ASSEMBLY

CONNECTING RODS, PISTONS AND PISTON RINGS

Make sure that the marks for identifying matched pistons and connecting rods, applied prior to disassembly, do tally.

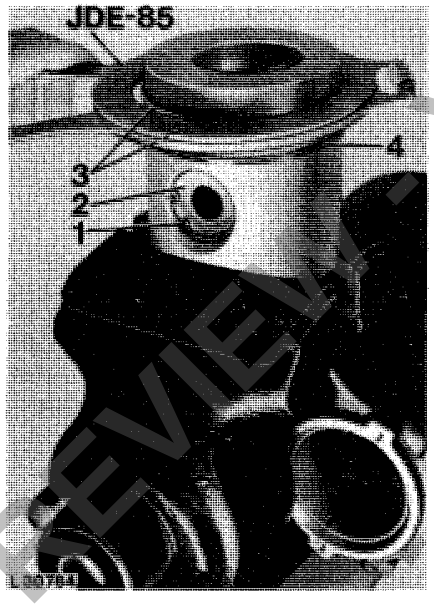
1. Apply a coat of clean, thin engine oil to piston pins and connecting rod bushings.

2. Insert piston pin in piston bore and through connecting rod bushing. A properly fitting piston pin can be positioned by thumb pressure.

3. Install piston pin retaining rings in their grooves, making sure rings are seated properly.

NOTE: New piston rings are furnished with the correct end gap. This should not be altered.

4. Install piston rings using JDE-85 piston ring expander.



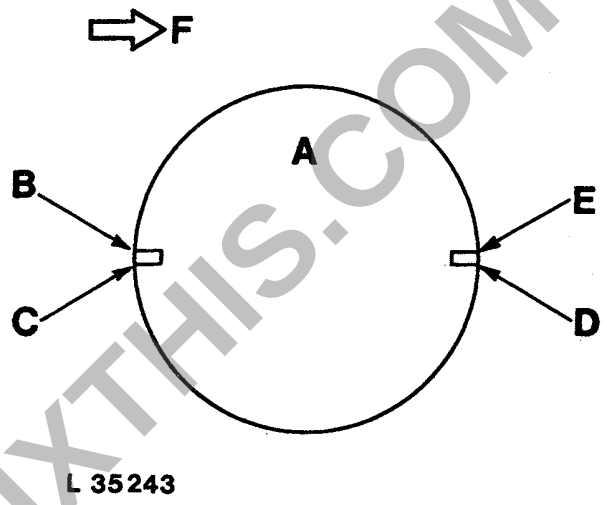
L30784

1—Snap Ring
2—Piston Pin
3—Compression Rings
4—Oil Control Ring

Fig. 17 - Installing Piston Rings

NOTE: "Pip" or "T" marks on No. 1 and 2 rings must face toward head of piston.

5. Stagger piston rings according to Fig. 18.



L35243

A—Piston Head
B—Top Compression Ring
C—Oil Control Ring Gap
D—Expander Ring Gap
E—Bottom Compression Ring Gap
F—Front of Engine

Fig. 18 - Staggering Piston Rings

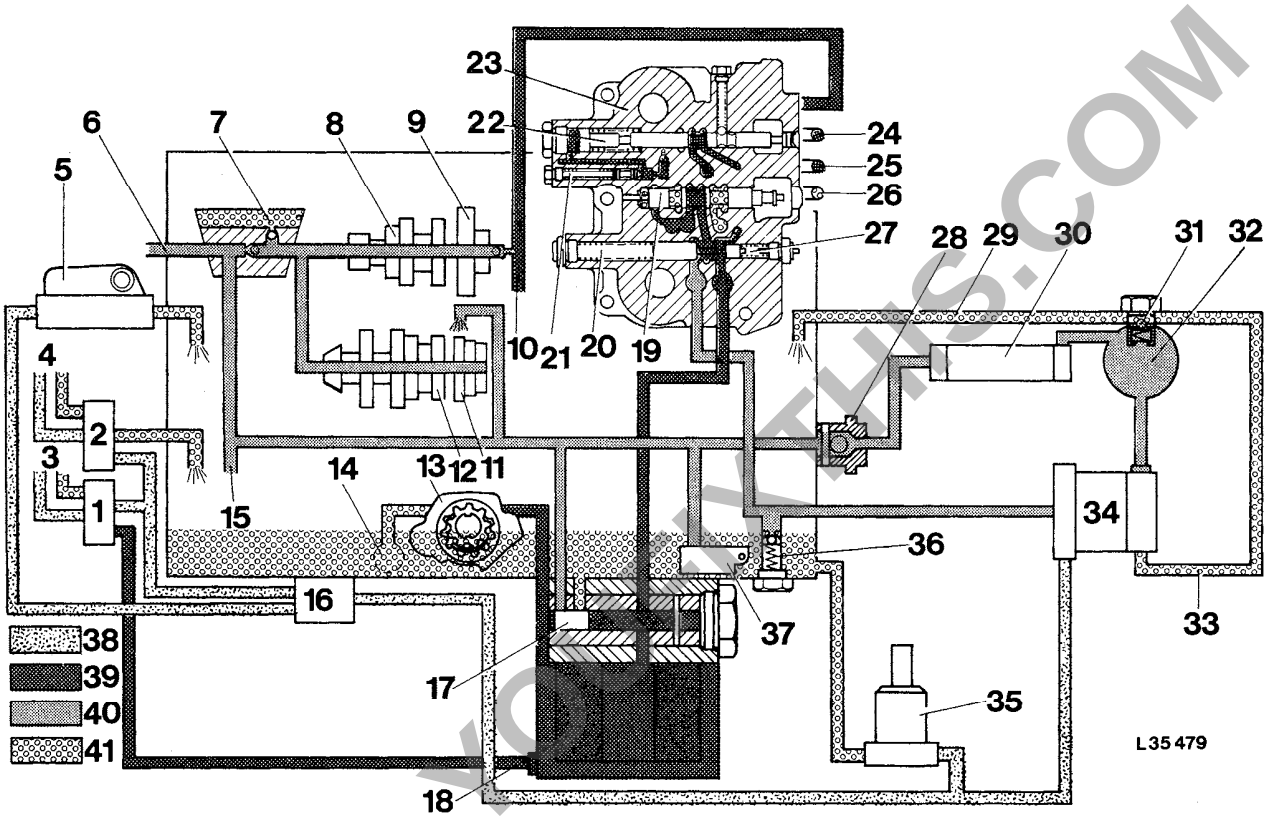
6. Coat exterior of piston and all piston rings with a film of clean engine oil.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 05

DESCRIPTION, DIAGNOSING MALFUNCTIONS AND TESTS



L35479

1—Selective Control Valve (L.H.)
2—Selective Control Valve (R.H.)
3—To Quick Coupler (L.H.)
4—To Quick Coupler (R.H.)
5—Rockshaft
6—Lube Oil for Final Drives
7—Oil Manifold with Transmission Oil Cup
8—Countershaft
9—Hi-Lo Shift Unit
10—To Solenoid Spool of Mechanical Front Wheel Drive
11—Range Shaft
12—Differential Drive Shaft
13—Transmission Oil Pump
14—Intake Screen
15—To PTO Lubrication
16—Pressure Control Valve of Power Steering
17—By-Pass Valve of Transmission Oil Filter
18—Transmission Oil Filter
19—PTO Control Valve
20—Pressure Regulating Valve
21—Automatic Shift Valve
22—Hi-Lo Control Valve
23—Transmission Shift Cover
24—To Hi-Lo Disk Clutch
25—To PTO Clutch
26—To PTO Brake
27—Transmission Oil Pressure Warning Switch
28—Priority Lube Check Valve
29—Bleed and Leak-Off Line
30—Oil Cooler
31—Check Valve
32—Hydraulic Oil Auxiliary Reservoir
33—Leak-Off Line
34—Hydraulic Pump
35—Power Steering
36—Surge Relief Valve
37—Brake Valve
38—High Pressure Oil
39—Low Pressure Oil
40—Oil to Hydraulic Pump or Lubricating Oil
41—Pressure-Free Oil

Fig. 1 - Complete Hydraulic System
(Tractor with Hi-Lo Shift Unit, Mechanical Front Wheel Drive, Independent PTO and Power Steering)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

ENGLISH TORQUE SPECIFICATIONS

NOTE: Wrench torque tolerance is ± 20%.

Bolt Diameter	Plain Head*		Three Radial Dashes*		Six Radial Dashes*	
	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m
1/4 in.	6	8	9	12	12	16
5/16 in.	10	14	18	24	25	34
3/8 in.	20	27	30	41	45	61
7/16 in.	30	41	50	68	70	95
1/2 in.	45	61	75	101	110	149
9/16	70	95	110	150	155	210
5/8 in.	95	128	155	210	215	290
3/4 in.	165	225	270	365	385	520
7/8 in.	170	230	435	590	620	840
1 in.	255	345	660	895	930	1260

Torque figures indicated above and in the Specification Sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

* Torque value for bolts and cap screws are identified by their head markings.

METRIC TORQUE SPECIFICATIONS

NOTE: Wrench torque tolerance is ±20%.

Bolt Diameter	Property Class 8.8*		Property Class 10.9*	
	lb-ft	N·m	lb-ft	N·m
M5	5	6	7	9
M6	8	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M16	166	225	229	310
M20	321	435	450	610
M24	554	750	775	1050

Torque figures indicated above and in the Specification Sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

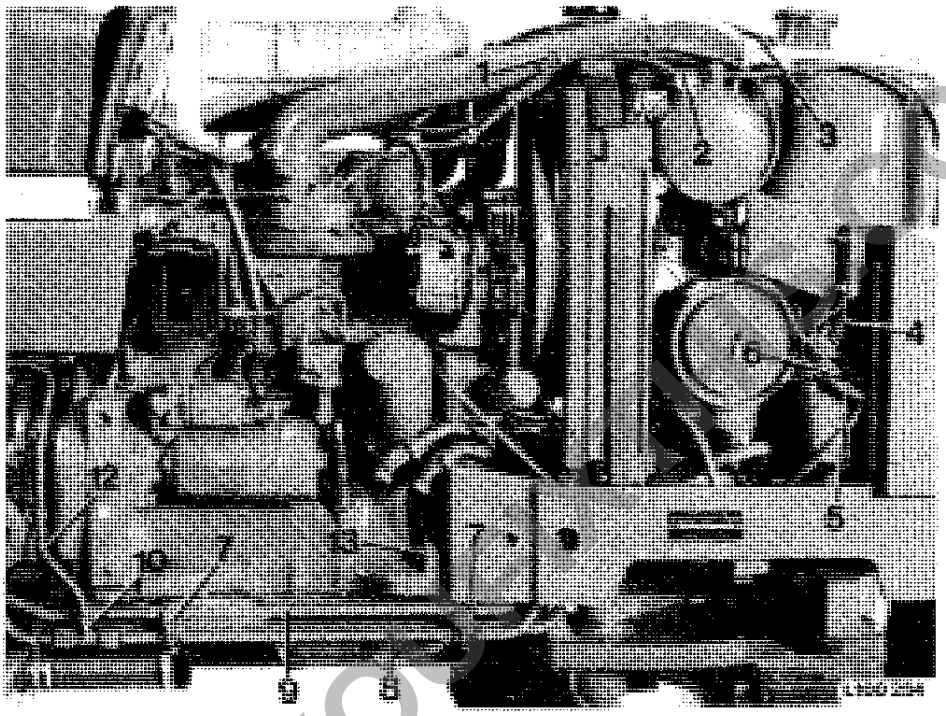
* Torque value for bolts and cap screws are identified by their property class head markings.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 20
TRACTOR SEPARATION

SEPARATING BETWEEN ENGINE AND TRACTOR FRONT END



L100234

1—Air Intake Line
2—Leak-Off and Vent
3—Fuel Return Line
4—Cable of Fuel Gauge Sending Unit
5—Fuel Inlet Line
6—Connector
7—Spacers
8—Hydraulic Pump Pressure Line
9—Hydraulic Pump Inlet Line
10—T-Piece
11—Oil Cooler Return Line
12—Power Steering Pressure Line
13—Cap Screw

Fig. 1 - Separating Between Engine and Tractor Front End —Right-Hand Side

CAUTION: Do not lubricate or adjust tractor while engine is running unless recommended.

When servicing mechanical front-wheel drive equipped tractor with rear wheels supported off ground and engine running, always support front wheels in a similar manner. Loss of electrical power or transmission-hydraulic system pressure will engage front driving wheels, pulling rear wheels off support if front wheels are not raised.

Under these conditions, note that the front drive wheels can engage even with switch in disengaged position.

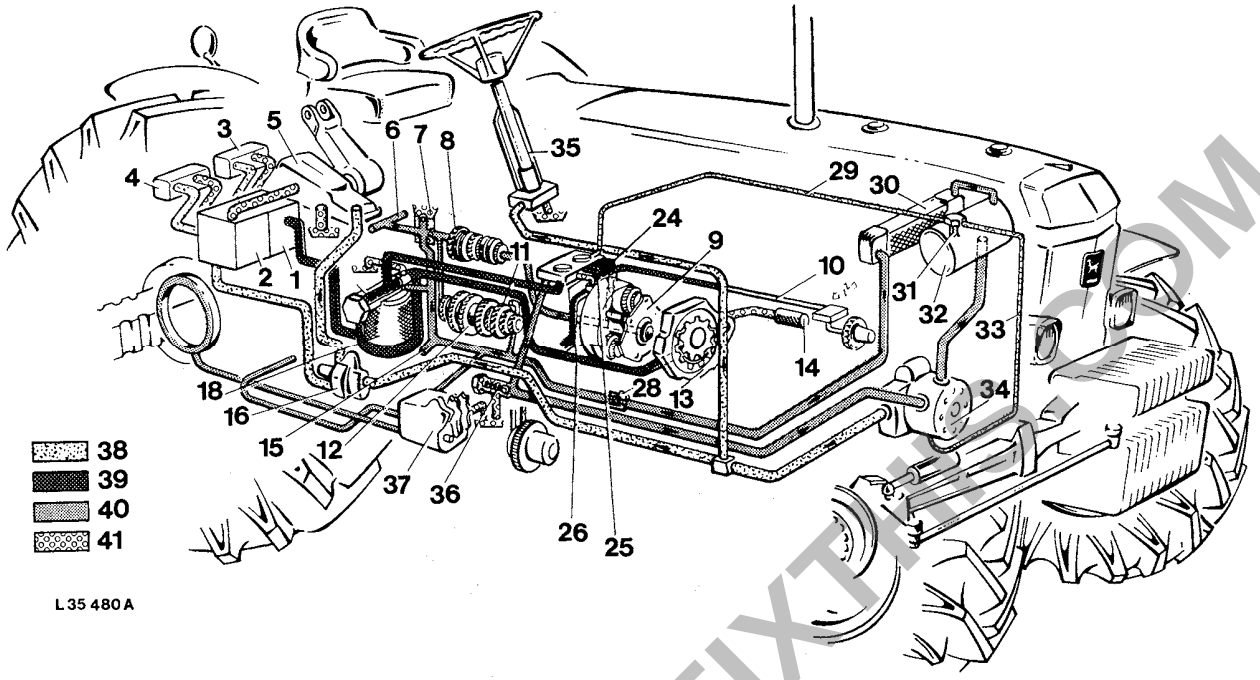
IMPORTANT: After having serviced, cleaned or repaired your tractor, always reinstall any safety guards or shields removed before operating.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



L35480A

1—Selective Control Valve (LH)
2—Selective Control Valve (RH)
3—To Quick Coupler (LH)
4—To Quick Coupler (RH)
5—Rockshaft
6—Lube Oil for Final Drives
7—Oil Manifold with Transmission Oil Cup
8—Countershaft
9—Hi-Lo Shift Unit
10—To Solenoid Spool of Mechanical Front Wheel Drive
11—Range Shaft
12—Differential Drive Shaft
13—Transmission Oil Pump
14—Intake Screen
15—To PTO Lubrication
16—Pressure Control Valve of Power Steering
17—By-Pass Valve of Transmission Oil Filter
18—Transmission Oil Filter
19—PTO Control Valve
20—Pressure Regulating Valve
21—Automatic Shift Valve
22—Hi-Lo Control Valve
23—Transmission Shift Cover
24—To Hi-Lo Disk Clutch
25—To PTO Clutch
26—To PTO Brake
27—Transmission Oil Pressure Warning Switch
28—Priority Lube Check Valve
29—Bleed and Leak-Off Line
30—Oil Cooler
31—Check Valve
32—Hydraulic Oil Auxiliary Reservoir
33—Leak-Off Line
34—Hydraulic Pump
35—Power Steering
36—Surge Relief Valve
37—Brake Valve
38—High Pressure Oil
39—Low Pressure Oil
40—Oil to Hydraulic Pump or Lubricating Oil
41—Pressure-Free Oil

Fig. 2 - Complete Hydraulic System
(Tractor with Hi-Lo Shift Unit, Mechanical Front Wheel Drive, Independent PTO and Power Steering)

DESCRIPTION

The hydraulic system of the tractor includes main oil reservoir (transmission case), hydraulic pump, transmission oil pump, various valves, oil lines, filter, power steering, hydraulic oil auxiliary reservoir, oil cooler, Hi-Lo shift unit*, independent PTO, rockshaft and selective control valves.

The hydraulic system (see Figs. 1 and 2) is a closed-center, constant pressure type system.

"Closed-center system" means that no oil flows through hydraulic unti control valves when the latter are in neutral position.

"Constant pressure" means that high pressure is constantly maintained in the hydraulic system while engine and hydraulic pump are operating, as long as none of the hydraulic units requires oil. High pressure should be maintained even when they use oil.

For a detailed explanation of operation and repair of steering and hydraulic brakes, see Section 60.

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

RECOMMENDED TORQUES IN N·m, AND LB-FT FOR PIPE AND HOSE CONNECTIONS

	with O-rings		with cone	
Thread size	**N·m**	**lb-ft**	**N·m**	**lb-ft**
3/8-24 UNF	7.5	5.5	8	6
7/16-20 UNF	10	7	12	9
1/2-20 UNF	12	9	15	11
9/16-18 UNF	15	11	25	18
3/4-16 UNF	25	20	45	35
7/18-14 UNF	40	30	60	45
1-1/16-12 UNC	60	45	100	75
1-3/16-12 UNC	70	50	120	90
1-5/16-12 UNC	80	60	140	105
1-5/18-12 UNC	110	80	190	140
1-7/8-12 UNC	150	110	220	160

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

13. Install hood.

14. Connect Lightbar cables at connector (6, Fig. 1) and install radiator side grilles.

15. Refill transmission case with specified oil (see group 10). Fill cooling system with coolant (see section 20, group 35).

On Tractors with Mechanical Front Wheel Drive

16. When equipped, position front and rear antiwrapping guards on shaft.

17. Slide release jaws on clutch shaft and secure connecting flange to drive hub of shaft.

18. Tighten flange-to-front differential drive hub cap screws (3, Fig. 4) to 35 N·m (25 ft-lb) torque.

19. Secure rear anti-wrapping guard with both wing nuts.

20. Secure front anti-wrapping guard to front axle, using three cap screws of differential unit.

NOTE: On Tractors equipped with universal jointed shaft anti-wrapping guards, check oil level in axle bridge housing. Top up with specified oil when necessary.

On All Tractors

25. Connect ground straps to batteries.

IMPORTANT: Always connect ground straps to negative (-) pole of batteries.

26. Start engine and check fuel lines, hydraulic lines and water hoses for leaks.

REMOVAL AND INSTALLATION OF ENGINE

NOTE: For most engine service operations the engine need not be removed. However, if the crankshaft, has to be removed or in case of major overhaul, remove engine.

Removal

1. For safety, disconnect ground straps from batteries.

2. Separate tractor front end from engine, as explained previously.

3. Disconnect engine wiring harness (1,Fig. 5).

4. Disconnect all cables at starting motor.

5. Remove both batteries.

6. Remove cap screws (2, Fig. 5 and 6) attaching cowl to flywheel housing.

7. *On tractors with starting fluid adapter:* Disconnect starting fluid line at intake manifold.

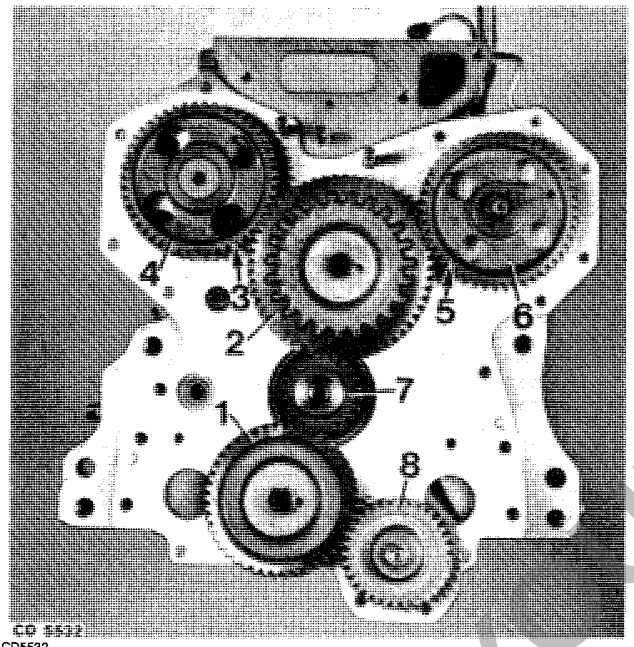
8. Disconnect speed control rod (1, Fig. 6) and shut-off cable (5) at fuel injection pump.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 25
TIMING GEAR TRAIN

GENERAL INFORMATION



CD5532

1—Lower Idler Gear
2—Upper Idler Gear
3—Timing Mark on Camshaft Drive Gear
4—Camshaft Drive Gear
5—Timing Mark on Injection Pump Gear
6—Fuel Injection Pump Gear
7—Crankshaft Gear
8—Oil Pump Gear

Fig. 1 - Timing Gear Train, Cover Removed

The helical timing gear train consists of gears of the following gears: crankshaft gear (7, Fig. 1) which rives the gear train; the upper idler gear (2) which drives the camshaft gear (4) and the injection pump gear (6), and the lower idler gear (1) which drives the oil pump gear (8).

Due to the number of teeth of these gears, camshaft and injection pump shaft rotate at half the crankshaft speed.

The crankshaft gear and the camshaft gear are pressed on and keyed to their respective shafts. The oil pump gear is pressed on its taper seat and secured to the shaft by a retaining nut. The injection pump gear is secured to the pump shaft by a retaining nut.

The upper and lower idler gears with bronze bushings rotate on stationary shafts pressed into the cylinder block front plate.

The camshaft and injection pump gears have timing marks which must be aligned with the center of the crankshaft when No. 1 piston is at "top dead center" of its compression stroke. With the other gears no timing is required.

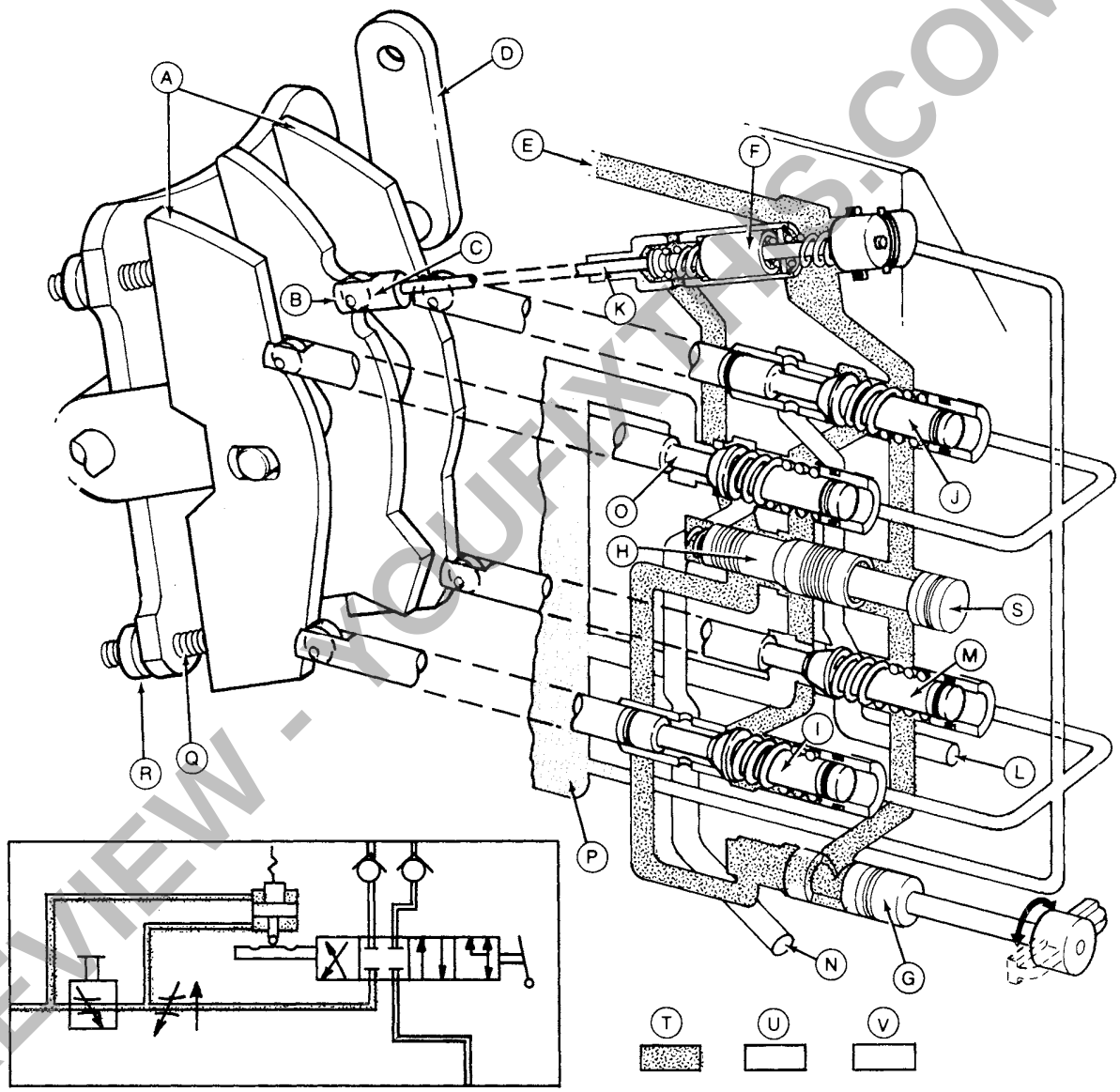
REMOVAL

Removal of the timing gear cover, the timing gears or the cylinder block front plate does not require removal of the engine. However, separate tractor front end to get access to the front of the engine (see Section 10, Group 20).

If engine has to be removed, see Section 10, Group 20.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



SCV—Neutral Position

AZ2;R36319 C 70U;270050 DX2 270782

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

ENGLISH TORQUE SPECIFICATIONS

NOTE: Wrench torque tolerance is ± 20%.

Bolt Diameter	Plain Head*		Three Radial Dashes*		Six Radial Dashes*	
	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m
1/4 in.	6	8	9	12	12	16
5/16 in.	10	14	18	24	25	34
3/8 in.	20	27	30	41	45	61
7/16 in.	30	41	50	68	70	95
1/2 in.	45	61	75	101	110	149
9/16	70	95	110	150	155	210
5/8 in.	95	128	155	210	215	290
3/4 in.	165	225	270	365	385	520
7/8 in.	170	230	435	590	620	840
1 in.	255	345	660	895	930	1260

Torque figures indicated above and in the Specification Sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

* Torque value for bolts and cap screws are identified by their head markings.

METRIC TORQUE SPECIFICATIONS

NOTE: Wrench torque tolerance is ±20%.

Bolt Diameter	Property Class 8.8*		Property Class 10.9*	
	lb-ft	N·m	lb-ft	N·m
M5	5	6	7	9
M6	8	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M16	166	225	229	310
M20	321	435	450	610
M24	554	750	775	1050

Torque figures indicated above and in the Specification Sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

* Torque value for bolts and cap screws are identified by their property class head markings.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

REMOVAL AND INSTALLATION OF CLUTCH HOUSING

NOTE: Separating and joining the tractor between engine and clutch housing as well as between clutch housing and transmission case is explained below. Where the tractor is to be separated depends on the individual repair operation. If, e.g., repair work has to be carried out on the transmission, Hi-Lo shift or reverser unit, separation unit, separation between the clutch housing and the transmission case will be sufficient.

Removal

1. Disconnect battery ground straps.

2. Drain transmission oil.

3. Separate engine from clutch housing as explained under "Removal of Engine", the tractor front end may remain attached to the engine.

4. Remove cap screw and clamp securing hydraulic pump inlet line and oil cooler return line to front side of clutch housing.

NOTE: On tractors not equipped with Hi-Lo shift unit, reverser transmission and independent PTO: Take care not to lose check valve installed in hydraulic pump inlet line when latter is removed.

5. Disconnect hydraulic pump pressure line (8, Fig. 1) and power steering pressure line (12) at T-piece (10).

6. Disconnect drag link at bell crank.

7. Insert wooden blocks between front axle and front support to prevent front support from tipping sideways.

On Tractors with Mechanical Front Wheel Drive

1. When equipped, remove the three cap screws securing front universal jointed drive shaft anti-wrapping guard. Slide guard to the rear and reinstall the three cap screws.

2. When equipped, remove both wing bolts, twist rear universal jointed drive shaft anti-wrapping guard and slide to the front.

3. Remove hex. nuts securing universal jointed drive shaft flange to front axle drive hub.

4. Pull complete universal jointed drive shaft assembly together with front and rear anti-wrapping guards from disk clutch shaft and remove.

On All Tractors

1. **Safely** support rear of tractor.

2. Attach tractor front end and engine to a suitable hoist and remove attaching screws and hex. nuts between engine and clutch housing (see Figs. 5 and 6) as well as between clutch housing and engine oil pan.

3. Roll engine and tractor front end away from clutch housing.

IMPORTANT: Move engine properly in line with drive shaft and hollow drive shaft until these shafts come free of the clutch disk and torsion damper.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2150 AND 2255 TRACTORS TECHNICAL MANUAL TM-4401 (Nov-87)

CONTENTS

SECTION 10 - GENERAL
Group 00 - Specifications and Special Tools
Group 05 - Pre-delivery, Delivery and After-Sales Inspections
Group 10 - Lubrication and Periodic Service
Group 15 - Engine and Tractor Tune-Up
Group 20 - Tractor Separation

SECTION 20 - ENGINE
Group 00 - Specifications and Special Tools
Group 05 - General Information, Diagnosing Malfunctions
Group 10 - Cylinder Head, Valves and Camshaft
Group 15 - Cylinder Block, Liners, Pistons and Connecting Rods
Group 20 - Crankshaft, Main Bearings and Flywheel
Group 25 - Timing Gear Train
Group 30 - Engine Lubrication System
Group 35 - Engine Cooling System

SECTION 30 - FUEL AND AIR INTAKE SYSTEM
Group 00 - Specifications and Special Tools
Group 05 - Diagnosing Malfunctions
Group 10 - Fuel Tank, Fuel Transfer Pump and Fuel Filter
Group 15 - Roto Diesel Fuel Injection Pump
Group 20 - Fuel Injection Nozzles
Group 25 - Cold Weather Starting Aid
Group 30 - Speed Control Linkage
Group 35 - Air Cleaner

SECTION 40 - ELECTRICAL SYSTEM
Group 00 - Specifications and Special Tools
Group 05 - Description, Diagnosing Malfunctions and Tests
Group 06 - Connector Repair
Group 10 - Wiring Harnesses
Group 15 - Controls and Instruments
Group 20 - Lighting Systems
Group 25 - Wiring Diagram
Group 30 - Starting Motor
Group 35 - Alternator

COPYRIGHT® 1988
DEERE & COMPANY
Moline, Illinois
All rights reserved
Previous Edition
Copyright® 1982, 1984, 1985
DEERE & COMPANY

All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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

Section 10
GENERAL

CONTENTS OF THIS SECTION

Page

GROUP 00 - SPECIFICATIONS AND SPECIAL TOOLS

Specifications 10-00-3
Serial Numbers 10-00-3
Model Numbers 10-00-3
Engine 10-00-3
Engine Clutch 10-00-4
Cooling System 10-00-4
Fuel System 10-00-4
Electrical System 10-00-5
Synchronized Transmission 10-00-5
Collar Shift Transmission 10-00-5
Hi-Lo Shift Unit 10-00-5
Reverser Transmission 10-00-5
Differential and Final Drives 10-00-6
Differential Lock 10-00-6
PTO 10-00-6
Mechanical Front Wheel Drive 10-00-7
Power Steering 10-00-7
Foot Brakes 10-00-7
Handbrake 10-00-7
Hydraulic System 10-00-7
Capacities 10-00-7
Travel Speeds 10-00-8
Front and Rear Wheels 10-00-8
Dimensions and Weights 10-00-8
Predelivery, Delivery and After-Sales Inspections 10-00-9
Lubrication and Service 10-00-10
Tune-Up 10-00-11
Tractor Separation 10-00-12
Standard Torques 10-00-13
Special Tools 10-00-15

Page

GROUP 05 - PREDELIVERY, DELIVERY AND AFTER-SALES INSPECTIONS

Tractor Storage 10-05-1
Predelivery Inspection 10-05-2
Delivery Inspection 10-05-8
After-Sales Inspection 10-05-9

GROUP 10 - LUBRICATION AND SERVICE

Lubrication And Service 10-10-1

GROUP 15 - TUNE-UP

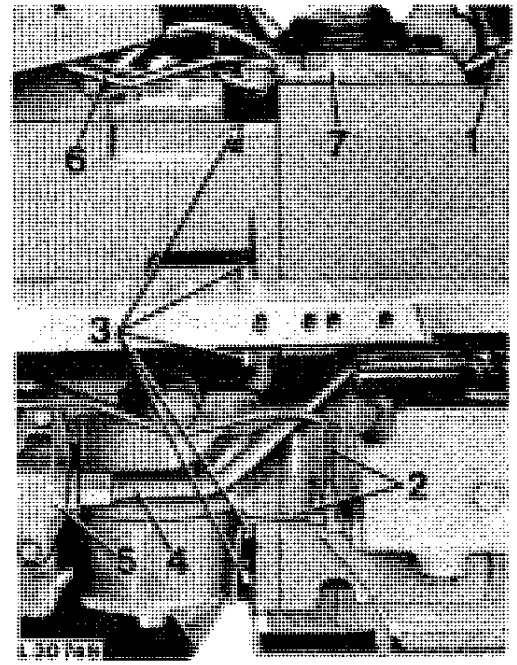
Preliminary Engine Testing 10-15-1
Dynamometer Test 10-15-1
Testing Compression Pressure 10-15-2
Engine Tune-Up 10-15-3
Checking Tractor Operation 10-15-8
Standard Torques 10-15-9

GROUP 20 - TRACTOR SEPARATION

Separating Between Engine And Tractor Front End 10-20-1
Removal and Installation of Engine 10-20-7
Removal and Installation of Clutch Housing 10-20-8
Removal and Installation of Final Drives 10-20-11
Removal and Installation of Rockshaft 10-20-12

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



L30748

1—Leak-Off and Breather Line
2—Brake Lines
3—Attaching Cap Screws
4—Hydraulic Pump Pressure Line
5—Pressure Valve
6—Rear, Right-Hand Wiring Harness
7—Transmission Shift Cover

Fig. 7 - Separating Between Clutch Housing and Transmission Case, Right-Hand Side

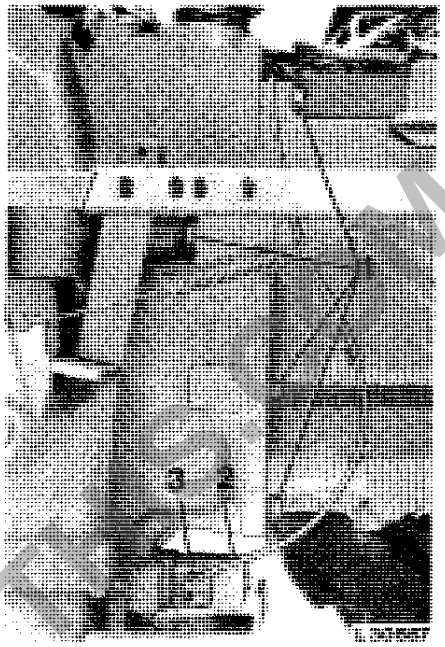
4. Unhook clutch pedal return spring.

5. Remove both foot rests.

6. Remove transmission covers.

7. Disconnect round connectors of transmission and fender wiring harnesses.

8. Disconnect brake lines (2, Fig. 7) at brake cylinder and plug openings immediately.



L30667

1—Attaching Cap Screws
2—Cable to MFWD Solenoid
3—Solenoid

Fig. 8 - Separating Between Clutch Housing and Transmission Case, Left-Hand Side

9. Disconnect hydraulic pump pressure line (4) at pressure valve (5).

10. *On tractors with MFWD*, disconnect cable (2, Fig. 8) at solenoid (3).

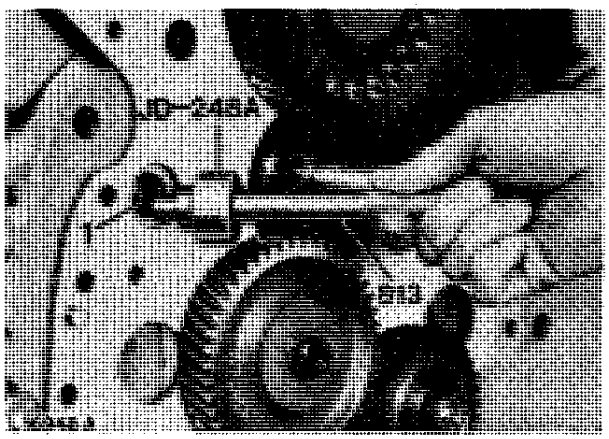
11. Disconnect selective control valve return line at transmission oil filter port and remove transmission oil filter cover.

12. Disconnect cable (7, Fig. 9) of transmission oil pressure warning switch.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Oil Pressure Regulating Valve Bushing



L16948A

1—Valve Bushing

Fig. 15 - Pressing in Oil Pressure Regulating Valve Bushing

1. Check the bushing with sealing edge for lubricating oil pressure regulating valve located in the front of cylinder block for serviceability.

2. If necessary, remove unserviceable bushing from cylinder block and drive in new bushing until driver contacts cylinder block, using special tools JD-248A and 813 (see Fig. 15).

IMPORTANT: Do not use other unsuitable tools. Above all do not press tool against the slightly protruding inner edge of the bushing since it is a delicate sealing face.

Dowel Pins, Plugs and Studs

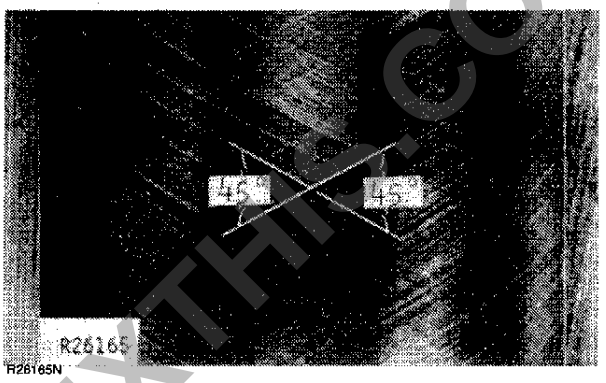
Check these parts for tight fit or proper sealing in cylinder block. If necessary, replace by new parts. Coat part to be inserted in cylinder block with a suitable oil and water-resistant sealant.

CYLINDER LINERS

Deglazing Cylinder Liners

NOTE: Place cylinder liners in a suitable clamping device or in an old cylinder block for deglazing.

1. Use D-17004BR Flex-Hone to deglaze cylinder liner.



R26165N

Fig. 16 - Proper Honing Pattern

2. Use D-17004BR Flex-Hone according to instructions supplied with tool to obtain a 45-degree cross-hatch pattern (Fig. 16).

NOTE: After honing, thoroughly clean liners. First, wipe abrasive residue from liner walls with a dry rag. Swab out liner as many times as necessary with SAE-10W oil. Continue to clean liner until white rag shows no discoloration.

IMPORTANT: Do not use gasoline, kerosene or commercial solvents to clean liners. Solvents will not remove all the abrasive from liner walls.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Fuel Transfer Pumps

General Information

The fuel transfer pump is a diaphragm-type pump driven by the engine camshaft and attached to the right-hand side of the engine.

The pump can be operated manually, e.g. for bleeding the fuel system. Fuel is fed from the fuel tank through the water trap (if equipped). The pump transfers the fuel through the dual filter to the fuel injection pump.

Removal

1. Disconnect fuel lines at fuel transfer pump and insert plastic plugs in ends of fuel lines.

2. Remove both cap screws and lift out complete transfer pump assembly.

3. Seal opening on cylinder block to prevent dirt from entering the engine.

Repair

A.C. AND SOFABEX PUMPS

1. Disassemble transfer pump.

2. When disassembling, mark pump cover and pump body for easier reassembly.

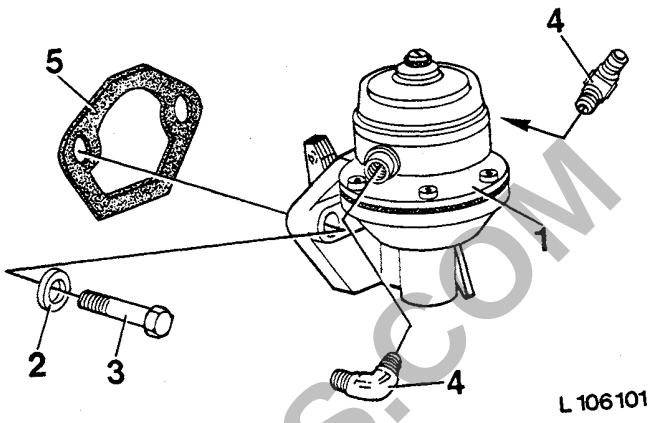
3. Check all parts for serviceability and replace, if necessary.

NOTE: A repair kit consisting of parts 1 to 10 (Fig. 3) will fit both fuel transfer pump models.

4. Assemble fuel transfer pump.

5. Make sure that diaphram is engaged in rocker arm.

6. Before installing the pump cover, position diaphragm so that it is level by moving rocker arm. Hold lever in this position.

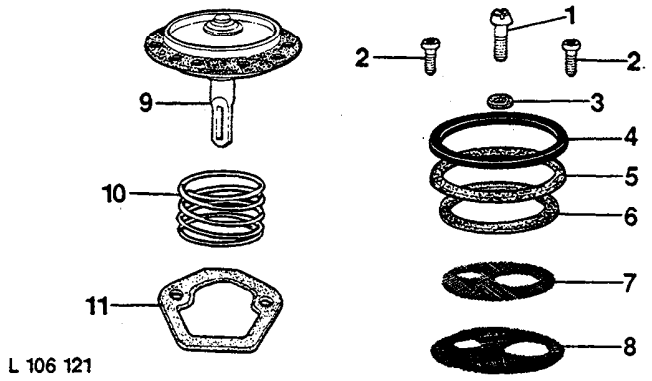


L106101

1—Fuel Transfer Pump Assy.
2—Washer (2 used)
3—Cap Screw (2 used)
4—Elbow Union
5—Gasket

Fig. 2 - SOFABEX Fuel Transfer Pump

NOTE: For the AC fuel transfer pump parts 1, 2, 3, 6, 7, 9, 10 and 11 (Fig. 3) are required, whereas for SOFABEX pumps parts 1, 2, 3, 4, 8, 9, 10 and 11 are required. Gasket 5 is not required.



L106121

1—Attaching Screws
2—Attaching Screws
3—Gasket
4—Seal Ring
5—Seal Ring
6—Seal Ring
7—Filter Screen
8—Filter Screen
9—Diaphragm
10—Spring
11—Gasket

Fig. 3 - Repair Kit for A.C. and SOFABEX Fuel Transfer Pumps

7. Install pump cover and cover screws. However, tighten screws finger-tight only at this stage.

8. Operate rocker arm several times, then release with a snap to make sure that diaphragm will not be overstretched when in use.

9. Tighten cover screws crosswise.

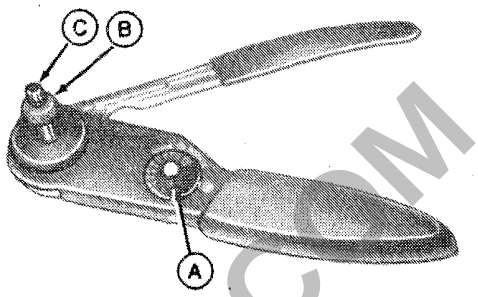
PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

INSTALL DEUTSCH CONTACT

1. Strip 6 mm (¼ in.) insulation from wire.

2. Adjust selector (A) on JDG-360 Crimper for correct wire size.

3. Loosen lock nut (B) and turn adjusting screw (C) in until it stops.

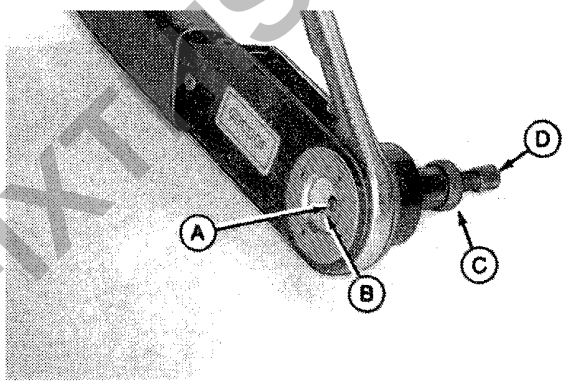


AB6;TS117 053;ECONN W 161282

IMPORTANT: Select proper size contact "sleeve" or "pin" to fit connector body.

4. Insert contact (A) and turn adjusting screw (D) until contact is flush with cover (B).

5. Tighten lock nut (C).

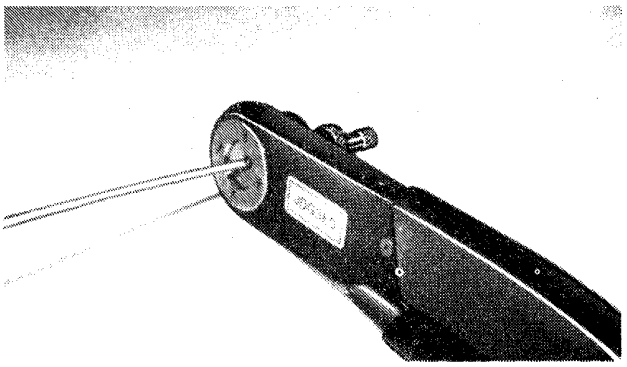


AB6;TS0134 053;ECONN X 161282

IMPORTANT: Contact must remain centered between indentors while crimping.

6. Insert wire in contact and crimp until handle touches stop.

7. Release handle and remove contact.

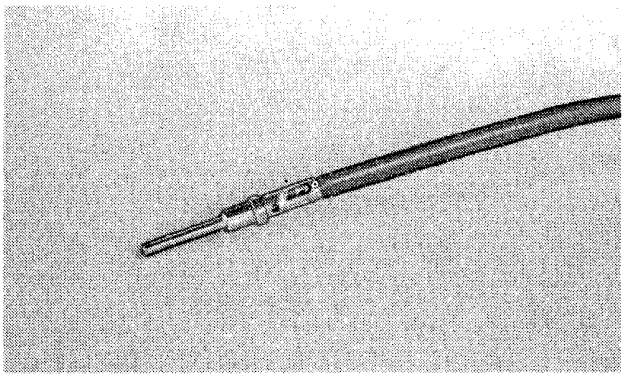


AB6;TS118 053;ECONN Y 161282

IMPORTANT: If all wire strands are not crimped into contact, cut off wire at contact and repeat contact installation procedure.

NOTE: Readjust crimping tool for each crimping procedure.

8. Inspect contact to be certain all wires are in crimped barrel.



AB6;TS0135 053;ECONN Z 161282

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Group 00

SPECIFICATIONS AND SPECIAL TOOLS

SPECIFICATIONS

CLUTCH LINKAGES

Clutch Linkage (Tractors without Reverser Transmission)

	Dimensions of New Parts	Wear Tolerance
Clutch pedal shaft protrudes from clutch housing by	66.5 mm (2.6 in.)	
O.D. of clutch pedal shaft	25.35—25.40 mm (0.998—1.000 in.)	
I.D. of clutch pedal bushing (installed)	25.48—25.59 mm (1.003—1.007 in.)	
O.D. of clutch shaft		
Earlier tractor series	28.50—28.58 mm (1.122—1.125 in.)	
Later tractor series	28 mm (1.10 in.)	
I.D. of clutch shaft bushing (installed)	28.65—28.75 mm (1.128—1.132 in.)	
Dia. of pilot bearing seat on drive shaft	14.97—14.99 mm (0.589—0.590 in.)	
Clutch pedal free travel	25 mm (approx. 1 in.)	13 mm (approx. 0.5 in.)
On Tractors With Mid PTO		
Dia. of needle bearing bore of clutch housing	53.95—54.00 mm (2.124—2.126 in.)	
Dia. of hollow PTO drive shaft seat for roller bearing	49.91—49.93 mm (1.965—1.966 in.)	
Distance from oil seal face to clutch housing face	33 mm (1.3 in.)	
Distance from end of carrier sleeve to engine mounting surface of clutch housing	71 mm (2.8 in.)	
On Later Tractor Series		
O.D. of plastic coated metal bushing (for left-hand bore in transmission case)	32.00—32.02 mm (1.259—1.260 in.)	
O.D. of plastic coated metal bushing (for right-hand bore in transmission case)	31.00—31.02 mm (1.220—1.221 in.)	

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

REPAIR

Separate engine from clutch housing as instructed in Section 10, Group 20.

Remove return clips (22, Fig. 14) from operating levers.

Remove six cap screws (14, Fig. 14) attaching pressure plate to flywheel and lift pressure plate (12) and driven disk (4) from flywheel.

NOTE: Do not immerse clutch disk in any type of cleaning solution as solution will tend to glaze the friction surfaces.

CAUTION: Be careful when working with springs under compression. Even weak appearing springs may store enough energy to cause serious injury if released accidentally.

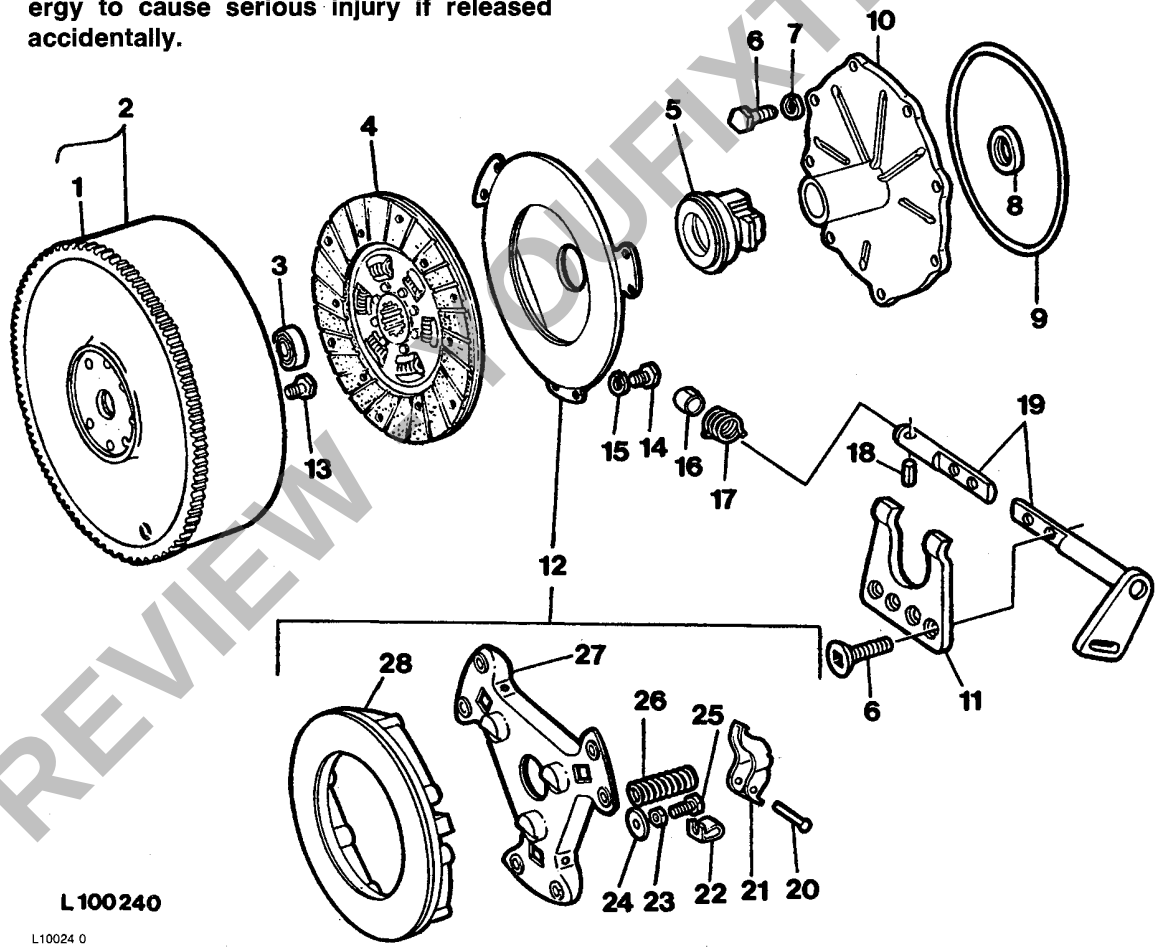
Refer to Fig. 14 for identification of parts and proceed as follows:

Remove four flywheel attaching cap screws (13) and remove flywheel (2), or use another flywheel of the same design, for repair procedures.

Place flywheel on hydraulic press for disassembling pressure assembly. Place clutch disk (4) and pressure plate assembly (12) on flywheel and alternately install three of the six attaching cap screws (14).

Use and adapter to contact inner ends of operating levers (21) and depress the operating levers as far as possible without forcing against bracket (27).

Loosen adjusting lock nuts (23) and back out the three cap screws (25) from pressure plate (28).



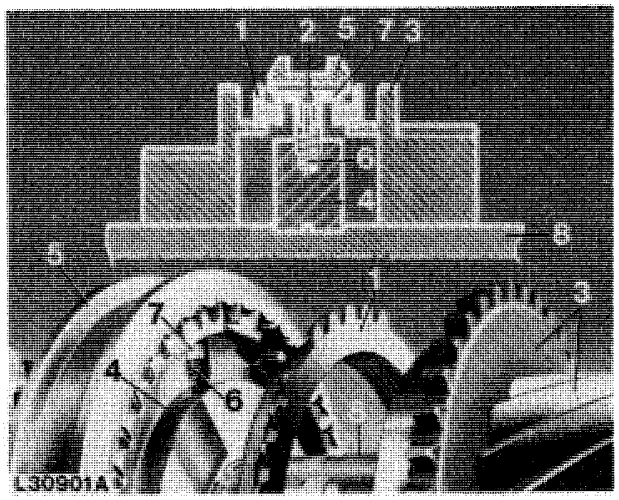
L10024 0

1—Ring Gear
2—Flywheel With Gear
3—Pilot Bearing
4—Clutch Disk
5—Throw-Out Bearing
6—Special Screw (4 used)
7—Washer
8—Oil Seal
9—Packing
10—Bearing Carrier Support
11—Clutch Fork
12—Pressure Plate Assembly
13—Cap Screw (4 used)
14—Cap Screw
15—Washer
16—Bushing
17—Shaft Return Spring
18—Spring Pin
19—Shaft
20—Pivot Pin
21—Operating Lever
22—Return Clip
23—Lock Nut
24—Washer
25—Adjusting Screw
26—Return Spring
27—Clutch Bracket
28—Pressure Plate

Fig. 14 - Single-Stage Clutch Parts (Reverser Transmission)

PREVIEW YOUFIXTHIS.COM
Download full manual at youfixthis.com

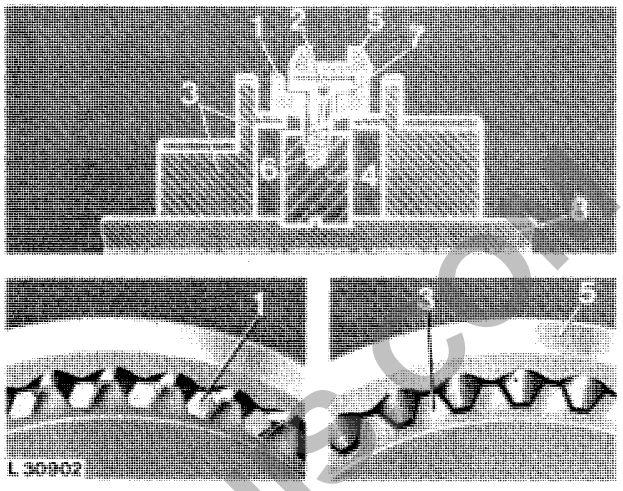
SYNCHRONIZATION



L30901A

1—Synchronizer Ring
2—Ball Pin (3 used)
3—Drive Gear
4—Shift Collar Sleeve
5—Shift Collar
6—Spring (3 used)
7—Thrust Block (3 used)
8—Transmission Drive Shaft

Fig. 5—Neutral Position



L30902

1—Synchronizer Ring
2—Ball Pin (3 used)
3—Drive Gear
4—Shift Collar Sleeve
5—Shift Collar
6—Spring (3 used)
7—Thrust Block (3 used)
8—Transmission Drive Shaft

Fig. 6—Shifting Operation

Neutral Position

In neutral position shift collar (5, Fig. 5) is in center position. The ball pins (2) are pressed into V-shaped groove of shift collar by means of springs (6). Drive gear (3) can rotate freely on drive shaft (8).

Shifting Operation

When shifting gears, shift collar (5, Fig. 6) as well as ball pins (2) and thrust blocks (7) are moved axially in one direction. By movement of shift collar (5), synchronizer ring (1) is pressed by thrust pieces (7) against cone-shaped area of drive gear (3).

The speed difference of parts to be coupled causes synchronizer ring to partially rotate. This partial rotation, limited by stops, causes tapered teeth of synchronizer ring (1) to be pressed against shift collar (5) preventing movement. Due to the shifting force of shift collar and partial rotation of synchronizing ring, an axial force is caused by the tapered teeth of shifter collar, the tapered surface of synchronizer ring (1) and the tapered surface of gear (3). This reduces the speed difference of parts to be coupled and results in all parts turning at the same speed.

Engaged Gear

The parts to be coupled now have the same speed. Due to the continuing shifting force of shift collar against the synchronizer ring, this ring is now turned back from its stop by tapered ends of splines. It turns back until teeth of collar are in line with tooth gaps of synchronizer ring. At this moment the resistance (which had prevented further axial movement) is overcome allowing the shift collar to move and mesh silently into the gear to be engaged. Shaft and gear are firmly coupled and therefore the gear engaged.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

INSPECTION AND REPAIR

Check all parts of PTO clutch and PTO brake for wear and damage, watching the following points:

1. Check the internally splined clutch disks (26, Fig. 12) and the externally tanged separator plates (29) for wear or damage and replace, if necessary.

2. If necessary, replace bearing (12) of PTO clutch shaft (33).

3. Check clutch drum (17), clutch hub (31), drive gear (19) and oil manifold (10) for wear or damage.

4. If it is necessary to replace drive gear (19), then tighten hex. socket screws (30) to 75 N·m (55 ft-lb) torque.

5. Replace seal rings.

6. Check pressure spring (23) and retainer (24) for serviceability.

7. Check PTO clutch piston (21) and PTO brake piston (5) for wear or scores. Replace if necessary.

8. Check brake plate (3) for worn linings.

9. Check brake disks (2) and (4) for serviceability.

10. Check spring (23) for damaged or broken coils.

Pressure spring of PTO clutch piston
Free length ..... 98 mm (3.88 in.)

Spring tension at a length of
46 mm (1.80 in.) ..... 530 to 650 N (117 to 143 lb)

ASSEMBLY

When assembling, reverse disassembly procedure, watching the following points:

1. Tighten oil manifold (10) to clutch housing cap screws (18, Fig. 12) to 50 N·m (35 ft-lb) torque.

2. Install retainer with vanes (24, Fig. 11) so that vanes face away from piston.

3. Install the correct number of clutch disks (26) and separator plates (29) on clutch hub (31) so that a separator plate is on the piston side and a clutch disk on the side of backing plate (27).

Independent 540 rpm PTO—
10 clutch disks and 10 separator plates

Independent 540/1000 rpm PTO—
8 clutch disks and 8 separator plates

INSTALLATION

When installing PTO clutch assembly in the clutch housing, reverse removal procedure.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Section 60
STEERING SYSTEM AND BRAKES

CONTENTS OF THIS SECTION

Page

GROUP 00 - SPECIFICATIONS AND SPECIAL TOOLS
- Specifications 60-00-3
  - Power Steering 60-00-3
  - Brakes 60-00-4
    - Hydraulic Foot Brakes 60-00-4
    - Handbrake 60-00-5
- Special Tools 60-00-6

GROUP 05 - POWER STEERING
- Description 60-05-2
- Operation 60-05-2
- Checking Steering System 60-05-3
- Diagnosing Malfunctions 60-05-4
- Removal 60-05-4
- Repair 60-05-6
- Adjustment 60-05-10
- Assembly 60-05-11
- Installation 60-05-12
  - Checking Steering Wheel Travel 60-05-13

Page

GROUP 10 - BRAKES
- Hydraulic Brakes
  - General Information 60-10-1
  - How the Brakes Work 60-10-1
  - Diagnosing Malfunctions 60-10-3
  - Brake Valve 60-10-3
    - Removal 60-10-3
    - Repair 60-10-5
    - Installation 60-10-5
    - Bleeding and Adjustment 60-10-6
  - Pressure Rings and Brake Disks 60-10-7
    - Removal 60-10-7
    - Repair 60-10-7
    - Installation 60-10-7
- Handbrake
  - General Information 60-10-8
  - Removal 60-10-9
  - Repair 60-10-9
  - Installation 60-10-9
  - Adjustment 60-10-9

PREVIEW - YOUFIXTHIS.COM

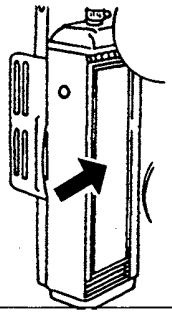
Download full manual at youfixthis.com

HEATING THE HYDRAULIC OIL

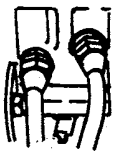
Before using this procedure, perform preliminary checks (step 1) and install test equipment (step 2).

Covering the oil cooler will help heat the oil.

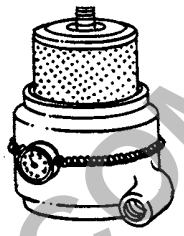
IMPORTANT: Do NOT cover radiator.



Install a jumper hose across L.H. SCV and set metering lever in middle position.



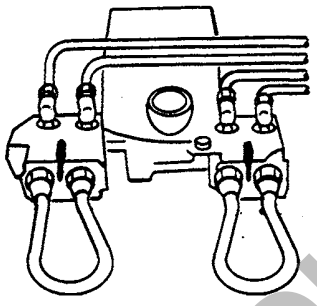
Install JDG-282 temperature gauge on filter cover.



Run engine at 1700 rpm. Move L.H. SCV lever to circulate oil.



If equipped with two SCV's: Install jumper hose across R.H. SCV. Move R.H. SCV lever to flow oil to sump.



Adjust R.H. metering lever to obtain 30-70 kPa (0.3-0.7 bar) (5-10 psi) inlet pressure.



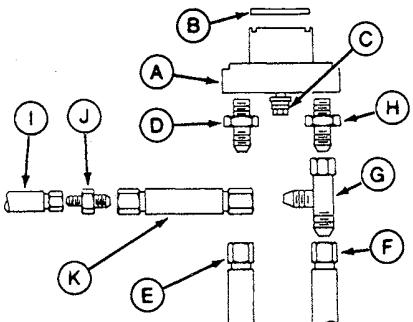
Observe temperature gauge and return SCV levers to neutral when desired temperature is reached.

AN9;RW10200L,RW11845L,RW10482,RW10664,RW10458,RW11845L L70;070005 AX 060586

OPTIONAL OIL HEATING METHOD WITH JDG387 TEST PLATE INSTALLED

NOTE: Make connections as shown.

A—JDG387 Test Plate
B—R64374 Packing
C—19H2120 with 2-1/2 in. ID x 3/32 in. thick washers
D—JTO3067 (7020) Fitting
E—3/4 in. ID Hose, Meter Inlet (CP add JTO3012)
F—3/4 in. I.D. Hose, Meter Outlet (CP add JTO3012)
G—JTO3058 (0766) Tee
H—JTO3067 (7020) Fitting
I—SCV Return Pipe or Hose
J—JTO3054 (6724) Union Connector
K—JTO3020 (6733) 3/4 in. ID Hose with JTO3012 (1747) Adapter at each end



Proceed with normal oil heating procedures.

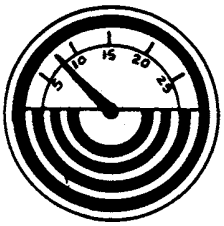
AN9;RW11840L L70;070005 AX1 150886

DRAINING AUXILIARY OIL RESERVOIR OR OIL COOLER.

Using this procedure before removing or installing test equipment at the main pump will help prevent oil spillage or burns from hot oil.

Connect jumper hose from SCV to sump and set metering lever at "MAX".

Run engine at 800 rpm, move R.H. SCV lever to flow oil to sump.

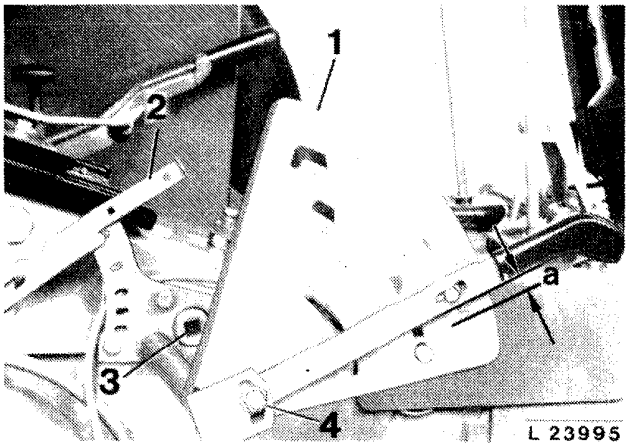


When hose starts jumping (pump cavitation), shut off engine, then return lever to neutral.



AN9;RW10455,RW10255 L70;070005 BX 310784

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



L23995

a—Distance Between Control Lever and Front Stop of Quadrant
1—Quadrant
2—Selector Lever in "MIN" position
3—Plug
4—Hex. Nut

Fig. 10 - Adjusting Control Lever

7. Pull control lever to the rear until a clearance of 15 ± 5 mm (0.6 ± 0.2 in.) has been obtained (see "a", Fig. 10) from bottom of guide.

8. Rotate control lever arm clockwise to completely lower hitch, then counterclockwise to slightly raise hitch.

9. Now rotate control lever arm slowly clockwise until the hitch is just fully lowered and tighten control lever adjusting nut (4, Fig. 10).

10. Repeat control lever position checks in steps 3 and 4.

5. COMMENCEMENT OF LIFT, LOAD CONTROL (MAX)

1. Move rockshaft selector lever to position "MAX" (load control).

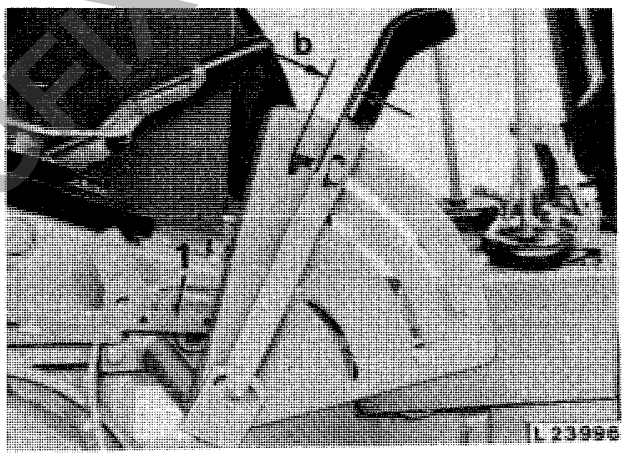
2. Remove oil filler cap from rockshaft housing (Fig. 11).

3. Run engine at approx. 1300 rpm.

4. Move rockshaft control lever forward until lift arms are fully lowered.

5. Move control lever rearward until hitch just starts to raise.

6. Control lever should be 90 ± 5 mm (3.5 ± 0.2 in.) from upper end of guide when hitch begins to raise (b, Fig. 11).



L23996

b—Distance Between Control Lever and Rear Stop of Quadrant
1—Load Selector Lever in "MAX" Position

Fig. 11 - Position of Rockshaft Control Lever for Cam Follower Adjustment

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 733 pages

The full manual includes:

- All 733 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

John Deere 2150, 2255 Technical Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual