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On Tractors with SG2 Cab

1. Remove radiator side grilles and panels.
2. Remove fuel tank filler cap, radiator cap, muffler and air-pre-cleaner (when equipped).
3. If necessary, disconnect turn-signal light cables at plug. Remove hood. Reinstall radiator and fuel tank caps.
4. Remove securing screw 1 (fig. 32) of rate-of-drop adjuster and lift out.
5. Disconnect the three steering hydraulic lines at union nuts 2 (fig. 30). Immediately plug openings with plastic plugs or caps.
6. Disconnect engine wiring harness plug 1 (fig. 30) at dash.
7. Remove both cap screws 1 (fig. 37) of adjusting mechanism at the cab.
8. Disconnect rockshaft operating lever link 1 (fig. 38) and system lever link 2.

IMPORTANT! To prevent bending of rockshaft operating linkage when lowering the SG2 cab, completely remove operating links.

9. *When equipped,* disconnect selective control valve connecting rods at the top and PTO hand-shift rod at the rear.
10. Remove both cap screws 1 (fig. 39) of stop bracket 5 (fig. 38) at rockshaft housing.

Removal of Right-Hand Final Drive Assembly

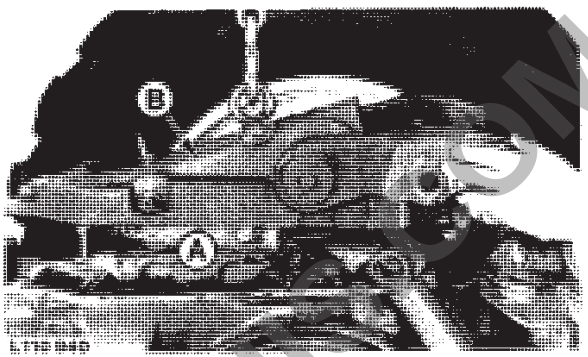
11. Remove cap screw 1 (fig. 41) of front right-hand cab mounting.
12. Disconnect brake hose 2 at upper elbow fitting.
13. *On Earlier Tractor Series:* Disconnect brake hose or *On Later Tractor Series:* Disconnect brake line at elbow fitting of right-hand final drive. Plug open ends with plastic plugs.
14. *On tractors with console shift:* Remove shift lever cover 1 (fig. 42).
15. *On tractors with console shift:* Disconnect connecting rods (see fig. 43).
16. Remove hex. nut 1 (fig. 44) of rear, right-hand cab mounting.
17. Remove selective control valves return line 4 (fig. 43). Plug open ends with plastic plugs.
18. Remove strap securing heater hoses to selective control valve lines.
19. Remove clamp from hydraulic lines leading to the quick couplers.

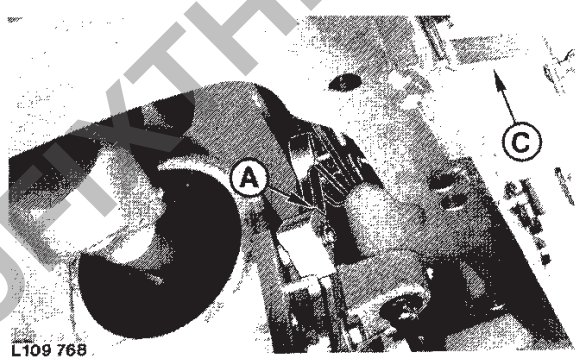
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INSTALLING ROCKSHAFT HOUSING

Position rockshaft housing (B) over transmission case with lifting gear. Press rockshaft selector lever (C) down and lower carefully, making sure that control linkage with roller slides along rockshaft cam (A).



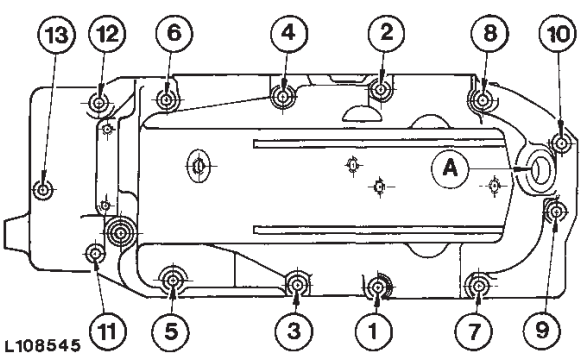


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TIGHTENING ATTACHING SCREWS

Tighten attaching screws in sequence shown. Tighten screws with 120 Nm (85 ft-lb).

A–Oil filler neck bore



L108545-LA11025AE-080885

FINAL ASSEMBLY

Complete assembly, reversing removal procedure.

Adjust rockshaft (see Section 70, Group 20).

IMPORTANT: Connect ground straps to negative poles of batteries.

TEILEZ-LA11025IE-080885

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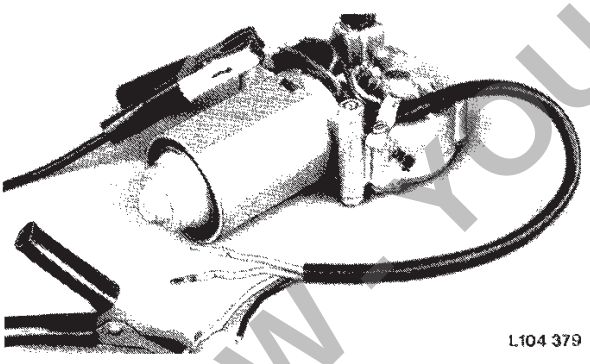
Windshield Wiper Motor

Connect ground wire to motor housing and connect battery voltage to motor terminal 53. Motor must turn at low speed. When connecting battery voltage to terminal 53b, motor must turn at high speed.

Checking Wiper Shut Off:

Connect ground wire tor motor housing; connect battery voltage to terminal 53a and at the same time terminal 31b to term. 53. The motor must then turn back to zero position and stop.

NOTE: Color identification is as follows:
Terminal 53 — green wire (low speed)
Terminal 53b — red wire (high speed)
Terminal 53a — black wire
Terminal 31b — blue wire



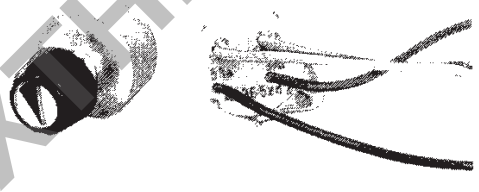
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Fig. 13 — Windshield Wiper Test

Windshield Wiper Switch

There must be continuity between the switch terminals as follows:

Switch "OFF" : Term. 53 — Term. 31b
First position : Term. 53 — Term. 53a
Second pos. : Term. 53b — Term. 53a



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Fig. 14 — Windshield Wiper Switch

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Fuse for Emergency Lighting on Tractors with SG2 Cab from Serial No. 486 079 L

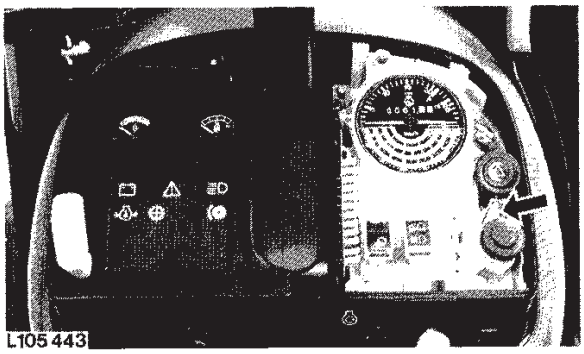


Fig. 21 – Fuse for Emergency Lighting

The 7.5 amp. fuse for the emergency lighting is located under the right-hand dash panel. Having removed the printed circuit board and light switch in "on" position it protects the following parts:

Cab interior light, shift console light, left-hand tail light and right-hand clearance light.

Main Switch

("Sealed-Beam" Lighting System)

When turned on by means of key there will be continuity between the following terminals:

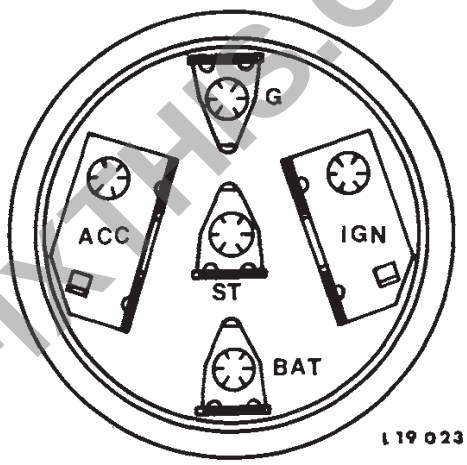


Fig. 22 – Main Switch Terminals

ACC – Terminals BAT and ACC
IGN – Terminals BAT, IGN and ACC
ST – Terminals BAT, IGN and ST terminal G to ground

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Cables and Wires No.	mm²	Gauge	Color	Component	from No.	Terminal	Component	to No.	Terminal No.
38	1	16	green	Plug	13	2	Plug (engine oil pressure indicator light)	46	10
39	1	16	blue/black	Plug	13	7	Plug (fuel gauge)	46	7
40	1	16	green/yellow	Plug	13	16	Plug (coolant temperature)	46	11
41	1	16	blue/green	Plug	13	15	Plug (engine oil pressure indicator light)	45	3
42	1	16	white/black	Plug	13	17	Plug (air cleaner indicator light)	45	3
43	1	16	red	Plug	45	1	Plug	20	12
44	1	16	black	Plug (fuel gauge)	45	5	Circuit board	29	
45	1	16	white	Plug (instrument lighting)	45	4	Light switch	34	HD
46	1	16	black/violet	Plug (clutch indicator light)	45	2	Sending unit for clutch indicator light	98	
47	1	16	brown	Sending unit for clutch indicator light	98		Instrument housing, left hand	15	Ground
48	1	16	red	Light switch	34	A	Switch for turn-signal lights	52	2
49	1.5	15	red/yellow	Light switch	34	WL	Switch for turn-signal lights	52	1

