

2750 Tractor



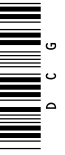
JOHN DEERE

TECHNICAL MANUAL 2750 Tractor

TM4405 (01Aug86) English

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ENGLISH



2750 TRACTOR TECHNICAL MANUAL TM-4405 (Apr-86)

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For engine information, refer to engine component technical manual, CTM-4, 3179, 4239, and 6359 Engines. The component manual covers basic repair of the engines.

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Section 10 GENERAL

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Group 00

SPECIFICATIONS AND SPECIAL TOOLS

Specifications

Serial Numbers

The engine serial number is stamped into the plate located on the lower front right-hand side of the cylinder block.

NOTE: When ordering engine parts, quote all digits of serial number stamped on the plate.

The plate showing the tractor serial number is located on the right-hand side of the front axle carrier.

NOTE: When ordering tractor spare parts (excluding engine parts), quote all digits and letters of serial number stamped on the plate.

A plate showing the tractor type, transmission serial number, cone point measurement etched into pinion face of differential drive shaft as well as reduction of differential is located on the right-hand side of the transmission case.

Model Numbers

The fuel injection pump, fuel injection nozzles, alternator, starting motor, hydrostatic steering valve, compressor of air conditioning system (when equipped) and hydraulic pump have model numbers to facilitate identification of different makes of a given unit.

Engine

Number of cylinders		4
Cylinder liner bore	106.5 mm	4.19 in.
Stroke	110 mm	4.33 in.
Displacement	3920 cm ³	239 cu.in.
Compression ratio		16.8 : 1
Maximum torque at 1600 rpm	285 N·m	210 lb-ft
Firing order		1 - 3 - 4 - 2
Valve clearance (engine hot or cold)		
Intake valve	0.35 mm	0.014 in.
Exhaust valve	0.45 mm	0.018 in.

Fast idle speed	2610 to 2660 rpm
Slow idle speed	700 to 800 rpm
Rated engine speed	2500 rpm
Working speed range	1600 to 2500 rpm
PTO* horsepower at engine rated speed — 2500 rpm	

According to DIN SAE J816b 56 kW 75 hp

Lubrication system Full internal force feed system with full flow filter

Engine Clutch Single dry disk clutch with torsion damper, foot-operated

Cooling System

Type Pressurized system with centrifugal pump

Temperature regulation Thermostat

Fuel System

Type Direct injection

Fuel injection pump timing to engine TDC

Fuel injection pump type (Roto Diesel R 3443 F 910 or R 3448 F 220) Distributor type

Air cleaner Dry-type air cleaner with secondary
(safety) element

**With the engine run in (above 100 hours of operation) and having reached operating temperature (engine and transmission); measured by means of a dynamometer. Permissible variation \pm 5%.*

ELECTRICAL SYSTEM

- Batteries 2 x 12 volts, 55 Ah or 66 Ah
- Alternator with internal regulator
 - Tractors without SOUND-GARD Body 14 volts, 33 or 55 amps.
 - Tractors with SOUND-GARD Body 14 volts, 55 amps.
- Starting motor 12 volts, 3 kW (4 HP)
- Battery terminal grounded negative

SYNCHRONIZED TRANSMISSION

- Type Synchronized transmission
- Gear selections 8 forward and 4 reverse
- Gear shifting Two forward groups and one reverse group
Synchronized forward and reverse shifting
within groups

HI-LO SHIFT UNIT

- Type Hydraulic gear reduction unit which can be
shifted under load with "wet" multiple
disk clutch and brake packs
- Travel speed decreases in each gear by Approx. 20%
- Shifting to reduced (Lo) speed Preloaded cup springs
- Shifting to normal (Hi) speed Hydraulic

Creeper Transmission

- Type Synchronized reduction unit
- Travel speed decreases in low (1) and reverse ranges by approx. 79%
- Shifting both ranges Mechanical and not under load

COLLAR SHIFT TRANSMISSION

- Type Helical gears
- Gear selections 8 forward, 4 reverse speeds
- Gear shifting Two forward ranges, One reverse range

Differential and Final Drives

Type of differential Spiral bevel gears

Type of final drive Planetary reduction drive

Differential Lock

Operation Hand or foot operated

Disengage Will disengage automatically as soon as traction has equalized

PTO

Type Independent of transmission, can be engaged and disengaged under load

PTO speeds (with engine speed of 2400 rpm) 540 rpm or 540/1000 rpm

PTO clutch Hydraulically operated "wet" disk clutch

PTO brake Hydraulically operated "wet" disk brake

PTO SPEEDS (in rpm)

Engine speed	540 rpm shaft	1000 rpm shaft
800	180	335
2400	540	1000
2500	565	1040
2660	600	1110

Mechanical Front Wheel Drive

Type Engaged hydraulically, under full load with "wet" disk clutch

Control Electrical/hydraulic solenoid switch

Engagement Preloaded cup springs

Disengagement Hydraulic

Hydrostatic Steering Without mechanical linkage between steering valve and the front wheels

Foot Brakes Self-adjusting, hydraulically operated "wet" disk brakes

Handbrake Mechanically operated band-type locking brake acting on the differential

HYDRAULIC SYSTEM

Type Closed center, constant pressure system

Standby pressure 15800 to 16200 kPa (158 to 162 bar) (2300-2350 psi)

Operating pressure 14000 kPa (140 bar) (2050 psi)

Hydraulic pump 8-piston pump with variable displacement

Capacities

Fuel tank 98 L (25.90 U.S. gal.)

Cooling system

Without SOUND-GARD Body 13 L (3.4 U.S. gal.)

With SOUND-GARD Body 15 L (4.0 U.S. gal.)

Engine crankcase

Without filter change 8.0 L (2.1 U.S. gal.)

With filter change 8.5 L (2.3 U.S. gal.)

Transmission - Hydraulic system (including oil reservoir and oil cooler)

Initial filling 64 L (16.9 U.S. gal.)

Oil change 56 L (14.7 U.S. gal.)

Oil reservoir 4 L (1.1 U.S. gal.)

Oil cooler 2 L (0.5 U.S. gal.)

Mechanical Front Wheel Drive

Front axle housing 7.0 L (1.85 U.S. gal.)

Wheelhub each 0.75 L (0.2 U.S. gal.)

Travel Speeds See Operator's Manual

Front and Rear Wheels

Tires, tread widths, tire pressure and ballast weights See Operator's Manual

Dimensions and Weights See Operator's Manual

Predelivery, Delivery and After-Sales Inspections

Engine Speeds

Slow idle	700—800 rpm
Fast idle	2610—2660 rpm
Rated speed	2500 rpm

Fan Belt

The fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump (use a spring scale).

Compressor Belt

The compressor belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between pulleys.

Batteries

Specific gravity at an electrolyte temperature of 20° C (68° F)

Normal and arctic conditions	1.28
Tropical conditions	1.23

Clutch Operating Linkage

Tractors without SOUND-GARD Body

Clutch pedal free travel	25 mm approx. (1 in.)
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Tractors with SOUND-GARD Body

Travel of slave cylinder operating rod	8.5—12.0 mm (5/16—15/32 in.)
--	------------------------------

Front Wheel Toe-In

Tractors without MFWD	3—6 mm	(.12—0.25 in.)
Tractors with MFWD	0—3 mm	(0—0.12 in.)

Torques for Hardware

Start safety switch in rockshaft housing, max.	50 N·m	(35 lb-ft)
Front wheel rim to hub		
Tractors without MFWD	180 N·m	(130 lb-ft)
Tractors with MFWD	300 N·m	(220 lb-ft)
Axle knees to axle center, cap screws	400 N·m	(300 lb-ft)
Tie rod clamps		
Cap screw (M10)	55 N·m	(40 lb-ft)
Cap screw (M12)	90 N·m	(65 lb-ft)
Tie rod tube, cap screw	55 N·m	(40 lb-ft)
Rear Wheels		
Rear wheels to axle	400 N·m	(300 lb-ft)
Wheel disk to hub (rack-and-pinion axle)	400 N·m	(300 lb-ft)
2-post ROLL-GARD protective structure		
Supports to crossbar, cap screws	230 N·m	(170 lb-ft)
Supports to final drives, cap screws and nuts	230 N·m	(170 lb-ft)

LUBRICATION AND SERVICE

Capacities

Engine crankcase

Without filter change 8.0 L (2.1 U.S. gal)

With filter change 8.5 L (2.3 U.S. gal)

Cooling System

Without SOUND-GARD Body 13 L (3.4 U.S. gal)

With SOUND-GARD Body 15 L (4.0 U.S. gal)

Transmission — Hydraulic system (including oil reservoir and oil cooler)

Initial filling 64 L (16.9 U.S. gal)

Oil change 56 L (14.7 U.S. gal)

Oil reservoir 4 L (1.1 U.S. gal)

Oil cooler 2 L (0.5 U.S. gal)

Mechanical front wheel drive

Front axle housing 7.0 L (1.85 U.S. gal)

Wheel hub each 0.75 L (0.2 U.S. gal)

Service Intervals

Checking crankcase oil level every 10 hours

Changing engine oil every 100 hours

Changing engine oil filter every 200 hours

Checking transmission/hydraulic system oil level every 50 hours

Changing transmission/hydraulic system oil filter every 500 hours

Changing transmission/hydraulic oil every 1000 hours

Changing hydrostatic steering filter every 1000 hours

Cleaning hydraulic pump strainer every 1000 hours

Checking MFWD oil level every 100 hours

MFWD oil change every 1000 hours

Cleaning and packing front wheel bearings every 1000 hours

Lubricating grease fittings

Clutch throw-out bearing grease fitting (when equipped) 100 hours

Mechanical front wheel drive universal-jointed shaft every 50 hours

(in wet and muddy conditions) every 10 hours

Front axle and front axle bearings every 50 hours

Rear axle bearings every 500 hours

(in wet and muddy conditions) every 10 hours

Three-point hitch every 200 hours

TUNE-UP

PTO horsepower* at 2500 rpm rated engine speed	56 kW	75 hp
Slow idle	700—800 rpm	
Fast idle	2610—2660 rpm	
Rated engine speed	2500 rpm	
Air intake system vacuum	5.5—6.0 kPa 35—60 mbar	(14—25 in. water head)
Air cleaner restriction warning switch closes at a vacuum of	5.5—6.5 kPa 55—65 mbar	(22—26 in. water head)
Radiator cap high pressure valve opens at	40—50 kPa 0.4—0.5 bar	(6—7 psi)
Radiator cap low pressure valve opens at	0—4 kPa 0—0.04 bar	(0—0.6 psi)

Fan Belt

Fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump (use a spring scale).

COMPRESSOR BELT (If Equipped)

Compressor belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between pulleys.





**With the engine run in (more than 100 hours of operation) and having reached operating temperature (engine and transmission); measured by means of a dynamometer. Permissible variation ±5%.*

