Side-Shift Switch: Shifts blade left (L.H.) or right (R.H.)

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

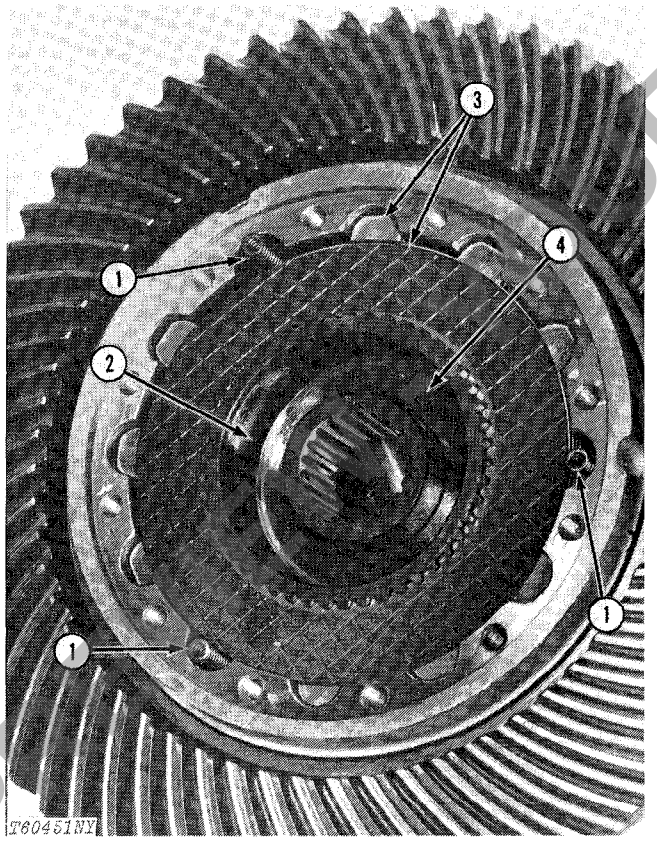
Pull bearing cones (1, Fig. 4) from each side of differential.

Remove sealing rings (2) from differential housing cover (4). Inspect sealing rings for wear or damage. Replace as necessary.

Remove cap screws (6) and locking plates securing the left-hand differential housing (7) to differential housing with spiral bevel gear (5) and remove housing.

Remove cap screws (3) securing differential housing cover (4) to differential housing with spiral bevel gear and remove housing cover.

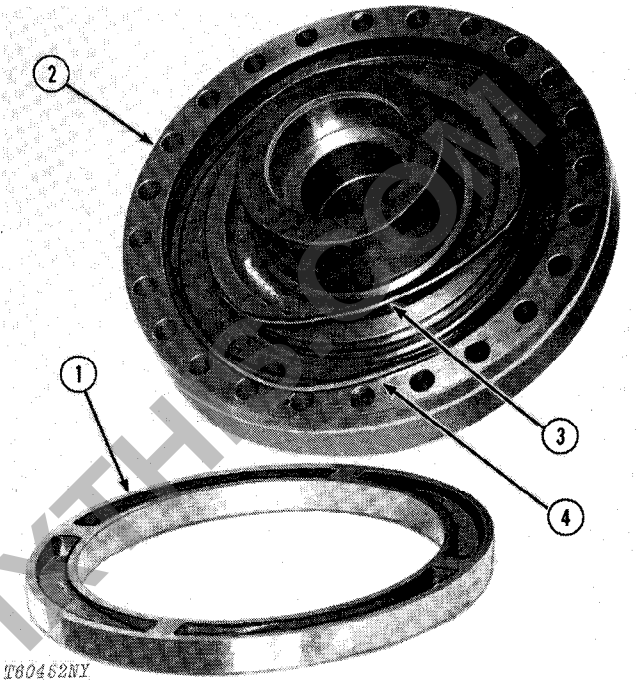
Be careful not to lose the three small springs (1, Fig. 5) mounted on spring pins in the inner side of the differential housing.



1—Spring (3 used)
2—Bevel Lock Gear
3—Separator Plates and Drive Disks
4—Thrust Washer

Fig. 5-Housing Cover Springs

Remove the separator plates and drive disks (3).



1—Piston
2—Differential Housing Cover
3—O-Ring
4—Packing

Fig. 6-Removing Piston

Remove piston (1, Fig. 6) from differential housing cover (2).

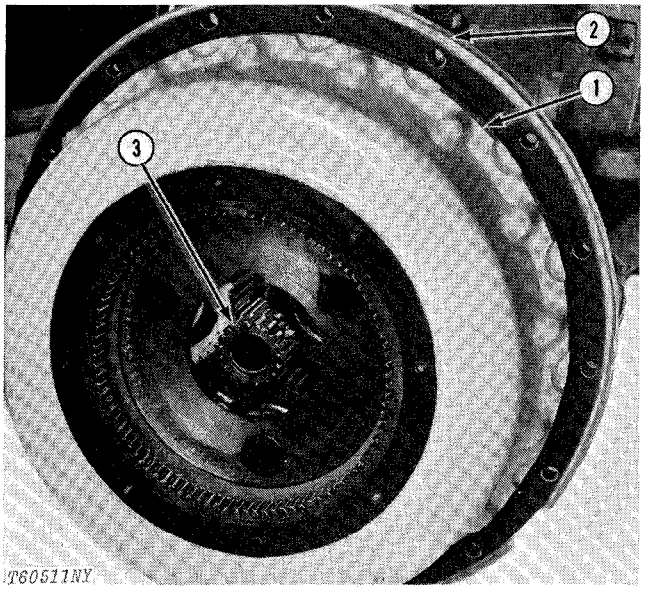
If necessary, apply compressed air at the oil pressure inlet holes in the housing to lift piston.

⚠ CAUTION: Piston may be forced out of bore suddenly and cause bodily injury. Apply compressed air slowly until piston can be removed from bore.

Remove O-ring (3, Fig. 6) and packing (4) and inspect for damage. Replace as necessary.

PREVIEW ONLY

Download full manual at youfixthis.com



T60511

1—Planetary Housing
2—Wheel Hub
3—Second Planet Sun Pinion

Fig. 41-Installing Planetary Housing

Hoist planetary housing (1, Fig. 41) in position with wheel hub. Align second planet pinions with second ring gear. Be careful not to damage O-ring.

Secure planetary housing-to-wheel hub with cap screws. Tighten cap screws to 35 lb-ft (47 N·m) (5 kg-m).

Install second planet sun pinion (3) in planetary housing.

Install first planet pinion carrier assembly (1, Fig. 42) and align first planet pinions to first planet ring gear.

Install first planet sun pinion (2).

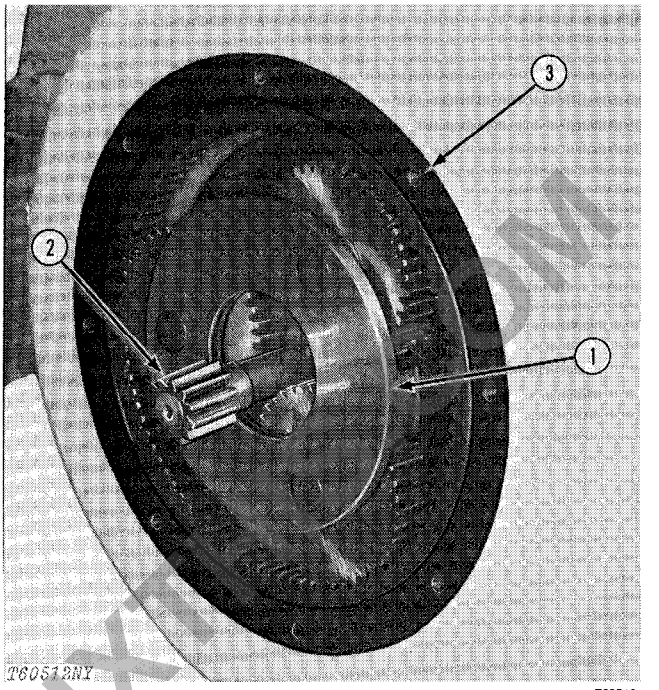
Apply TY15130 Form-In-Place Gasket or equivalent to gasket (3) and install on planetary housing.

Install cover (1, Fig. 43) and secure with cap screws (2) and washers. Tighten cap screws to 50 lb-ft (68 N·m) (7 kg-m).

Rotate planetary housing until plug (3) is in the top position. Fill planetary housing with approximately 3 gal. (11 L) of recommended oil (See Section I, Group V for the type of oil used).

NOTE: Run grader with front wheel drive activated for a period of time and then check transmission oil level. Drain or fill transmission to proper dipstick level.

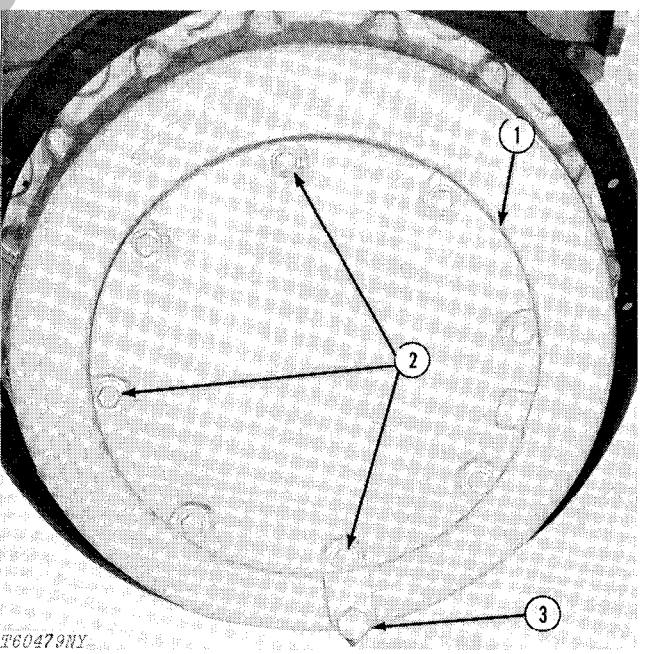
Refer to Group 0110 and install wheel to wheel hub.



T60512

1—First Planet Pinion Carrier Assembly
2—First Planet Sun Pinion
3—Gasket

Fig. 42-Installing First Planet Pinion Carrier Assembly



T60479

1—Cover
2—Cap Screw (8 used)
3—Plug

Fig. 43-Installing Planetary Cover

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Install steel balls (4, Fig. 8), O-rings (3) and brake bleed screw (1) and jam nuts (2).

Press clutch housing to transmission case dowel pins (9) into transmission case until they project 1.06 in. (26.9 mm) from base of transmission case (7).

Coat stud and pipe plug threads with Permatex Form-A-Gasket No. 3 or an equivalent before assembly.

Coat outside diameter of plugs (19) with Permatex Form-A-Gasket No. 1 or an equivalent before installing.

Install the intake screen plug (18) using Permatex Form-A-Gasket No. 3 or an equivalent on two to three threads all the way around. Care should be exercised not to allow excessive sealant inside the transmission case.

Refer to Group 0210 and install differential assembly.

Refer to Group 0350 and install reduction gear shaft and planetary pack.

Install transmission front cover and install tow-disconnect lever.

Refer to Group 1111 and install parking brake shaft assembly.

Install brake caliper and brake disk to front cover.

Install transmission rear cover.

Refer to Group 0360 and install transmission control valve and forward and reverse modulator.

Assemble transmission clutch housing to transmission case.

INSTALLATION

Refer to Group 0201 and install final drive and tandem assembly to transmission. Roll assembly under unit.

For units with Serial Number (505455-) install shims as needed between front of transmission case and engine frame.

Install cap screws securing front of transmission case to engine frame.

Refer to Figs. 4 and 5 and connect sending unit wires and clutch pressure and lube pressure gauge tubes.

Connect transmission control valve linkage, clutch valve linkage and parking brake linkage.

Refer to Group 0400 and install engine and transfer drive housing as a unit.

Fill the transmission case with recommended oil, at filler cap, to dipstick level. (See Section I, Group V for the type of oil to use.)

PREVIEW - YOUFIXTHIS.COM

Litho in U.S.A.

Download full manual at youfixthis.com

GEARS, SHAFTS, BEARINGS AND POWER SHIFT CLUTCH

SPECIFICATIONS AND TORQUE VALUES—Continued

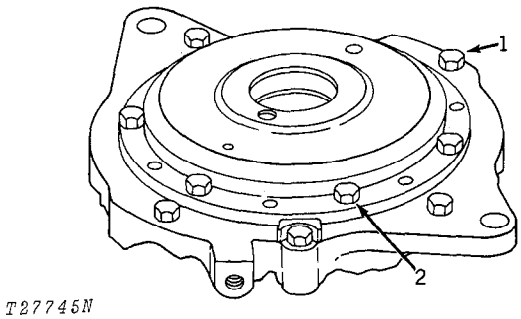


Fig. 8-Planetary Pack

1. Planet brake piston housing bolts ..... 50 lb-ft (68 Nm) (7 kg-m)
2. C3 clutch housing cap screws ..... 20 lb-ft (27 Nm) (3 kg-m)

3

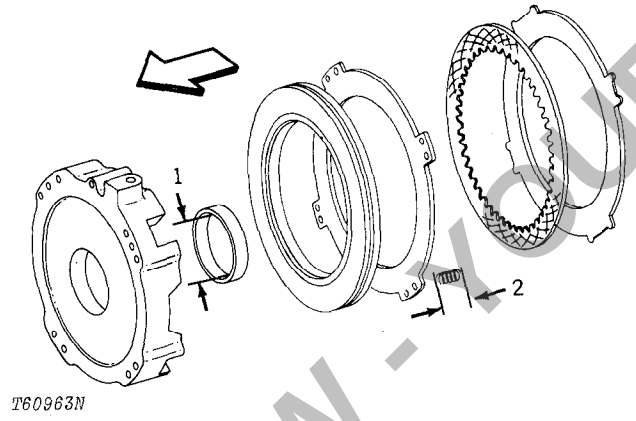


Fig. 9-Plantetary Brake Parts

1. I.D. of third planet brake piston housing bushing assembled ..... 4.0675 to 4.0700 in. (103.315 to 103.378 mm)
2. Free length of third planetary spring ..... 1.76 in. (44.7 mm)

Compressed length of third planetary spring at 26 ± 2.5 lbs. (116 ± 12 N) (12 ± 1 kg) ..... 1.38 in. (35.1 mm)

Free length of fourth planetary spring ..... 53/64 in. (21.0 mm)

Compressed length of fourth planetary spring at 26 ± 2.5 lbs. (116 ± 12 N) (12 ± 1 kg) ..... 5/8 in. (15.9 mm)

Free length of first and second planetary spring ..... 1-7/32 in. (31.0 mm)

Compressed length of first and second planetary spring at 22.5 to 27.5 lbs. (100 to 122 N) (10 to 12 kg) ..... 1 in. (25.4 mm)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

When all liners have been installed in the block, the liners should be held in place with short cap screws and large flat washers.

Clean cylinder liner bores with waterless hand cleaner after installation in block. Wipe dry with clean towels.

Install piston and connecting rod assemblies (Group 0403).

Install the cylinder head (Group 0409) and perform engine break-in page 0499-1.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Field Windings

The frame and field assembly consists of field windings assembled over iron pole pieces which are attached to the inside of a heavy iron frame. The iron frame and pole shoes not only provide a place onto which the field coils can be assembled, but also provide a low reluctance, or low resistance patch for the magnetic flux produced by the field coil windings.

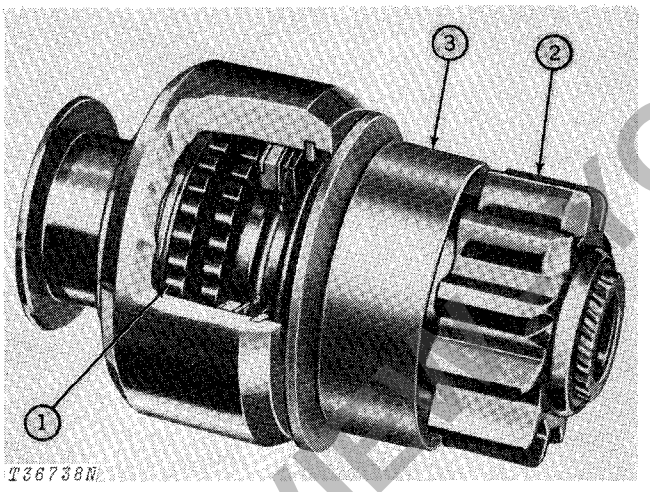
Solenoid Switch

The solenoid switch consists basically of two windings mounted around a hollow cylinder containing a moveable core or plunger. A shift lever is connected to the plunger, and a push rod and contact disk are assembled in line with the plunger.

The two windings in the solenoid are called the hold-in winding and the pull-in winding. The hold-in winding contains many turns of fine wire, and the pull-in winding the same number of turns of larger wire.

4

Sprag Clutch Drive



1—Sprags **3—Shift Collar**
2—Pinion

Fig. 2-Sprag Clutch Drive

The Sprag Clutch Drive is constructed and operates like the Overrunning Clutch Drive, except that a series of sprags, replace the rollers between the shell and sleeve. The sprags are held against the shell and sleeve surfaces by a spring. This assembly is then splined to the armature shaft with a stop collar on the end of the sleeve (Fig. 2).

Movement of the shift lever against the collar causes the entire clutch assembly to move endways along the splined shaft, and the pinion teeth to engage the ring gear. If a clash of teeth should occur, continued movement of the shell and spiral splined sleeve causes the pinion to rotate and clear the teeth. The compressed meshing spring then forces the pinion into mesh with the ring gear. If the pinion does not clear before the two retainer cups meet, shift lever movement is stopped by the retainer cups and the operator must start the engagement cycle over again. This prevents closure of the switch contacts to the motor with the pinion not engaged, which would result in damage due to spinning meshes. On the second attempt, the pinion will engage in a normal manner.

With the pinion engaged and the switch closed, torque is transmitted to the pinion through the sprags. The sprags tilt slightly and are wedged between the shell and sleeve. When the engine starts, the ring gear drives the clutch faster than the armature, and the sprags tilt in the opposite direction to allow the pinion and sleeve to overrun the shell and armature. To avoid prolonged overrunning, the start switch should be released as soon as the engine starts.

Never run the starting motor more than twenty seconds at a time or overheating will result. Allow motor to cool at least two minutes before running it again.

FOS

For additional information on starting motors, refer to "Starting Circuits" in FOS Manual - ELECTRICAL SYSTEMS.

PREVIEW YOUFIXTHIS.COM
Download full manual at youfixthis.com

WATER PUMP

SPECIFICATIONS AND TORQUE VALUES

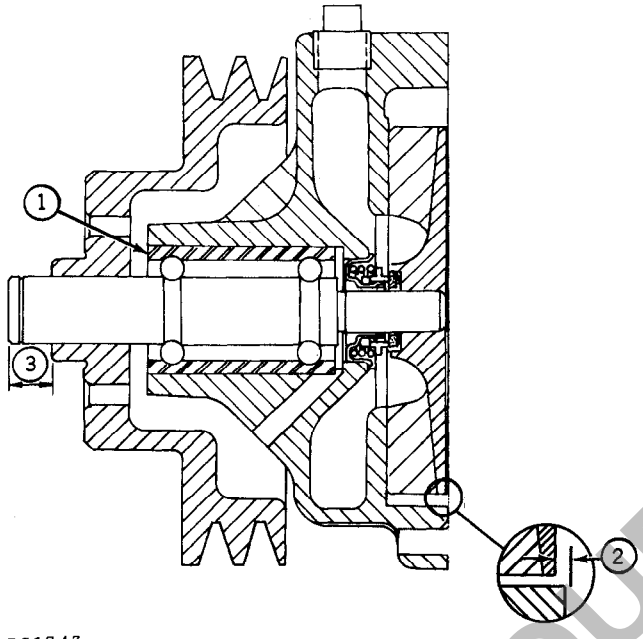


Fig. 36-Water Pump

1 - Bearing flush to above housing within ..... 0.02 in. (0.5 mm)

2 - Impeller flush to housing rear face within ..... 0.02 in. (0.5 mm)

3 - Pulley below end of shaft ..... 0.51 in. (13.0 mm)

Water pump cover cap screw torque ..... 35 lb-ft (48 Nm) (4.8 kg-m)

Water pump attaching cap screw torque ..... 35 lb-ft (48 Nm) (4.8 kg-m)

4

THERMOSTATS, HOUSINGS AND PIPING

SPECIFICATIONS AND TORQUE VALUES

Thermostats range ..... 175° to 182°F (79° to 83°C)

Water outlet manifold attaching cap screw torque ..... 35 lb-ft (47 Nm) (5 kg-m)

Thermostat cover-to-water outlet manifold cap screw torque ..... 35 lb-ft (47 Nm) (5 kg-m)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Input Gear Assembly

Install the input gear assembly (13, Fig. 7) into transfer drive housing.

Start with the shim pack (14) between housing and upper quill (15) that provides a measurable amount of end play.

Tighten upper quill cap screws (16) securely.

Measure end play through hole in quill. Threads are provided in input gear to install a 1/2 inch bolt to aid in moving gear to check end play.

Adjust end play to 0.002 ± 0.002 in. (0.05 ± 0.05 mm) by removing or adding shims between housing and quill.

Position quill and tighten cap screws (16) to 85 lb-ft (115 Nm) (12 kg-m).

Install plug in quill and tighten.

Install drain plug.

Install fuel tank drain line.

Connect battery connecting strap to battery.

Refer to Group 2160 and install front wheel drive hydraulic pump (if so equipped).

Install rear bumper plate-to-rear housing and secure with cap screws.

Install rear grille screen-to-rear bumper housing and secure with cap screws.

Connect battery ground strap.

Refer to Group 1511 and install drawbar (if so equipped).

Refer to Group 4201 and install rear-mounted ripper (if so equipped).

Fill the transmission case with recommended oil, at filler cap, to dipstick level. (See Section I, Group V for the type of oil to use.)

IMPORTANT: Make sure that the front wheel drive pump is full of oil. Refer to Group 9016 for start-up procedure.

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Group 1099
SPECIFICATIONS AND SPECIAL TOOLS

HYDRAULIC SYSTEM

SPECIFICATIONS AND TORQUE VALUES

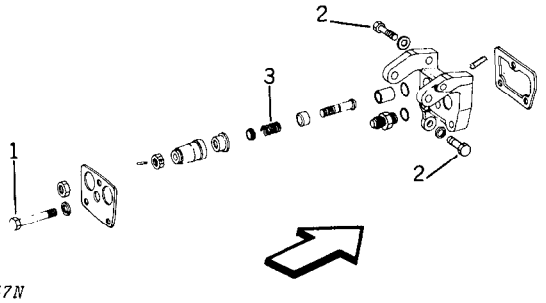


Fig. 1-Operating Rod Spring and Pedal Bracket

1 - Pedal bracket to brake valve housing ..... 35 lb-ft (47 Nm) (5 kg-m)

2 - Pedal bracket to control mounting structure ..... 85 lb-ft (115 Nm) (12 kg-m)

3 - Operating rod spring
Free length . 1.062 ± 0.005 in. (27 ± 0.13 mm)
Test length .....0.885 in. (22.5 mm)
compressed with 210 ± 21 lb. (935 ± 93 N) (95 ± 10 kg)

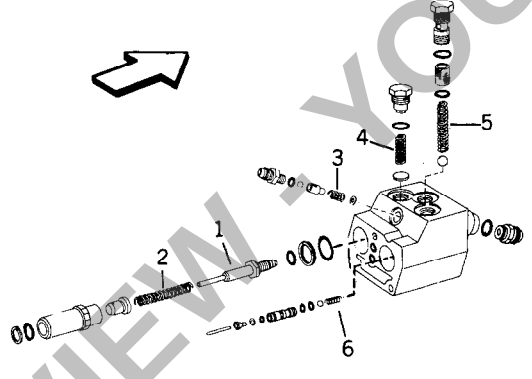


Fig. 2-Brake Valve

1 - Inlet valve nipple torque ..... 40 lb-ft (54 Nm) (6 kg-m)

2 - Plunger return spring
Free length ..... 2.688 in. (68.26 mm)
Test length ..... 1.688 in. (42.86 mm)
compressed with 43 lb. (191 N) (20 kg)

3 - Inlet guide spring
Free length .....0.41 in. (10.5 mm)
Test length .....0.22 in. (5.6 mm)
compressed with 1.75 ± 0.2 lb. (8 ± 1 N) (0.8 ± 0.1 kg)

4 - Check valve disk spring
Free length .....1.25 in. (31.5 mm)
Test length .....0.88 in. (22.4 mm)
compressed with 0.34 to 0.47 lb. (1.53 to 2.09 N) (0.16 to 0.22 kg)

5 - Reservoir check valve spring
Free length .....2.00 in. (50.8 mm)
Test length ..... 1.625 in. (41.28 mm)
compressed with 0.19 ± 0.06 lb. (0.8 ± 0.3 N) (0.09 ± 0.03 kg)

6 - Equalizing valve spring
Free length .....0.50 in. (12.7 mm)
Test length .....0.375 in. (8.5 mm)
compressed with 7.25 ± 1 lb. (32 ± 5 N) (3.0 ± 0.5 kg)

10

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

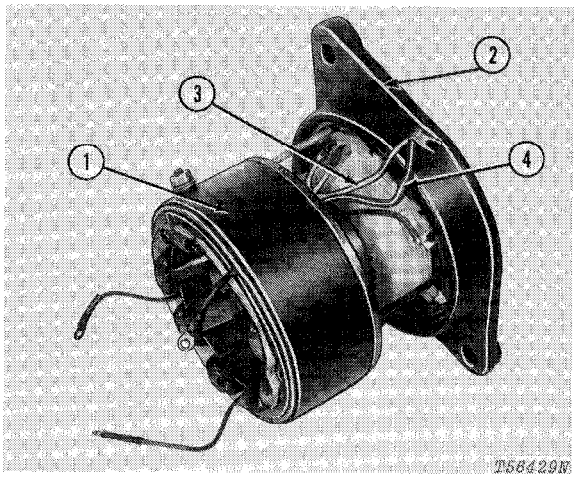
Discard bearing and seal.

Remove snap ring (5, Fig. 38) from rear of core.

16

Support alternator, stator end down and press the rear bearing out of alternator core.

Discard bearing.



1—Stator and Shell Assembly
2—Front Housing and Field Winding Assembly
3—Field Lead (White)
4—Output Lead (Red)

Fig. 39-Separating Stator and Shell From Front Housing and Field Winding Assembly

Remove 3 flanged nuts from studs.

While holding the shell, lightly tap (with a soft faced mallet) the front housing to separate shell from housing.

While allowing field lead (3) to slip through space between stator windings, lift stator and shell 3 in. (76 mm) from front housing, thus allowing access to field winding connections.

Slip sleeving off field winding terminal and unsolder field lead from output lead.

Remove stator and shell assembly completely from front housing.

Check the 3 studs. If their condition warrants, replace any that are damaged.

Clean inside of core to remove all old grease.

NOTE: Do not soak front housing in solvent. Wipe with clean cloth.

Check field windings for any sign of damage.

Replace whole housing and field winding assembly if necessary.

ASSEMBLY

NOTE: John Deere Low Strength Loctite or an equivalent should be used on all cap screws and nuts as alternator is assembled.

Install 3 studs in outer holes in front housing. Short threaded end of stud goes into the front housing. Use two nuts on the long threaded portion of the stud to tighten stud into front housing. Install short stud in hole below mounting ear.

Place stator and shell assembly on alternator studs, align ground terminal on shell with short stud from front housing, phase leads toward the housing. Refer to Fig. 39.

Bend end of field lead through field coil terminal and solder. Slide sleeving down wire until field coil terminal is covered.

With a 14 in. (356 mm) piece of tape, tape both field leads to field coil.

Route 3 phase leads and output lead through opening in front housing.

Slide stator and shell assembly down against housing.

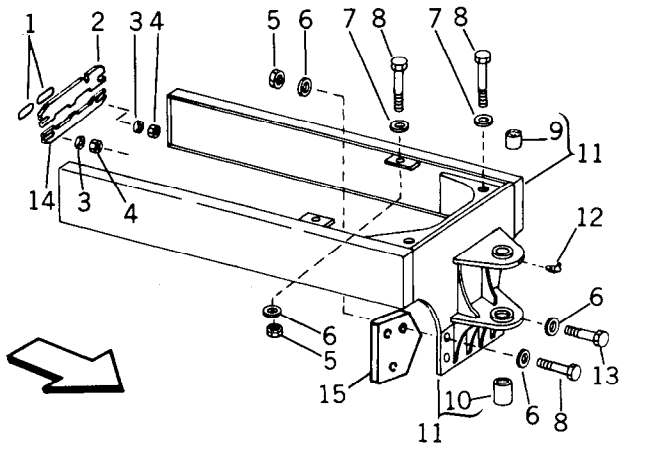
Tap the shell with a soft faced mallet until shell seats.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

REPAIR

Refer to Fig. 3 during disassembly and assembly of engine frame. Inspect bushings for wear. Replace parts as necessary.



T6243AG

1—Grommet
2—Upper Baffle
3—Washer (4 used)
4—Nut (4 used)
5—Nut (8 used)
6—Washer (10 used)
7—Special Washer (8 used)
8—Cap Screw (8 used)
9—Upper Pivot Bushing
10—Lower Pivot Bushing
11—Engine Frame
12—Grease Fitting
13—Cap Screw (2 used)
14—Lower Baffle
15—Shim (as required) (Serial No. 505455-)

Fig. 3-Engine Frame

WELDING REPAIR OF MAJOR STRUCTURES

IMPORTANT: Before welding on unit, disconnect battery ground strap and HFWD control box if equipped.

Have only a qualified welder do this job. Connect welder ground clamp close to each weld area so electrical current does not pass through any bearings.

Remove or protect all parts that can be damaged by heat or weld spatter.

WELD METAL SPECIFICATIONS

Item	Specification
Tension strength	482.5 mPa (70,0-00 psi)
Yield strength	413.7 mPa (60,000 psi)
Elongasion	22%

Use one of the following weld processes:

AWS-E-7018 covered electrode with shielded metal arc welding (SMAW) process

AWS-ER-70S-3 wire electrode with gas metal arc welding (GMAW) process

AWS-E70T-1 or E71T-1 wire electrode with flux core arc welding (FCAW) process

Preheat area to be repaired to allow better weld penetration.

To repair weld metal failure, remove failed weld metal using an arc or grinding equipment. Thoroughly clean area to be welded. Preheat structural assemblies to a minimum of 38°C (100°F). Preheat ground engaging tools (cutting edges, skid shoes, and teeth shanks) to 177°C (350°F).

To repair base metal failure remove enough material to allow weld to penetrate to the bottom of crack. Preheat structural assemblies to a minimum of 38°C (100°F). Preheat ground engaging tools (cutting edges, skid shoes, and teeth shanks) to 177°C (350°F).

INSTALLATION

Joining Engine and Equipment Frames

Use reverse of removal procedure to join engine and main frames.

Torque lower cap screws to 300 lb-ft (407 N·m) (41 kg-m).

When connecting wiring harness, be sure connectors are installed at the proper terminals.

Joining Power Unit and Engine Frame

Raise main frame so engine frame clears axle.

Roll power unit into position inside engine frame.

Use reverse of removal procedure to install all hardware, lines, and cables.

IMPORTANT: Tighten lower pivot pin (2, Fig. 2), nut, and strike pin with a lead hammer to properly seat pin. Loosen nut to zero torque and re-tighten until it is just snug. Install cotter pin through nut and hole in lower pivot pin.

Connect wiring harness. Be sure connectors are attached to proper terminals.

PREVIEW YOUFIXTHIS.COM

Download full manual at youfixthis.com

Should the damage occur to the sidewall of the tube, a plug technique can be used. First clean the area; then plug the back of the air fin convolution with paper, gum or modeling clay. To complete the repair, fill the entire air fin convolution with adhesive and allow to harden (Fig. 37). Be sure to pack the adhesive into the area to avoid bubbles and potential leaks caused by air entrapments (Fig. 38).

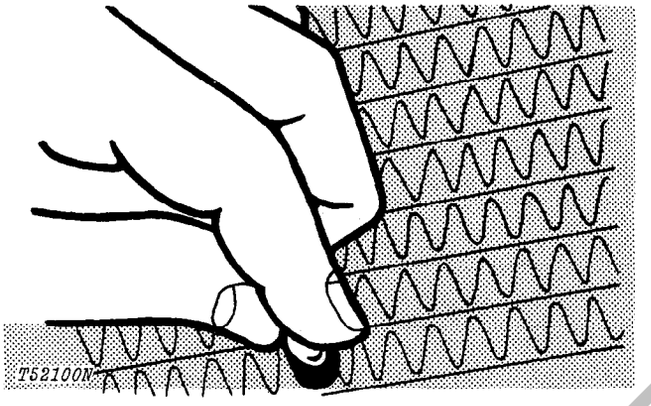


Fig. 37-Filling Air Fin Convolution

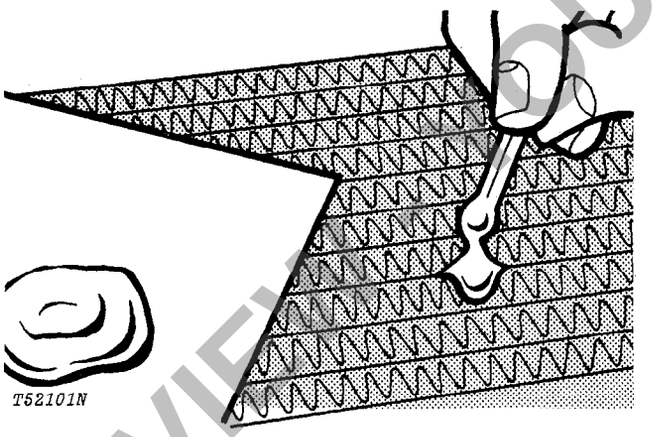


Fig. 38-Packing Adhesive to Avoid Bubbles

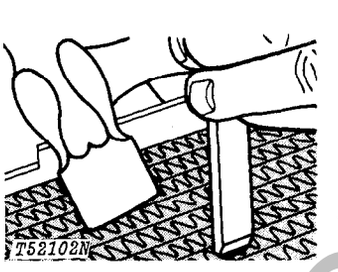


Fig. 39-Removing Air Fins

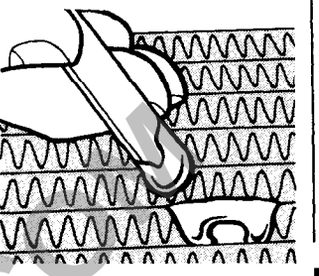


Fig. 40-Applying Prime Coat of Epoxy

For repair of large areas, use the bandage technique. First, remove the air fins adjacent to the damaged area by driving a sharp wood chisel (Fig. 39) down the side wall of the tube. Prepare a bandage which will cover the entire area to be repaired, using expanded aluminum or copper, aluminum screening, or heavy-duty aluminum foil with some perforations. This bandage will act as a bridge for the epoxy and add to the strength of the repair.

After cleaning the repair area, apply a prime coat of epoxy (Fig. 40), then lay the prepared bandage over the area (Fig. 41). To hold this bandage in place, wrap string, wire, or hairpin clips twisted on the back around the tube. Using several strands of wire or several hairpins in a row will add to the structural strength of the repair. Then, completely cover bandage with adhesive (Fig. 42).

To improve appearance, straighten any bent fins with a duck bill pliers and spray the repaired area with a paint that matches the remainder of the core. To replace a removed fin for appearance purposes, form the fin from a strap of light gauge aluminum folded between wooden strips of the right size. Bond in place with a fresh batch of adhesive.

Download full manual at youfixthis.com

JD772-A AND 772-AH HFWD PUMP

GENERAL INFORMATION

The high speed HFWD uses a slightly larger pump than the standard speed HFWD. The repair procedure is similar.

The high speed or standard speed HFWD can be identified by the serial number plate on the propel motor housing. The fifth letter of the serial number will be a "F" for high speed or an "E" for standard speed HFWD.

Cleanliness

IMPORTANT: When removing the pump, be certain to clean the outside of the pump thoroughly. Either steam clean or wash with solvent. Also, clean surrounding area so dirt will not get into system when hoses are disconnected.

If internal service work is to be performed, keep the work bench, tools, and equipment clean. Cleanliness is very important on this unit.

Replacement Parts

When servicing the pump, always install new O-rings, gaskets, and seals. This will provide a tight seal for mating parts when pump is assembled.

If it is necessary to replace a check valve assembly in the pump, replace both check valve assemblies. This will insure even wear on the check valves and proper flow of oil through the pump.

REMOVAL

Remove rear panel and bumper.

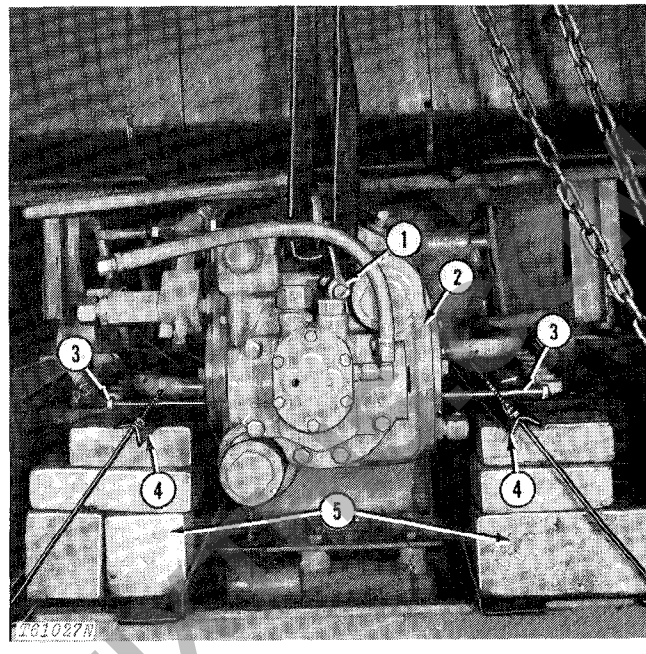
Cover the batteries to prevent oil contamination to the batteries.

Remove actuator and mount from HFWD pump.

Disconnect and plug or cap all lines and hoses from HFWD pump.

Place two long cap screws (3, Fig. 15) in trunnions to assist in removal of pump.

Block up battery clamps. Use as guides for pump removal.



1—Clevis and Pin
2—HFWD Pump
3—Cap Screws
4—Battery Clamps
5—Blocks

Fig. 15-Removal of HFWD Pump

Install clevis and pin (1, Fig. 15) in the lifting eye of the pump. Attach to the overhead hoist.

Remove retaining cap screws and carefully slide pump rearward until the front of the pump can also be attached to an overhead hoist with a sling.

Remove pump from unit.

PREVIEW - YOUR MANUAL
Download full manual at youfixthis.com

Group 2199
SPECIFICATIONS AND SPECIAL TOOLS

HYDRAULIC SYSTEM

SPECIFICATIONS AND TORQUE VALUES

Main Hydraulic Pump

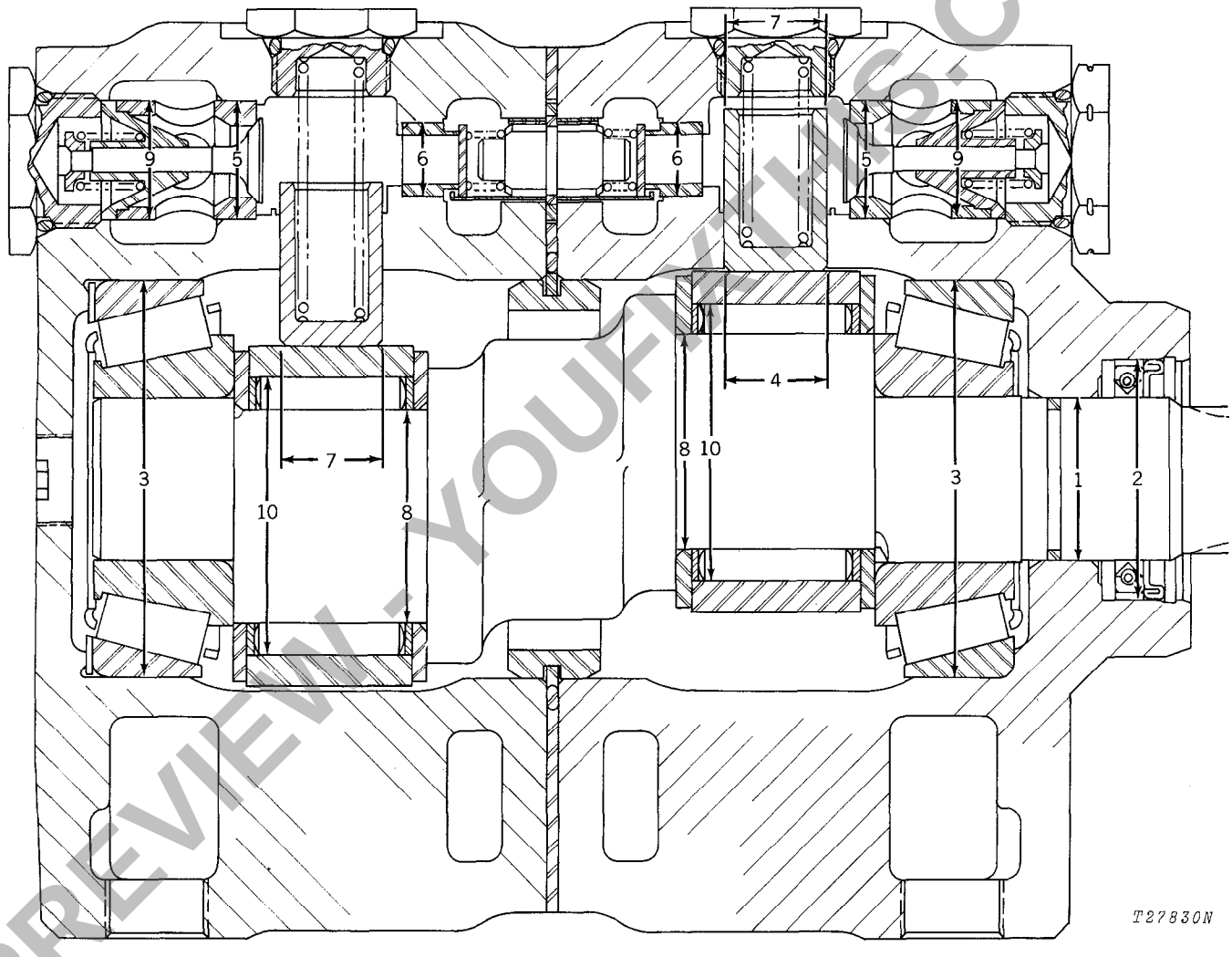


Fig. 1-Pump Housing

1 - I.D. at pump shaft quad ring ..... 1.3945 to 1.3965 in. (35.420 to 35.47 mm).

2 - I.D. at pump shaft oil seal ..... 2.0110 to 2.0210 in. (51.079 to 51.333 mm).

3 - I.D. at pump shaft bearings ..... 3.3745 to 3.3755 in. (85.712 to 85.738 mm).

4 - I.D. of piston bore ..... 0.8747 to 0.8753 in. (22.217 to 22.233 mm).

5 - I.D. of inlet valve bore .... 0.9995 to 1.0005 in. (25.387 to 25.413 mm).

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Assembly of Deluxe Poppet Valve

NOTE: Replace O-rings, packings, retaining rings and backup washers before reassembling the valve poppet. Dip O-rings and packings into oil before assembling.

NOTE: You must use special tool JD-296 Retainer Ring Crimping Tool to compress all retainer rings used in valve assembly. Regular pliers should not be used because they tend to burr ring surface, causing valve failure.

Position spring (7, Fig. 20) and return poppet (8) on valve shaft. Push return poppet down and install retaining ring (9).

On deluxe models, slide snubber sleeve (3), spring (2) and load check poppet (1) on valve shaft.

Slide valve shaft assembly into valve liner and install pressure poppet (4, Fig. 19), shims (3) (same amount as removed) and retainer (2).

Install the return seat (29, Fig. 7) on the valve shaft.

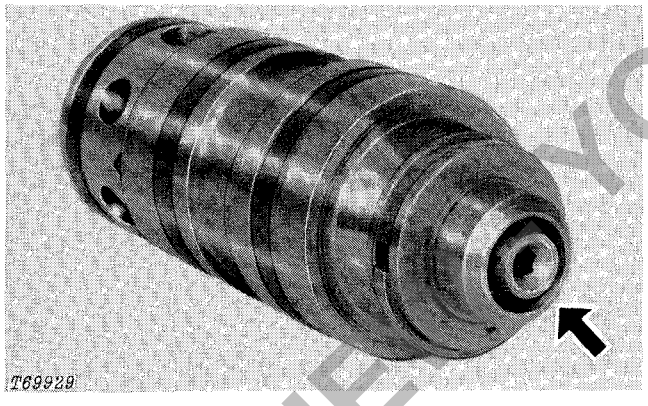


Fig. 22-Retainer Flush with End of Valve Shaft

Slide valve shaft toward return poppet end and check to see if outside edge of retainer is flush with end of valve shaft (end with the "hex." hole). If it is not, add or deduct shims as required. After obtaining the proper shimming, remove one shim and install retaining ring.

Check the gap between the valve liner and return seat (Fig. 23) for a measurement of 0.010 to 0.030 in. (0.25 to 0.76 mm). If measurement is not within specification, readjust shim pack.

This can be checked by inserting shims between valve liner and return seat. If one but not two shims slide in between liner and return seat, then gap is correct.



1—Proper Gap

Fig. 23-Clearance Between Liner and Seat

Reassemble metering sleeve assembly (Fig. 18). Turn spring retainer on spool extension until it bottoms.

Install metering sleeve assembly on poppet valve. Tighten to 16 lb-ft (22 N·m) (2 kg-m).

Litho in U.S.A.

PREVIEW YOUFIXTHIS.COM
Download full manual at youfixthis.com

HYDRAULIC SYSTEM

SPECIFICATIONS AND TORQUE VALUES—Continued

Crossover Relief Valve

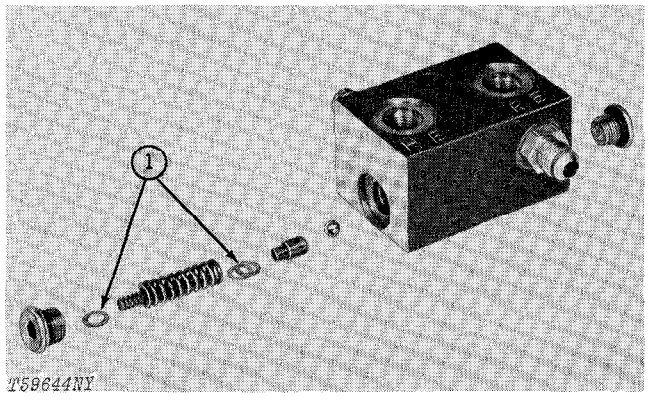


Fig. 18-Crossover Relief Valve Setting

1 - Shim to open at 3000 to 3200 psi (207 to 221 bar) (211 to 225 kg/cm²)

Blade Tilt Cylinder

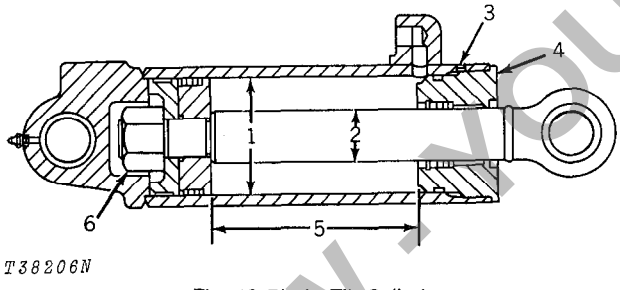


Fig. 19-Blade Tilt Cylinder

1 - Cylinder bore ..... 3.996 to 4.000 in. (101.50 to 101.60 mm)

2 - Rod diameter ..... 1.7485 to 1.7515 in. (44.41 to 44.49 mm)

3 - Set screw torque ..... 40 lb-in (4.5 Nm) (0.46 kg-m)

4 - Rod guide torque ..... 250 to 300 lb-ft (339 to 407 Nm) (35 to 42 kg-m)

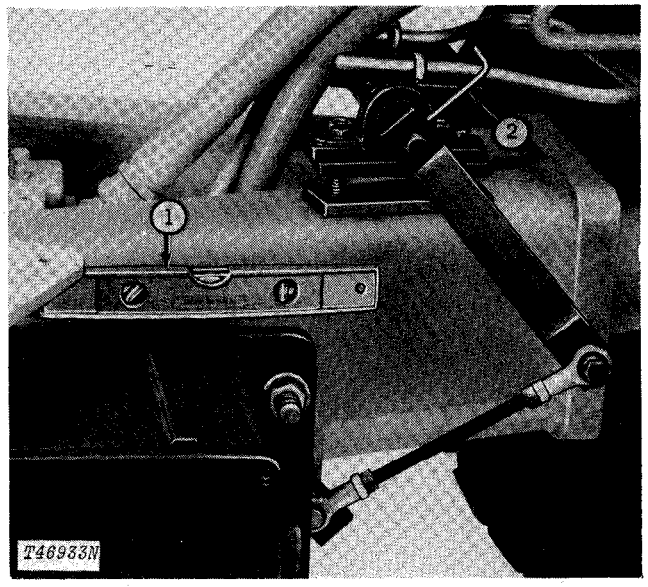
5 - Cylinder stroke ..... 10.55 ± 0.12 in. (268 ± 3.0 mm)

6 - Stop nut torque ..... 600 to 700 lb-ft (814 to 949 Nm) (83 to 97 kg-m)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Rotate the crank arms until the input reference block is level (Fig. 22). Tighten set screws on bail.



1—Leveling Reference Block **2—Tighten Set Screws**

Fig. 22-Adjusting Bail Assembly To Slope Control Unit Linkage

If any of the circle linkage (Fig. 1) has been disassembled, use the following procedure to insure slope control sprocket is adjusted correctly.

1. Loosen set screws so that sprocket (2, Fig. 1) is free to rotate on gearbox sprocket shaft (3).
2. Rotate slope sprocket (12) so that V-notch on slope control box shaft is perpendicular to outboard edge of slope control unit. Position as close to perpendicular as visually possible.
3. Place ABC System in right manual.
4. Start unit and turn on ABC System.
5. Deflect bail assembly (6, Fig. 5) by hand while closely watching left blade lift cylinder. If circle linkage is adjusted correctly, left cylinder will not move.
6. If cylinder moves when bail is deflected, slightly turn slope sprocket (12, Fig. 1) until a deflection of the bail causes no movement of left blade lift cylinder. This insures circle linkage is adjusted correctly.
7. Tighten set screws on sprocket (2, Fig. 1).
8. Position chain adjust link (15) to tighten chain.

   Tighten to have 3/4 inch (19 mm) deflection with 10 lbs. (44 N) stress in the middle of the chain span. Do not overtighten.
9. Liberally grease chain after adjustment.

If any of the linkage has been disassembled and repaired, the ABC System checkout and test should be run, See Group 9032.

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

DIAGNOSING MALFUNCTIONS

Batteries

Undercharged Battery

Excessive loads from added accessories.
Excessive engine idling.
Accessories left on low charging system voltage.
Low charging system output.
Continuous drain on battery.

Low Battery Output

High resistance in circuit.
Low electrolyte level.
Low specific gravity.
Defective battery cell.
Cracked or broken battery case.
Low battery capacity.

Battery Uses Too Much Water

Cracked battery case.
Battery being overcharged.
Defective battery.

Starting Circuit

Solenoid Switch Chatters

Low battery.
Poor connection.
Open in solenoid hold-in circuit.

Starting Motor Spins But Will Not Crank Engine

Broken drive lever.
Broken drive lever pivot bolt.
Broken magnetic switch plunger hook.
Defective sprag clutch.

Engine Cranks Slowly

Burnt or poor solenoid switch contacts.
Poor contact of brush or worn out brushes.
Burnt commutator.
Commutator mica too high.
Shorted or grounded armature coil.
Poor tension on brush spring.
Armature rubbing pole core.
Low battery charge.
High resistance in battery cables.

Starting Motor Keeps Running

Defective solenoid.
Defective start switch.
Short in wiring.

Noise Produced at Engine Cranking

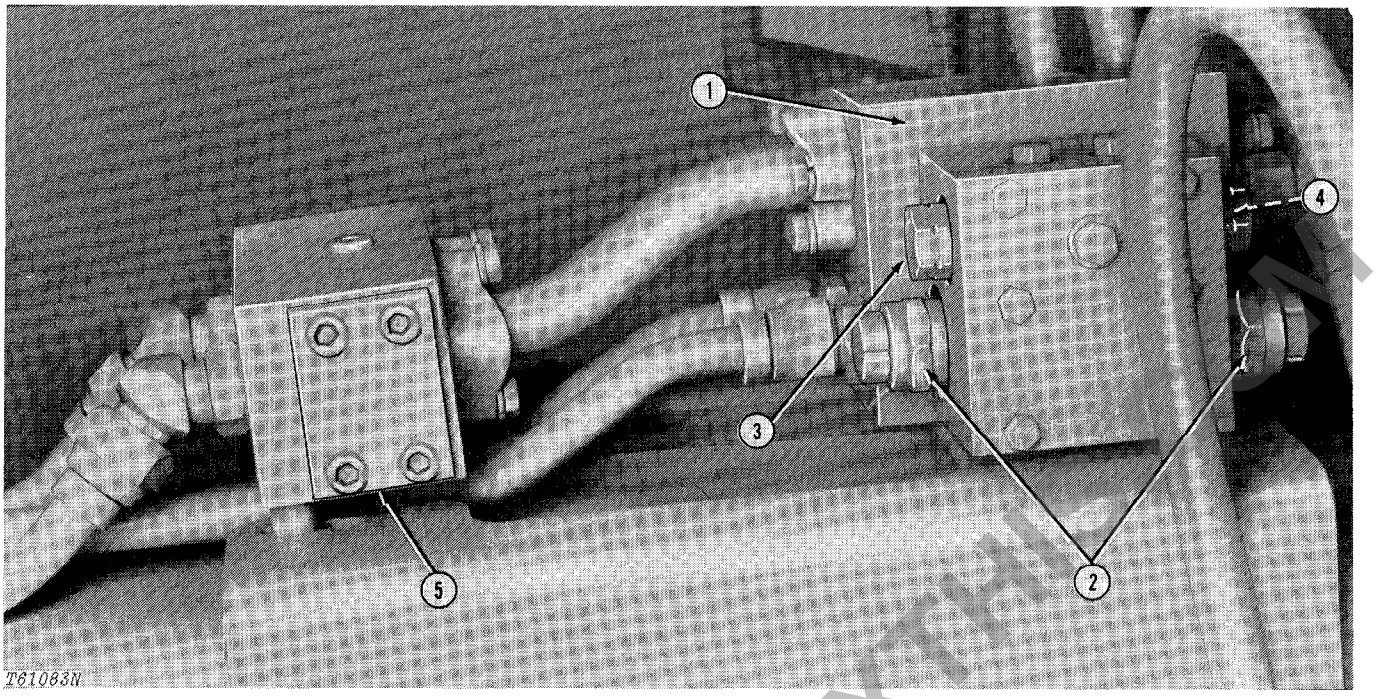
Armature interfering with stationary components.
Starting drive motor gear worn.

Starting Motor Will Not Spin, Engine Will Not Crank

Burnt or poor solenoid switch contacts.
Open, shorted, or grounded solenoid switch pull-in windings.
Open, shorted, or grounded solenoid switch hold-in windings.
Poor contact of brush or worn out brushes.
Burnt commutator.
Commutator mica too high.
Open or grounded field winding.
Open, shorted or grounded armature coil.
Poor tension on brush spring.
Grounded positive brush spring.
Grounded positive brush holder.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



1—Port Block
2—High-Pressure Relief Valves (2 used)
3—Shuttle Valve
4—Charge Relief Valve
5—Flow Divider

Fig. 3-HFWD Components

Port Block (1, Fig. 3)

The port block located under the cover on the top of the main frame is used to direct oil to the high pressure and charge relief manifold as oil flows from the pump to the flow divider or wheels.

High-Pressure Relief Valves (2, Fig. 3)

The high-pressure relief valves, located in the manifold bolted to the side of the port block, are pilot operated valves that open when pressure between the forward and reverse lines exceeds 5000 psi (345 bar) (352 kg/cm²) differential.

Shuttle Valve (3, Fig. 3)

The shuttle valve which is also located in the high pressure and charge relief manifold directs return pressure oil from the motors to the charge relief valve.

Charge Relief Valve (4, Fig. 3)

The charge relief valve located in the high pressure and charge relief manifold limits the return pressure from the motors or flow divider to 250 psi (17 bar) (18 kg/cm²) when the system is in forward or reverse, with engine at high idle and pump at full stroke.

Flow Divider (5, Fig. 3)

The flow divider located in front of the port block divides oil flow to the front wheel motors in the forward operation. In reverse, oil flow from the front wheel motors is combined by the flow divider. The flow divider functions as a limited slip differential or partial differential lock for the front wheels.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Solenoid Valve Manifold Leakage Test

Physically check balls and ball seats.

If leakage is still suspected in this valve, remove and bench test, see Group 2160.

Actuator Leakage Test

Warm the hydraulic oil to normal operating temperature, about 140°F (60°C).

Disconnect the actuator return hose (Fig. 34) from the manifold block.

Operate engine at 1500 rpm with the transmission in neutral.

Leakage from the actuator return hose should not exceed 0.53 gpm (2.0 L/min).

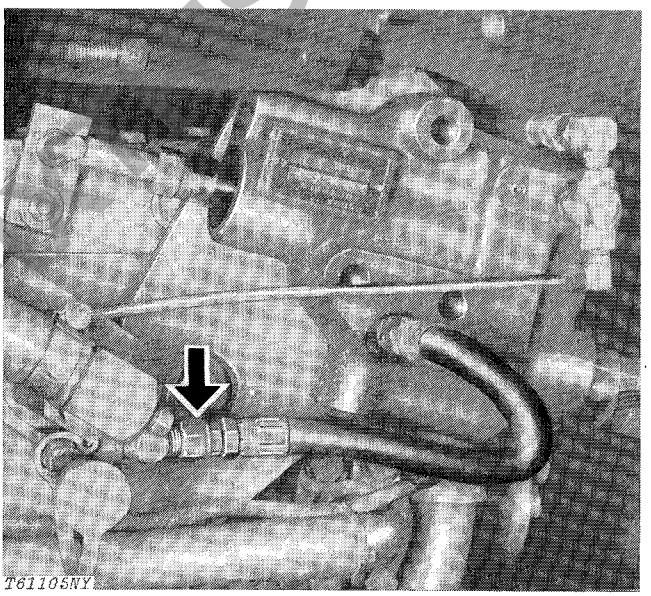
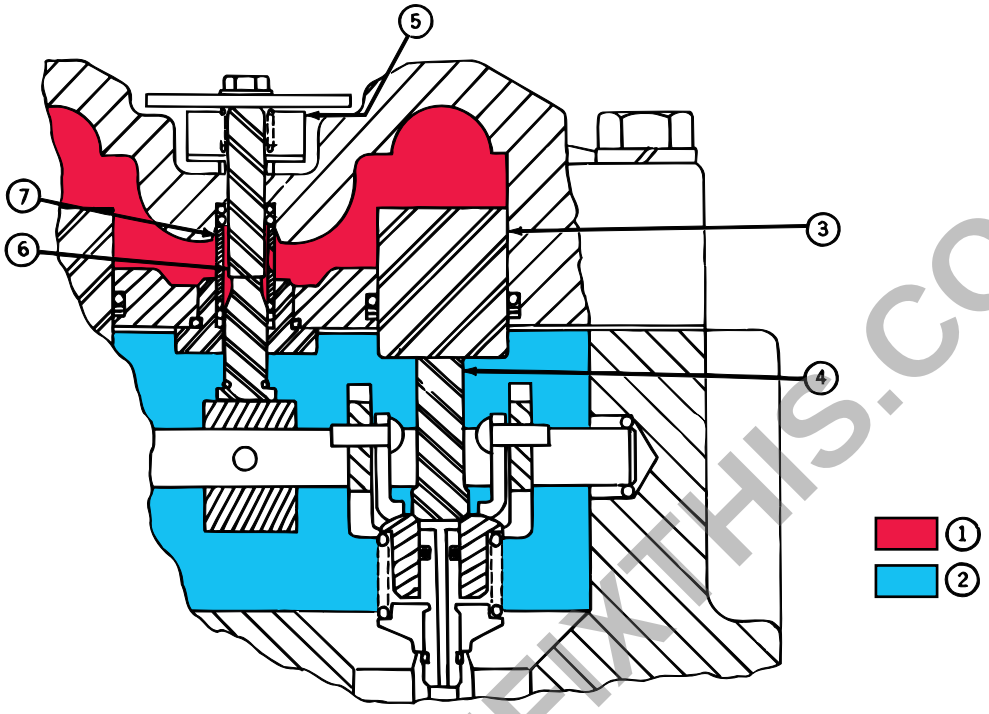


Fig. 34-Actuator Return Hose

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



T61838N

90

1—Pressure Oil
2—Return Oil
3—Piston
4—Valve Extension
5—Switch
6—Pin
7—Sleeve

Fig. 16-Float Function Activated

Pressure oil is applied to the blade float cover. If a float solenoid is activated, pressure oil is applied to the top of pistons (3, Fig. 16). The pistons move in activating the valve extension (4) to open the rod and head end of the lift cylinder to return. The blade is now in float on whatever side that was activated.

As the piston moves, pressure oil passes by the piston to the sleeve (7). A hole in the sleeve passes pressure oil to the pin (6).

The pin is moved in which brings the large washer in contact with the switch (5). This switch keeps voltage applied to the solenoid.

When the control lever is moved forward or backward, the cam moves the pin up, deactivating the switch. The solenoid no longer has voltage applied and the pressure passage to the top of the pistons is closed.

The pistons return to rest position and the blade is out of float.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Test Analysis

Refer to the test chart (Fig. 57) to analyze the recorded data as follows:

Leakage from functions that return to sump:

Step 4 Charge Pressure
– Step 3 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

Transmission Pump Flow

Step 5 Charge Pressure
15 psi (103.4 kPa) (1 bar) Min.

Use the step 5 charge pressure for the reference base for determining B1, C3, B3, B2 and B4 leakage.

B1 Leakage (NN, NF, 1F, 3F, NR, 1R, 3R):

Step 5 Charge Pressure
– Step 4 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

C3 Leakage (NF, 1F, 2F, 3F, 7F):

Step 5 Charge Pressure
– Step 6 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

B3 Leakage (NR, 1R, 2R, 3R, 4R):

Step 5 Charge Pressure
– Step 7 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

B2 Leakage (2F, 4F, 6F, 2R, 4R):

Step 5 Charge Pressure
– Step 8 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

B1 and B4 Leakage (B4 used in 5F, 6F, 8F):

Step 5 Charge Pressure
– Step 9 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

For B4 leakage only, subtract B1 charge pressure difference from the B1 B4 difference above.

Use the step 4 charge pressure for the reference base for determining C1 and C2 leakage.

C1 Leakage (1F, 2F, 7F, 8F, 1R, 2R):

Step 4 Charge Pressure
– Step 10 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

C2 Leakage (3F, 4F, 5F, 6F, 7F, 8F, 3R, 4R):

Step 4 Charge Pressure
– Step 11 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

Differential Lock Leakage:

Step 12 Charge Pressure
– Step 13 Charge Pressure
5 psi (34.5 kPa) (0.35 bar) Max.

If any of the components analyzed above have excessive leakage or the charge pressure is generally low in all steps, do the Complete Transmission Test, page 9025-83.

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

DIAGNOSING MALFUNCTIONS

Blade Control in ABC System "OFF" malfunctioning.
Motor grader hydraulic system malfunction.
Test motor grader hydraulic system by normal means.

Check valve in manifold assembly sticking.

Solenoid valve(s) in manifold assembly defective.
Test electrical continuity through solenoid valves as described in Test Procedure No. 3.

ABC System operates, but loss of accuracy reported.
Tire pressure uneven.
All tires on motor grader utilizing ABC System should be 50 psi (3 bar) (4 kg/cm²).

NOTE: On certain job and soil conditions, tire pressure may be lessened, but must be equal.

Blade not centered under draft frame.

Grade sensor bracket not tight in mount.

Grade sensor too far from blade.
Grade sensor should be positioned as close to blade as possible.

Rear tires running in loose material.
Operate with rear tires on freshly cut surface.

Servovalve(s) not centered.
Adjust servovalve (see page 9032-20).

Job site problems.
Spacing between stringline too great.
Uneven or poor stringline installation.
Poor operating technique.

Uneven cutting edge wear or other motor grader mechanical components beyond accepted wear tolerances.

ABC System mechanical installations not performed correctly or out of adjustment.
Test using Test Procedure No. 1.

ABC System electrical system malfunction.
Test using Test Procedure No. 2 or 3.
(verify other possible problems FIRST).

Loss of left or right cylinder action with ABC System "ON".
Vehicle hydraulic system malfunction.
Test with ABC System "OFF".

ABC System servovalve(s) defective.

ABC System electrical malfunction.
Test using Test Procedure No. 2 or 3.

ABC System completely inoperative with ABC System power "ON".
Blown 1 amp fuse in control console.

Slope meter consistently reads off center in the same direction.
Adjust servovalve (see page 9032-20).

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 1330 pages

The full manual includes:

- All 1330 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

John Deere 770A, 770AH, 772A, 772AH Technical Repair Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual