2350 and 2550 Tractors

JOHN DEERE

TECHNICAL MANUAL

2350 and 2550
Tractors

TM4403 (01MAY85) English

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TM4403 (01MAY85)

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ENGLISH

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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.)

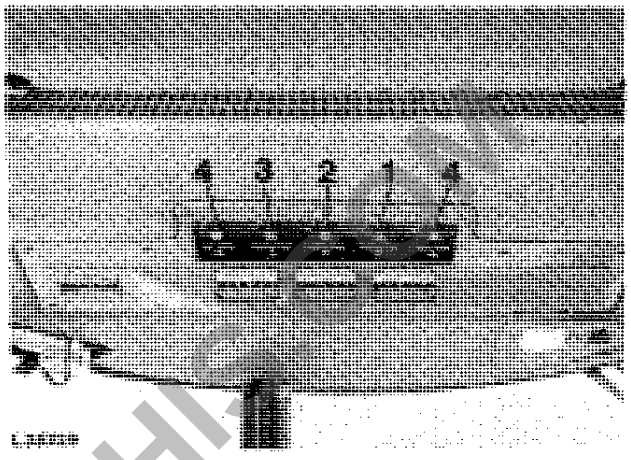
2. Check headlight adjustment and correct, if necessary. (See Section 40, Group 20.)

SOUND-GARD Body Controls

Fan Switch

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

Heater Switch



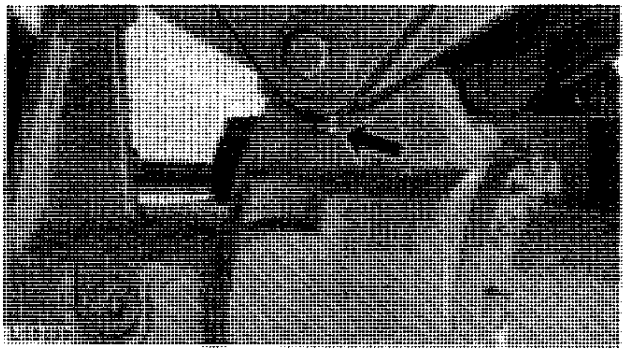
L35229

1—Heater Switch
2—Fan Switch
3—Thermostat Switch (Air Conditioning)
4—Windshield Wiper Switch

Fig. 4—SOUND-GARD Body Controls

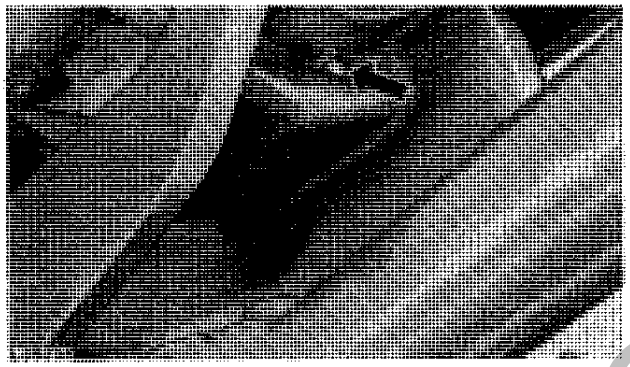
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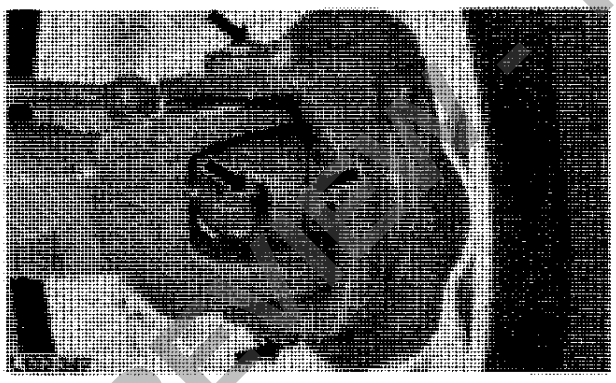
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Fig. 18 - Front Axle Carrier Grease Fitting



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Fig. 19 - Oscillating Support Grease Fitting



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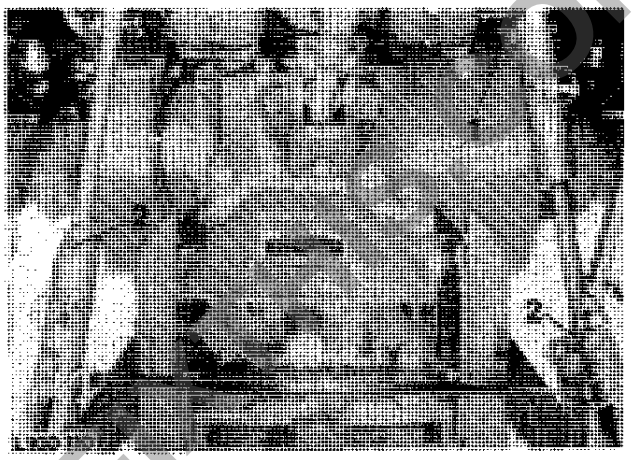
Fig. 20 - Front Axle Grease Fittings

Service Interval: At predelivery, when operating in wet and muddy conditions every 10 hours, otherwise every 50 hours.

LUBRICATING THREE-POINT HITCH

1. Lubricate lift link oiler (1, Figs. 21) using engine oil.

2. Lubricate lift link grease fittings with several strokes of grease gun, using John Deere EP multipurpose or SAE Ep multipurpose grease.



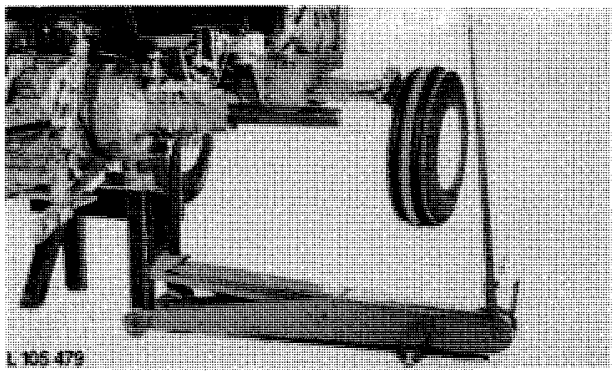
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1—Oiler
2—Grease Fittings

Fig. 21 - Lift Link Grease Fittings
(Tractor with SOUND-GARD Body Shown)

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Fig. 13—Holding Device Installed

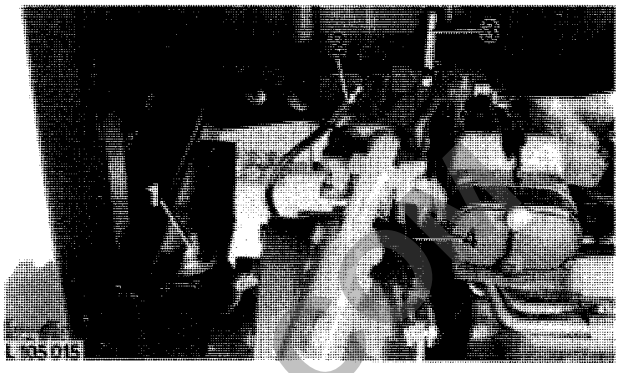
23. Insert device in bore of a suitable trolley jack (see Fig. 13).

Removal of Left-Hand Final Drive Assembly

IMPORTANT: When removing the left-hand final drive assembly, the right-hand final drive assembly must be attached to the transmission. This to prevent the SOUND-GARD body from tilting (Danger of Accidents!).

24. Remove cap screw 1 (Fig. 25) from front, left-hand cab mounting.

25. Disconnect left-hand brake hose 2 (Fig. 14) at elbow fitting of final drive. Plug open ends with plastic plugs.



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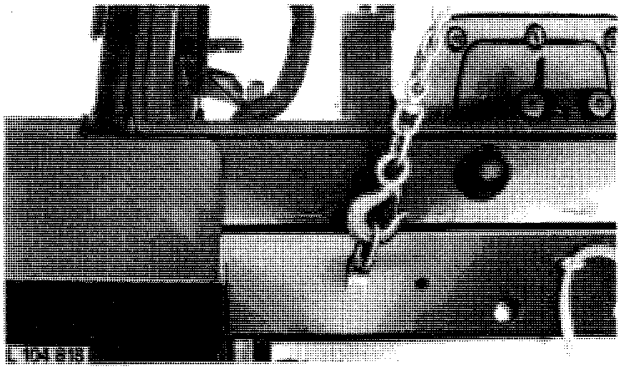
1—Hex. Nut
2—Brake Hose
3—Connecting Rod
4—Handbrake Rod

Fig. 14—Disconnecting Parts, Rear Left-Hand

26. Disconnect connecting rod 3 (Fig. 14) of differential lock at upper bore.

27. Remove clamp from handbrake rod 4.

28. Remove hex. nut 1 of rear, left-hand cab mounting.



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Fig. 15—Lifting Eye, Attached

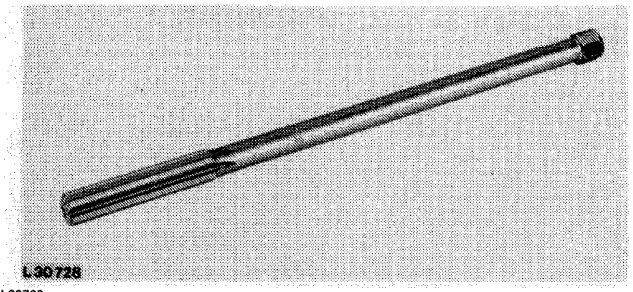
29. Secure a suitable lifting eye to left-hand rear cab panel as shown in Fig. 15.

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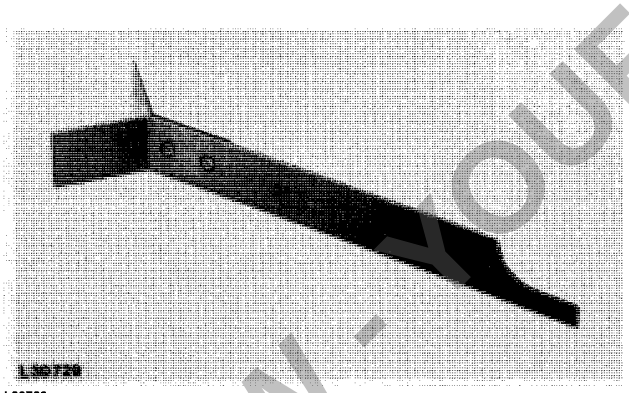
SPECIAL TOOLS

CYLINDER HEAD, VALVES, CAMSHAFT AND BALANCER SHAFTS

Tool	Description and Part No.	Use
 L30728	Cleaning tool JDE-39	Cleaning cylinder head bores for fuel injection nozzles

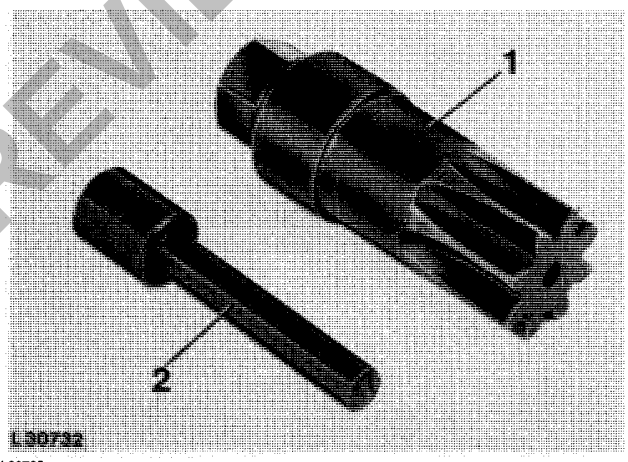
L30728

Fig. 1 — Cleaning Tool

 L30729	Timing tool JD-254	Timing gears of timing gear train

L30729

Fig. 2 — Timing Tool

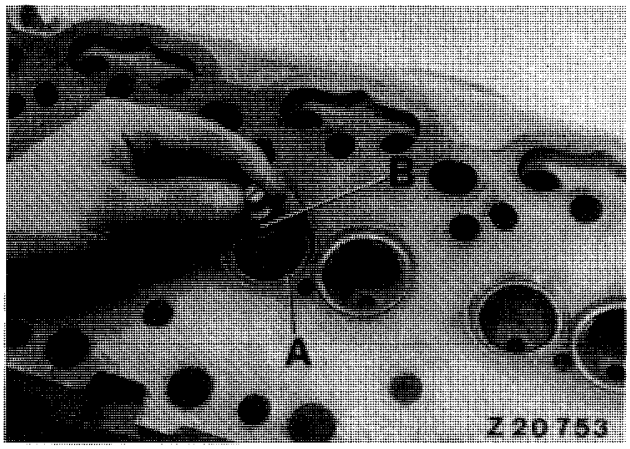
	1 Flywheel rotation tool JDE-83 2 Timing pin JDE-81-4	Rotating engine flywheel when timing the engine

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Fig. 3 — Special Tool

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A—Valve Guide
B—Telescope Gauge

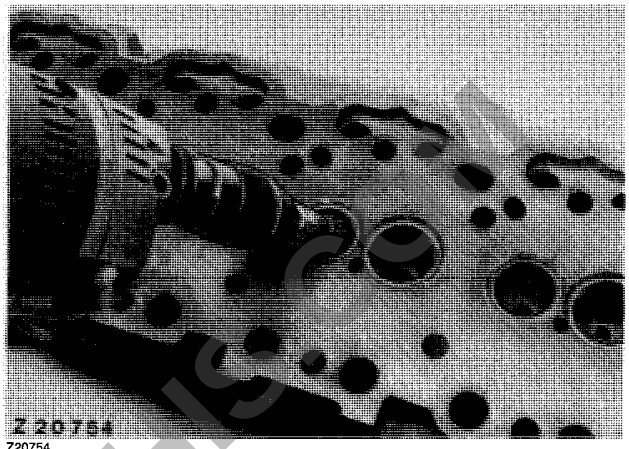
Fig. 7 - Checking Valve Guide

2. Measure valve guides for wear as shown in Fig. 7.

I.D. of guide bore in a new head	9.51 to 9.53 mm 0.374 to 0.375 in.
New guide-to-valve stem clearance	0.05 to 0.10 mm 0.002 to 0.004 in.
Max. permissible clearance	0.15 mm 0.006 in.

NOTE: Worn guides can allow a clearance of 0.15 mm (0.006 in.) and still be acceptable. If clearance exceeds 0.15 mm (0.006 in.) install oversize valves.

Cleaning Valve Seats



Z20754

Fig. 8 - Cleaning Valve Seats

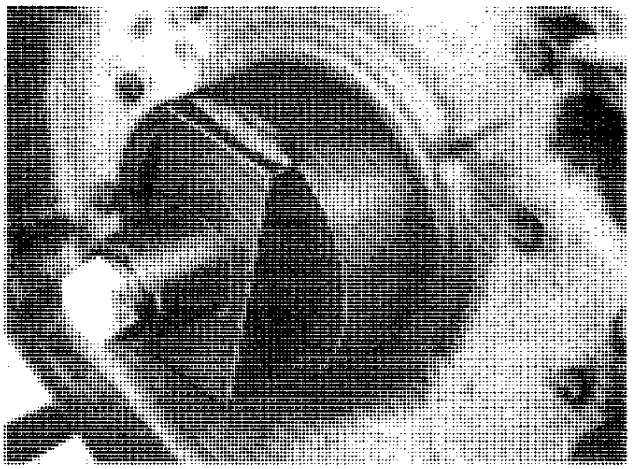
1. Use an electric hand drill with wire cleaning brush (Fig. 8) and remove all carbon.

2. Check valve seats for cracks, pitting, or excessive wear.

3. If necessary, recondition valve seat by grinding.

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R79261D1

Fig. 9 - Oil Seal and Wear Ring Installed

7. Position JDE-140 driver (Fig. 9) over pilot plate and install cap screw. Tighten cap screw until driver bottoms on pilot plate.

IMPORTANT: When assembling, be careful not to nick or damage polished wear ring surface (sealing face for oil in flywheel housing.

FINAL INSTALLATION

1. Install flywheel (see page 2).

2. Install pistons and connecting rods (see Group 15).

3. Install cylinder block front plate and timing gears (see Group 25).

4. Install oil pump (see Group 30).

5. Install timing gear housing with new crankshaft oil seal (see Group 25).

6. Install oil pan.

7. Install cylinder head (see Group 10).

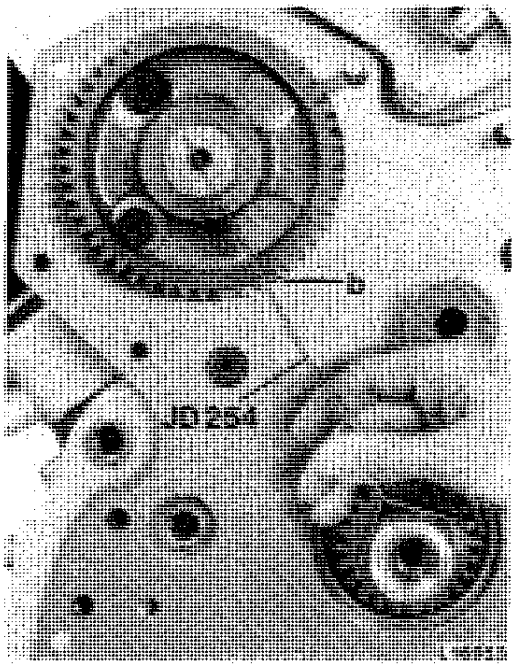
8. Install V-belt pulley, tightening attaching screw to 120 N·m (85 lb-ft) torque.

9. Install engine (see Section 10, Group 20).

10. Fill crankcase with oil of proper viscosity (see Section 10, Group 10). Fill cooling system (see Group 35).

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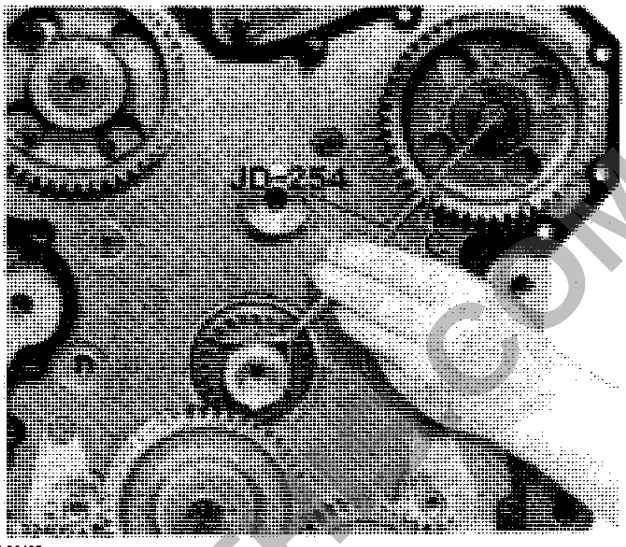
b—Timing Mark

Fig. 7 - Timing Camshaft Gear, Using Timing Tool No. JD 254

5. With the crankshaft set at TDC (see Step 4), align timing mark stamped onto camshaft gear (see "b", Fig. 7) with center of crankshaft as shown in Fig. 7, using timing tool No. JD 254.

6. With the crankshaft set at TDC (see Step 4), align timing mark (see "c", Fig. 8) stamped onto injection pump gear with center of crankshaft as shown in Fig. 8, using timing tool No. JD 254.

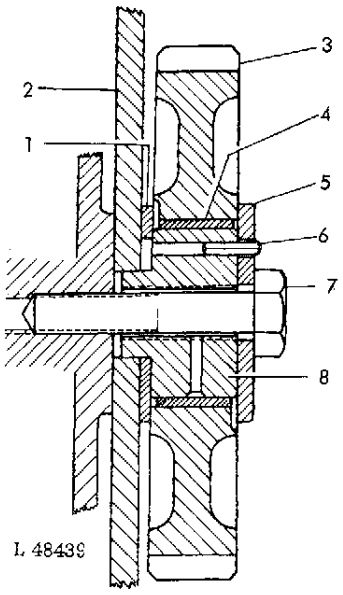
IMPORTANT: Use timing mark indicating number of cylinders on respective engine.



L32405

c—Timing Mark

Fig. 8 - Timing Injection Pump Gear, Using Timing Tool No. JD 254



L48439

1—Rear Thrust Washer
2—Front Plate
3—Idler Gear
4—Idler Gear Bushing
5—Front Thrust Washer
6—Spring Pin
7—Cap Screw
8—Shaft

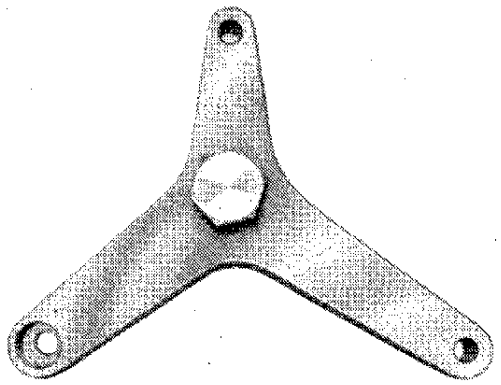
Fig. 9 - Upper Idler Gear Installed, Sectional View

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SPECIAL TOOLS

Fuel Injection Pump

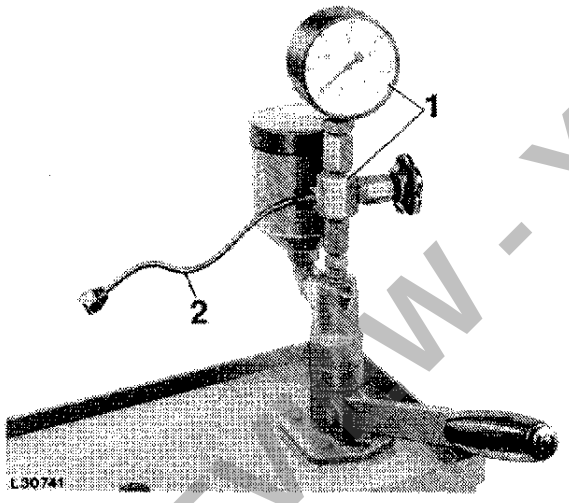
Tool	Description and Part No.	Use
	JDG-275 (*KJD 10108)	Removal of fuel injection pump

L32344

L32344

Fig. 1—Special Tool

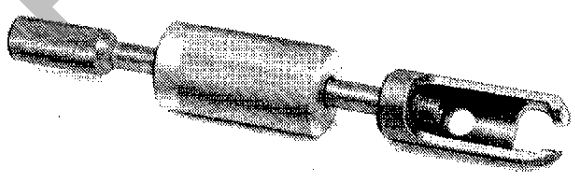
Fuel Injection Nozzles



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Fig. 2—BOSCH Nozzle Tester



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Fig. 3—Sliding Hammer Puller

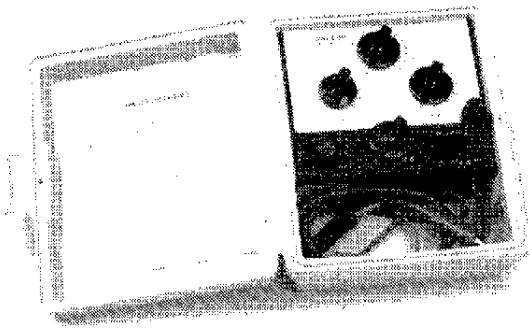
1.	BOSCH nozzle tester JT25510 (OR EFEP 60 A)	Testing injection nozzles
	BACHARACH nozzle tester 65-030 D (not illustrated)	Testing injection nozzles
2.	Pressure line KJD 10109	Injection nozzle to BOSCH tester
	SERVICE TOOLS nozzle tester D-01109 AA (not illustrated)*KJD10109	Testing injection nozzles
	SERVICE TOOLS adapter set D-01110 AA (not illustrated)*KJD10110	Injection nozzle to SERVICE TOOLS tester
	Sliding hammer puller JDE 38	Removing nozzles

*Asterisk tool numbers available as alternate tools for Canadian use.

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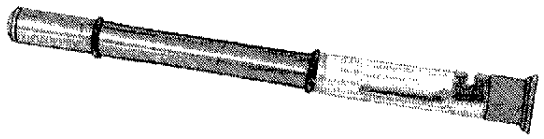
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TOOL NUMBER	USE
JTO1633 Universal Gauge Tester	Test fuel gauge, water temperature gauge, engine oil pressure gauge, and their senders.



RW7658

Fig. 2 - JTO-1633 Universal Gauge Tester

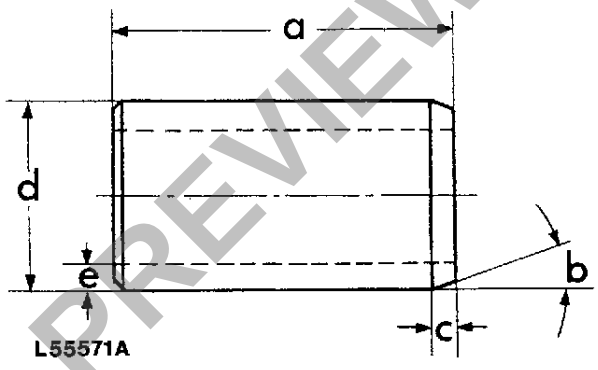


R 26415N

R26415N

Fig. 3 - JDST-28 Belt Tensioning Tool

JDST-28 Belt Tensioning Tool is used for checking fan belt tension.



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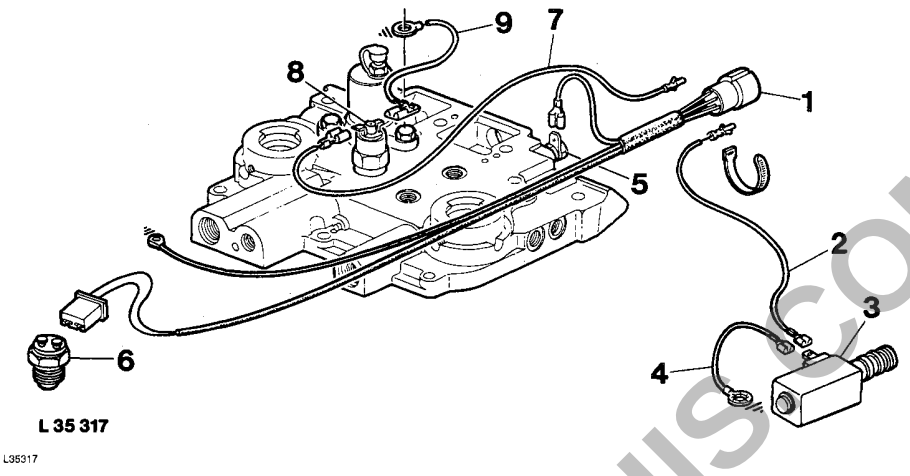
Fig. 4 - Mandrel to Install Field Windings

Manufacture to the following specifications:

a—85 mm (3.35 in.)
b—5° Chamfer
c—12 to 14 mm (0.47 to 0.55 in.)
d—75.80 to 75.85 mm (2.984 to 2.986 in.)
e—12 to 15 mm (0.47 to 0.59 in.)

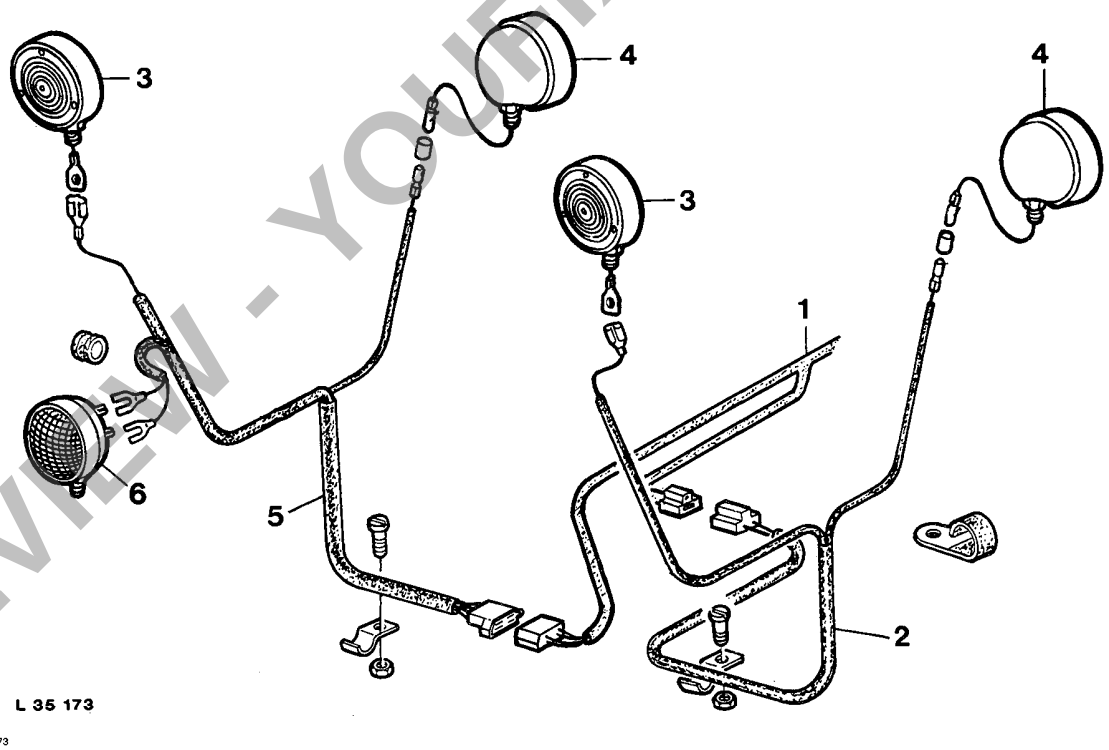
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1—Transmission Wiring Harness
2—Cable
3—Solenoid (Front Wheel Drive)
4—Ground Cable
5—Transmission Oil Pressure Warning Switch
6—Start Safety Switch
7—Cable
8—Sending Unit for Hi-Lo Shift Unit Control Light
9—Ground Cable

Fig. 4 - Transmission Wiring Harness (Tractors with SOUND-GARD Body)



1—Dash Wiring Harness (See Fig. 2)
2—Wiring Harness
3—Hazard Warning Lights
4—Front Headlights
5—Wiring Harness
6—Taillight and Worklight

Fig. 5 - Fender Wiring Harness (Tractors without SOUND-GARD Body)

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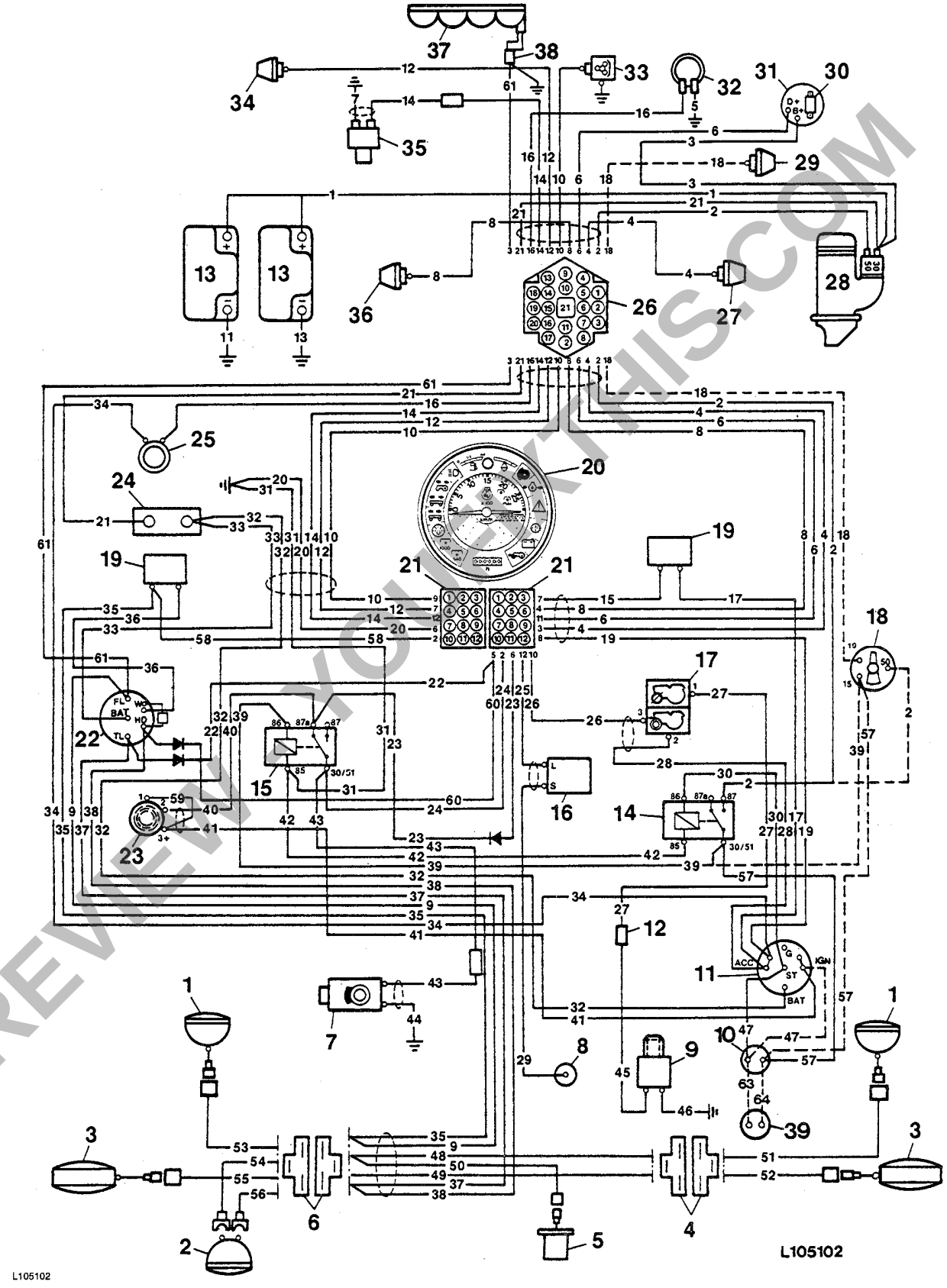
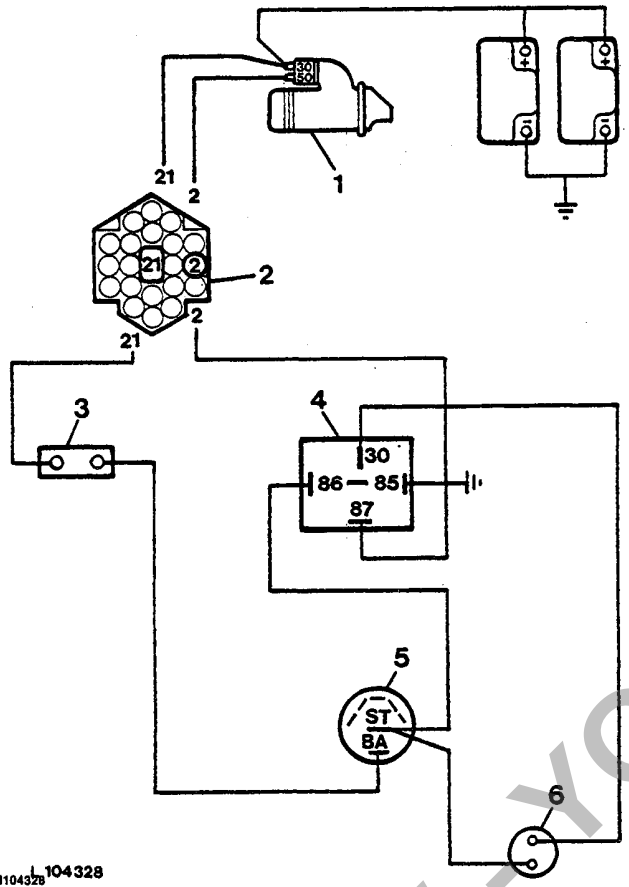


Fig. 1—Wiring Diagram Tractors without Sound-Gard Body

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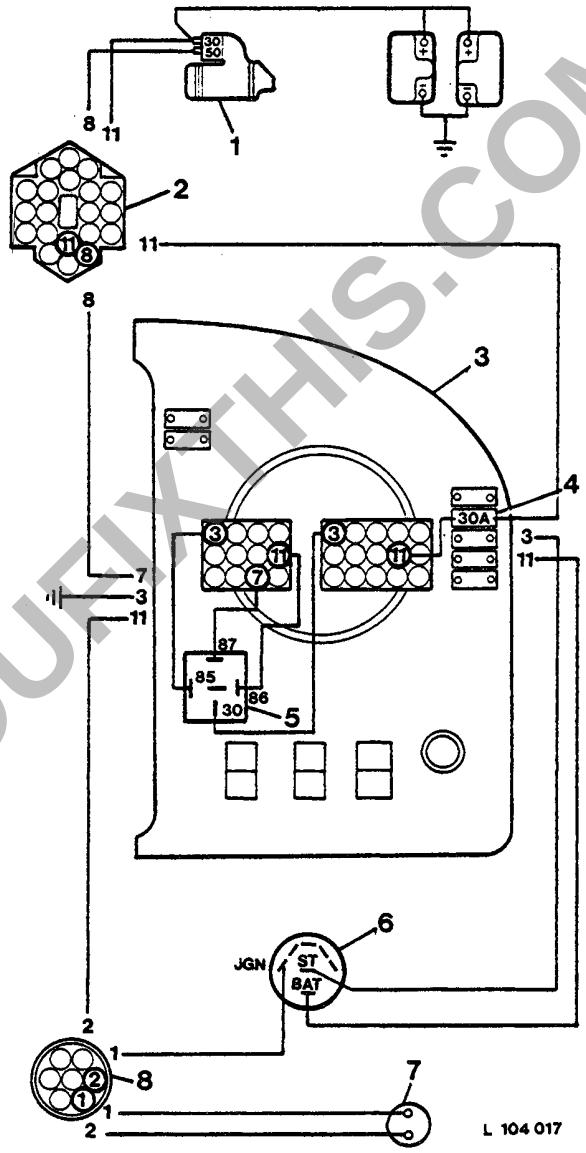
Starting Circuit



I104328 L 104328

1—Starter
2—Plug
3—20 Amp Circuit Breaker
4—Starter Circuit Relay
5—Key Switch
6—Neutral Start Switch

Fig.11 - Starting Circuit
(On Tractors Without SOUND-GARD Body)



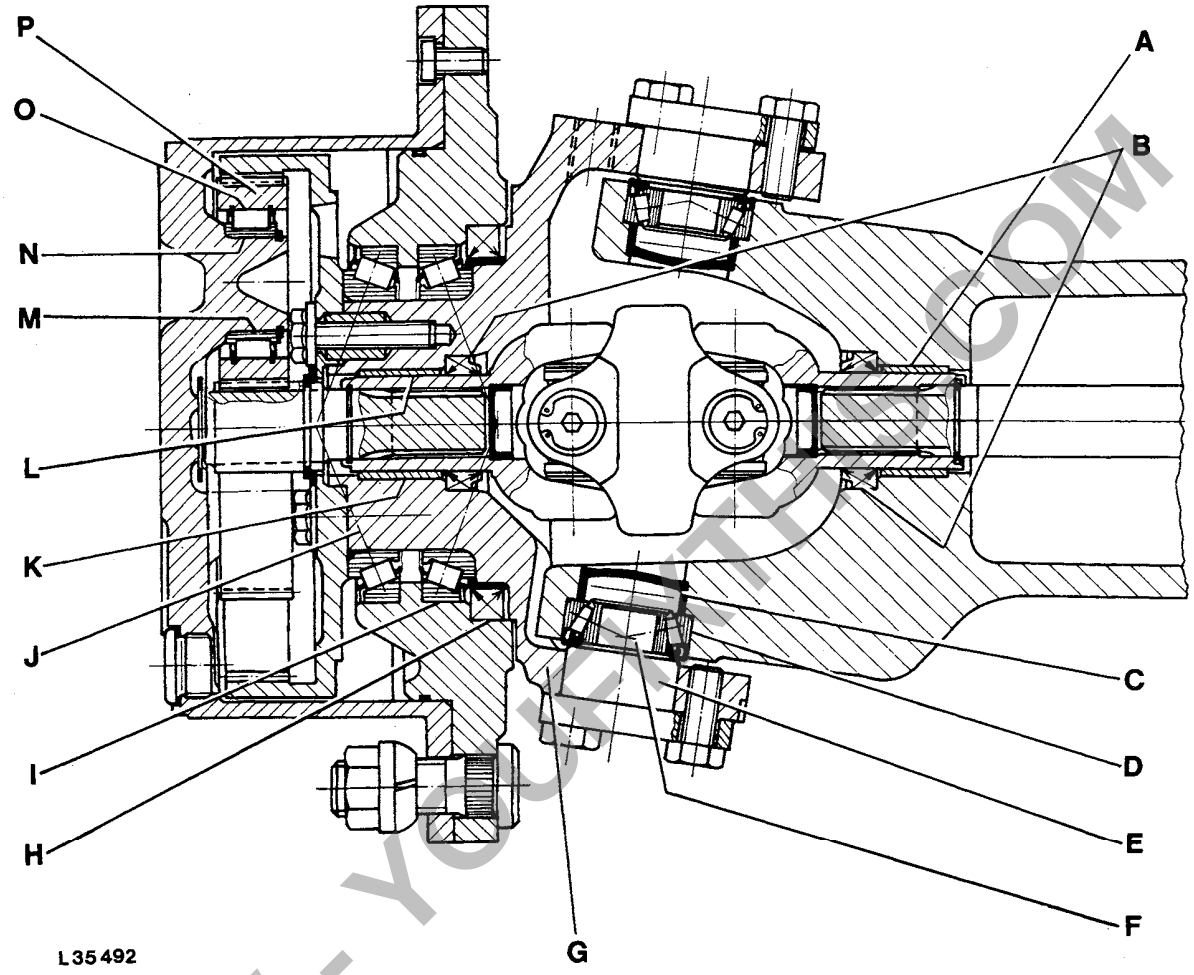
L104017

1—Starter
2—Plug
3—Right-Hand Control Light Panel
4—30 Amp Circuit Breaker
5—Starter Circuit Relay
6—Key Switch
7—Neutral Start Switch
8—Plug

Fig. 12 - Starting Circuit
(On Tractors With SOUND-GARD Body)

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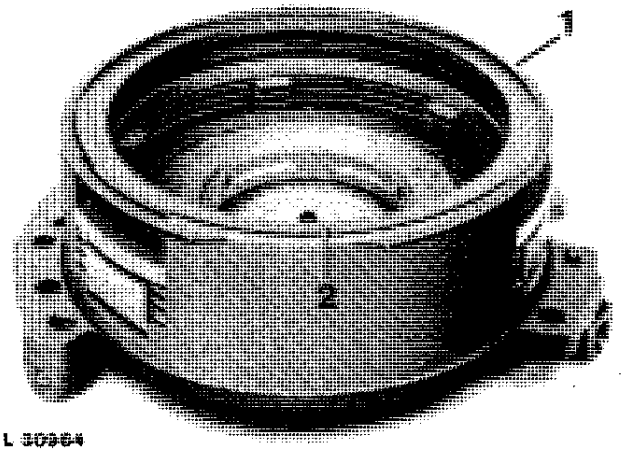


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Fig. 1 - Measurements of Planetary Drive, Axle Knuckle Housing, and axle Bridge Housing

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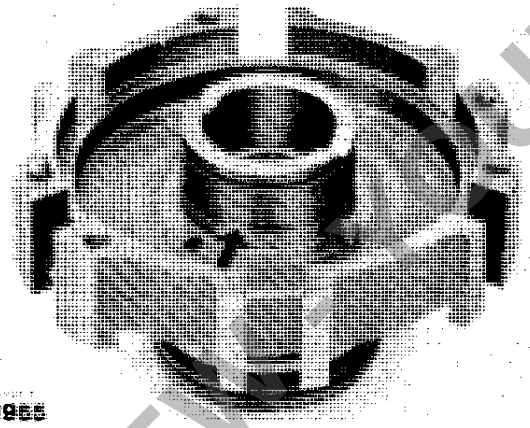
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L30984

1—Snap Ring
2—Brake Cupped Springs

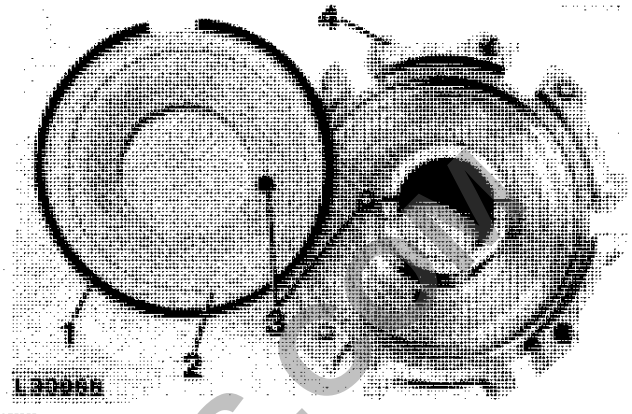
Fig. 19 - Installing Snap Ring in Brake Housing



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Fig. 20 - Packing in Clutch Drum

5. Install packing in clutch drum (Fig. 20). Make sure it is not twisted.

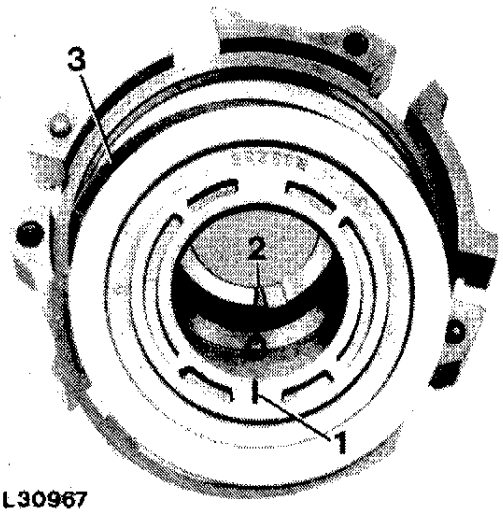


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1—Piston Ring
2—Piston
3—Dowel and Hole
4—Clutch Drum

Fig. 21 - Piston and Clutch Drum

6. Install piston ring (1, Fig. 21) on piston (2). Note dowel and hole (3) for alignment of piston in clutch drum (4).



L30967

1—Mark
2—Mark
3—Piston Ring

Fig. 22 - Installing Piston

7. In order to ease assembly of piston, align dowel with hole in piston and make a light scribe mark (1 and 2, Fig. 22) on clutch drum in line with dowel and on piston in line with hole.

8. Compress piston ring (3) by hand and insert piston into drum.

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GEAR SHIFT LEVER

1. Align notch (3, Fig. 6) of inner shift lever with notch (4) of outer shift lever.

2. Adjust notches (1 and 2) of shift levers to align with slot (2) of shift console.

3. Adjust yokes (2, Fig. 3).

4. Secure adjustment with clip (1, Fig. 3).

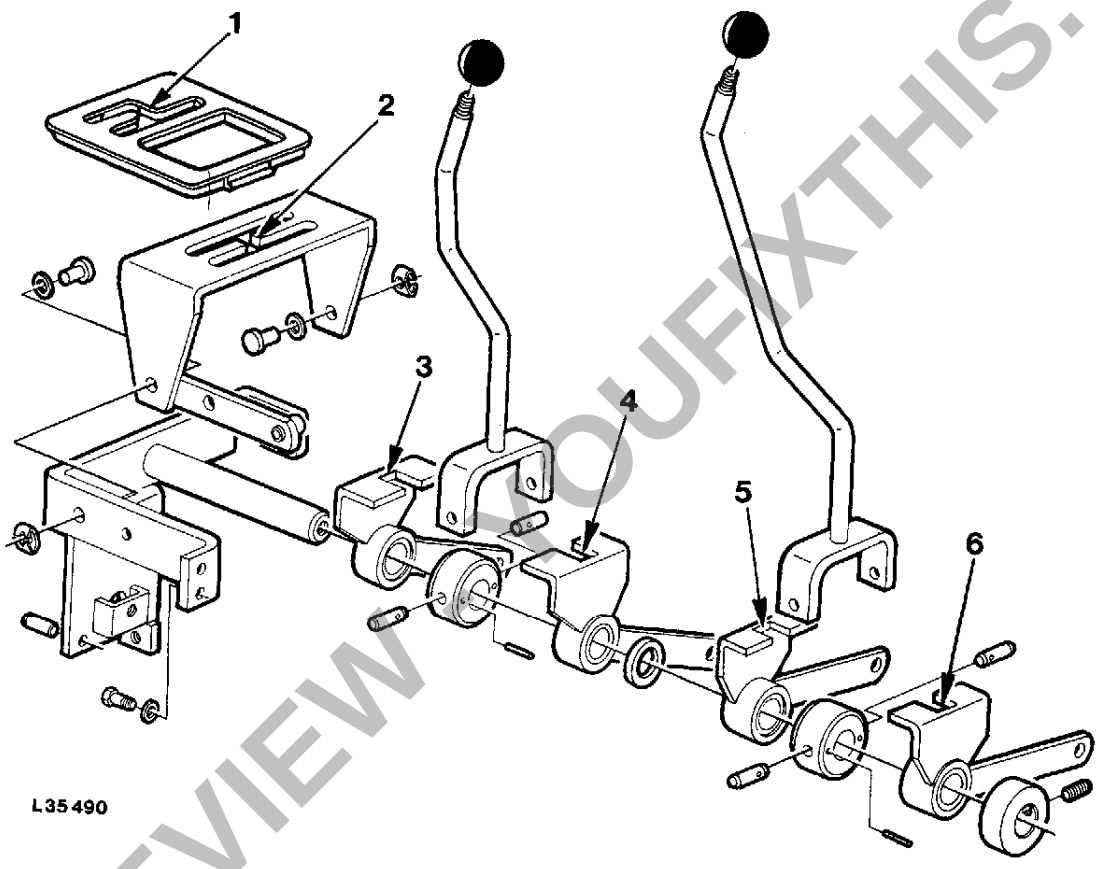
RANGE SHIFT LEVER

1. Align notch (5, Fig. 6) of inner shift lever with notch (6) of outer shift lever.

2. Adjust notches (5 and 6) of shift levers to align with slot (1) of shift console.

3. Adjust yokes (2, Fig. 3)

4. Secure adjustment with clip (1, Fig. 3).

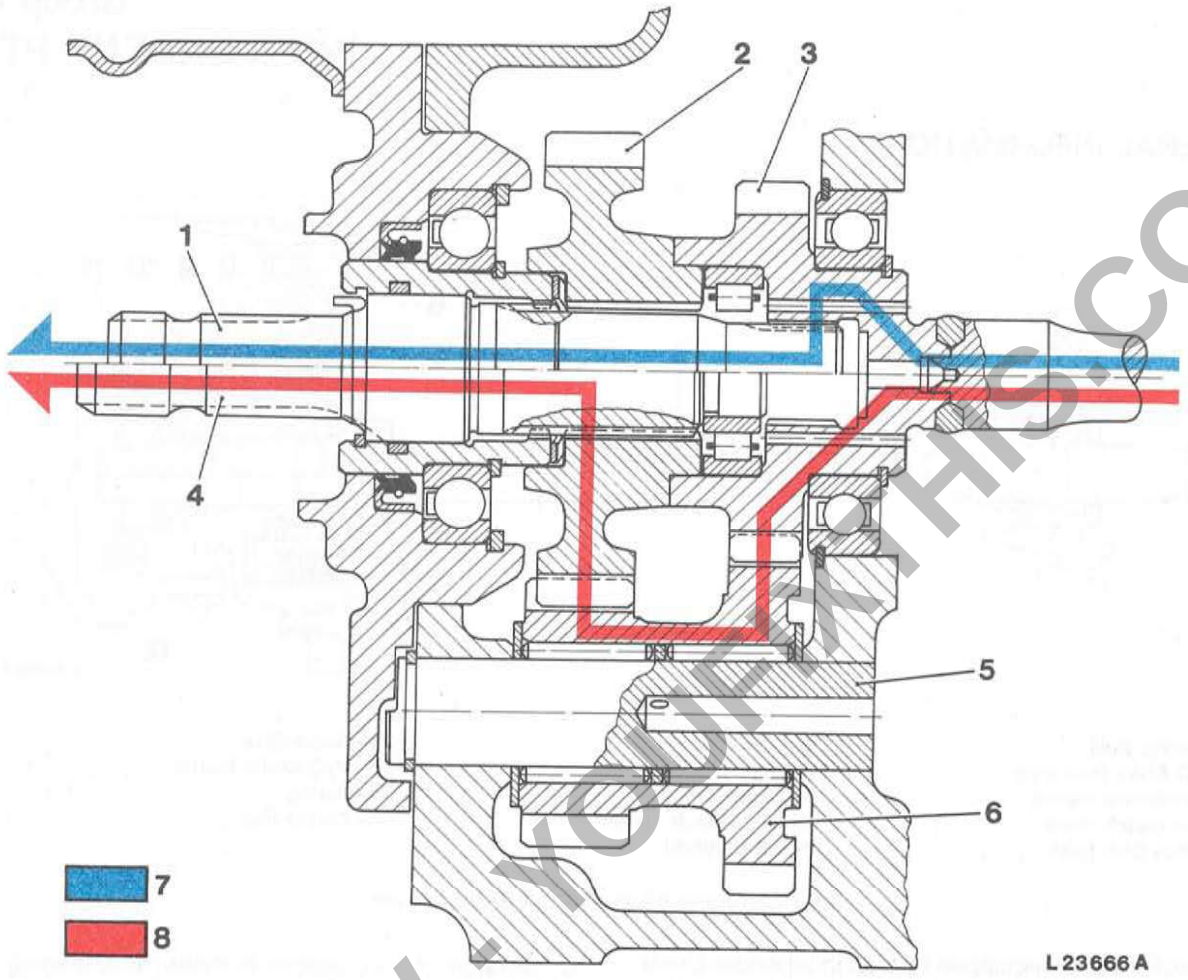


1—Range Shift Lever Console Slot
2—Gear Shift Lever Console Slot
3—Inner Shift Lever Notch
4—Outer Shift Lever Notch
5—Inner Shift Lever Notch
6—Outer Shift Lever Notch

Fig. 6 - Lever Alignment

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1—PTO Stub Shaft (1000 rpm)
2—Drive Gear
3—PTO Shaft with Gear
4—PTO Stub Shaft (540 rpm)
5—Countershaft
6—Double Gear
7—1000 rpm PTO Power Flow
8—540 rpm PTO Power Flow

Fig. 2 - 540 and 1000 rpm PTO with Interchangeable Stub Shaft

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SPECIAL TOOLS

HYDROSTATIC STEERING

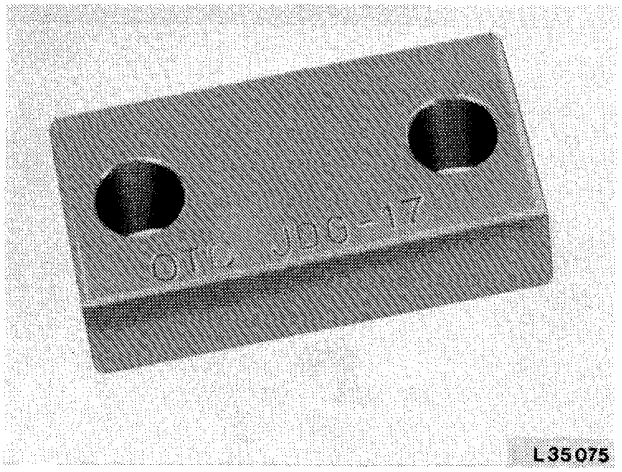
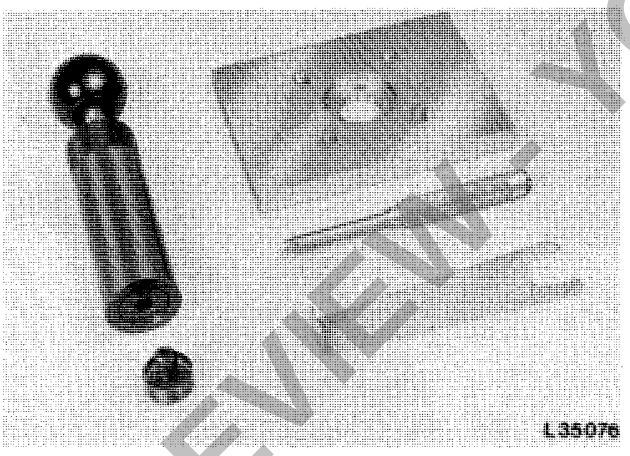
Tool	Description and Part No.	Use
 L35075	Puller JDG-17	Removal of steering wheel (tractors with Sound-Gard Body)
 L35076	Special fixture device KML 10018	Disassembling and assembling steering valve assembly in a vise

Fig. 1 - Puller

Fig. 2 - Special Fixture Device

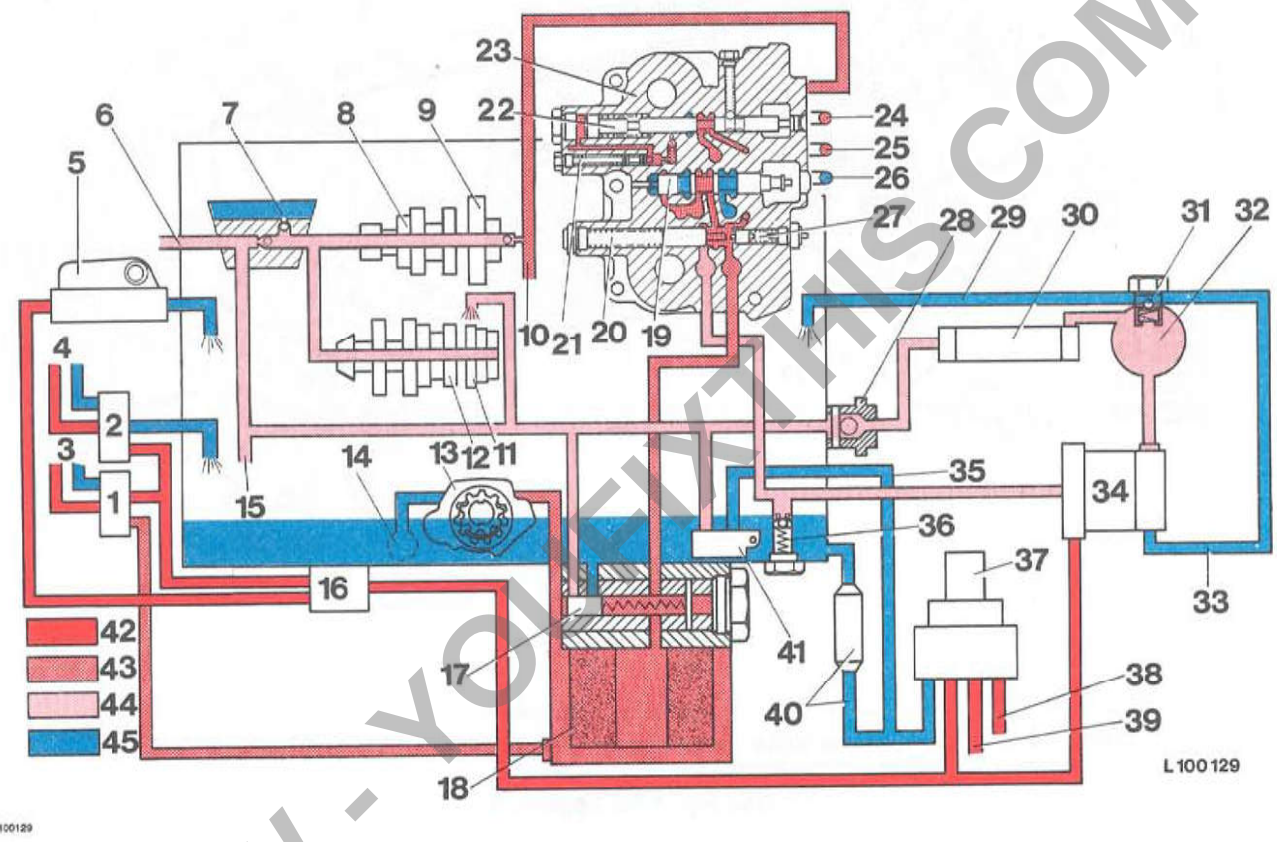
**Tool numbers in parenthesis are alternate tools for Canada only. Otherwise order tools through your Service-Gard catalog.*

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Group 05

DESCRIPTION, DIAGNOSING MALFUNCTIONS AND TESTS



L100129

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 Hydrostatic 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—Suction Line (with SOUND-GARD Body only)
36—Surge Relief Valve
37—Hydrostatic Steering
38—To Steering Cylinder (Left-Turn)
39—To Steering Cylinder (Right-Turn)
40—Oil Filter with Suction Line (without SOUND-GARD Body only)
41—Brake Valve
42—High Pressure Oil
43—Low Pressure Oil
44—Oil to Hydraulic Pump or Lubricating Oil
45—Pressure-Free Oil

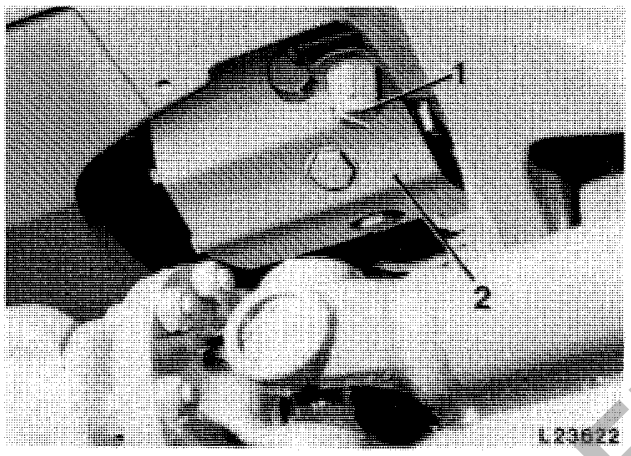
Fig. 1 - Complete Hydraulic System (Tractor with Hi-Lo Shift Unit, Mechanical Front Wheel Drive, Independent PTO and Hydrostatic Steering)

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ADJUSTMENT

1. Install a high pressure gauge as explained in Group 05 (see tests 18 and 19).

2. Set all hydraulic controls in neutral and place the transmission range shift lever in neutral position, apply handbrake. Start engine and run at 2000 rpm.



L23622

1—Adjusting Screw
2—Hydraulic Pump

Fig. 18 - Stroke Control Valve Adjusting Screw

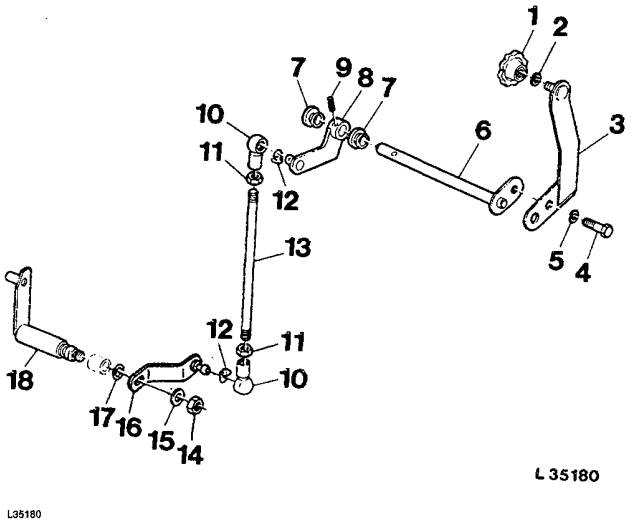
3. Back off stroke control valve adjusting screw (1, Fig. 18) until spring pressure on screw is completely relieved. Then turn adjusting screw in until pressure gauge shows specified stand-by pressure of 15500 kPa (155 bar) (2250 psi). Hold adjusting screw and tighten lock nut to 60 N·m (45 lb-ft) torque.

4. Run engine for approx. 5 to 10 minutes, then recheck adjustment.

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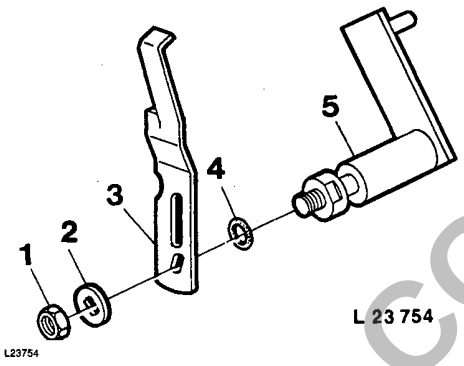
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ROCKSHAFT SELECTOR LEVER AND QUADRANT



1—Lever Knob	10—Ball Joint Connector
2—Washer	11—Hex. Nuts
3—Selector Lever	12—Safety Strap
4—Cap Screw	13—Rod
5—Spring Washer	14—Hex. Nut
6—Lever Shaft	15—Washer
7—Bushings	16—Lever
8—Lever	17—O-Ring
9—Spring Pin	18—Lever Shaft

Fig. 8 - Selector Lever and Linkage, Exploded View (Tractors with SOUND-GARD Body)



1—Hex. Nut	3—Selector Level
2—Special Washer	4—O-Ring
	5—Lever Shaft

Fig. 9 - Exploded View of Selector Lever and Linkage (Tractors Without SOUND-GARD Body)

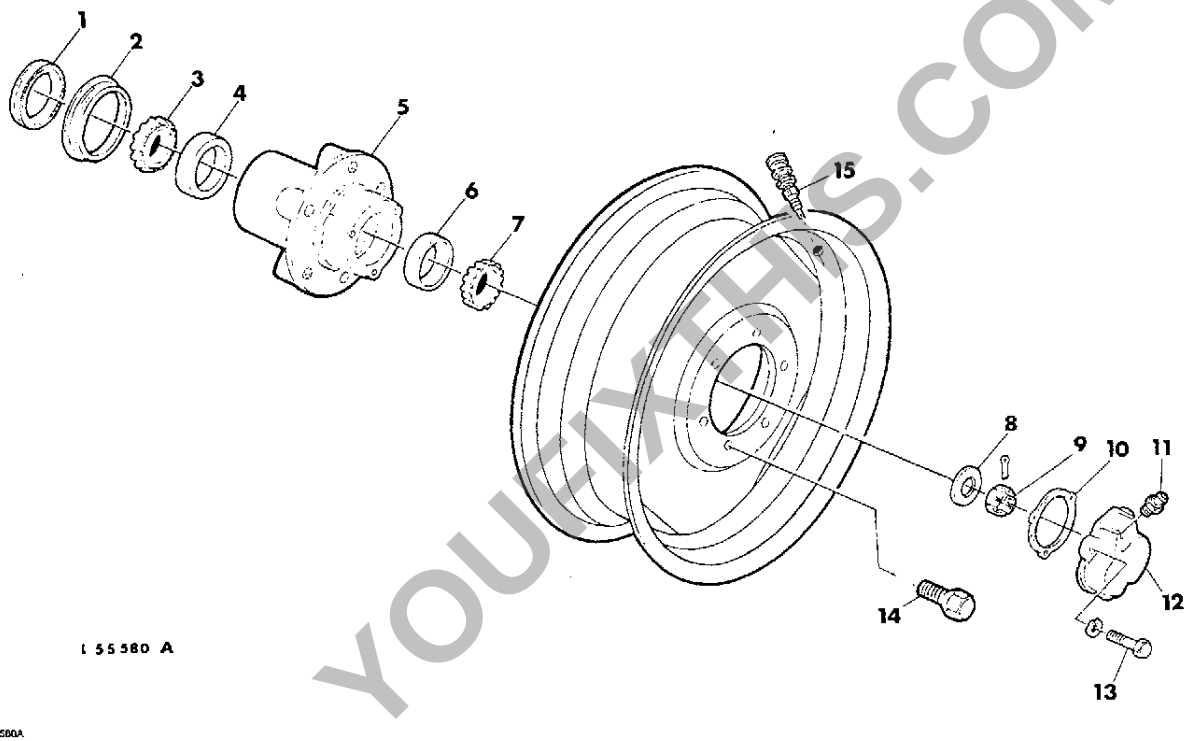
Check selector lever shaft for deformation and replace, if necessary. Check all other parts (see Figs. 8 and 9) for serviceability and replace, if necessary.

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Group 10
FRONT AND REAR WHEELS

FRONT WHEELS



L55580A

1—Oil Seal	**5—Hub**	**9—Slotted Nut**	**13—Cap Screw (3 used)**
2—Collar	**6—Tapered Roller Bearing Cup**	**10—Gasket**	**14—Wheel Bolt (6 used)**
3—Tapered Roller Bearing Cone	**7—Tapered Roller Bearing Cone**	**11—Grease Fitting**	**15—Valve (with tubeless tires only)**
4—Tapered Roller Bearing Cup	**8—Washer**	**12—Hub Cap**	

Fig. 1 - Exploded View of Front Wheel

REPAIR

1. Remove hub cap (12, Fig. 1). Raise front of tractor and support safely.

2. Remove front wheel with hub.

3. Clean all parts check bearing cups and cones for damage or excessive wear.

NOTE: The front hubs have slots to facilitate removal of bearing cups.

4. If oil seal (1) has scored collar (2) or if bearing grease is dirty, drive collar out of hub. Replace collar as well as oil seal.

IMPORTANT: The oil seal will seal effectively only if sealing face is completely smooth and free of scores.

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Group 25
WIRING DIAGRAMS

Wiring Diagram on Tractors without SOUND-GARD Body

The individual components of the electrical system are identified by the following numbers:

1—Headlights
2—Work Light Combined with Tail Lights
3—Warning Lights
4—Connector, Right-hand
5—Socket for Handlamp
6—Connector, Left-hand
7—Sending Unit for Handbrake Control Light
9—Transmission Oil Pressure Warning Switch
9—Solenoid for MFWD*
10—Neutral Start Switch
11—Main Switch
12—Connector
13—Batteries
14—Relay for Handbrake Control Light
15—Relay for Handbrake Control Light
16—Time Delay Switch for Transmission Oil Pressure
17—Toggle Switch for MFWD*
18—Start Switch**
19—Flasher
20—Instrument Cluster
21—Plug
22—Light Switch
23—Acoustical Handbrake Warning Signal
24—Circuit Breaker
25—Horn Button
26—Plug
27—Engine Oil Pressure Warning Switch
28—Starting Motor
29—Burner of Thermostart Aid**
30—Regulator
31—Alternator
32—Horn
33—Fuel Gauge Sending Unit
34—Air Cleaner Restriction Warning Switch
35—Magnetic Sender for Speed-Hour Meter
36—Coolant Temperature Gauge Sending Unit
37—Light Bar
38—Connector
39—Neutral Start Switch***

*** On tractors with MFWD only**
**** On tractors with Thermostart starting aid only**
***** On tractors without Thermostart starting aid only**
****** On tractors with Continuous Running PTO**

Cables and wires have different colors to facilitate identification. Each component and wire in the wiring diagram is identified by a number. From these numbers, which are indicated below and on the following pages, it is possible to establish the color, size and purpose of each wire or cable.

Cables and Wires				From			To	
No.	mm²	Gauge	Color	Component	No.	Terminal No.	Component	No.	Terminal No.
1	25	2	black	Batteries	13	"+"	Starting motor	28	30
2*	2.5	14	black	Starting motor	28	50	Relay for handbrake control light	14	87
3	8	12	red	Starting motor	28	30	Alternator	31	B+
4	1	16	light blue/ green	Engine oil pressure warning switch	27		Plug (engine oil pressure indicator light)	21	3
5	1	16	brown	Horn	32				Ground
6	1	16	blue	Alternator	31	D+	Plug (Alternator indicator light)	21	11
7	1	16	brown	Magnetic sender for speed-hour meter	35				Ground
8	1	16	green/ yellow	Coolant temperature gauge sending unit	36		Plug (Coolant temp- erature gauge)	21	4
9	1	16	blue	Light switch	22	FL	Connector, l.h.	6	

**** On tractors with Thermostart cold weather starting aid, wire 2 is connected to start switch 18, terminal no. 50.***

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ASSEMBLE HUB WITH HOLLOW RING GEAR

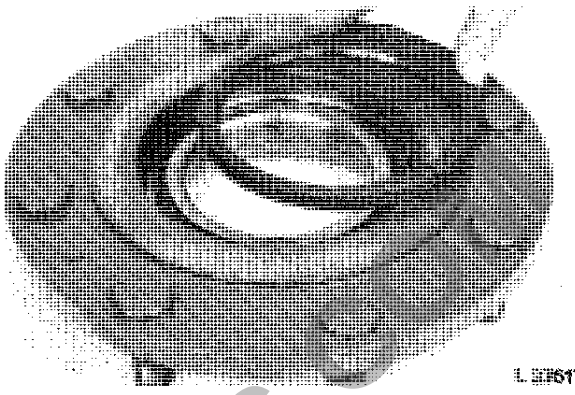
1. Drive bearing races for inner and outer bearings into corresponding seats of wheel hub.

2. Place the inner bearing cone in bearing race.

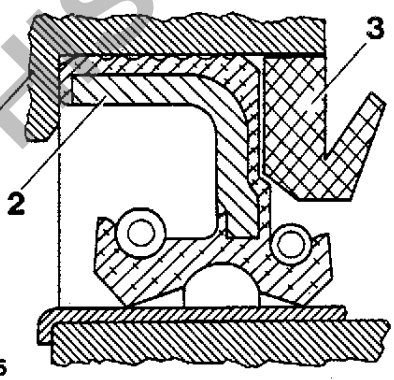
3. Drive seal ring (2) into wheel hub (1).

4. Install new wiper seal (3) into wheel hub.

NOTE: The bearing cone should have a loose fit on the hub carrier. In case you find a tight fit, first heat the cone, place it on the race, quickly drive seal ring in position and quickly install hub on carrier.



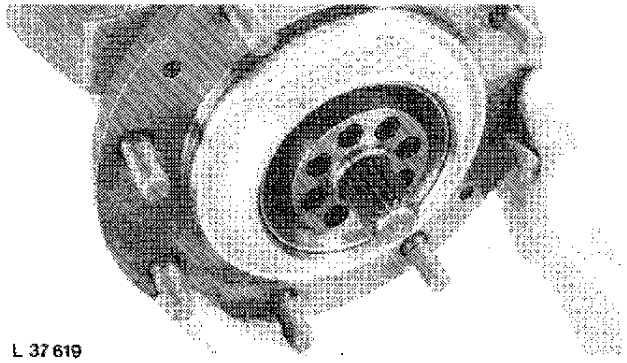
L 37617



L106 465

AN7;L37617,L10646 5 L52;5055 AE101K 150785

Install hub on hub carrier.

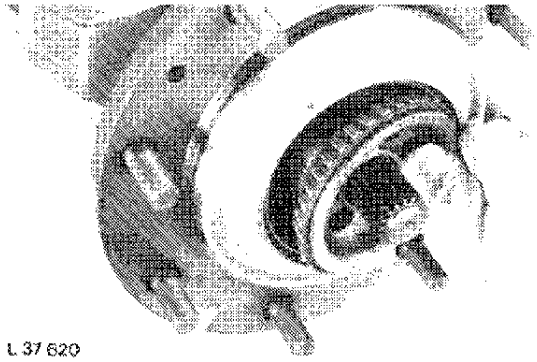


L 37 619

AN7;L37619 50L;5055 AE102 090982

Install outer bearing cone.

Heat bearing cone to max. 120° C (250° F) and install on hub carrier.



L 37 620

AN7;L37620 50L;5055 AE103 090982

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