TRACTOR SEPARATION

Torques for Hardware

Front axle carrier to engine block		
Front attaching cap screws (4 used)	230 N·m	170 lb-ft
Rear attaching cap screws (2 used)	180 N·m	130 lb-ft
Front axle carrier to oil pan, cap screws	400 N·m	300 lb-ft
Hydraulic pump drive shaft cap screws	50 N·m	35 lb-ft
Jointed shaft flange to front axle drive hub (tractors with MFWD), cap screws	75 N·m	55 lb-ft
Clutch housing to engine block		
Cap screws	230 N·m	170 lb-ft
Hex. nuts	230 N·m	170 lb-ft
Oil pan to clutch housing, cap screws	230 N·m	170 lb-ft
Clutch housing to transmission case, cap screws	160 N·m	120 lb-ft
Transmission case drain plugs	135 N·m	100 lb-ft
Hydraulic lines retainer to clutch housing, cap screw	45 N·m	32 lb-ft
Final drive housings to transmission case, cap screws	120 N·m	85 lb-ft
Rockshaft housing to transmission case, cap screws	120 N·m	85 lb-ft
Rear wheels to rear axle	400 N·m	300 lb-ft
Wheel disk to hub (on tractors equipped with rack-and-pinion axle)	400 N·m	300 lb-ft
Rear fenders to final drive housings, hex. nuts	130 N·m	95 lb-ft
2-post roll guard to final drive housings	230 N·m	170 lb-ft
both supports to crossbar	230 N·m	170 lb-ft
Basic weight to front axle carrier, cap screws	400 N·m	300 lb-ft
Drawbar to transmission case, cap screws	120 N·m	85 lb-ft
SOUND-GARD Body to rubber bearing blocks, cap screws and hex. nuts	200 N·m	145 lb-ft

STANDARD TORQUES

RECOMMENDED TORQUES IN N:m, AND FT-LBS FOR UNC AND UNF CAP SCREWS				
Head Marking (Identifying strength)	  or 10.9*		  or 12.9**	
	Thread-O.D. (in.)	N:m	ft-lbs	N:m
1/4	15	10	20	15
5/16	30	20	40	30
3/8	50	35	70	50
7/16	80	55	110	80
1/2	120	85	170	120
9/16	180	130	240	175
5/8	230	170	320	240
3/4	400	300	580	425
7/8	600	445	930	685
1	910	670	1400	1030
1-1/8	1240	910	1980	1460
1-1/4	1700	1250	2800	2060

NOTE: A variation of $\pm 10\%$ is permissible for all torques indicated in this chart.

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.

* Tempered steel high-strength bolts and cap screws

**Tempered steel extra high-strength bolts and cap screws

RECOMMENDED TORQUES IN N·m, and lb-ft FOR METRIC CAP SCREWS

Head marking (identifying strength)	8.8*		10.9**		12.9***	
	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft
Thread-O.D. (mm)						
M5	7	5	9	6.5	10	8.5
M6	10	8.5	15	10	20	15
M8	30	20	40	30	40	30
M10	50	35	80	60	90	70
M12	100	75	140	100	160	120
M14	160	120	210	155	260	190
M16	240	175	350	260	400	300
M20	480	355	650	480	780	575
M24	820	605	1150	850	1350	995
M30	1640	1210	2250	1660	2700	1990
M36	2850	2110	4000	2950	4700	3465

NOTE: A variation of $\pm 10\%$ is permissible for all torques indicated in this chart.

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.

* Regular bolts and cap screws

** Tempered steel high-strength bolts and cap screws

*** Tempered steel extra high-strength bolts and cap screws

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

Thread size	with O-rings		with cone	
	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
1-4 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
1-5/8-12 UNC	110	80	190	140
1-7/8-12 UNC	150	110	220	160

Special Tools*

Tools

Description and Part No.

Use

D-0502251
Testing Kit
(FKM 10002)

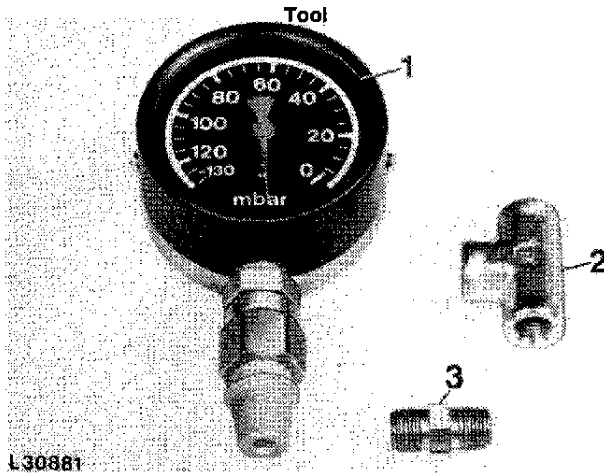
Measuring air intake
system vacuum



* Tools given in parenthesis and their illustrations are alternate tools available for Canada only. Order all other tools through your SERVICE-GARD catalog.

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Fig. 1—Pressure Gauge Set



L30881

L30881

Fig. 2—Vacuum Gauge and Connectors

Description and Part No.

Use

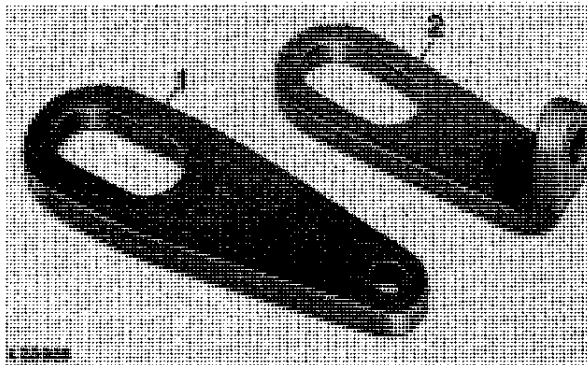
D-05022ST
Vacuum gauge and
Connectors FKM 10310

Measuring air intake
system vacuum

consisting of:

- 1 Vacuum Gauge (FKM 10242)
- 2 T-piece (FKM 10308)
- 3 Connector (FKM 10309)

Tractor Separation



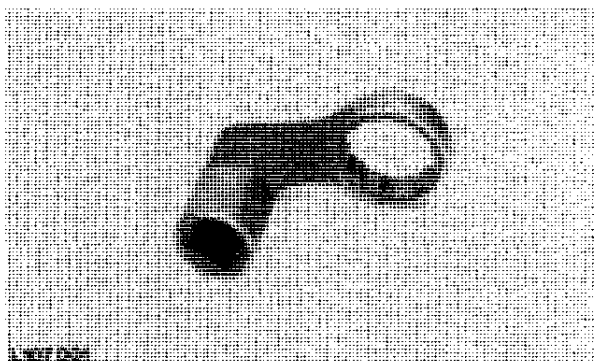
L23985

Fig. 3—Lifting Eyes, Straight and Bent

1 Lifting eye,
straight
JD-244-1

Tractor separation

2 Lifting eye,
bent
JD-244-2

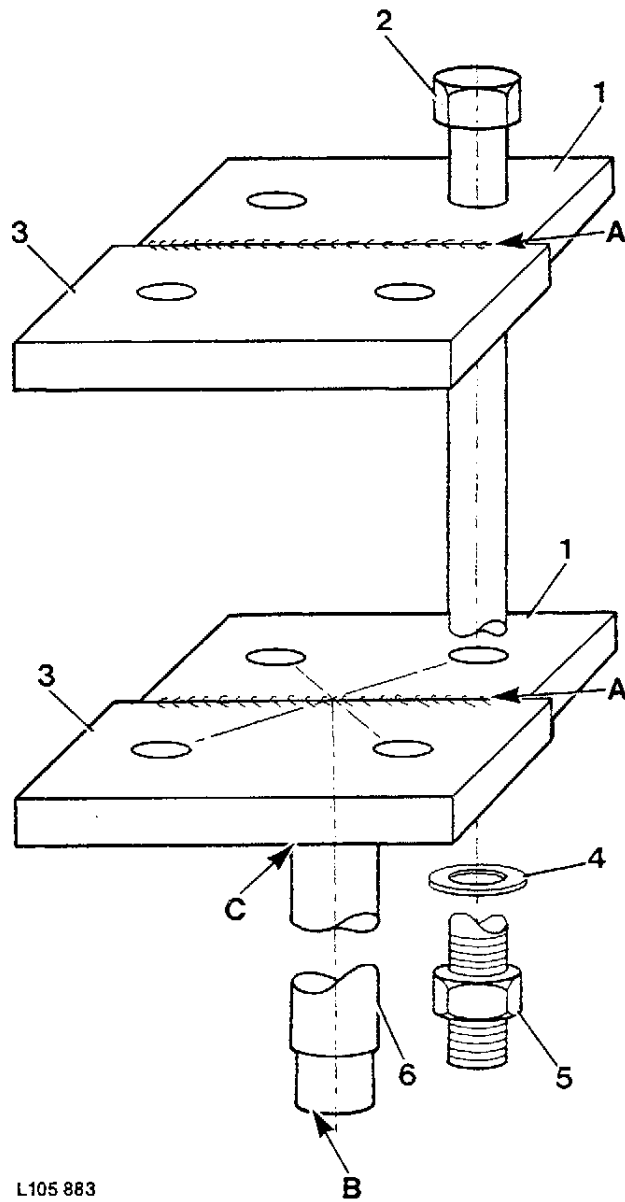


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Fig. 4—Special Ring Spanner

Special ring spanner
KJD 10129

Separation between engine
and clutch housing
on tractors equipped with
SOUND-GARD Body



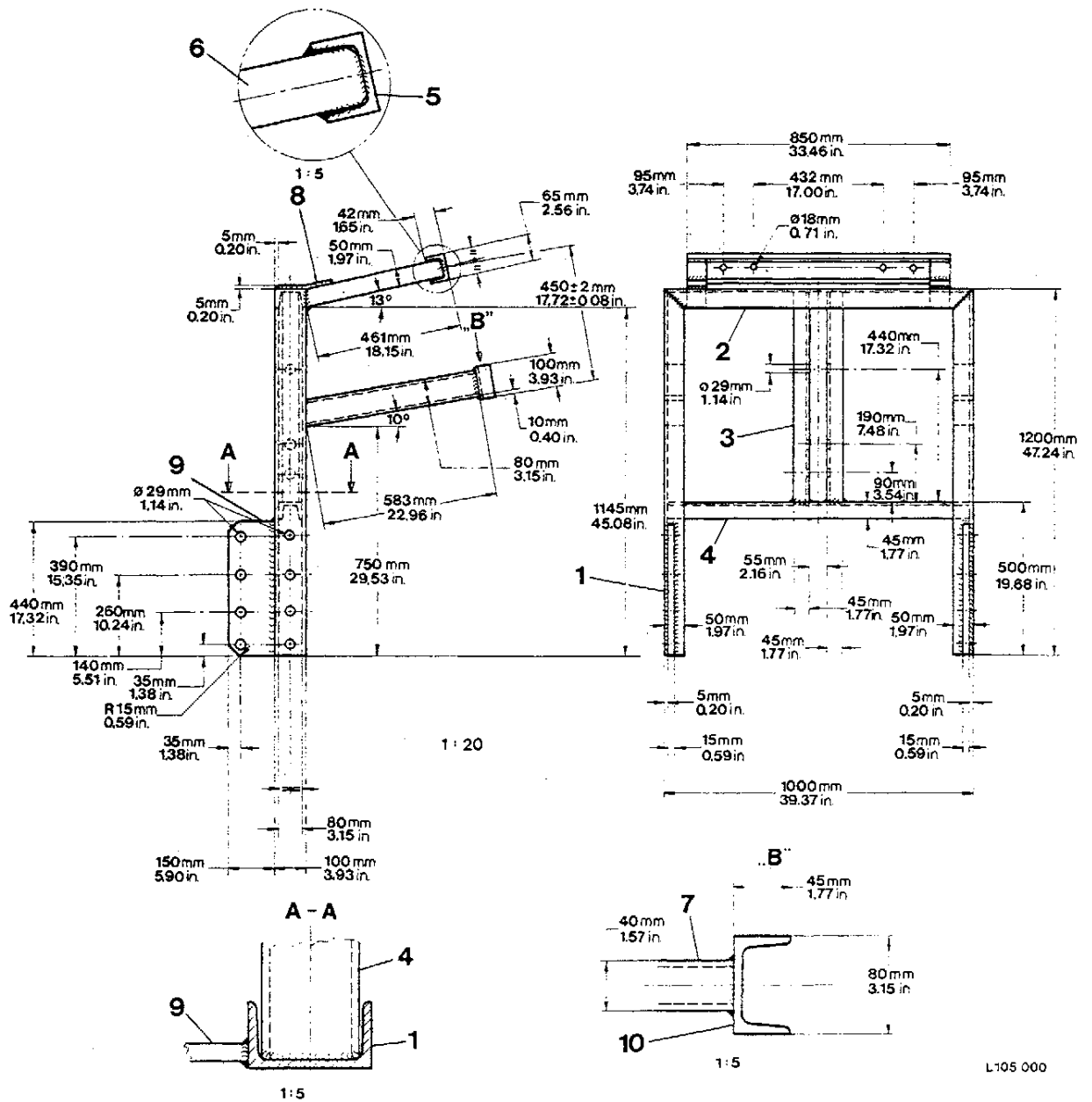
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L105883

Fig. 6—Holding Device (Self-Manufacture), Removal of Final Drive Assemblies

- A—Weld both retaining plates together
- C—Weld round steel in center of both plates
- 1—Retaining plate T 25671 (2 used)
- 2—Cap screw L 29785 (2 used)
- 3—Retaining plate T 32429 (2 used)

- B—Adapter lug diameter to fit bore of trolley jack
- 4—Washer 14H1698 (2 used)
- 5—Hex. nut 14H1039 (2 used)
- 6—Round steel 50 x 250 mm (1.97 x 9.84 in.)

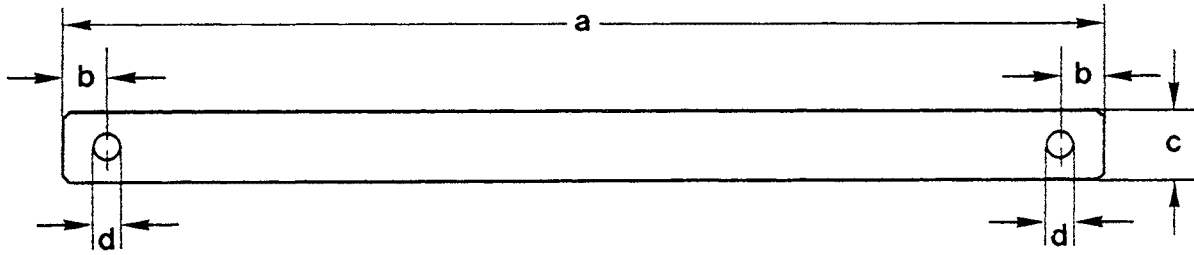


L105000

L105 000

Fig. 6—Lifting Device (Self-Manufacture), Removal of SOUND-GARD Body (Quality Grade ST37)

- 1—U-profile steel 100 x 1200 mm (3.94 x 47.24 in.) (2 used)
- 2—U-profile steel 100 x 1000 mm (3.94 x 39.37 in.) (1 used)
- 3—U-profile steel 80 x 694 mm (3.15 x 27.32 in.) (1 used)
- 4—U-profile steel 80 x 988 mm (3.15 x 38.9 in.) (1 used)
- 5—U-profile steel 65 x 850 mm (2.56 x 33.46 in.) (1 used)
- 6—Square steel 50 x 50 x 461 mm (1.97 x 1.97 x 18.15 in.) (2 used)
- 7—Square tubular steel 80 x 40 x 5 x 583 mm (3.15 x 1.58 x 0.2 x 22.95 in.) (2 used)
- 8—Flat steel 50 x 5 x 190 mm (1.97 x 0.2 x 7.48 in.) (2 used)
- 9—Flat steel 150 x 15 x 440 mm (5.9 x 0.59 x 17.32 in.) (2 used)
- 10—U-profile steel 80 x 100 mm (3.15 x 3.94 in.) (2 used)



L105887

L105 887

Fig. 8—Steel Shaft (Self-Manufacture) for SOUND-GARD Body Lifting Device

a—1100 mm (43.31 in.)
b—25 mm (0.98 in.)

c—Diameter 22 mm (0.87 in.) with Cat. I draft links
29 mm (1.14 in.) with Cat. II draft links
d—Diameter 5 mm (0.2 in.)

Group 05 PREDELIVERY, DELIVERY AND AFTER SALES INSPECTIONS

The John Deere Delivery Receipt, when properly filled out and signed by the dealer and customer, verifies that the predelivery and delivery services were satisfactorily performed. When delivering this machine, give the customer his copy of the delivery receipt and the operator's manual. Explain their purpose to him.

To promote complete customer satisfaction, a predelivery inspection including mending of possible shipping damage and giving the finishing touches to the tractor, is of prime importance to the dealer.

After the first 100 operating hours an inspection should be performed by the dealer to make sure that the tractor is in proper operating condition.

The predelivery and after-sale inspection check lists in the operator's manual will be completed by the dealer when the inspections are being performed. He will then forward them to the sales branch service department.

Tractor Storage

When storing a new tractor, proceed as follows:

SHORT-TERM (Under 30 Days)

1. Fill fuel tank. This prevents condensation of moisture in tank.
2. Check engine oil level, transmission-hydraulic oil level, and coolant level. Add oil or coolant if necessary. During cold weather, be sure coolant contains sufficient anti-freeze.

3. Check electrolyte level in batteries. If electrolyte does not cover plates, add distilled water. Make sure batteries are fully charged.

4. Store tractor in a dry, protected place. If necessary to store tractor outside, cover it with a protective material. Protect tires from heat, sunlight, and petroleum products.

LONG-TERM (Over 30 Days)

To protect engine, fuel system, transmission and hydraulic system, use the AR 41785 rust inhibitor. The above part no. includes one can of rust inhibitor, masking tape and protective caps to cover all engine openings.

Protect the engine as follows:

1. Add 250 c.c. (8.5 oz.) of rust inhibitor to the engine oil.
2. Add 250 c.c. (8.5 oz.) of rust inhibitor to the oil in the transmission/hydraulic system.
3. Drain fuel tank, pour 170 c.c (6 oz.) of rust inhibitor into the empty tank and add approx. 10 L (2.6 U.S. gal.) of fuel. Start engine and operate it at fast idle for 15 to 20 minutes to distribute the mixture through the whole fuel system. While the engine is running, operate the complete hydraulic system several times. Shut off engine in time to leave some fuel in the tank. Then allow the engine to cool down for 15 to 20 minutes.
4. Prepare 15 c.c (0.5 oz.) of rust inhibitor for each cylinder. Remove plug of intake manifold or connecting pipe of starting fluid adapter at the intake manifold, whichever applies.

Inject rust inhibitor into the intake manifold. Pull out shut-off knob and crank engine with starter several times.

However, do not allow the engine to start. Otherwise the whole procedure must be repeated.

After the rust inhibitor has been added, the engine may not be started again.

IMPORTANT: Rust inhibitor agents evaporate very easily. For this reason, seal all openings after the inhibitor has been added. Also, always keep the inhibitor container closed.

5. Fill the fuel tank.
6. Remove batteries. Add distilled water, if necessary. Charge the batteries and store in a cool, dry place where they will not freeze.
7. Seal all openings such as the vent tube and exhaust outlet.
8. Slacken fan belt and air conditioning compressor belt (if equipped).
9. Replace or repair damaged parts. Touch up any painted surfaces which are scratched or chipped.
10. Coat exposed metal surface, such as axles and piston rods of hydraulic cylinders, with grease or corrosion preventative.
11. Store the tractor in a dry, protected place. If the tractor is stored outside, cover it with a waterproof tarpaulin.
12. Block up the tractor so that tires do not touch the ground. Protect tires from heat and sunlight.

REMOVING THE TRACTOR FROM STORAGE

1. Remove all protective coverings.
2. Check crankcase and transmission/hydraulic system oil levels.

3. Check coolant level.
4. Check tire inflation pressure.
5. Install batteries and connect cable and ground strap.
6. Adjust fan belt and compressor belt (if equipped) tension.
7. Carry out 500-hour check.
8. Run engine at approx. 1500 rpm for some minutes. Check all systems before placing tractor under load.

IMPORTANT: With engine shut-off knob pulled out, turn over engine by means of starting motor until engine oil pressure has built up (engine oil pressure indicator light goes out). Then push in engine shut-off knob and run engine at approximately 1900 rpm.

Predelivery Inspection

Before delivering the tractor to the customer, the following checks and services should be performed by the dealer:

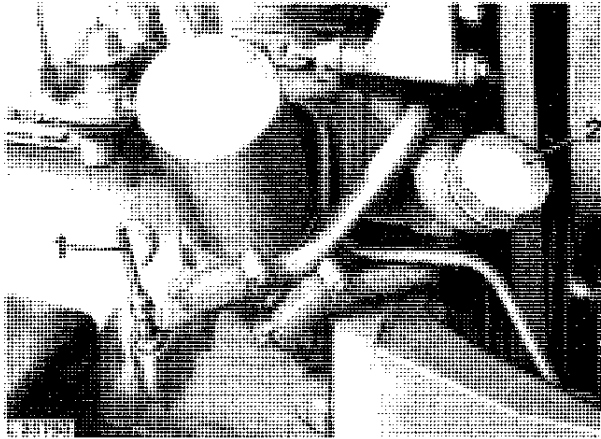
ENGINE

Leaks

Check engine and fuel lines for leaks. Repair as necessary.

Checking Crankcase Oil Level

NOTE: Tractor should be on a level surface when oil level is checked. If it is not, check only to make sure the crankcase is not dry. Recheck oil level later, when tractor is on level ground.



L23750

- 1—Dipstick
2—Filler Cap

Fig. 1 - Engine Oil Dipstick and Filler Cap

1. Pull out dipstick (1, Fig. 1) and check oil level.
2. If necessary, add oil to bring oil level to top mark on dipstick. Use John Deere TORQ-GARD SUPREME engine oil SAE 10W-20 or an equivalent oil (see Group 10).

Checking Coolant Level



Fig. 2—Radiator Filler Cap

1. Remove radiator filler cap and check coolant level. Coolant level must be midway between the filler neck and top of radiator core.

2. If necessary, add coolant to obtain this level.

John Deere Engine Cooling Fluid is filled into the cooling system at the factory. It protects the engine against corrosion and against frost down to -36°C (-35°F).

IMPORTANT: Use only John Deere Engine Cooling Fluid in the cooling system independent of the season.

If no John Deere Engine Cooling Fluid is available use a mixture of 50 percent ethylene-glycol antifreeze/anticorrosion inhibitor and 50 percent clear, soft water. This mixture guarantees engine protection against corrosion and against frost down to -36°C (-35°F).

Never use any cooling system sealing additives.

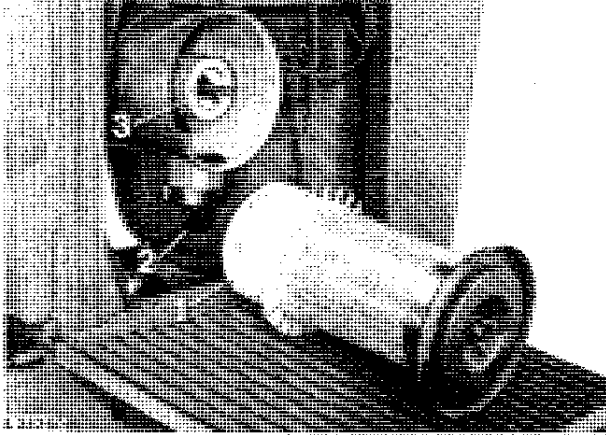
Idle Speeds

1. Check slow and fast idle speeds and adjust, if necessary.
2. Slow idle speed 700 to 800 rpm.
3. Fast idle speed 2610 to 2660 rpm.
4. Warm up engine to operating temperature and check speeds. Adjust if necessary (see Section 30, Group 20).

Engine Shut-Off Cable

1. Check operation of shut-off cable. Move hand throttle lever completely forward and idle engine for 1 to 2 minutes.
2. Completely pull out shut-off knob, making sure engine stops immediately.
3. If necessary, adjust shut-off cable (see Section 30, Group 20).

Air Cleaner and Safety Element



L352801

- 1—Air Cleaner Element
- 2—Dust Unloading Valve
- 3—Safety Element

1. Check air cleaner and safety elements for proper installation.
2. Make sure that dust unloading valve (2, Fig. 3) (rubber cap) is installed on air cleaner.

Air Intake Connections

1. Check air intake connections for tightness. Tighten any loose clamps.

Exhaust Stack

1. Install exhaust stack, making sure it is in vertical position.
2. Install exhaust stack flap with flap hinge at the rear (as seen in direction of forward travel). When closed, flap should not contact exhaust stack end. If necessary, clamp flap to exhaust stack to obtain a clearance of 2 mm (0.08 in.) between flap and stack end.

Checking V-Belt Tension

Fan Belt

1. The fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump (use a spring scale).

Compressor Belt (if equipped)

1. Compressor belt should deflect 6 mm (1/4 in.) when a 70 N (15 lb) force is applied midway between pulleys.

ELECTRICAL SYSTEM

Batteries

1. Check battery terminals and battery cable ends. If they are corroded, clean and coat them with petroleum jelly.
2. Check electrolyte level in each battery cell. Add distilled water if necessary to bring level above cell plates.
3. If batteries are not fully charged, charge them. Remove cell caps before charging the battery.

Important Notes

1. If the engine is to be run for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt the circuit by switching off the main switch before stopping the engine by means of the fuel pump shut-off cable. Further it is recommended to use additional current (lights) while engine is running. Do not run engine at a speed above 1000 rpm. Insulate battery end of disconnected starter cable properly to avoid damage to alternator and regulator.

On tractors with SOUND-GARD Body: Do not connect ground strap of slave battery to cab.

2. Connect batteries or battery charger in the proper polarity (“+” and “-”). If they are improperly connected, the rectifier diodes will be immediately destroyed.

Start Safety Switch

1. Move range shift lever into neutral position.
2. Check function of start safety switch. Replace switch when necessary, (see Section 40, Group 15).

Lighting System

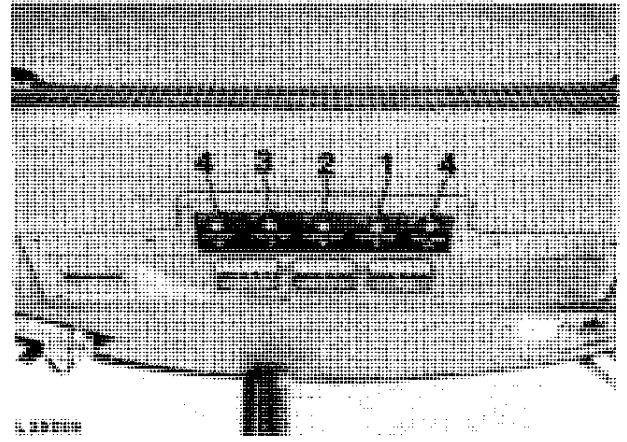
1. Check lighting system and repair as necessary. Replace any defective bulbs (see Section 40, Group 20).
2. Check headlight adjustment and correct, if necessary (see Section 40, Group 20).

SOUND-GARD Body Controls

Fan Switch

1. Open air outlets. Check fan switch (2, Fig. 4) for proper operation.

Heater Switch



L35229

1—Heater Switch
2—Fan Switch

3—Thermostat Switch
(Air Conditioning)
4—Windshield Wiper Switch

Fig. 4—SOUND-GARD Body Controls

With fan operating, check heater switch (1, Fig. 4) for proper operation. For this purpose, turn switch clockwise on tractors with SOUND-GARD Body, making sure that warm air enters cab (with engine at operating temperature).

Thermostat Switch (Tractors with Air Conditioning)

With fan operating, check infinitely variable thermostat switch (if equipped) for proper operation. Turn off heater. Turn thermostat switch (3, Fig. 4) clockwise, making sure cool air enters cab. If switch does not operate correctly, see Section 90, Group 05.

Windshield Wiper Switch

Check windshield wiper switch for proper operation.

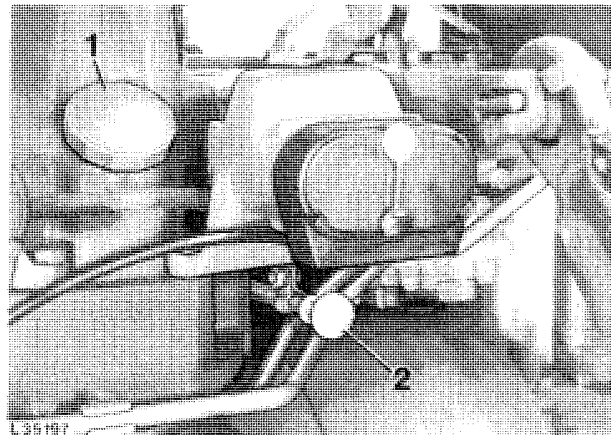
CONTROLS AND INSTRUMENTS

Check controls and instruments for proper operation.

Power Train

Checking Transmission/Hydraulic System Oil Level

1. With the tractor on level ground, run the engine 2 to 3 minutes.
2. Place range and gear shift lever in neutral position.
3. Apply handbrake.
4. Lower draft links.
5. Run engine at slow idle (700 to 800 rpm).



L35197

- 1—Filler Cap
2—Dipstick

Fig. 5—Transmission/Hydraulic System Dipstick and Filler Cap

6. Pull out dipstick and wipe clean.
7. Insert dipstick. Remove dipstick and check oil level.
8. If necessary, add John Deere Hy-Gard Transmission and Hydraulic Oil or equivalent oil to bring oil level to top mark on dipstick.

NOTE: Types of oil not meeting our specifications will not give satisfactory service and may result in eventual damage.

SYNCHRONIZED TRANSMISSION

1. Check transmission for proper operation.
2. While driving tractor, shift transmission through all gears. If transmission does not function properly, refer to Section 50, Group 25 and 30.

DIFFERENTIAL LOCK

Check differential lock for proper operation. If you find any problem refer to Section 50, Group 35.

INDEPENDENT PTO

1. Check PTO operation. For this purpose, run engine and move PTO control lever to engaged and disengaged position. If PTO does not operate properly, refer to Section 50, Group 45.

HI-LO SHIFT UNIT

Check Hi-Lo shift unit as follows:

1. Operate tractor in both high and low ranges, carefully observing both operations.
2. Use the brakes to simulate a load condition on the tractor.
3. Low oil pressure will be indicated by disk pack slippage, which causes the clutch pack to become noisy.
4. A mechanical failure in the Hi-Lo shift unit will also be indicated by unusual noise.
5. If you find any problems, refer to Section 50, Group 20.

CREEPER TRANSMISSION

Check function of creeper transmission as follows:

1. Drive the tractor, disengage the clutch, engage creeper transmission and engage gears of range I and Reverse.
2. Refer to Section 50, Group 21 should a malfunction occur.

CLUTCH PEDAL

Tractors without SOUND-GARD Body

1. Check clutch pedal free travel. It should be approx. 25 mm (1 in.).
2. Make sure that clutch is fully disengaged before pedal contacts stop bracket. Adjust clutch pedal free travel, if necessary (see Section 50, Group 10.)

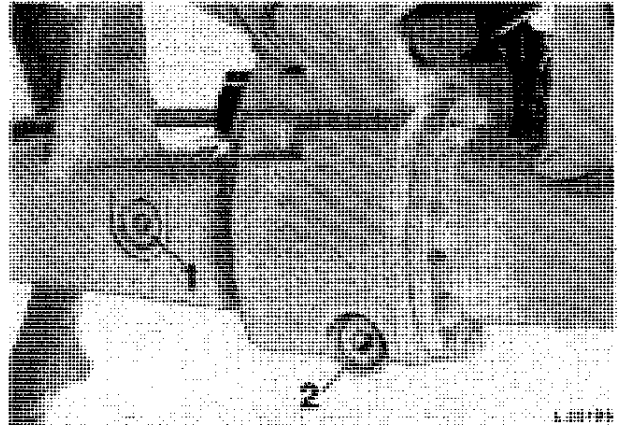
Tractors with SOUND-GARD Body

1. Depress clutch pedal until it contacts stop. When doing this the operating rod should move 8.5 to 12.0 mm (5/16 to 15/32 in.) out of clutch operating cylinder.
2. When necessary, bleed clutch operating system (see Section 50, Group 10).

MECHANICAL FRONT WHEEL DRIVE

Checking Axle Housing Oil Level

1. Remove level plug (1, Fig. 6). Oil should be level with plug bore.
2. If necessary, top up with oil, using oil as specified in Group 10 of this section.



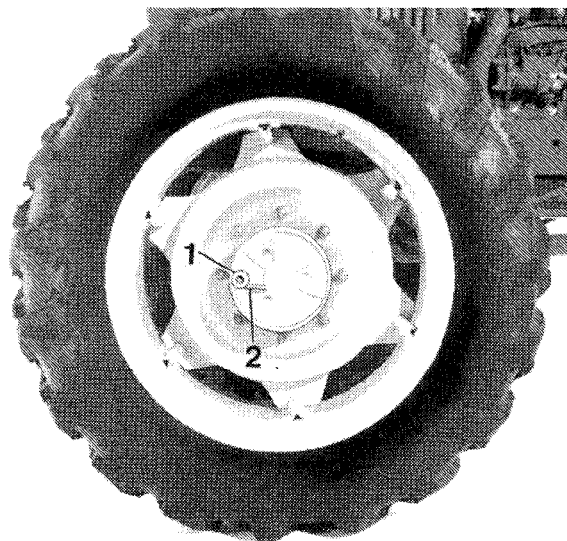
L35915

- 1—Level Plug
2—Drain Plug

Fig. 6 - Checking Axle Housing Oil Level

Checking Wheel Hub Housing Oil Level

1. Turn wheel until mark (2, Fig. 7) is in level position.
2. Remove level plug (1). Oil should be level with plug bore.



L 35196

L35196

- 1—Level Plug
2—Oil Level Mark

Fig. 7—Checking Wheel Hub Housing Oil Level

3. Add oil, if necessary, using EP transmission oil as specified in Group 10 of this section.

Four Wheel Drive Operation

1. Check four wheel drive for proper operation. If you find any problems, refer to Section 50, Group 50.

Steering and Brakes

STEERING

1. Check steering system for proper operation. In case of a malfunction, refer to Section 60, Group 05.

BRAKES

1. Check footbrakes and handbrake for proper operation. Adjust brakes, if necessary. Refer to Section 60, Group 10 if a malfunction occurs.

Hydraulic System

LEAKS

Check entire hydraulic system for leaks. Repair components when necessary.

ROCKSHAFT

Check rockshaft operation. In case of a malfunction, refer to Section 70, Group 20.

SELECTIVE CONTROL VALVES

Check operation of selective control valves.

THREE-POINT HITCH

1. Install and/or adjust draft links and center link (see Operator's Manual).

Miscellaneous

WHEEL BOLTS

1. Tighten all wheel bolts to the specified torque. See Section 80, Group 10.

TIRE PRESSURES

1. Check tire pressures (see Operator's Manual).

TREAD WIDTH

1. Adjust tread width to customer's needs (see Operator's Manual).

TOE-IN

Check toe-in and adjust, if necessary (see Section 80, Group 05).

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