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FRONT AXLE

Measurements — Fig. 2

A	I.D. of bushing seat	50.00 to 50.05 mm	1.968 to 1.970 in.
B	I.D. of seal ring seat	65.00 to 65.05 mm	2.559 to 2.561 in.
C	I. D of sealing cap seat: top	43.00 to 43.06 mm	1.692 to 1.695 in.
	: bottom	42.00 to 43.06 mm	1.653 to 1.695 in.
D	I. D. of knuckle bearing seat	57.11 to 57.14 mm	2.248 to 2.249 in.
E	O. D. of knuckle pin	47.99 to 48.02 mm	1.889 to 1.890 in.
F	O. D. of knuckle pin	25.37 to 25.40 mm	0.998 to 1.000 in.
G	I. D. of knuckle pin bore	48.00 to 48.04 mm	1.889 to 1.891 in.
H	I. D. of hub seal ring seat	165.00 to 165.06 mm	6.496 to 6.498 in.
I	I. D. of bearing seat in hub	158.62 to 158.66 mm	6.244 to 6.246 in.
J	O. D. of bearing seat on hub carrier	109.53 to 109.56 mm	4.312 to 4.313 in.
K	I. D. of bushing bore	50.00 to 50.04 mm	1.968 to 1.970 in.
L	O. D. of universal shaft	45.93 to 45.95 mm	1.808 to 1.809 in.
M	O. D. of planetary gear shafts	35.99 to 36.02 mm	1.417 to 1.418 in.
N	I. D. of planetary gear bearing	35.99 to 36.00 mm	1.417 to 1.417 in.
O	I. D. of planetary gear bore	56.29 to 56.30 mm	2.216 to 2.217 in.
P	Width of planetary gears	35.00 mm	1.377 in.

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21. Slacken adjusting screws 26 of shifter forks 29 and 39, as well as guide block 38 and shifter arm of start safety switch 32.

22. Pull shifter rods 30 and 35, one after the other out of transmission case and remove shifter fork 29, shifter arm 32 and guide block 38.

IMPORTANT! Do not turn shifter rods when removing them, otherwise detent balls 43 (fig. 3) and springs 42 will drop out. Make sure that all detent balls and springs are available for assembly.

23. Slacken positioning screws 26 and 34 of shifter forks 27 and 33.

24. Pull shifter shafts 28 and 25, one after the other out of transmission case and remove shifter forks 33 and 27.

25. Slacken set screws 22 of lower shift levers 23 and 24. Pull shifter shafts 13 and 14 out of shifter shaft housing 18 and remove shift levers.

NOTE: To remove shifter fork 39, fig. 3, it is necessary to remove transmission bearing quill (see group 35).

CENTER SHIFT

1. Separate tractor between clutch housing and transmission case, see section 10, group 20.

2. Remove rockshaft, see section 10, group 20.

3. Remove pin 4 (see fig. 4) of start safety switch from arm 5.

4. Set shifter shafts in neutral position.

5. Remove positioning screws 15 of shifter forks and arm.

6. Pull shifter shafts one after the other forward and remove.

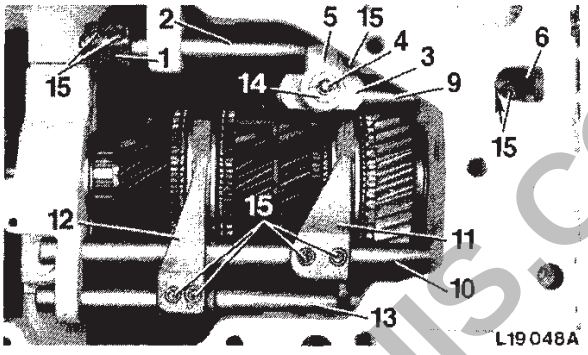


Fig. 4 — Shifter Shafts and Forks, Installed (Center Shift)

1 Shifter fork, range II
2 Shifter shaft, range II
3 Guide
4 Pin for start safety switch
5 Arm (for pin)
6 Shifter fork, range I and reverse
8 Shifter shaft, range I and reverse
10 Shifter shaft, 3rd and 4th gear
11 Shifter fork, 3rd and 4th gear
12 Shifter fork, 1st and 2nd gear
13 Shifter shaft, 1st and 2nd gear
14 Self-locking positioning screw
15 Adjusting screws

NOTE: When removing shifter shaft 9 (fig. 4), make sure that guide 3 does not drop into the transmission case.

IMPORTANT! Do not turn shifter shafts when pulling them forward, otherwise detent balls 7 (fig. 5) and springs 8 will drop out. Make sure that all detent balls and springs are available for assembly.

7. Remove shifter forks and arm.

NOTE: In order to remove shifter fork, range I and reverse 6 (fig. 4), it is necessary to remove transmission bearing quill (see group 35).

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INDEPENDENT 540 AND 1000 RPM HANDSHIFT PTO

1. *On tractors with SG2 cab:* Disconnect rod 9 (fig. 13) at lever 8, having first removed retainer and lift out complete PTO shift assembly with cover 10.
2. *On tractors without SG2 cab:* Disconnect rod 10 (fig. 14) at lever 9. Lift out complete PTO shift assembly.
3. Drain transmission oil.
4. Remove attaching cap screws 26 (fig. 15) and lift out complete bearing quill 25 with PTO stub shaft 22, bearing 21, gear 17 and shifter sleeve carrier 15.
5. Remove spring pin out of operating lever 12 (figs. 13 and 14) and pull lever from shaft.
6. Remove shifter fork stop from left-hand side of transmission case.
7. Remove snap rings 15 (figs. 13 and 14) from grooves of shifter shaft 23.
8. Slide shifter shaft far enough to the right until Woodruff keys 22 of stop 20 and shifter fork 17 can be removed.

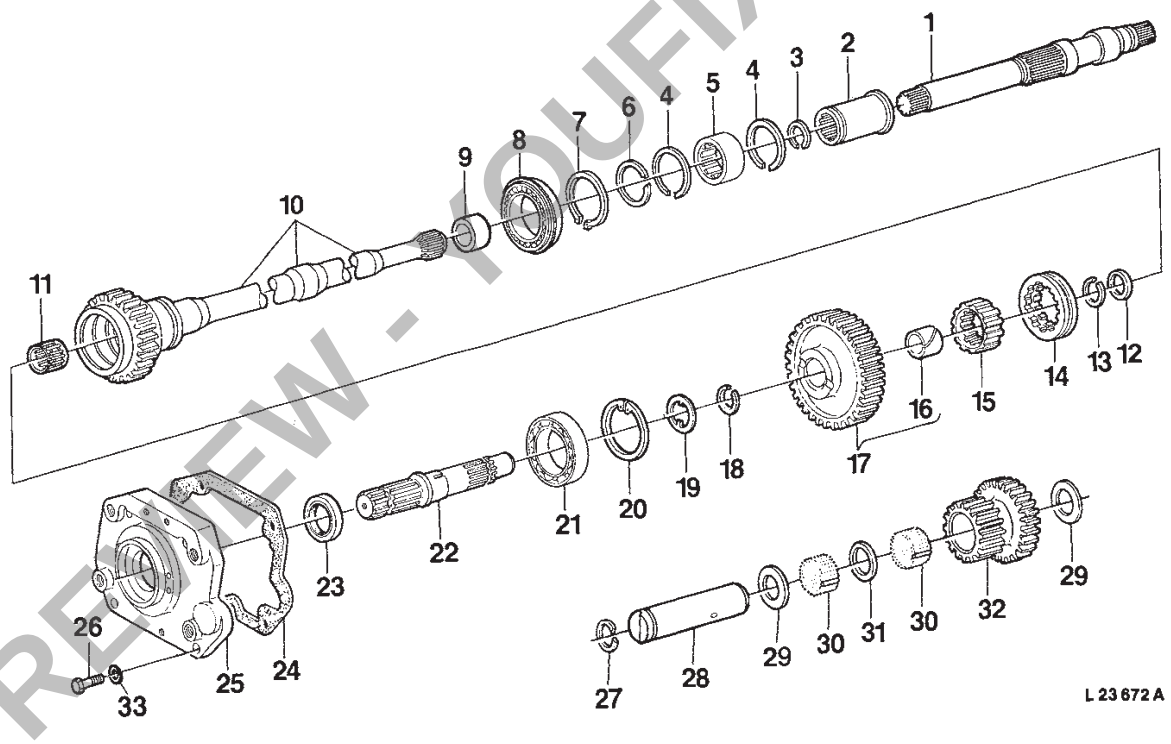


Fig. 15 — Independent 540 and 1000 rpm Handshift PTO, Exploded View

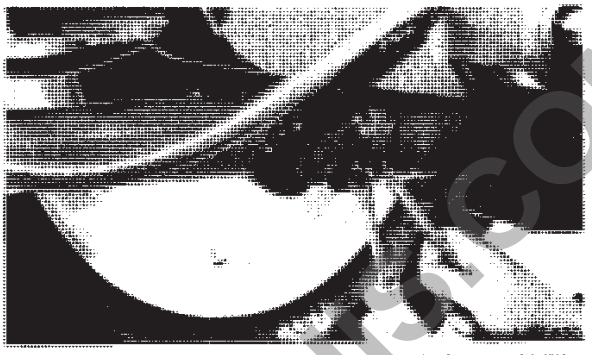
1 PTO clutch shaft
2 Connecting sleeve
3 Snap ring
4 Snap rings
5 Needle bearing
6 Snap ring
7 Snap ring
8 Ball bearing
9 Bushing
10 PTO shaft with gear
11 Needle bearing
12 Spacer
13 Snap ring
14 Shifter sleeve
15 Shifter sleeve carrier
16 Bushing
17 Gear
18 Snap ring
19 Thrust washer
20 Snap ring
21 Ball bearing
22 PTO shaft
23 Oil seal
24 Gasket
25 Bearing quill
26 Cap screws (4 used)
27 Snap ring
28 Countershaft
29 Thrust washers
30 Needle bearing (48 used)
31 Spacer
32 Double gear
33 Spring washer (4 used)

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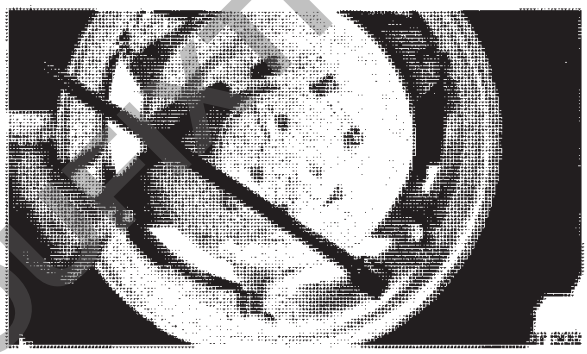
REMOVAL OF UNIVERSAL JOINTED SHAFT

Remove flange screws of universal jointed shaft, split flange and pull shaft from splines of MFWD clutch shaft.



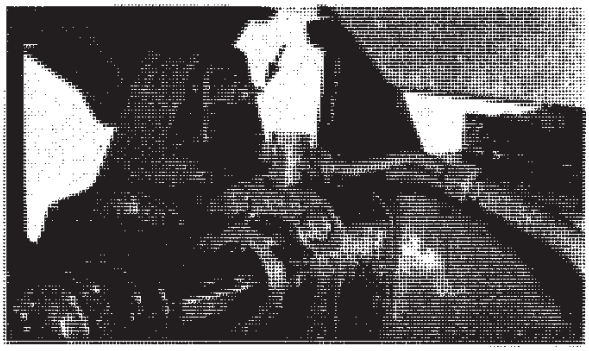
L 37500-LA1 5060 AE-010782

Loosen wheel nuts.



L 37502-LA1 5060 AE-010782

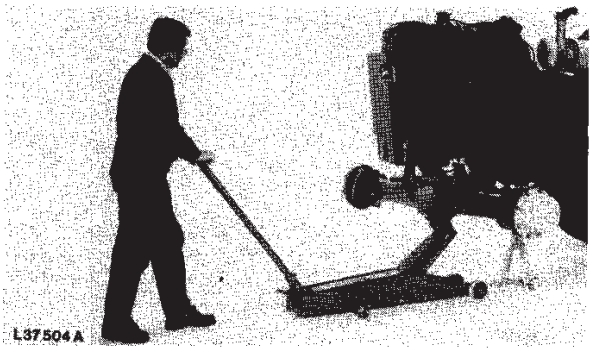
Remove cotter pin.



L 37503-LA1 5060 AE-010782

Remove front wheels.

Raise front end of tractor at front axle differential using a trolley jack and support tractor behind axle carrier.



L 37504A-LA1 5065 AE-010782

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Fig. 50 — Position of Rotor Hollow to Slot in Drive Shaft

23. Install rotor 9 with stator 8 so that a rotor hollow is positioned to slot in drive shaft as shown in following illustration.

NOTE: Fig. 50 shows plainly the desired position of rotor and shaft. This assembly, described below, must be reached although slot of drive shaft and cross pin are not visible.

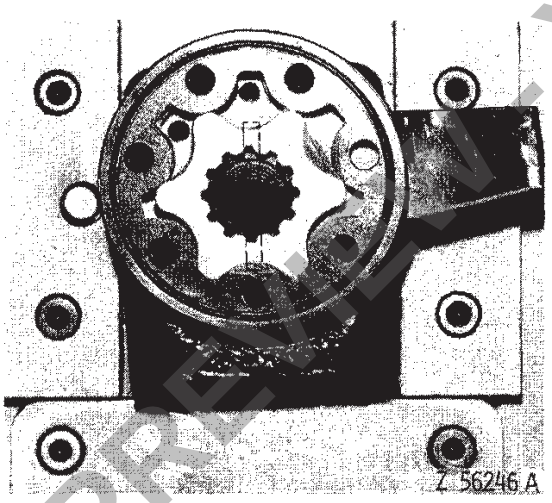


Fig. 51 — Specified Position of Cross Pin to Rotor

24. Rotate rotor and stator so that the seven apertures line up with the seven bores in pump housing.

    Thereby, rotor and cross pin must take up their position to each other at the same time.

IMPORTANT! It is absolutely necessary for satisfactory performance of steering that cross pin is in position as shown in fig. 51.

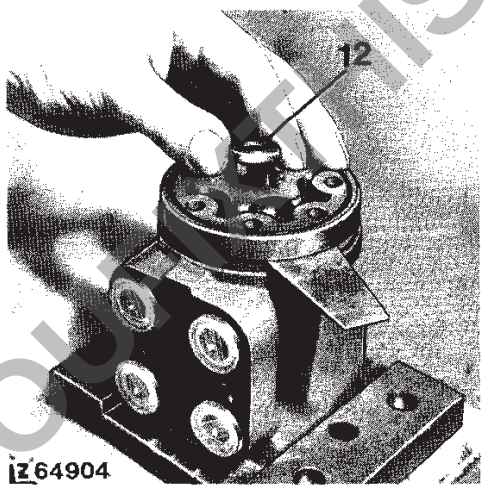


Fig. 52 — Inserting Spacer Ring

12 Spacer ring

25. Insert spacer ring 12 as shown in fig. 52.

26. Install cover 6. Using new seal washers 5 insert cap screws 3 in bores. Insert longer cap screw with new seal washer in specified bore (threaded bushing) complete with roll pin 4.

27. Install and tighten remaining cap screws crosswise to 30 to 35 Nm (22 to 25 ft-lb) torque.

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3. Lift out brake ring 3.
4. Lift pressure ring together with the two packings out of brake housing.

Repair

1. Check facing as well as internal splines of brake disk 2 (fig. 9) for excessive wear. If necessary, replace disk.
2. Inspect pressure rings and brake ring for scoring or other damage and replace, if necessary.
3. Discard packings of pressure rings and replace with new ones.

Installation

1. Install brake ring 3 (fig. 9) in transmission case. Slide brake disk on final drive shaft.
2. Install pressure ring in recess of brake housing, aligning pressure ring bores with dowel pins in brake housing.

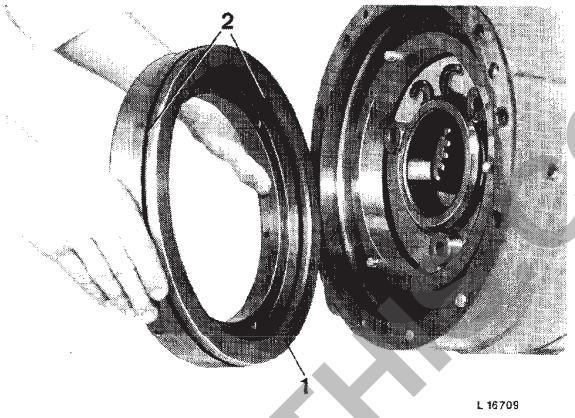


Fig. 10 — Installing a Pressure Ring with Packings

1 Pressure ring
2 Packings

3. Make sure pressure ring is seated on bottom of bore and that the packings have not been damaged or turned over during installation.
4. Install final drives as explained in section 10, group 20. Bleed brake system (see page 8).

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STEP 32

Transmission pump flow test:

1. Run engine at 2500 rpm.
2. Note flow (see fig. 6) and record under (16) on the "Hydraulic Record Testing Sheet".

   Minimum transmission pump flow . . . 54 liters/min. 14.2 gpm

3. Difference between transmission oil pump flow and flow to hydraulic pump:

   Tractors without Hi-Lo shift unit . . . . 7 liters/min. 1.8 gpm

   Tractors with Hi-Lo shift unit . . . . . 15 liters/min. 4.0 gpm

4. With sufficient oil flow,

Proceed with Step 33

5. With insufficient oil flow,

Proceed with Step 37

STEP 33

1. A leakage has been determined in flow to hydraulic pump.
2. Inspect the following:
   a. Gasket of transmission shift cover
   b. Oil line between transmission oil filter and pressure regulating valve in transmission shift cover.
   c. Pressure line to mechanical front wheel drive solenoid (when equipped).
   d. Plug installed in Hi-Lo shift unit or creeper housing instead of pressure line to solenoid.
3. Repair any defect found or detected earlier, apart from Steps 8, 10d and 33, c to d.
4. To ensure that all failures have been correctly repaired,

Proceed with Step 34

STEP 34

Transmission oil pressure indicator light test (see arrow, fig. 62 or 63)

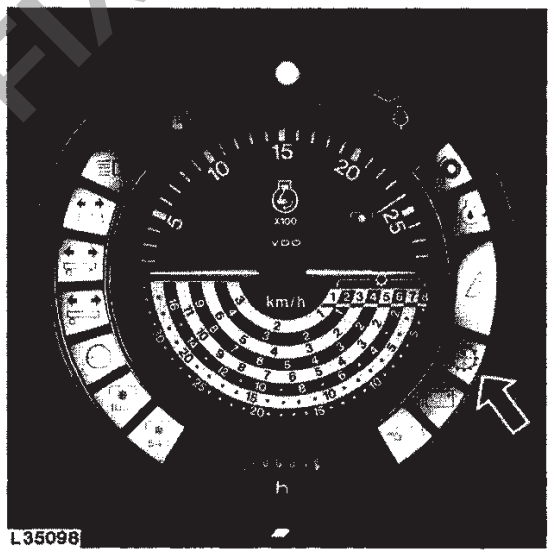


Fig. 62 — Transmission Oil Pressure Indicator Light (Tractors without SG2 Cab)

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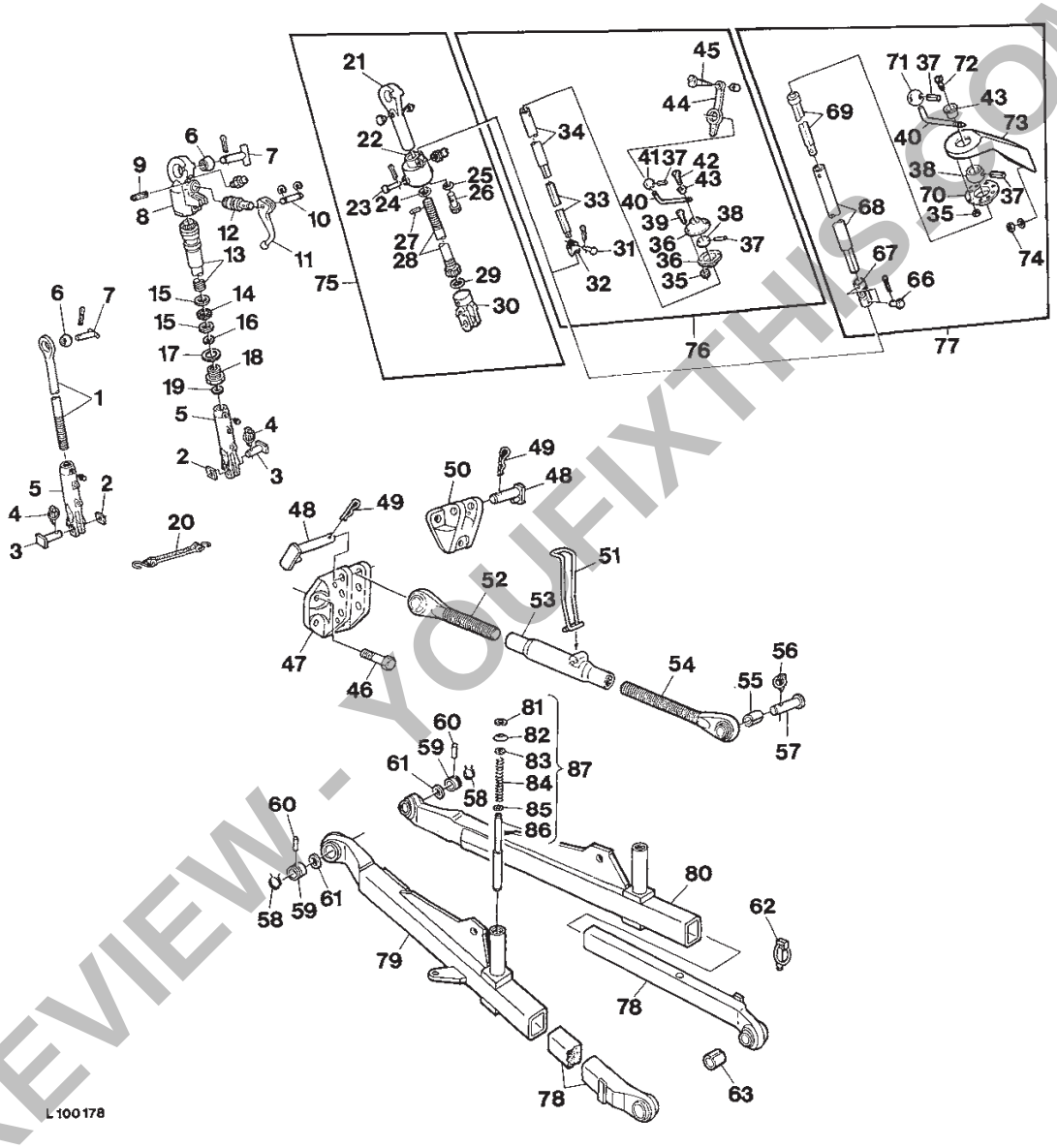


Fig. 27 – 3-Point Hitch with Telescopic Draft Links (Cat. II), Exploded View
(See fig. 26 for text regarding keys 1 to 77)

78 Draft link telescopic extension
79 Left-hand draft link
80 Right-hand draft link
81 Snap ring (2 used)
82 Special washer (2 used)
83 Special washer (2 used)
84 Spring (2 used)
85 Special washer (2 used)
86 Locking pin (2 used)
87 Locking assembly

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INSPECTION

1. Check cylinder and piston for wear, scoring, cracks and other damage.
2. Replace piston O-rings 20 (fig. 2) and 34 as well as back-up ring 19.
3. Replace piston rod guide gasket 22 as well as O-ring 34 and back-up ring 33.
4. Check rod 9 and stop valve 11 for excessive wear or damage and replace, if necessary.

ASSEMBLY

NOTE: When assembling the remote cylinder, always replace O-rings, back-up rings, gaskets and packings.

1. Install new O-ring 34 (fig. 2) first, then back-up ring 33 in piston rod guide 23.

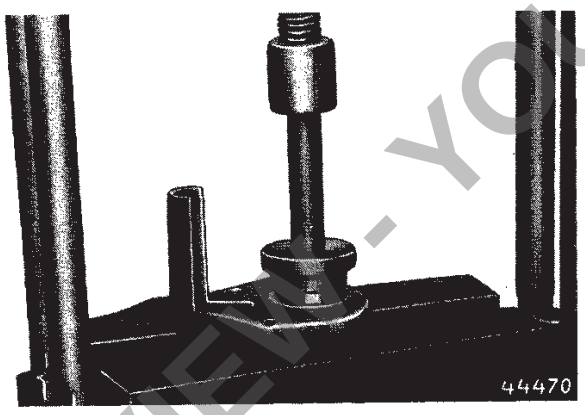


Fig. 3 – Piston Rod Oil Seal Installation

2. Press in new piston rod oil seal 32 (fig. 2) with sealing lip toward outer end of piston rod guide bore (see fig. 3).
3. Install packing adapters 1 and 3, and stop rod V-packing assembly 2 with sealing lip toward outer end of bore.
4. Install piston rod guide 23 and gasket 22, but do not yet tighten cap screws 35.
5. Install stop rod assembly. Use stop valve to push stop rod 9 through stop rod V-packing. Now tighten cap screws 35 of piston rod guide to the speciified torque of 50 Nm (35 ft-lb) torque.
6. Push stop rod arm 25 onto stop rod and drive in groove pin 24.

NOTE: Before driving in pin 24, push stop rod 9 completely into cylinder so that rod does not get bent while the pin is driven in.

7. Install stop valve 11 into cylinder bore.
8. Push piston rod stop 29, with smooth side away from piston rod yoke end, onto piston rod. Insert piston rod 31 or 37 into cylinder.
9. Install O-ring 20 and both back-up rings 19 on piston, O-ring between back-up rings. Install O-ring 34.
10. Push piston 21 onto piston rod 31 or 37 until it contacts rod shoulder. Now install self locking nut 18 and tighten to specified torque of:

Model 5 RC 3	400 Nm 300 ft-lb
Model 6 RC 1	540 Nm 400 ft-lb

11. Install stop screw 28, special washer 27, and adjusting lever 26 to stop 29 (if removed). Locate the piston rod stop 29 on the piston rod stop 29 on the piston rod with adjusting lever 26 opposite the stop arm 25.
12. Install seal ring 14 on end cap 15. Insert two oil passage seals 13.
13. Place spring 12 over end of stop valve 11 and install end cap. Tighten cap screws to the specified torque of 160 Nm (120 ft-lb) torque.

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12. Check gauge pressure.

13. Shut-off engine. Remove manifold gauge set and replace service valve caps.

ADDING REFRIGERANT TO SYSTEM

Proceed as follows when adding refrigerant to the system:

1. Connect manifold gauge set FKM 10001-6* to compressor service valves.

2. Bleed air from test hoses.

3. Connect yellow hose to refrigerant container FKM 10001-9* and bleed air from hose.

4. Start engine and run with temperature control set for maximum cooling.

5. Holding refrigerant container as shown in fig. 10 open low-pressure manifold valve. By this means refrigerant in gas form enters the system. Refrigerant fluid must not enter the compressor, otherwise this will cause internal damage.

6. Watch receiver-dryer sight glass. Stop adding refrigerant to the system when no more bubbles appear and sight glass is clear.

NOTE: On tractors with OPU, control receiver-dryer sight glass by removing rubber plug on cab roof.

* Part of tester FKM 10001

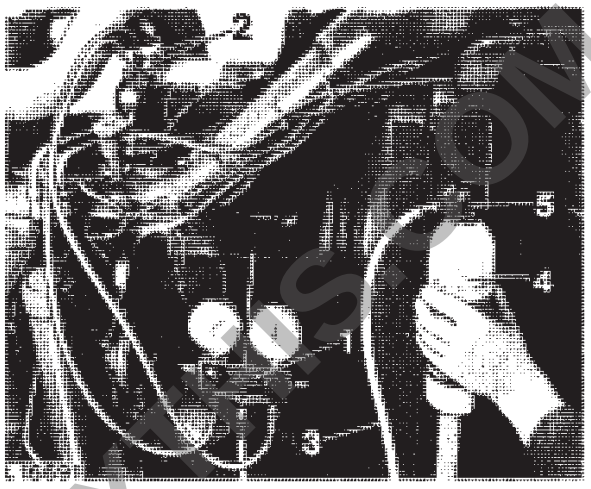


Fig. 10 – Adding Refrigerant to System

1 Manifold gauge set
2 Service valves
3 Yellow hose
4 Refrigerant container
5 Dispensing valve

NOTE: System charging can be quickened by placing a refrigerant container in a container filled with water heated to a maximum temperature of 50°C (120°F).

CAUTION! Under no account exceed maximum temperature of 50°C (120°F), otherwise refrigerant container may explode.

7. Close all valves securely. Check system performance and check for leaks.

8. Remove manifold gauge set.

IMPORTANT! Use refrigerant R-12 only when charging or adding refrigerant to the system.

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