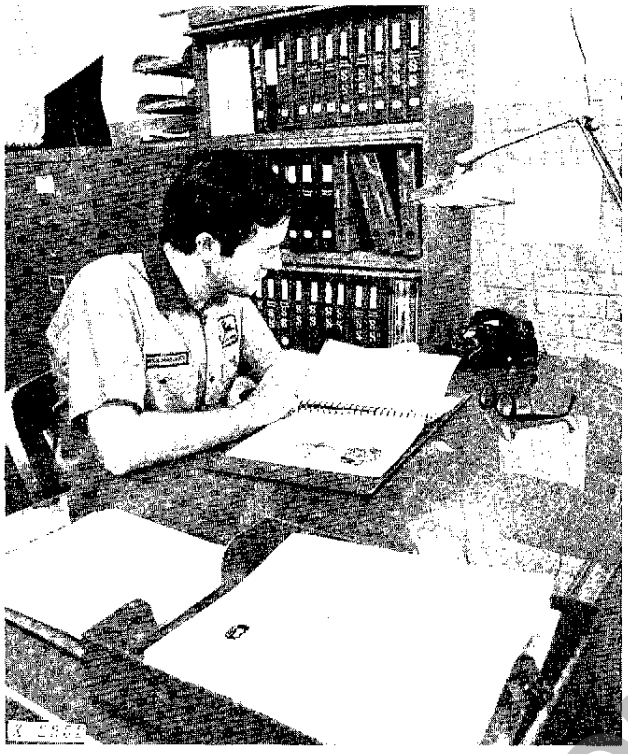
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

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 whole manual*
- *Contents at front of each Section*
- *Specifications at end of each Group*
- *Special tools at end of each Group*

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.

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.

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

LUBRICANTS

ENGINE LUBRICATING OILS



X3377

We recommend John Deere Torq-Gard Supreme Engine Oil for use in the engine crankcase. This oil is compounded specifically for use in John Deere engines and provides superior lubrication under all conditions. NEVER PUT ADDITIVES IN THE CRANKCASE. Torq-Gard Supreme is formulated to provide all the protection this engine needs. Additives could reduce this protection rather than help it.

If Torq-Gard Supreme is not used, use an engine oil that conforms to one of the following specifications:

SINGLE VISCOSITY OILS

API Service CD/SD
MIL-L-2104C
Series 3*

MULTI-VISCOSITY OILS

API Service CC/SE, CC/SD, or SD
MIL-L-46152

**As further assurance of quality, the oil should also be identified as suitable for API service designation SD.*

Depending on the expected prevailing temperature for the fill period, use oil of viscosity as shown in the following chart.

Air Temperature	John Deere Torq-Gard Supreme Oil	Other Oils: Single Viscosity Oil	Other Oils: Multi-Viscosity Oil
Above 32° F.	SAE 30	SAE 30	Not recommended
—10° F. to 32° F.**	SAE 10W-20	SAE 10W	SAE 10W-30
Below —10° F.	SAE 5W-20	SAE 5W	SAE 5W-20

***SAE 5W-20 oil may be used where required to insure optimum lubrication at starting, particularly for an engine subjected to —10° F. or lower for several hours.*

Some increase in oil consumption may be expected when SAE 5W-20 or SAE 5W oils are used. Check oil level more frequently.

TRANSMISSION HYDRAULIC OILS

Use only John Deere Type 303 Special-Purpose Oil or its equivalent in the transmission-hydraulic system. Other types of oil will not give satisfactory service, and may result in eventual damage. This special oil may be used in all weather conditions.

GREASES

John Deere Multi-Purpose Lubricant or an equivalent SAE Multipurpose-Type grease is recommended for grease fittings. Application of grease as instructed in the lubrication section of the operator's manual will provide proper lubrication and will keep contamination out of bearings.

STORING LUBRICANTS

A tractor can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contamination.

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

INSPECTION PROCEDURES—Continued

Service	Specifications	Reference
Clutches and differential lock		
Check transmission clutch free travel (Syncro-Range transmission)	Approximately 1-1/2-inch free travel.	Operator's manual
Check engine disconnect clutch (Power Shift transmission)	No tendency for tractor to creep when clutch is disengaged.	Section 50, Group 15
Shift transmission through all speeds.		Operator's manual
Check Power Front Wheel Drive operation.		Operator's manual
Check PTO clutch and brake operation.		Section 50, Groups 40 & 45
Check differential lock operation.		Operator's manual
Check air conditioning and heater system for proper operation (if equipped)		Operator's manual
Check air conditioner compressor drive belt	1/4 in. deflection, 15 lb. pull	Operator's manual
Nuts and Cap Screws		
Tighten accessible nuts and cap screws that seem to require adjustment		

TORQUE CHART

RECOMMENDED TORQUE IN FT-LBS
COARSE AND FINE THREADS

Bolt Diameter	Plain Head*	Three Radial Dashes*	Six Radial Dashes*
1/4	6	10	14
5/16	13	20	30
3/8	23	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

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

Plain Head: regular machine bolts and cap screws (B-grade).

3-Dash Head: tempered steel high-strength bolts and cap screws (D-grade).

6-Dash Head: tempered steel extra high-strength bolts and cap screws (F-grade).

Litho in U.S.A.

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

REAR WHEEL TREAD (Continued)

Standard	
Regular axle	66 to 94 in.
Long axle	66 to 100 in.
Hi-Crop	73 to 97 in.

DIMENSIONS

Row-Crop:	
Wheel Base:	
Adjustable-tread front axle	100.3 in.
Double front wheel, Roll-O-Matic, and single front wheel	97.5 in.
Over-all height:	
Without cab	90.7 in.
Cab without Air Conditioning:	
Stolper	110.0 in.
Hinson	105.3 in.
Cab with Air Conditioning:	
Stolper	112.0 in.
Hinson	113.0 in.
Height to steering wheel	79.8 in.
Over-all length	152.7 in.
Width:	
Regular axle	89.6 in.
Long axle	95.9 in.
Extra long axle	103.9 in.
Special dual axle	113 in.
Clearance (crop):	
Adjustable axle	24.8 in.
Rear axle housing	27.1 in.
Rear axle	27.9 in.
Clearance (drawbar)	16 in.
Turning Radius:	
Double front wheel, Roll-O-Matic, and single front wheel	9 ft. 2 in.
Adjustable tread front axle	10 ft. 8 in.
**Shipping Weight:	
Diesel	8555 lbs.
Gasoline	8305 lbs.
LP-gas	8490 lbs.
Standard:	
Wheelbase	
Short	89 in.
Long	100.3 in.
Over-all height	90.4 in.
Height to steering wheel	79.4 in.

DIMENSIONS (Continued)

Over-all length	152.7 in.
Width:	
Regular axle	89.6 in.
Long axle	95.9 in.
Extra long axle	113.1 in.
Clearance (crop):	
Adjustable axle	22.5 in.
Rear axle	27.9 in.
Rear axle housing	27.1 in.
Clearance (drawbar)	16 in.
Turning Radius:	
Short wheel base	9 ft. 7 in.
Long wheel base	10 ft. 10 in.
**Shipping Weight:	
Diesel	8185 lbs.
Gasoline	7935 lbs.
LP-gas	8120 lbs.
Hi-Crop:	
Wheel base	100.3 in.
Over-all height	105.6 in.
Height to steering wheel	94.8 in.
Over-all length	150.9 in.
Width	95.4 in.
Clearance (crop):	
Front axle	39.3 in.
Rear axle	28.9 in.
Rear housing	37.6 in.
Turning radius	11 ft. 3 in.
**Shipping Weight:	
Diesel	9235 lbs.
Gasoline	8985 lbs.
LP-gas	9170 lbs.

***Weights are for diesel tractors with Power Shift transmission, 3-point hitch, and regular cast wheel equipment. Deduct approximately 225 pounds for tractors with Syncro-Range transmissions. Add approximately 1000 pounds for tractor with Power Front Wheel Drive. Shipping weight for the 4000 gasoline - 7699 lbs; diesel - 7900 lbs.*

(Specifications and design subject to change without notice.)

Litho in U.S.A.

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

ENGINE TUNE-UP—Continued

Operation	Specification	Section-Group Reference
Air Intake System—Continued		
Gasoline - with precleaner and extension	7 in. at 2200 rpm (full load)	
without precleaner and extension	3 in. at 2200 rpm (full load)	
Maximum permitted reading	20 in. at 2200 rpm (full load)	
	25 in. at 2200 rpm (full load, tractors with safety filter)	
Check restriction indicator light operation	19-21 in. at 2200 rpm (full load)	
	24-26 in. at 2200 rpm (full load, tractor with safety filter)	
Exhaust System		
Check system for leaks		FOS 30 Manual, Chapter 12
Check muffler and exhaust pipe for restrictions		FOS 30 Manual, Chapter 12
Crankcase Ventilating System		
Check system for restrictions		FOS 30 Manual, Chapter 12
Cooling System		
Clean grille screen, radiator core, and oil cooler core		20-30
Clean and flush system; check thermostat	Range - 160°-182°F; or 180°-202° F.	20-30
Check pressure cap	6.25 to 7.50 psi release pressure	20-30
Cylinder Head and Valves		
Torque cylinder head cap screws	130 ft-lbs in sequence	20-10
Set valve clearance	Diesel - 0.018 in.; gasoline or LP-gas - Intake 0.015, Exhaust 0.028 (hot) 0.031 (cold)	20-10
Ignition System		
Inspect system; install new points, condenser, and plugs (if existing ones are good, clean and regap them)		
Contact point gap 1112624	0.016 in.	40-20
1112466	0.021 in.	40-20
Cam angle 1112624	31 to 34°	40-20
1112466	22 to 26°	40-20
Spark plugs	Gasoline - .025 in.; LP-gas - .015 in.	40-20
Time distributor (2000 engine rpm)	Gasoline - 20° BTDC; LP-gas - 25° BTDC	40-20
Gasoline and LP-gas Fuel System		
Clean sediment bowl or fuel-lock strainer		30-15 & 20
Check system for leaks		30-15 & 20
Check fuel pump pressure	3-1/2 to 4-1/2 psi	30-15
Clean carburetor inlet screen		30-15
Drain carburetor bowl		30-15
Check choke operation		30-15

Litho in U.S.A.

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

Group 15
TUNE-UP

GENERAL INFORMATION

Before tuning up a tractor, determine whether a tune-up will restore operating efficiency. When there is doubt, the following preliminary tests will help to determine if the engine can be tuned up. If the condition is satisfactory, proceed with the tune-up. Choose from the following procedures only those necessary to restore the unit.

PRELIMINARY ENGINE TESTING

Operation	Specification	Section-Group Reference
Dynamometer Test (at 2440 engine rpm)	Compare with previous recorded output; compare with output after tune-up	FOS 30 Manual, Chapter 12
Compression Test		
Diesel	400 psi at 275 rpm	FOS 30 Manual, Chapter 12
Gasoline	160 psi at 170 rpm	
LP-gas	180 psi at 170 rpm	
Manifold Depression Test (gasoline and LP-gas)	18-20 inches Mercury	FOS 30 Manual, Chapter 12
Engine Coolant Check Test	No air bubbles or oil film in radiator	FOS 30 Manual, Chapter 12

ENGINE TUNE-UP

Operation	Specification	Section-Group Reference
Air Intake System		
Service air cleaner and check system for leaks		FOS 30 Manual, Chapter 12
Check system for restrictions using water manometer		FOS 30 Manual, Chapter 12
Normal reading (inches of water):		
Diesel - with precleaner and extension	8 in. at 2200 rpm	
without precleaner and extension	4 in. at 2200 rpm	

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Litho in U.S.A.

Download full manual at youfixthis.com

BEFORE DELIVERING TRACTOR—Continued

Service	Specifications	Reference
Tires and Wheels		
Adjust pressure of tires.	. . . . .	Operator's manual
Check front wheel hub bolts, rear wheel rim clamp nuts, and rear wheel retainer cap screws for tightness.	Front hub bolts - 85 ft-lbs Rear hub bolts - 300 ft-lbs Rim clamp nuts - 170 ft-lbs	. . . . .
Lubrication		
Check crankcase oil level.	To upper marks on dipstick.	Operator's manual
Check transmission-hydraulic system oil level	To top of "SAFE" range on dipstick. Type 303 Special-Purpose Oil.	Operator's manual
Lubricate grease fittings	SAE multipurpose-type grease	Operator's manual
Check distributor lubrication	Distributor cam lubricant	Section 40, Group 20
Engine		
Check air cleaner.	. . . . .	Operator's manual
Fill fuel tank and start engine.	Diesel and gasoline - 34 U.S. gallons; LP-Gas - 45 or 39 U.S. gallons	Operator's manual
Check operation of flasher, gauges, and indicator lamps.	. . . . .	Operator's manual
Check throttle linkage for free operation	. . . . .	Section 20, Group 35
Check engine timing	Diesel - TDC Gasoline - 20° BTDC, 2000 rpm LP-gas - 25° BTDC, 2000 rpm	Section 40, Group 20
Check engine idle speeds.	Diesel - 800 rpm, 2150 rpm, 2400 rpm, and 2650 rpm Gasoline, LP-Gas - 800 rpm, 2170 rpm, 2440 rpm, and 2690 rpm	Section 20, Group 35
Operation		
Check transmission clutch free travel (Syncro-Range transmission)	Approximately 1-1/2-inch free travel (at least 3/4 in).	Operator's manual
Check engine disconnect clutch (Power Shift transmission).	No tendency for tractor to creep when clutch is disengaged.	Section 50, Group 15

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Check valve face and stem for wear or damage. See "Diagnosing Malfunctions" page 20-10-1 for causes of valve failures.

The O.D. of a new valve stem is 0.3715 to 0.3725 inch. Compare with valve guide I.D. to determine guide-to-stem clearance.

Valve face angle on a new valve is 44.5°. The face O.D. of the valves are as follows:

Valve	New Part
Intake—Gasoline.	1.6830 to 1.6930 in.
Exhaust—Gasoline	1.4950 to 1.5050 in.
Intake—Diesel	1.8970 to 1.9070 in.
Exhaust—Diesel	1.7100 to 1.7200 in.

FOS For information on valve refacing, see "Basic Engine" in FOS-30 ENGINES manual.

Valve Guides

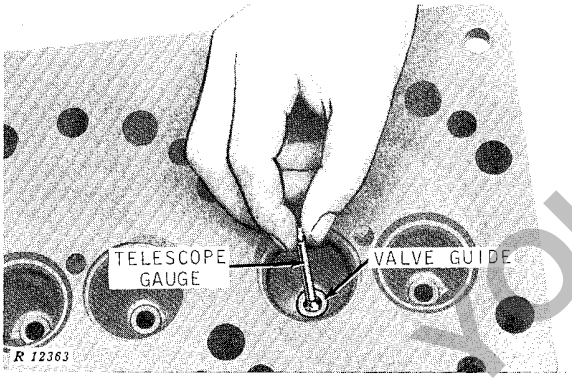


Fig. 3–Checking Valve Guides

Measure valve guides (Fig. 3) for wear or damage. The I.D. of the guide in a new head is 0.3745 to 0.3755 inch. Clearance between new guide and new valve stem is 0.0020 to 0.0040 inch. Worn guides can allow a clearance of 0.0060 inch and still be acceptable.

Worn guides can be knurled if they do not allow more than 0.0060 to 0.0080 inch clearance. Use No. 1002 knurling tool from United Tool Processes Co. EXACTLY as directed by the manufacturer.

Valve Seats

Check valve seats for cracks, pits, carbon deposits and excessive wear. Measure width and concentricity with valve guide. The width of the seat is 0.0830 to 0.0930 inch. Runout between guide and seat should be no more than 0.0020 inch.

Repair seats as directed in FOS-30 Engines manual and by directions given by the seat refacing tool manufacturer. Dimensions of valve recessed in seat limits are as follows:

Valve	New Part	Wear Tolerance
Intake	0.0360 to 0.0500 in.	0.0300 in.
Exhaust	0.0540 to 0.0680 in.	0.0300 in.

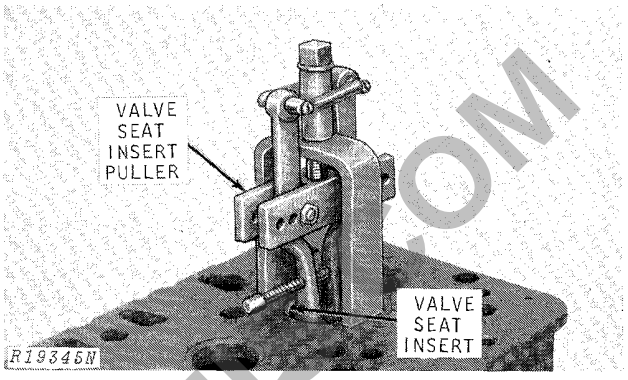


Fig. 4–Removing Valve Seat Inserts

If necessary, replace LP-gas exhaust valve seat inserts. Use JDE-41296 puller to pull insert.

Chill both new insert and JDE-8 replacement ring before installation. Use JDE-7 driver to drive insert and replacement ring into place.

NOTE: Some diesel engine cylinder heads may have valve seat inserts. If necessary, use JDE-41296 puller to remove. Chill and install exhaust valve seat insert with JDE-66 driver and intake valve seat insert with JDE-67 driver.

Cylinder Head

Inspect cylinder head for flatness, cracks, damage to finished surface and deposits in coolant galleries.

If absolutely necessary, the cylinder head can be reconditioned to restore surface finish or correct flatness. The MAXIMUM amount that can be removed from the cylinder head is 0.030 inch. Remove ONLY what is necessary to correct damage. After repairs are made, check distance valve is recessed in head to insure proper clearance.

Rocker Arm Assembly

Examine rocker arms and rocker arm shaft for unusual signs of wear. Wear could indicate weak valve springs, bent push rods, or loose rocker arm shaft clamps. If rocker arm ends show only normal wear, resurface them.

If the rocker arm has been damaged by a valve failure, replace it and the push rod when replacing valves.

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DIAGNOSING MALFUNCTIONS

Before replacing the pump when fuel does not flow (or only a small amount flows), check the following sources that would limit pump performance:

Fuel shut off at tank.
Hand primer left in the upward position.
Clogged fuel line.
Loose or damaged fuel line connections.

If correction of these conditions does not provide a satisfactory flow of fuel, the pump is defective and must be repaired or replaced.

REMOVAL

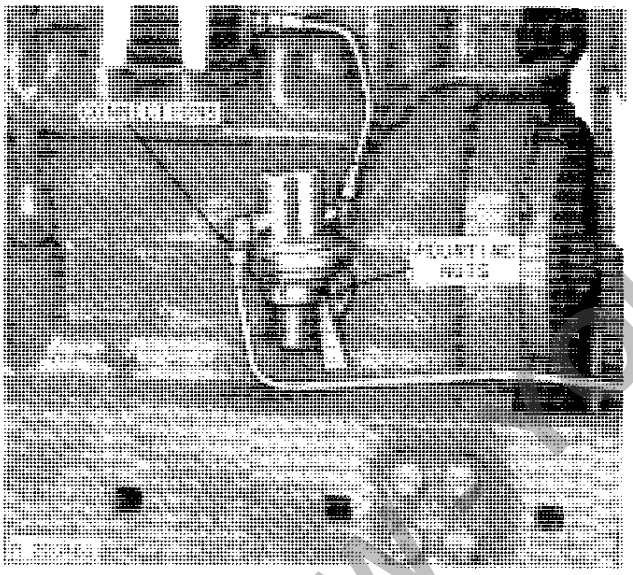


Fig. 5–Fuel Pump (Late Model Illustrated)

Close the fuel tank shut-off valve, and disconnect the pump inlet and outlet pipes (Fig. 5).

Remove mounting stud nuts, and lift out pump from engine block.

REPAIR

Late model fuel pumps (Airtex) are not designed to be repaired. If pump is defective, install a new one. An AR40482 Repair Kit is available for earlier model pumps (AC).

INSTALLATION

Be sure engine block pad is clean and install pump. Make sure gasket or O-ring packing is in good condition.

Connect the fuel pipes and open the shut-off valve.

Bleed the fuel system.

FUEL FILTER(S)

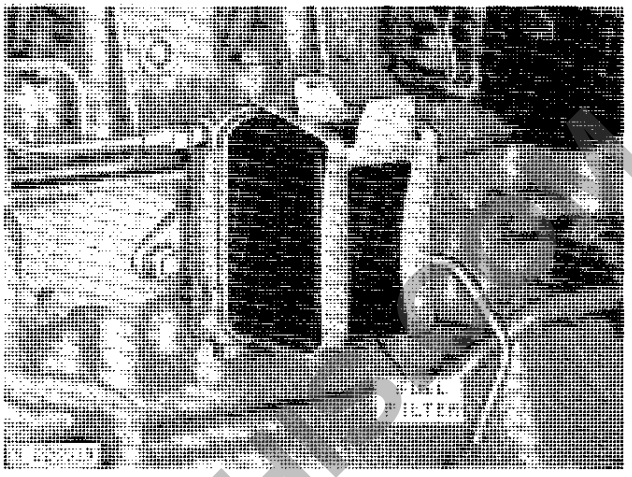


Fig. 6–Fuel Filter (Late Model Illustrated)

A combination first and second stage filter element is contained in the sediment bowl as a complete assembly on late model tractors. Earlier models used a dual filter arrangement.

The filter(s) should be changed whenever a tune-up or an overhaul has been performed on the engine. Otherwise, change as often as necessary. See the tractor operator's manual for service instructions.

BLEEDING FUEL SYSTEM

When the fuel filter is removed, bleed the air from the filter before attempting to start the engine. See the tractor operator's manual for bleeding instructions.

⚠ CAUTION: Escaping diesel fuel under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

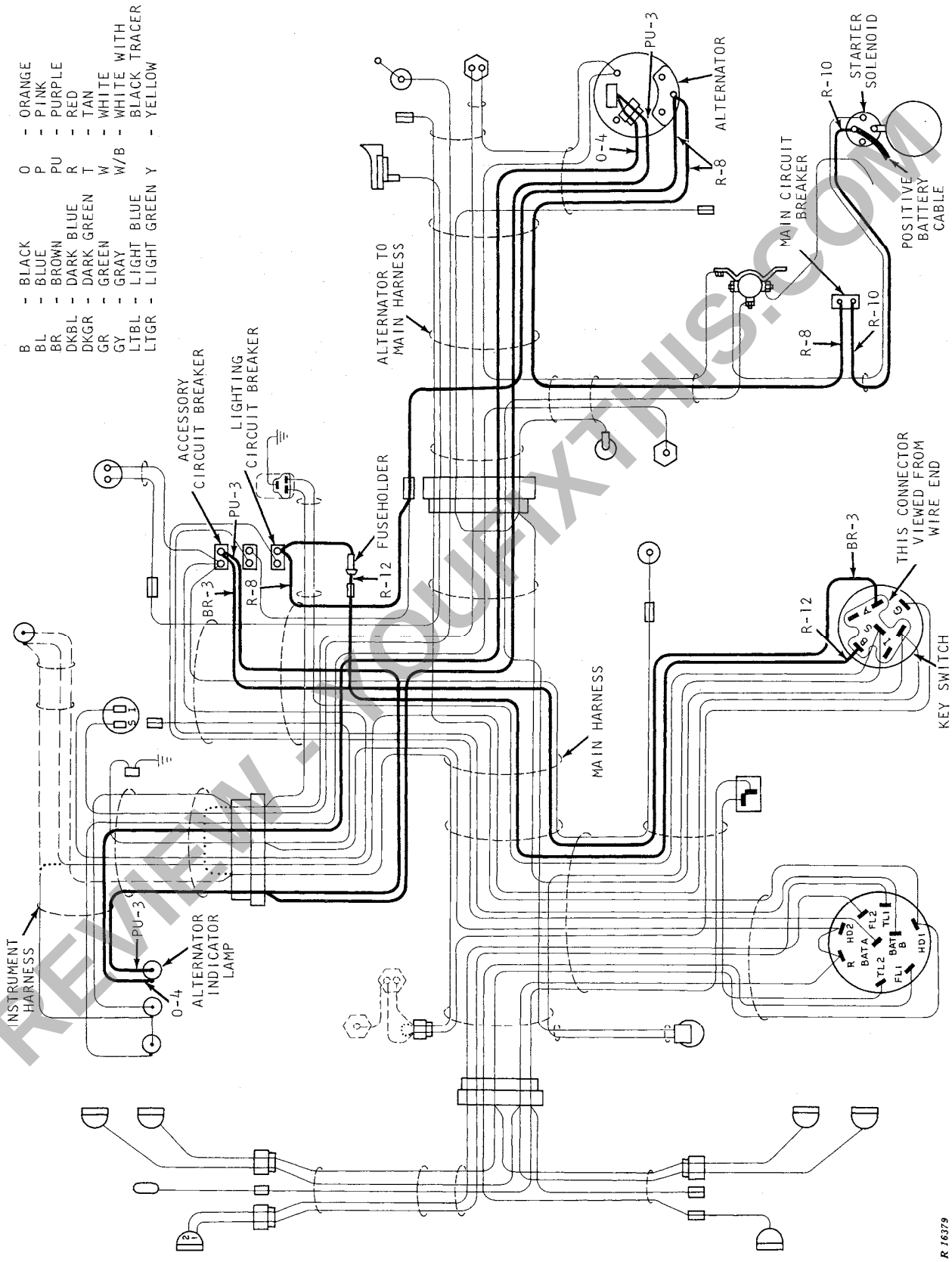


Fig. 4–Charging Circuit for Tractors Serial Number 222,919 and After (Shown in Bold Line)

R 16379

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Voltmeter Indicates Battery Voltage

Defective starter
Defective starter solenoid switch

Starter Circuit Relay Does Not Operate

Defective key switch
Defective start-safety switch
Maladjusted start-safety switch
Missing start-safety switch cam follower (Syncro-Range tractors, see Section 50)
Defective wiring between key switch and starter circuit relay.

HIGH RESISTANCE TEST

Detach high tension coil wire from distributor and ground it or, on diesel tractor, disconnect wire from injection pump shutoff solenoid terminal.

Connect voltmeter to ground and to solenoid battery terminal. Operate starter and compare voltage with a similar reading at battery. Always use a pin connector at battery post. If difference is more than 0.8 volts, make the indicated test (Fig. 11). Check for defective wires or faulty connections.

SOLENOID TESTS

Testing Pull-In Windings. Disconnect field connector from solenoid motor terminal. Connect ammeter in series with a carbon pile resistor to terminal S and to battery. Connect voltmeter to terminal S and to solenoid motor terminal. With carbon pile in the off position, connect other battery post to solenoid motor terminal. Quickly adjust the carbon pile to obtain the specified voltage and note the ammeter reading.

Testing Hold-In Windings. Disconnect solenoid. Connect ammeter in series with a switch to terminal S and to battery. Connect voltmeter to terminal S and to solenoid ground. Connect carbon pile resistor across the battery. Connect other battery post to solenoid ground. Close the switch and adjust carbon pile to obtain specified voltage. Note the ammeter reading.

To prevent overheating, do not energize the pull-in winding longer than 15 seconds. Current draw will decrease as the winding temperature increases.

High Ammeter Reading

Windings are grounded or short circuited

Low Ammeter Reading

Excessive resistance is present (usually in a connection)

No Ammeter Reading

Windings are open circuited

STARTER CIRCUIT RELAY TESTS

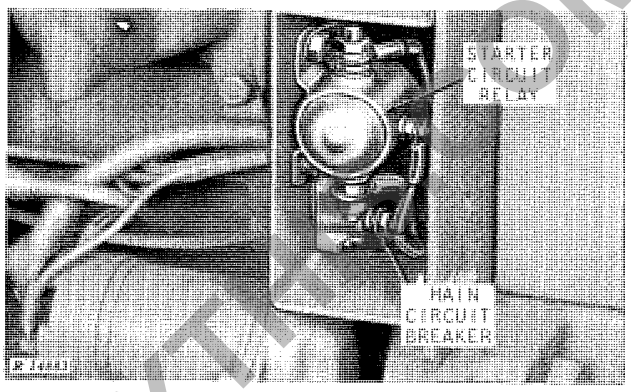


Fig. 3–Starter Circuit Relay

Connect voltmeter to relay control terminal and ground. Connect ammeter to control terminal and test windings in same manner as solenoid. Relay is not repairable. Voltage drop across large terminals should not exceed 0.2 volt.

STARTER NO LOAD TEST

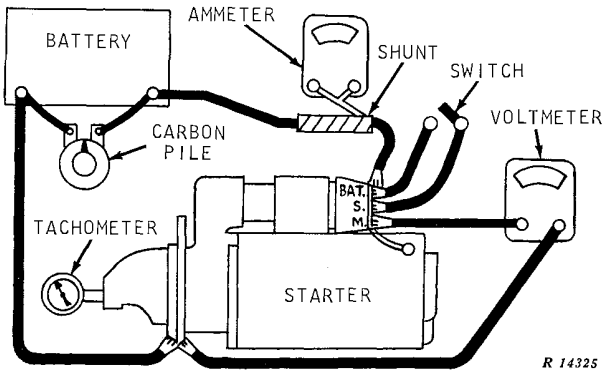


Fig. 4–No Load Test

Make connections shown in Fig. 4 (some ammeters do not require a shunt). Close switch to operate starter and adjust carbon pile to obtain specified voltage. Current draw and rpm should be as specified. Starter model No. 1113672 or 1113692 with an open-circuited field coil will have a slow cranking speed but will pass this test.

Litho in U.S.A.

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

Heat the front bearing cone in hot oil not to exceed 300° F., and install it on the shaft.

Obtain a piece of pipe or tubing large enough to fit freely on the end of the differential drive shaft, but not large enough to ride on the front bearing cage. Cut a piece just long enough to extend 1/8 to 1/4 inch beyond the end of the differential drive shaft.

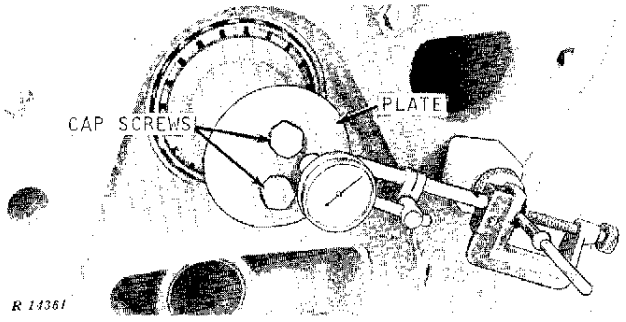


Fig. 11–Checking End Play

Slide spacer pipe on end of differential drive shaft in place of the inner bearing race and install plate and cap screws (Fig. 11). Tighten cap screws securely.

Mount a dial indicator (Fig. 11) and measure end play. Remove shims in the amount of the desired preload plus the existing end play. Correct preload is 0.004 to 0.006 inch.

Special installation arbor JDT-8-1 must be modified before being installed on front of transmission case.

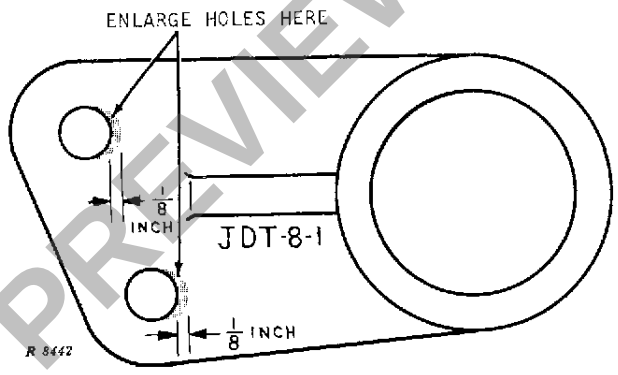


Fig. 12–Altering JDT-8-1 Arbor

Modify the JDT-8-1 installation arbor by enlarging the attaching holes 1/8-inch as shown in Fig. 12.

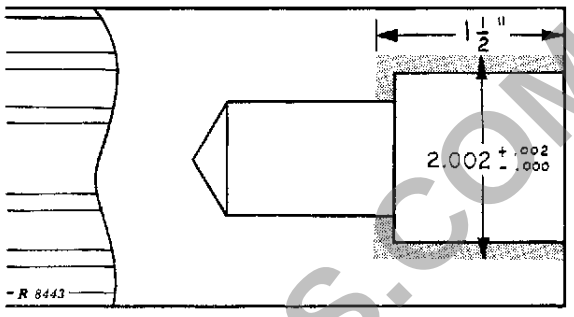


Fig. 13–Altering JDT-8-2 Dummy Shaft

Modify the JDT-8-2 dummy shaft by enlarging the bore in the shaft to 2.002 inches and to a depth of 1-1/2 inches shown in Fig. 13.

Install arbor onto front of transmission case as shown in Fig. 14.

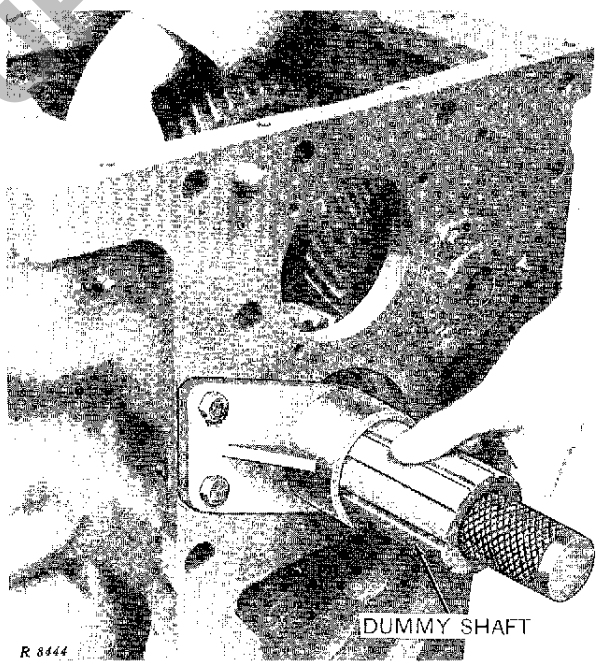


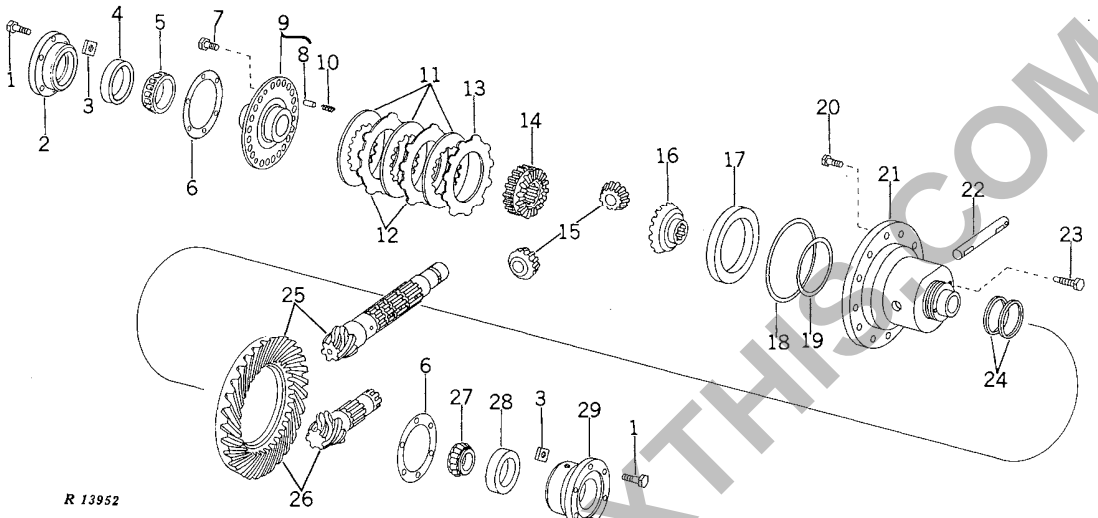
Fig. 14–Using Dummy Shaft

PREVIEW - YOUFIXTHIS.COM

Litho in U.S.A.

Download full manual at youfixthis.com

Group 25
DIFFERENTIAL



1 – Special Cap Screw (12 used)
2 – Left-Hand Bearing Quill
3 – Square Nut (2 used)
4 – Bearing Cup
5 – Bearing Cone
6 – Shim (use as required)
7 – Special Cap Screw (12 used)
8 – Spring Pin (3 used)
9 – Differential Housing Cover
10 – Spring (3 used)
11 – Drive Disk (3 used)
12 – Separator Plate (2 used)
13 – Backing Plate
14 – Bevel Lock Gear
15 – Bevel Pinion (2 used)
16 – Bevel Gear
17 – Piston
18 – Packing
19 – O-Ring
20 – Special Cap Screw (12 used)
21 – Differential Housing
22 – Bevel Pinion Shaft
23 – Special Cap Screw
24 – Sealing Ring (2 used)
25 – Ring Gear and Pinion (Syncro-Range)
26 – Ring Gear and Pinion (Power Shift)
27 – Bearing Cone
28 – Bearing Cup
29 – Right-Hand Bearing Quill

Fig. 1–Differential Parts (With Differential Lock)

GENERAL INFORMATION

The tractor may be equipped with a differential lock. If it is not so equipped, follow only the appropriate parts of the instructions given here.



For a complete explanation of the differential and its related components, see FOS Manual 40-POWER TRAINS, Chapter 7.

REMOVAL

Remove both final drive units. See Section 10, Group 25.

Remove load control arm. See Section 70, Group 40.

If tractor has Syncro-Range transmission, remove transmission oil pump inlet and outlet tubes and blocks. See Group 10 of this Section.

REPAIR

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

If the ring gear must be replaced, heat new gear in hot oil not to exceed 300° F. Tighten attaching cap screws to 85 ft-lbs torque. Whenever the ring gear must be replaced, the differential drive shaft should also be replaced. Refer to the transmission Groups of this Section for instructions.

When assembling differential with lock, install the clutch backing plate (13, Fig. 1) on top of the piston. The clutch backing plate has twelve tangs, while the separator plates have only nine tangs. This allows the piston return springs to contact the backing plate when the differential housing cover is installed.

Litho in U.S.A.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SELECTIVE CONTROL VALVES

Operate engine at 1900 rpm.

Check time to fully extend a 3 x 8-inch remote cylinder from full retract position. With selective control valve metering valve full open the remote cylinder should extend in 1.50 to 2.00 seconds at 1900 rpm.

SYNCRO-RANGE TRANSMISSION PUMP TEST

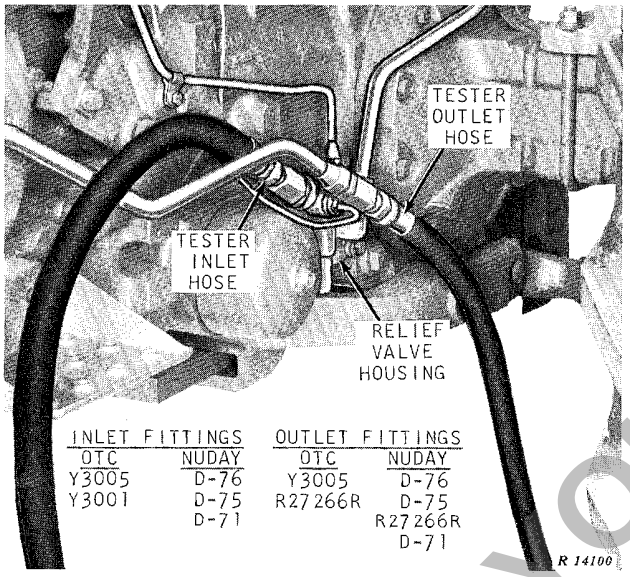


Fig. 2–Syncro-Range Transmission Pump Test Connections

Connect the hydraulic test unit as shown in Figure 2. Open the test unit pressure control valve. Start the engine and adjust the speed to 1900 rpm.

Check pump capacity on the test unit and compare with capacity specifications.

If the pump reaches capacity, slowly close the test unit pressure control valve. Capacity should remain the same until 70 to 80 psi is reached. Flow then should begin to decrease.

If flow decreases before 70 to 80 psi or not until after 100 psi, service the surge relief valve as directed in Group 10.

If the pump output does not meet specifications, see the "Diagnosing Malfunctions" in this Group and service the malfunctioning components as indicated.

POWER SHIFT TRANSMISSION PUMP CHECK

Connect the hydraulic test unit as shown in Fig. 3. Loosen the tractor side frame cap screws to move the main pump line far enough to attach the test unit at the main pump outlet on the relief valve housing. Do not bend the line. Retighten the side frame cap screws before running the engine.

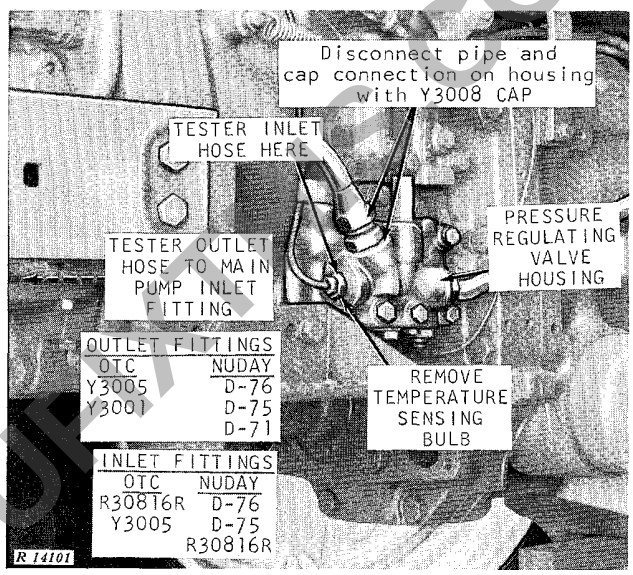
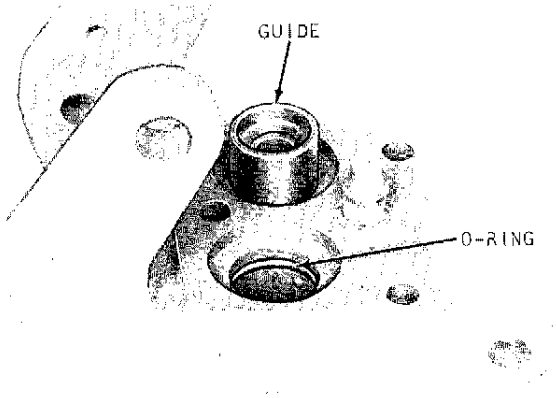


Fig 3–Power Shift Transmission Pump Test Connections

Follow the test procedure given for the Syncro-Range transmission pump test.

Litho in U.S.A.

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



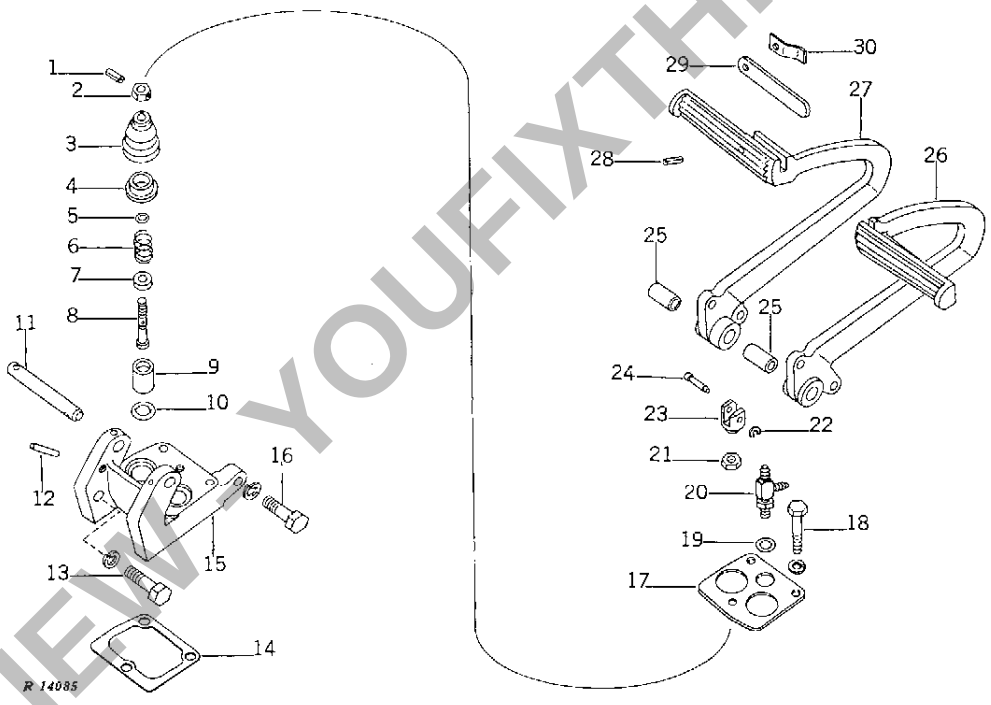
R 8285

Fig. 7–Bracket, Guide, and O-ring

ADJUSTMENT

Adjust brake operating rod and yoke so center line of hole in yoke is proper distance from surface of boot retainer when rod is in line with valves. This adjustment aligns the brake pedals, but does not affect the brake operating valves.

Connect pedal to bracket and operating rods.



R 14085

1 – Spring Pin
2 – Sleeve
3 – Boot
4 – Retainer
5 – O-ring
6 – Spring
7 – Stop
8 – Rod
9 – Guide
10 – O-ring
11 – Shaft
12 – Spring Pin
13 – Cap Screw
14 – Gasket
15 – Bracket
16 – Cap Screw
17 – Retainer
18 – Cap Screw
19 – O-ring
20 – Tee
21 – Jam Nut
22 – Retaining Ring
23 – Yoke
24 – Pin
25 – Bushing
26 – R.H. Pedal
27 – L.H. Pedal
28 – Spring Pin
29 – Bar
30 – Leaf Spring

Fig. 8–Exploded View of Brake Pedals and Bracket

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 17 of 378 pages

The full manual includes:

- All 378 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

John Deere 4000, 4020 Technical Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual