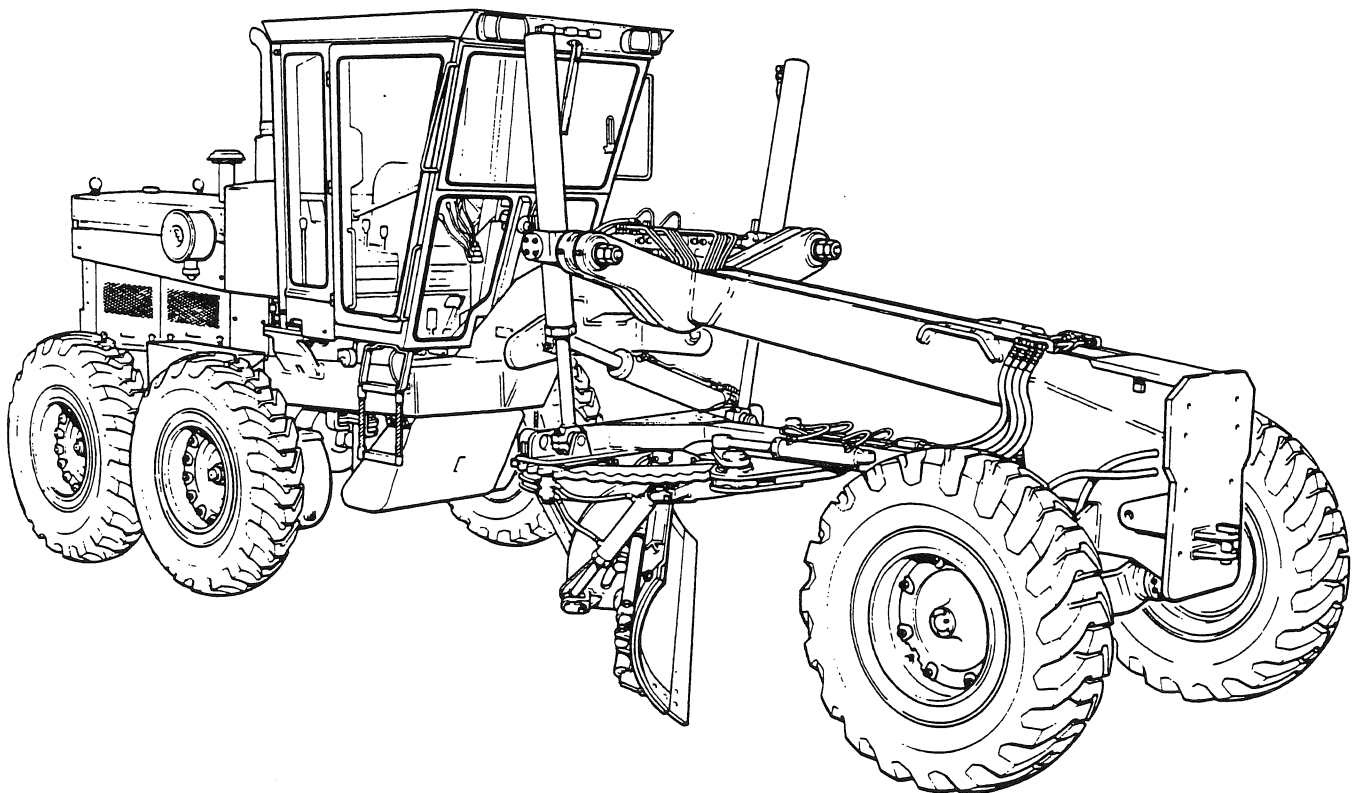


SECTION 10

LOCK / UNLOCK DIFFERENTIAL FINAL DRIVE



700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

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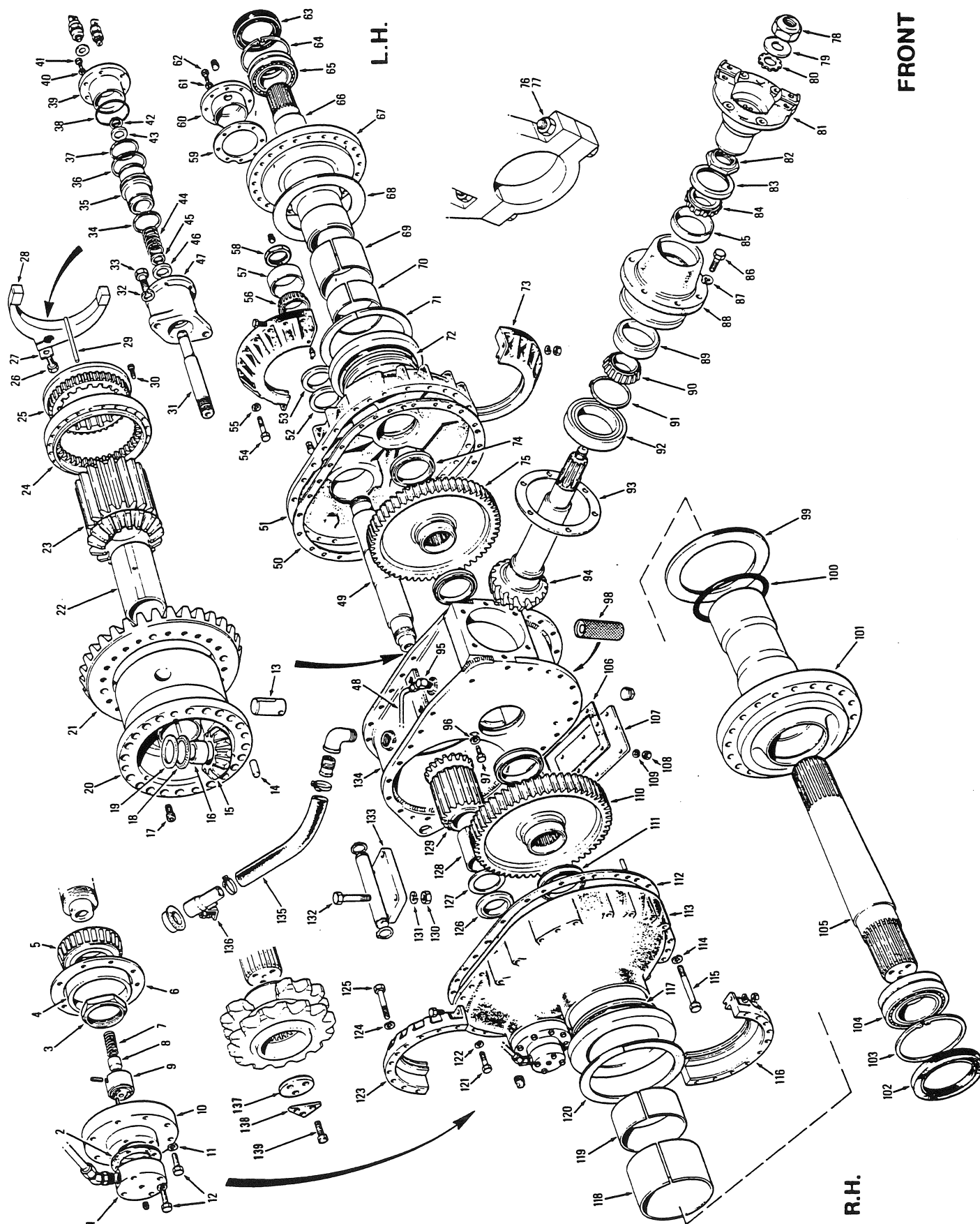


FIG. 1

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Item	Description	Item	Description	Item	Description
1	End cap	48	Hydraulic tube	95	Suction tube
2	Gasket	49	Cross shaft	96	Lockwasher
3	Nut	50	Gasket	97	Lockscrew
4	Bearing cup	51	L.H. side housing	98	Strainer
5	Bearing cone	52	Bearing	99	Outer thrust plate
6	Shim	53	Thrust washer	100	O ring
7	Spring	54	Capscrew	101	Flange sleeve
8	Plunger	55	Lockwasher	102	Oil seal
9	Pump	56	Bearing cone	103	Snap ring
10	Pump mount adapter	57	Bearing cup	104	Bearing
11	Lockwasher	58	Nut	105	Drive axle
12	Capscrew	59	Shim	106	Gasket
13	Pin	60	End cap	107	Cover plate
14	Dowel pin	61	Lockwasher	108	Nut
15	Spider gear	62	Capscrew	109	Lockwasher
16	Bushing	63	Oil seal	110	Bull gear
17	Capscrew	64	Snap ring	111	Bearing
18	Bearing	65	Bearing	112	Gasket
19	Washer	66	Drive axle	113	R.H. side housing
20	Differential housing	67	Flanged sleeve	114	Lockwasher
21	Spiral pinion gear	68	Outer thrust plate	115	Bolt
22	Pinion sleeve	69	Bushing	116	Half-ring
23	Spider pinion gear	70	Bushing	117	"Uniring" seal
24	Shift clutch gear	71	Inner thrust plate	118	Bushing
25	Shift clutch	72	"Uniring" seal	119	Bushing
26	Lockscrew	73	Half-ring	120	Inner thrust plate
27	Tabwasher	74	Bearing	121	Bolt
28	Shifter fork	75	Bull gear	122	Lockwasher
29	Dowel pin	76	Bolt	123	Half-ring
30	Capscrew	77	Nut	124	Lockwasher
31	Shift rail	78	Locknut	125	Bolt
32	Lockwasher	79	Washer	126	Thrust washer
33	Capscrew	80	Washer	127	Bearing
34	Piston ring	81	Brake flange yoke	128	Pinion sleeve
35	Piston	82	Nut	129	Spider pinion gear
36	Piston ring	83	Oil seal	130	Nut
37	Piston ring	84	Bearing cone	131	Lockwasher
38	O Ring	85	Bearing cup	132	Bolt
39	Shift cylinder cap	86	Capscrew	133	Mounting plate
40	Lockwasher	87	Lockwasher	134	Main case
41	Capscrew	88	Pinion cap	135	Hose
42	Snap ring	89	Bearing cup	136	Filler pipe
43	Retainer	90	Bearing cone	137	Sprocket retainer
44	Spring	91	Snap ring	138	Lockplate
45	Washer	92	Bearing	139	Capscrew
46	Oil seal	93	Shim		
47	Barrel	94	Spiral pinion shaft		

Key to Fig. 1

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General



Make sure proper tools are available and in good working order. You will require a safe lifting device; blocks or proper stands; a build stand (if available); a hydraulic press; shop tools and some special tools listed in the front of this Shop Manual Section.



ALWAYS PUT THE GRADER IN THE SERVICE POSITION BEFORE ATTEMPTING ANY OVERHAUL, MAINTENANCE OR INSPECTION PROCEDURE.

THE SERVICE POSITION IS AS FOLLOWS:- PARK THE GRADER ON A LEVEL SURFACE AND FULLY LOWER THE MOLDBOARD AND ALL ATTACHMENTS. IF IT IS NECESSARY TO ADJUST OR SERVICE THE MOLDBOARD OR ATTACHMENTS IN A RAISED POSITION, SUPPORT THEM WITH PROPER STANDS OR BLOCKS. APPLY THE PARKING BRAKE. TURN THE IGNITION SWITCH TO THE "OFF" POSITION AND REMOVE THE KEY. OPERATE ALL HYDRAULIC CONTROLS TO ENSURE THAT NO ACCUMULATED PRESSURE REMAINS IN THE HYDRAULIC SYSTEM. INSTALL CHOCKS AT THE FRONT AND REAR WHEELS. TURN

THE ISOLATION SWITCH TO THE "OFF" POSITION. THE ISOLATION SWITCH IS LOCATED BEHIND THE ENGINE SIDE PANELS. ON ARTICULATED MACHINES, INSTALL THE LOCKING PINS ON BOTH SIDES OF THE HINGE. ALLOW THE ENGINE AND HYDRAULIC SYSTEM TO COOL BEFORE WORKING IN THESE AREAS.

THE GRADER IS READY FOR SERVICING.

NOTE

Weights, measures and tolerances are in Metric (SI), Imperial and U.S. quantities. International standards specify the comma to represent the decimal point in all Metric measurements.

Description

The double reduction final drive with hydraulic lock/unlock differential allows the grader operator two modes of operation.

In the normal operating position, the differential is locked and drives all four tandem wheels to provide maximum traction. In the unlocked position, the wheels can rotate at different speeds (differential action). This effectively reduces the turning radius.

The operator moves a switch in the cab to unlock the differential. An energized solenoid allows oil to force the cylinder piston and shifter fork and unlock the spider pinion gear from the differential housing.

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Description (cont.)

When the piston reaches the unlocked position, it activates a switch that energizes an indicator light in the cab.

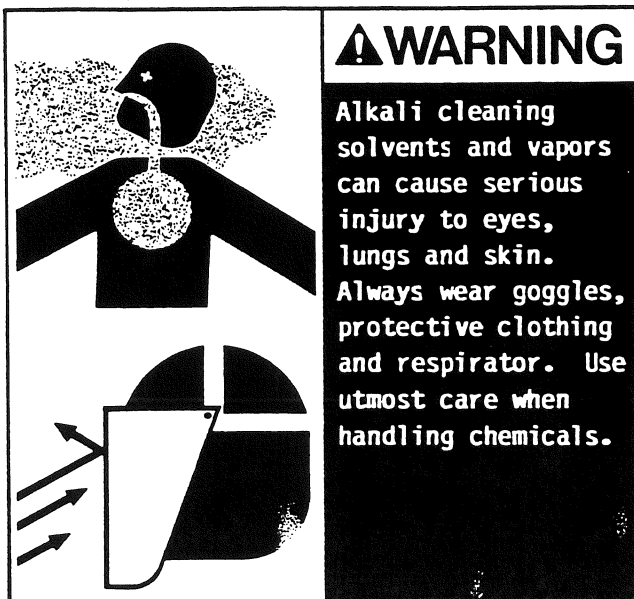
Oil used to unlock the differential flows from the filtered side of the transmission. All return and leakage oil flows to the transmission sump.

The differential final drive uses a bi-directional oil pump to lubricate the bull gear bearings, spider pinion bearings and spider gears. The pump is mounted on the right hand side of the cross shaft.

Refer to the Lubrication Specifications at the front of this Shop Manual for the recommended lubricants used in the lock/unlock differential final drive.

Cleaning and Inspection

Cleaning - Bearings and Small Parts



You are recommended to wear cotton gloves when handling bearings. This prevents transfer of skin acids and perspiration onto bearing races.

Immerse bearings and small parts into a cleaning solvent. You can use a hot tank system and a mild alkali solvent. Agitate the parts to remove all foreign matter.

Parts should remain in the solvent long enough to be thoroughly cleaned. In the hot tank system, heated parts help to evaporate the solvent and rinse water. Thoroughly rinse parts to remove all traces of dirt and solvent.

After rinsing, immediately dry the parts using moisture-free compressed air or lint-free rags. Make sure all oil passages are unblocked. **DO NOT** spin bearings when drying. Lubricate all bearings with system oil; wrap in clean, lint-free cloth or paper and store in a cool, dry place.

Inspection - General

A careful and thorough inspection of all parts is extremely important. Replace all parts showing indications of wear or damage.

Inspection - Bearings

Carefully inspect all rollers, cages and cups for wear, nicks or chipping.

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Cleaning and Inspection (cont.)

Inspection - Bearings (cont.)

When replacing bearings, **ALWAYS** install new mating cups and cones. After inspection, lubricate all bearings with system oil; wrap in clean, lint-free cloth or paper and store in a cool, dry place.

of the assembly to fail. Handle sealing components carefully, particularly when being installed. Cutting, scratching or curling of the seal lip seriously reduces efficiency.

Inspection - Gaskets, Oil Seals, O Rings and Snap Rings

Replace all gaskets, oil seals, O rings and snap rings. Lubricant loss through a worn seal can cause expensive parts

Before installation, apply a thin coating of adhesive/sealant, Champion part number 19200, onto the outer diameter of the oil seal carrier. This ensures an oil-tight fit in the bore. Lubricate all oil seal lips and O rings with system oil.

Torque Guide

Fig. No.	Application	Torque Value		
		N.m	kgf.m	lbf.ft
Fig. No. 106	Pinion bearing outer race lockscrew	102	10,4	75
Fig. No. 115	Side housing capscrews	271-305	28-31	200-225
Fig. No. 119	Bearing cap capscrews	41-47	4,0-4,8	30-35
Fig. No. 126	Shift clutch gear capscrews	41-47	4,0-4,8	30-35
Fig. No. 127	Spiral pinion gear capscrews	108-135	11-14	80-100
Fig. No. 130	Cross shaft bearing cone retaining locknuts	271-305	28-31	200-225
Fig. No. 132	Cross shaft bearing cone retaining locknuts	271-305	28-31	200-225
Fig. No. 136	Spiral pinion gear capscrews	108-135	11-14	80-100
Fig. No. 140	Pump mount adapter	41-47	4,0-4,8	30-35
Fig. No. 141	Pump mount adapter	41-47	4,0-4,8	30-35
Fig. No. 145	Shift cylinder barrel capscrews	108-135	11-14	80-100
Fig. No. 169	Pinion cap capscrews	271-305	28-31	200-225
Fig. No. 173	Shift cylinder cap capscrews	7,0-11	0,7-1,0	5.0-8.0
Fig. No. 178	Pump end cap capscrews	41-47	4,0-4,8	30-35
Fig. No. 189	Brake flange yoke locknut	271	28	200
Fig. No. 200	Half-ring to tandem case capscrews	13-20	1,4-2,0	10-15
Fig. No. 202	Sprocket retainer plate capscrews	108-135	11-14	80-100
Fig. No. 209	Hanger bracket half-clamp nuts	1844	188	1360
Fig. No. 209	Mounting plate nuts	380	39	280
Fig. No. 210	Drive shaft to final drive capscrews	13	1,4	10

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Adjustments

Fig. No.	Application	N.m	kgf.m	lbf.in.
Fig. No. 142	Cross shaft rolling torque	4,5 - 7,3	0,5 - 0,7	40 - 65
Fig. No. 158	Spiral pinion shaft assembly rolling torque ...		kg	lb
		198 - 4,3		4.2 - 9.5
Fig. No. 170	Spiral pinion and gear backlash	mm		in.
		0,3 +/- 0,1		.012 +/- .004
Fig. No. 172	Shifter fork to shift clutch gear clearance		0,5	.020

Special Tools

Fig. No.	Description	Part No.
Fig. No. 53	Deep-reach socket wrench	43004
Fig. No. 111	Inner bushing installation tools	18512
		18513
Fig. No. 111	Outer bushing installation tools	18511
		18512
Fig. No. 116	Shift rail oil seal installation tool	45006
Fig. No. 158	Deep-reach socket wrench	43004
Fig. No. 187	Drive axle and bearing assembly installation drift	45007

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Differential Final Drive - Removal

Fig. 2

Park the grader on level ground. Place the transmission mode lever in **Neutral**. Centralize the circle, draw-bar and moldboard assembly using the circle shift and blade lift cylinders.

Fig. 3

Lower the moldboard onto wooden blocks. Shut down the engine and place the machine in the **Service Position**.

Fig. 4

Drain the differential final drive lubricating oil. Clean and install the magnetic drain plug.

Fig. 5

Drain the lubricating oil from both tandem cases. Clean and install the magnetic drain and long-reach plugs.

Fig. 6

Remove the filler pipe (136) and hose (135) from the frame.

Fig. 7

Disconnect the brake lines from the tee fittings on the frame. Plug the lines and fittings and wipe away any spilled brake fluid.

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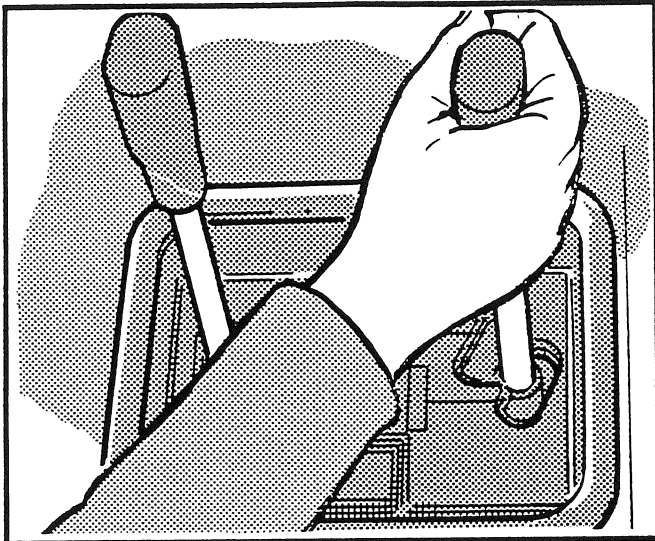


Fig. 2

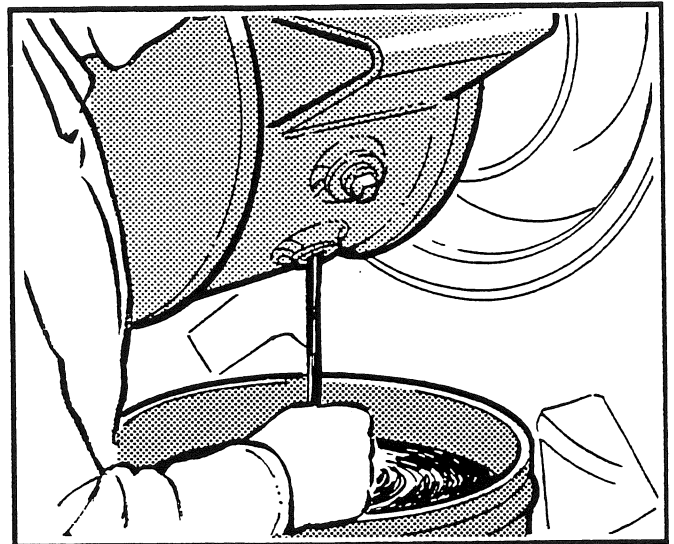


Fig. 5

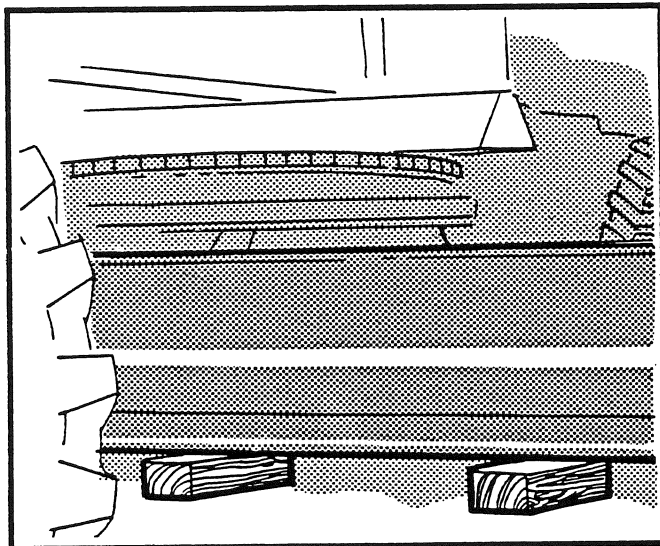


Fig. 3

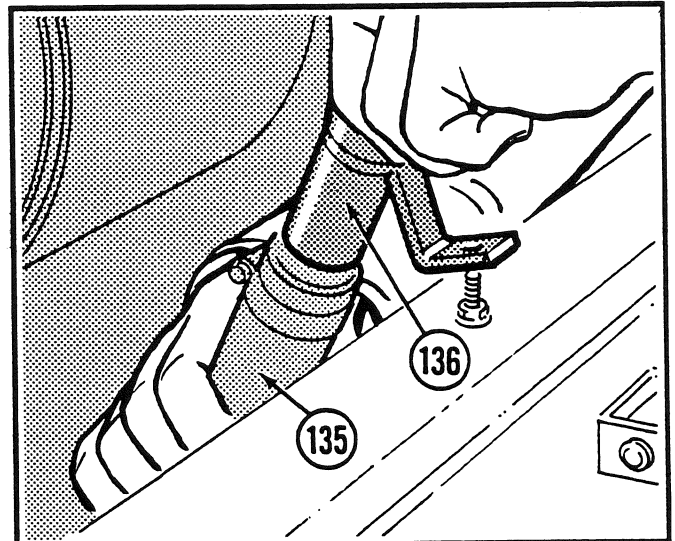


Fig. 6

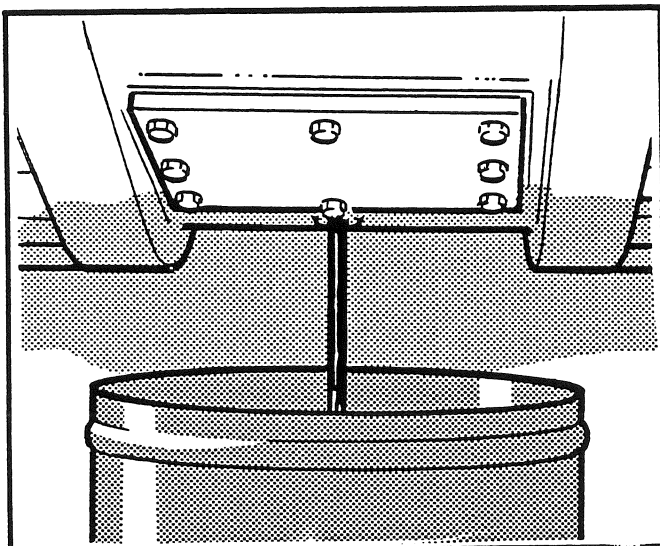


Fig. 4

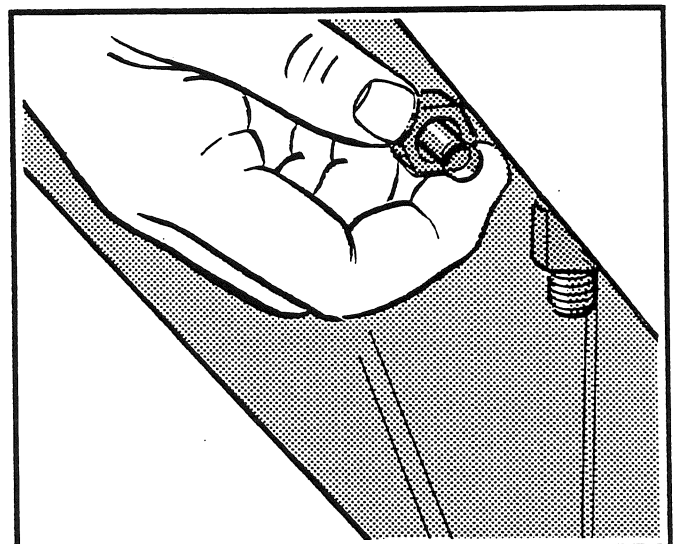


Fig. 7

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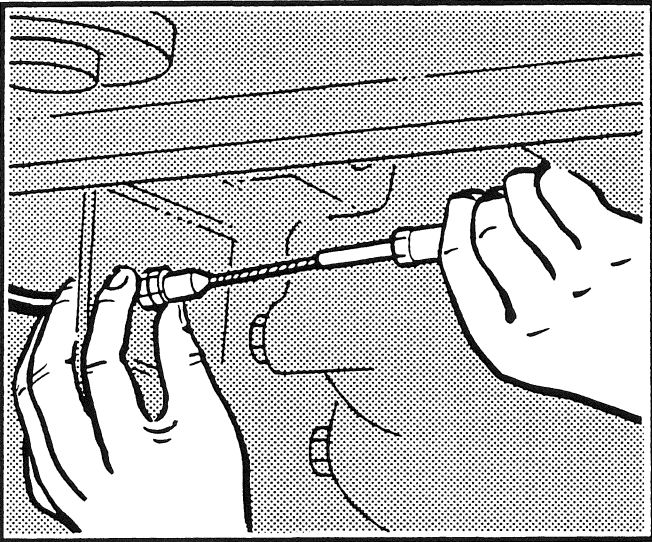


Fig. 8

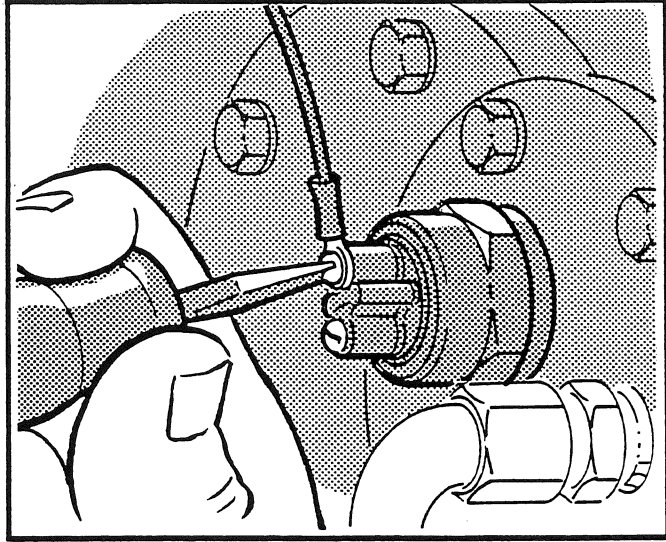


Fig. 11

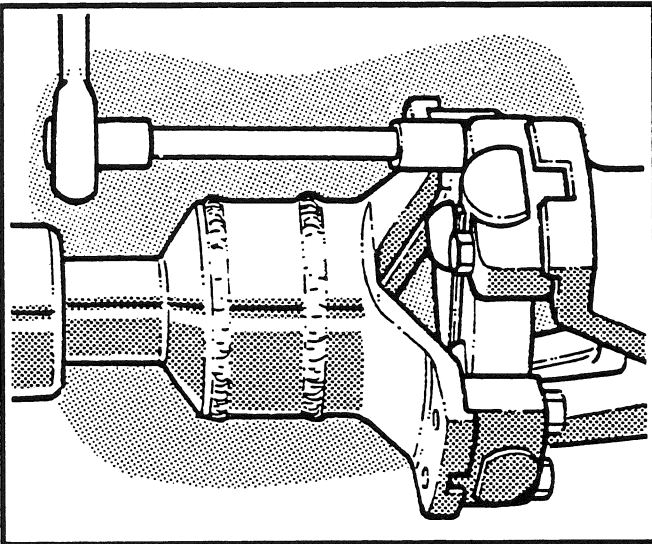


Fig. 9

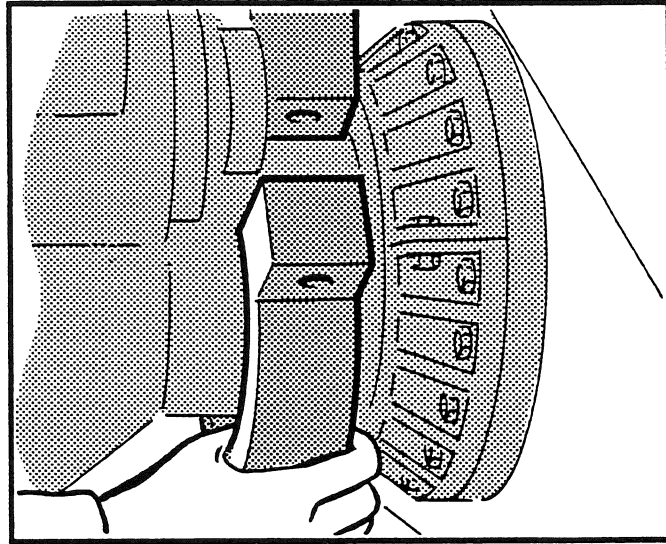


Fig. 12

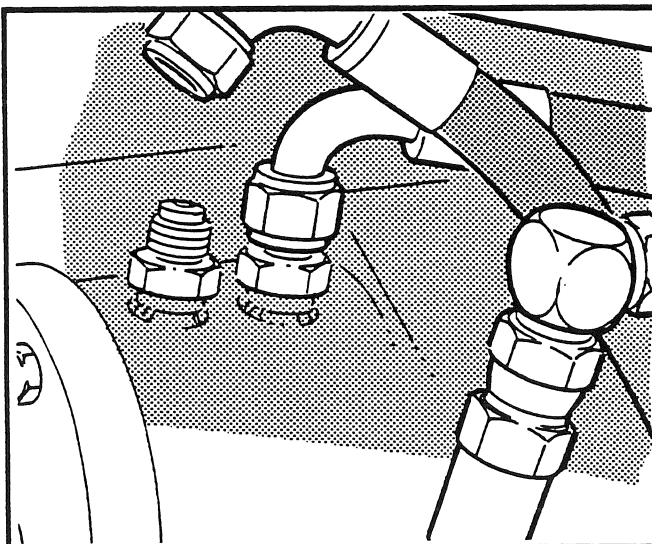


Fig. 10

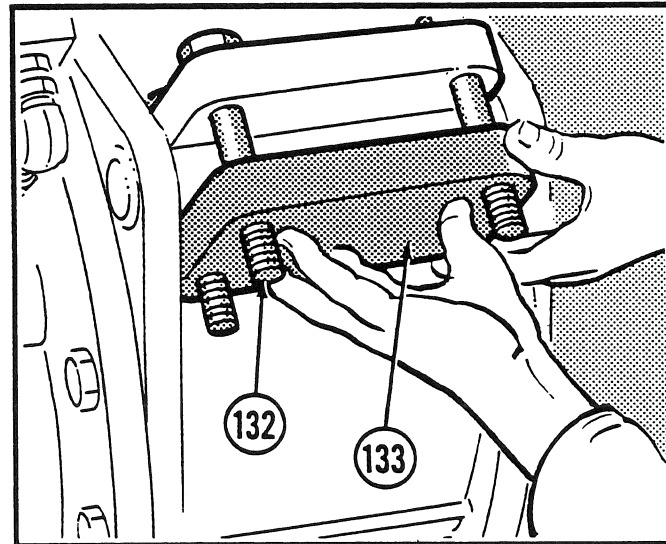


Fig. 13

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Removal (cont.)

Fig. 8

Disconnect the parking brake cable.
Remove the fender and the parking brake assembly.

Fig. 11

Disconnect the wires from the lock/unlock switch terminals.

Fig. 9

Disconnect the lower drive shaft from the front of the differential final drive.

Fig. 12

Remove the nuts (77) and bolts (76) from the final drive hanger bracket half-clamps. Identify the halves to ensure that you install them in the same locations during assembly.

Fig. 10

Disconnect the three hose fittings from the lock/unlock cylinder. Plug the ports and hoses. Identify the fittings to avoid confusion during assembly.

Fig. 13

Remove the nuts (130), bolts (132) and lockwashers (131) and remove the rear mounting plate (133).

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Differential Final Drive - Removal (cont.)

Fig. 14

Start the engine and raise the front wheels just off the ground using the moldboard. Shut down the engine.

Fig. 17

Roll the differential final drive and tandem assembly out from under the frame.

Fig. 15

Disconnect the battery cables and remove the battery box.

Fig. 18

Lower the frame onto a secure stand.

Fig. 16

Attach the lifting device to the rear of the grader frame. Raise the frame until it is clear of the differential final drive. On articulated models, **make sure** that the emergency brake disc does not interfere with the mounting brackets.

Fig. 19

Remove the capscrews retaining the tandem cover plates. Remove the plates and discard the gaskets. If gasket eliminator compound has been used, remove all traces of the sealant.

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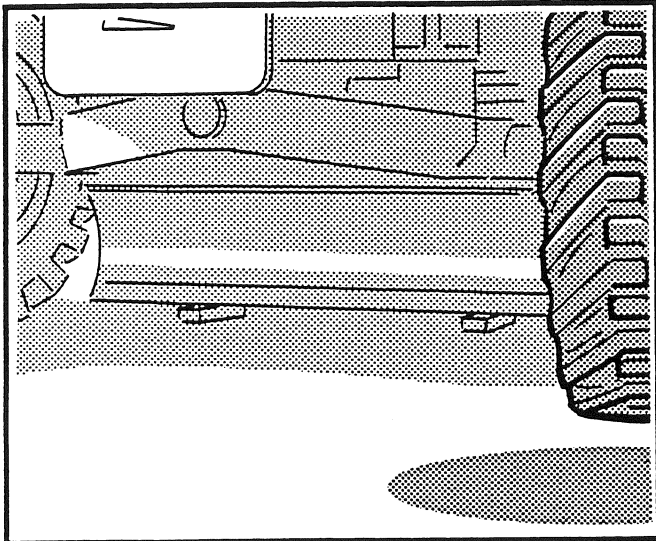


Fig. 14

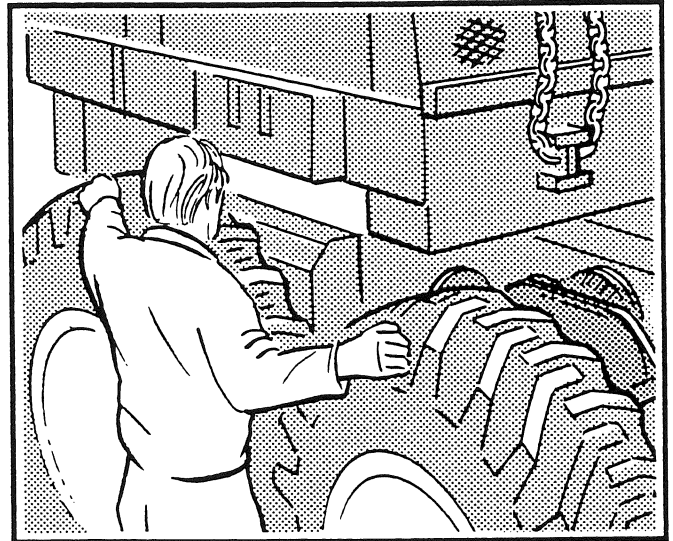


Fig. 17

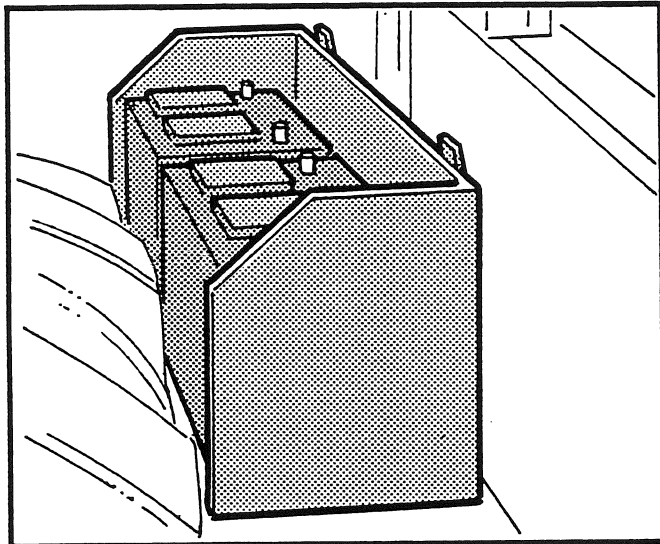


Fig. 15

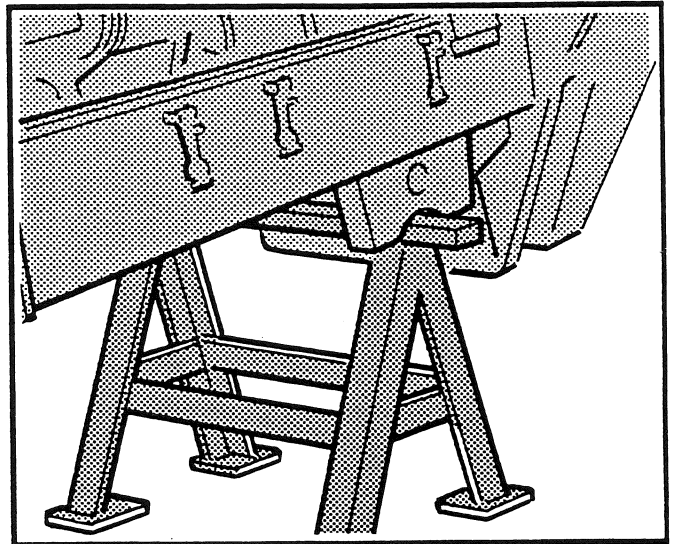


Fig. 18

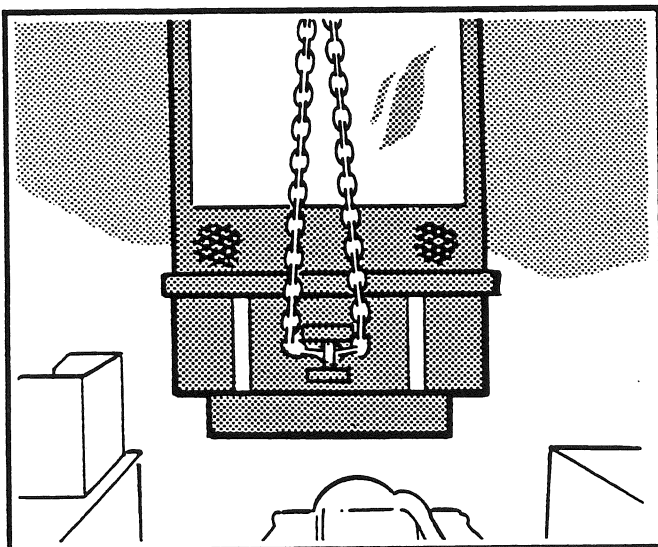


Fig. 16

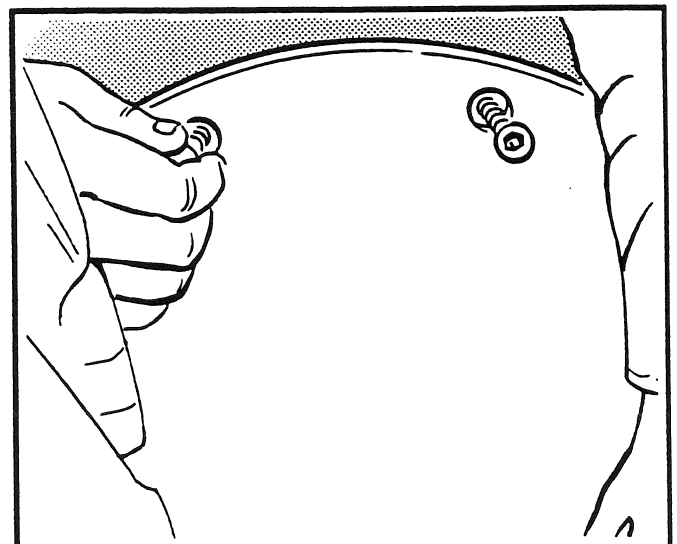


Fig. 19

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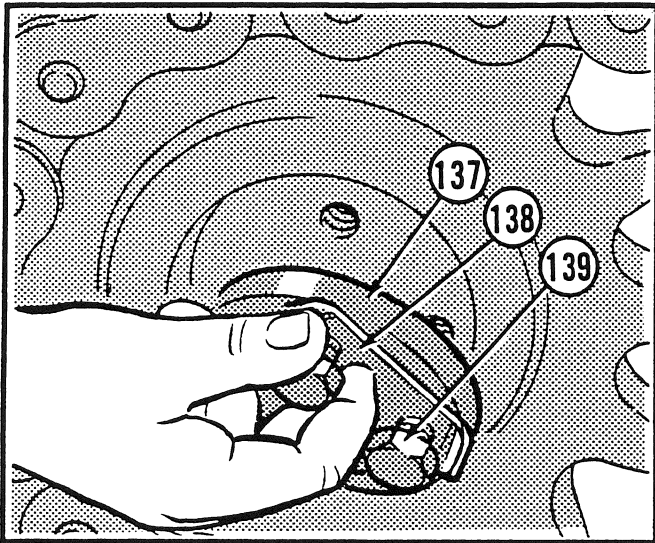


Fig. 20

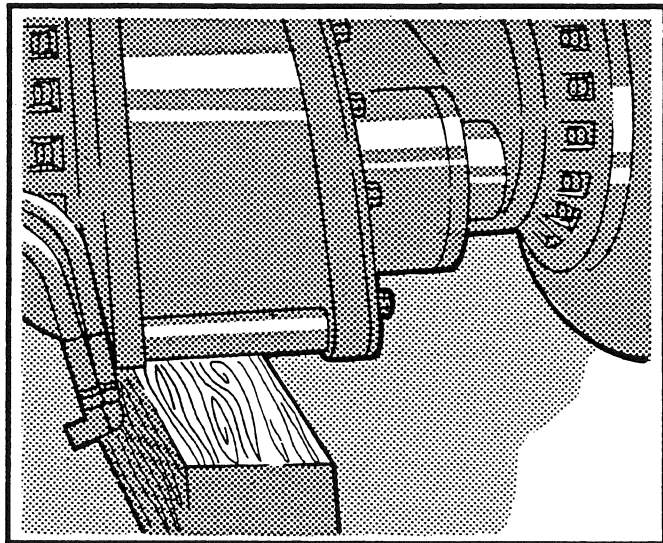


Fig. 23

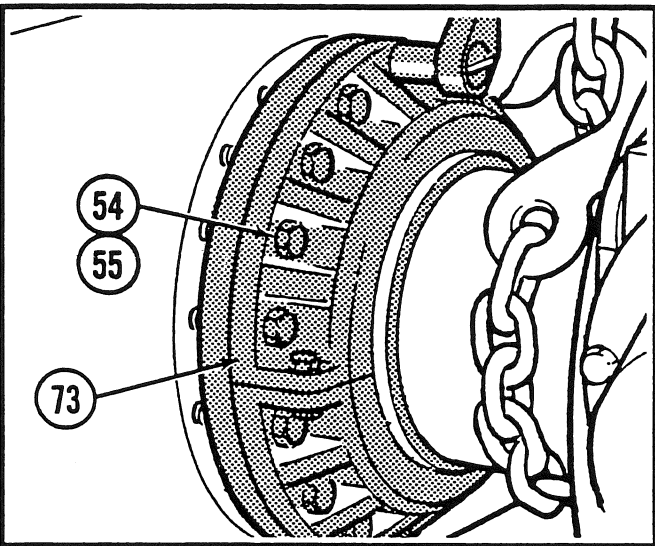


Fig. 21

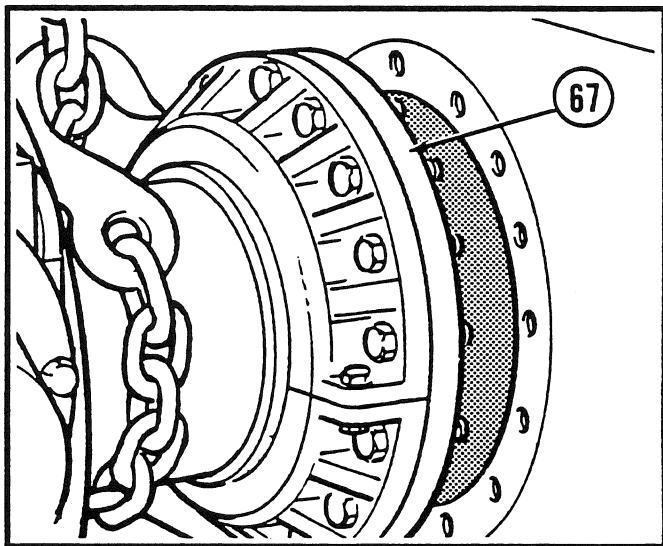


Fig. 24

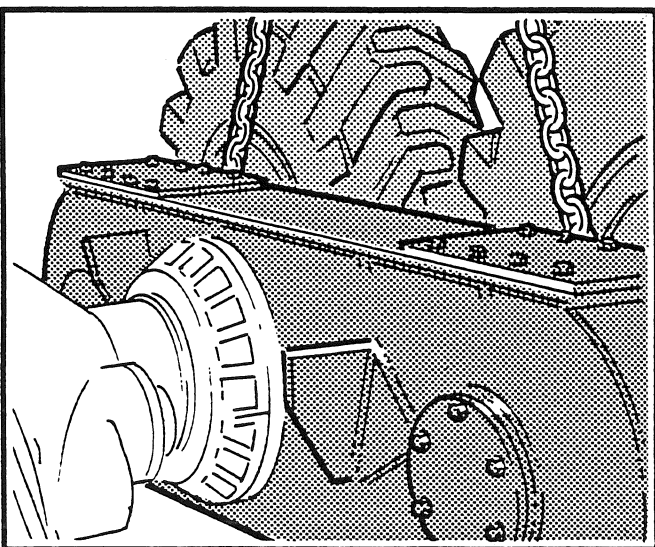


Fig. 22

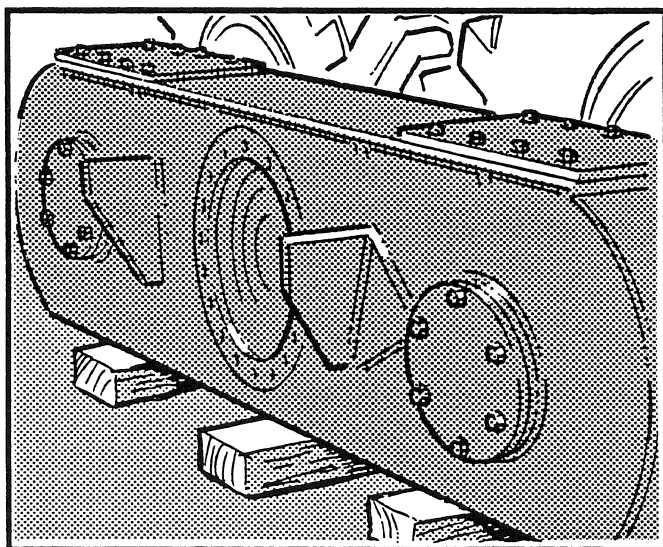


Fig. 25

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Differential Final Drive - Removal (cont.)

Fig. 20

Release the tabs and remove the cap-screws (139), lockplate (138) and sprocket retainer (137). Remove and discard the lockplate.

Fig. 21

Remove the capscrews (54) and lock-washers (55) retaining the half-rings (73) to the tandem.

Fig. 22

Attach the lifting device to the tandem case.

Fig. 23

Support the weight of the differential final drive on proper blocks.

Fig. 24

Remove the tandem case from the differential final drive assembly using the lifting device. Make sure that the flanged sleeve (67) separates from the tandem and remove the tandem. Discard the gasket. If gasket eliminator compound has been used, remove all traces of the sealant.

Fig. 25

Lower the tandem on blocks.

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Removal

(cont.)

Fig. 26

Attach the lifting device to the differential final drive assembly. Support the other tandem case on proper blocks or stands.

Fig. 27

Release the tabs and remove the cap-screws (139), lockplate (138) and sprocket retainer (137). Remove and discard the lockplate. Remove the cap-screws (125) and lockwashers (124) retaining the differential final drive assembly to the tandem case.

Fig. 28

Remove the tandem case from the differential final drive assembly using the lifting device. Make sure that the flanged sleeve (101) separates from the tandem case. Remove and discard the gasket. If gasket eliminator compound has been used, remove all traces of the sealant.

Section 10
Page 13

Differential Final Drive - Disassembly

Fig. 29

Although the assembly can be overhauled on the floor, many procedures will be easier and faster by rotating the assembly in a build stand. If a stand is available, install the differential final drive using the lifting device.

Fig. 30

If you have not already done so, drain the oil from the differential final drive and both tandems. Clean and install the magnetic drain and long reach plugs.

Fig. 31

Remove the hydraulic tube (48) from the differential final drive.

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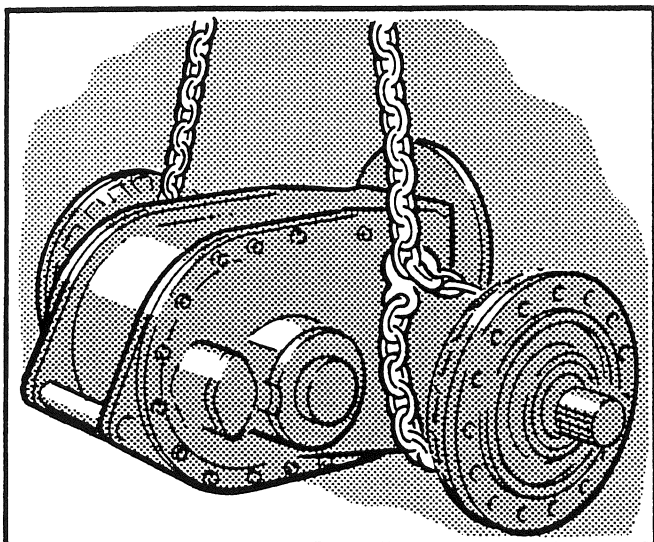


Fig. 26

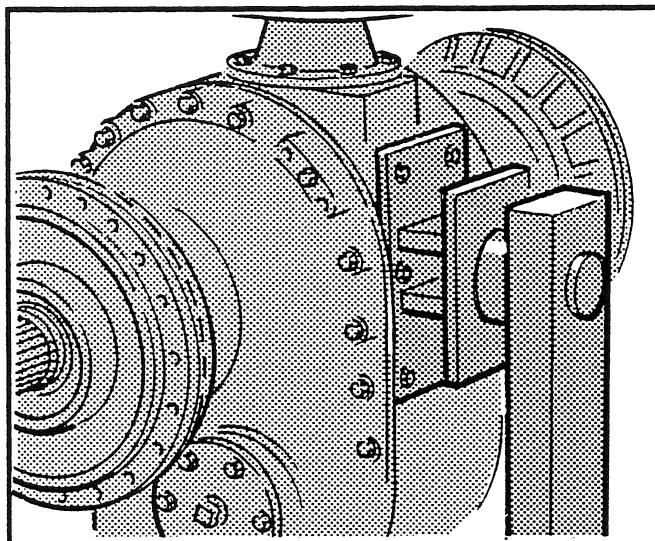


Fig. 29

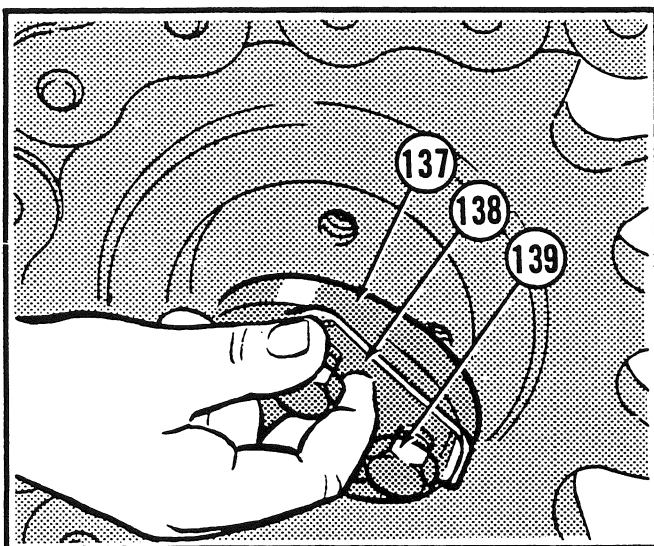


Fig. 27

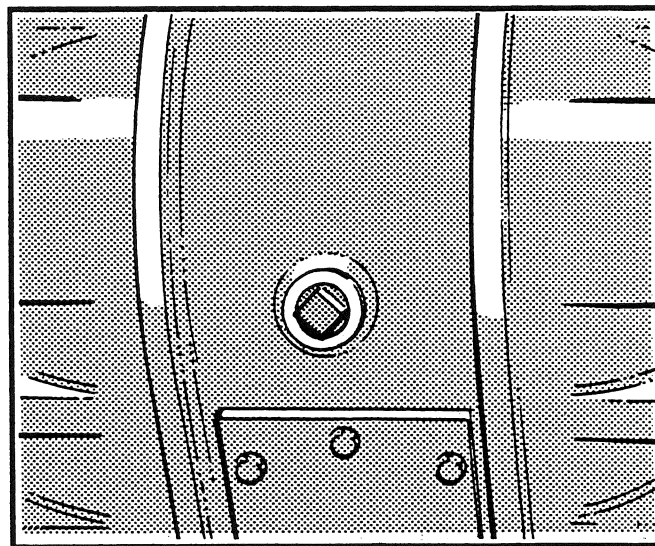


Fig. 30

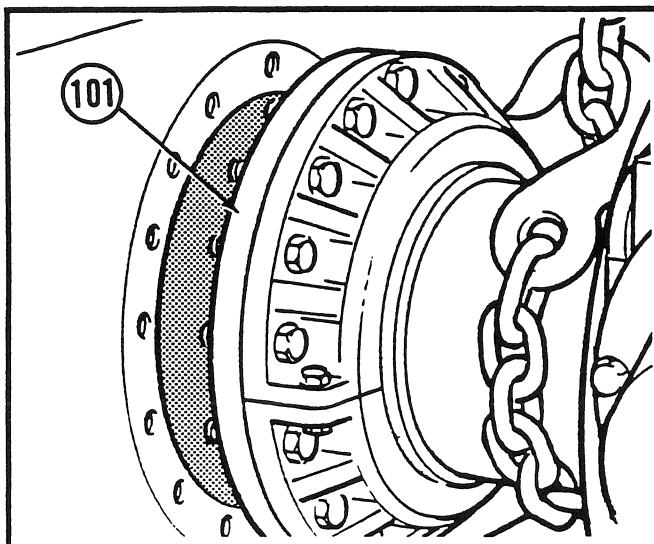


Fig. 28

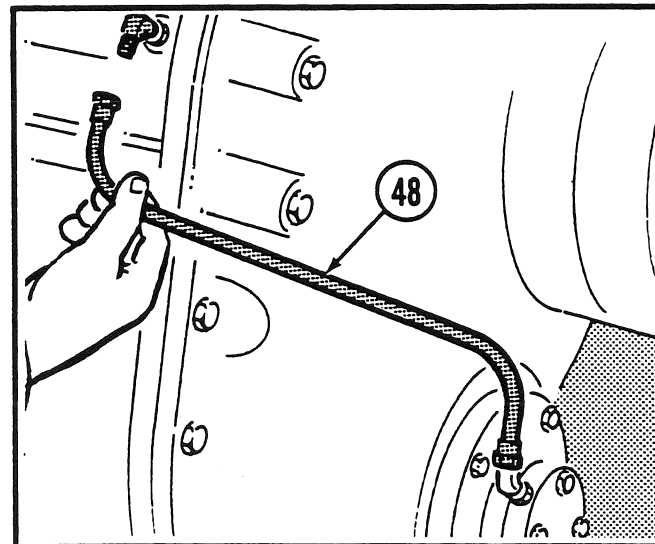


Fig. 31

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

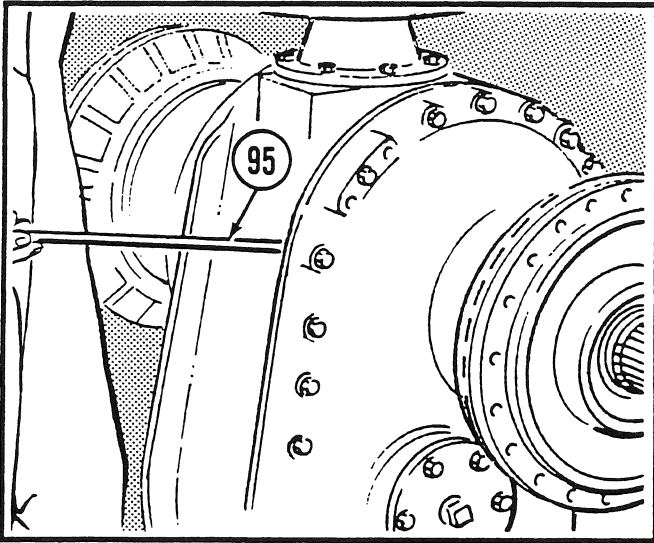


Fig. 32

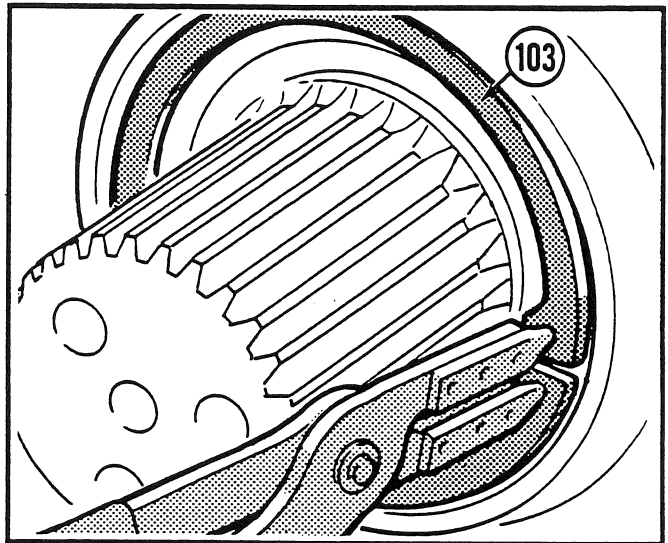


Fig. 35

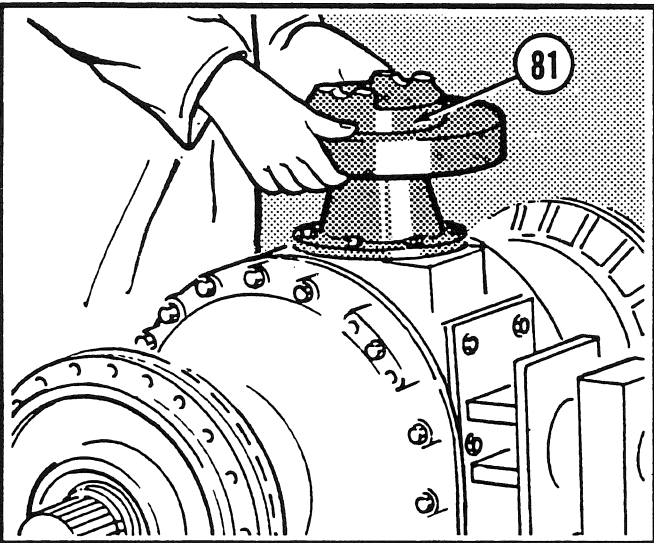


Fig. 33

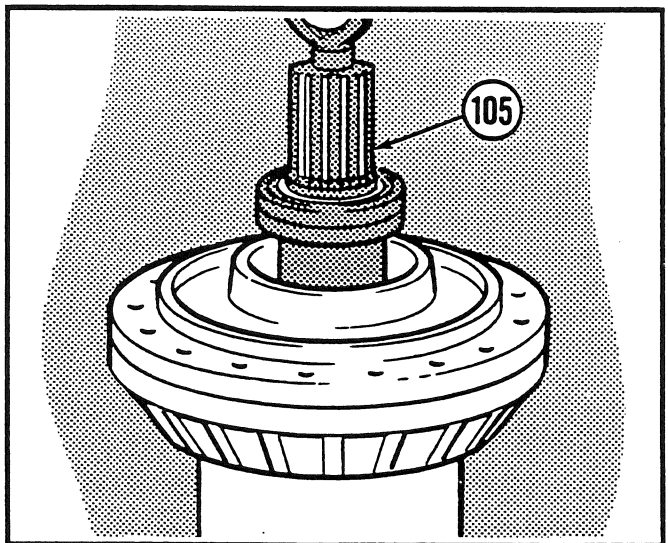


Fig. 36

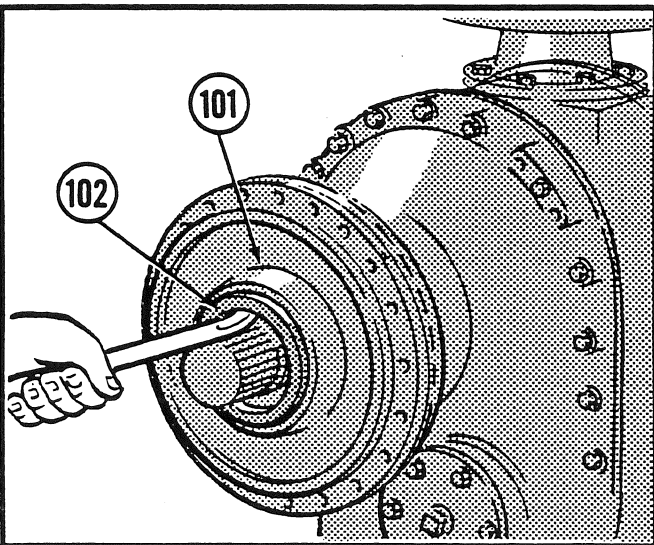


Fig. 34

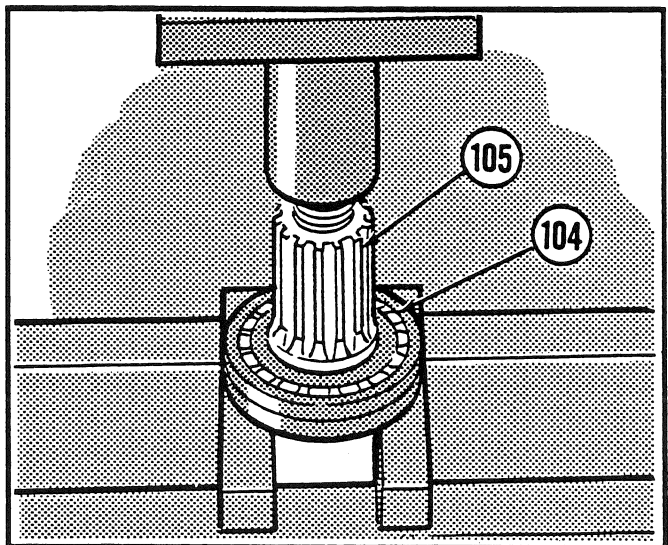


Fig. 37

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Disassembly (cont.)

Fig. 32

Remove the oil suction tube (95). The strainer will be removed later.

Fig. 33

Remove the brake flange yoke (81) and brake disc assembly.

Fig. 34

Using a pry bar, remove the oil seal (102) from the right hand flanged sleeve (101).

Fig. 35

Using snap ring pliers, remove the internal snap ring (103) from flanged sleeve.

Fig. 36

Install a lifting eye in the end of the drive axle (105). Using a hoist, remove the drive axle and bearing assembly.

Fig. 37

Remove the lifting eye from the end of the drive axle (105). Install the drive axle in a press and remove the bearing (104).

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Differential Final Drive - Disassembly (cont.)

Fig. 38

Separate the split ring halves (116 and 123) and remove them from the side housing (113). The halves are a matched pair. You are recommended to assemble the halves while the overhaul is in progress.

Fig. 39

Install a lifting eye in the flanged sleeve (101). Using the hoist, remove the flanged sleeve.

Fig. 40

Remove the O ring (100) and outer thrust plate (99) from the end of the side housing (113). Discard the O ring.

Fig. 41

Remove the inner thrust plate (120).

Fig. 42

Using a screwdriver, lift the "Uniring" seal (117) over the side housing lip. Discard the "Uniring" seal. Remove the drive axle (66) and flanged sleeve (67) from the opposite side of the differential final drive using the procedures in Figures 34 to 42.

Fig. 43

Remove the capscrews (12) and lock-washers (11) retaining the pump end cap (1) and remove the end cap. Remove and discard the gasket (2).

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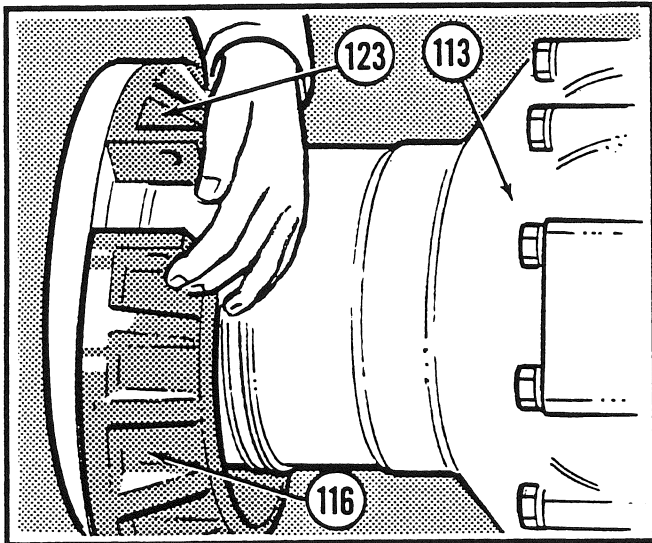


Fig. 38

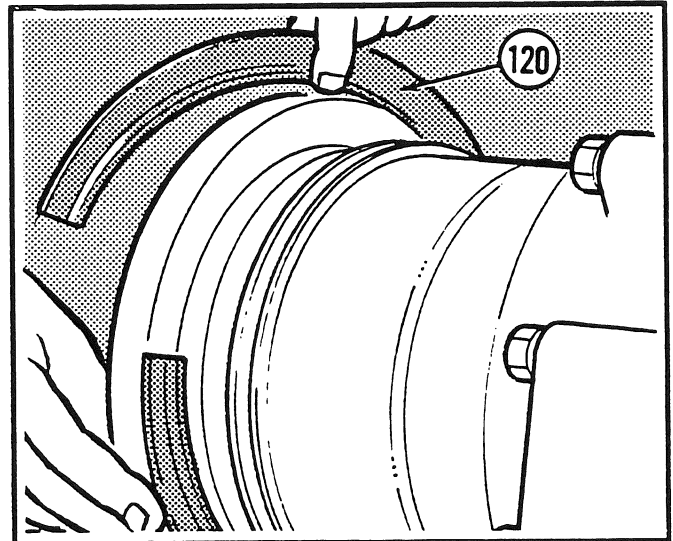


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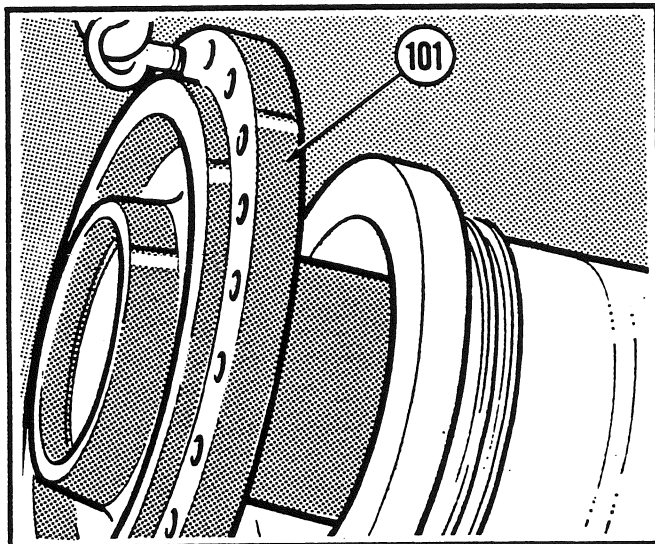


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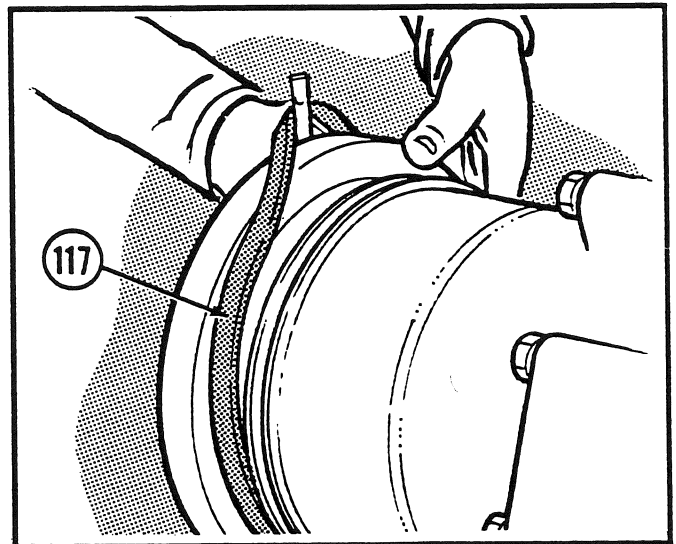


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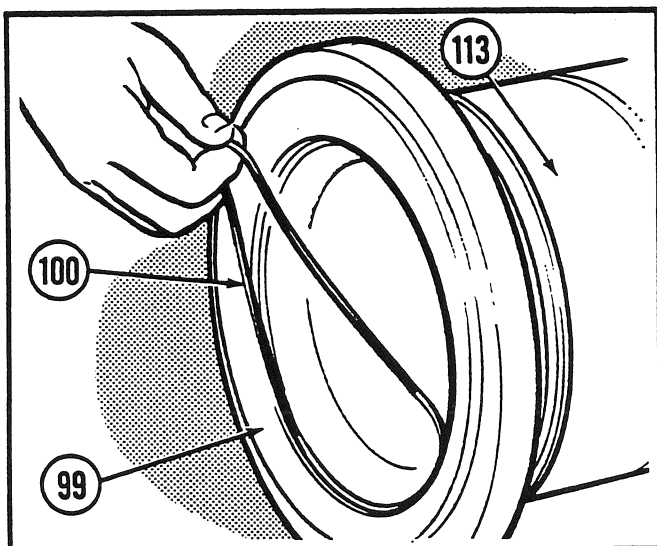


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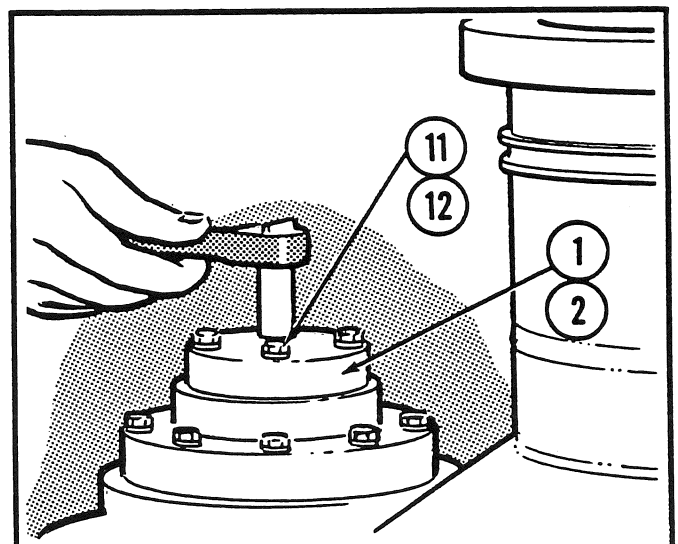


Fig. 43

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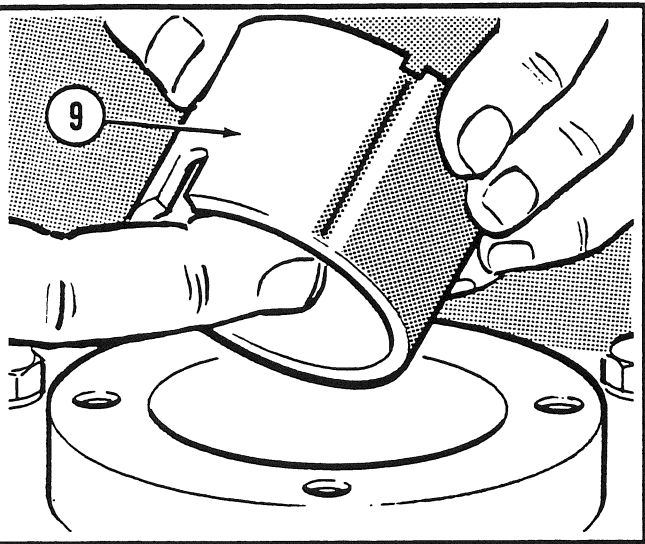


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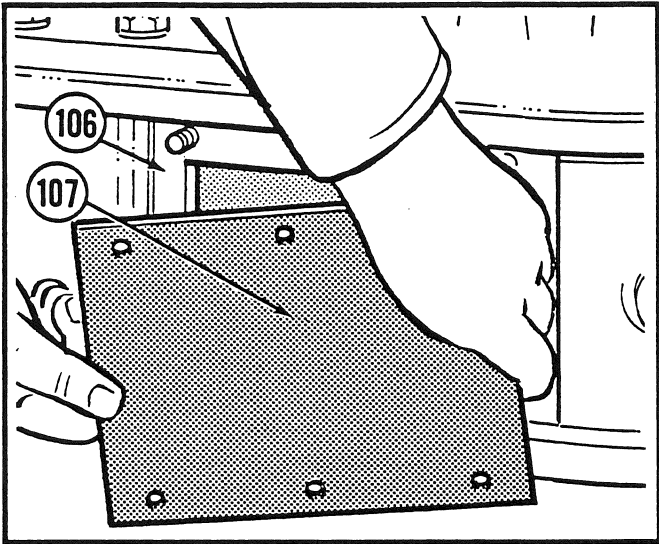


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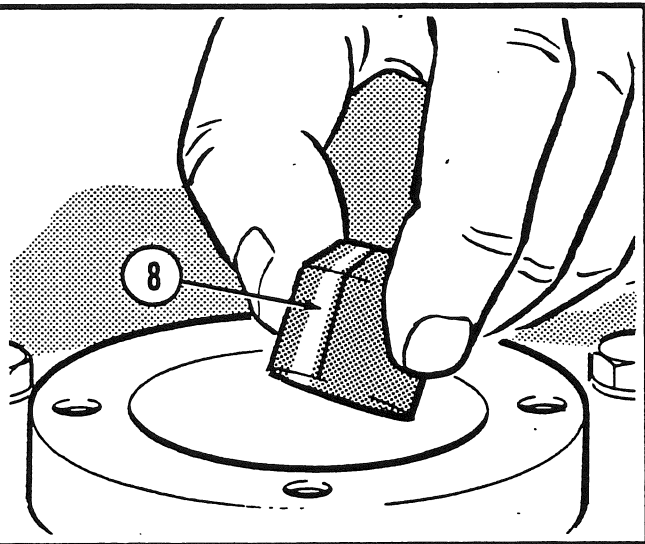


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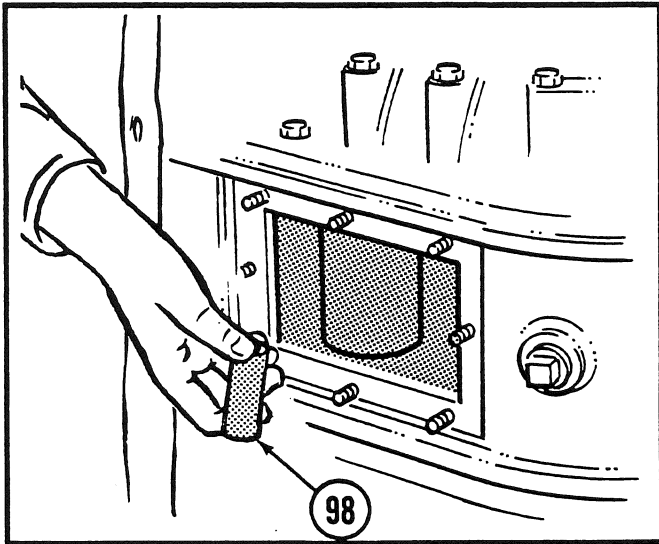


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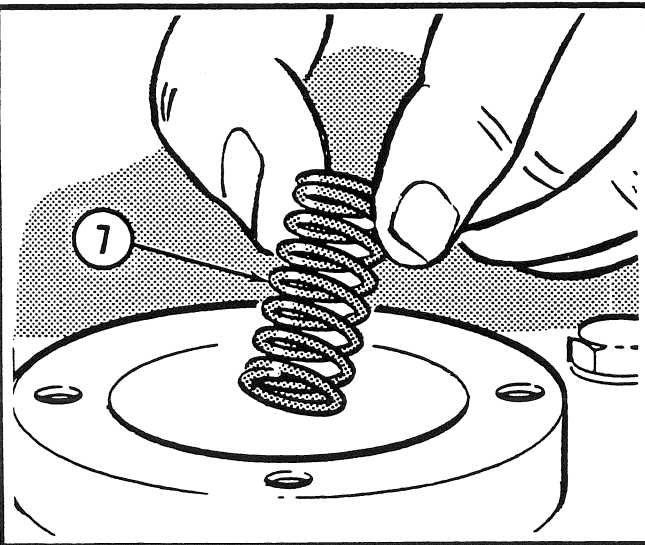


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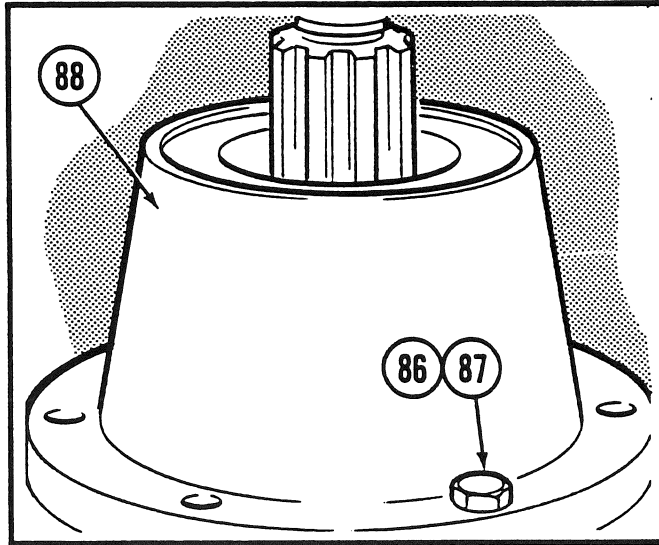


Fig. 49

700 SERIES SHOP MANUAL
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Differential Final Drive - Disassembly (cont.)

Fig. 44

Remove the pump (9).

Fig. 45

Remove the plunger (8).

Fig. 46

Remove the spring (7).

Fig. 47

Remove the nuts (108) and lockwashers (109) retaining the cover plate (107).
Remove and discard the gasket (106).

Fig. 48

Remove the strainer (98) from inside the main case (134) and install it on the oil suction tube (95).

Fig. 49

Remove all the capscrews (86) and lockwashers (87) retaining the pinion cap (88).

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Differential Final Drive - Disassembly (cont.)

Fig. 50

Install a lifting eye on the spiral pinion shaft (94). Use the hoist to remove the pinion shaft.

Fig. 51

Remove the shims (93) and discard any that show signs of damage.

Fig. 52

Install the spiral pinion shaft in a vise with soft jaws. Using a pry bar, remove the oil seal (83) from the pinion cap (88).

Fig. 53

Using the special tool listed in the beginning of this Shop Manual section, remove the stake nut (82).

Fig. 54

Using a press, force the spiral pinion shaft (94) out of the pinion cap (88). DO NOT use a puller or hammer to remove the pinion shaft. Doing so will damage the pinion cap.

Fig. 55

Remove the outer bearing cone (84).

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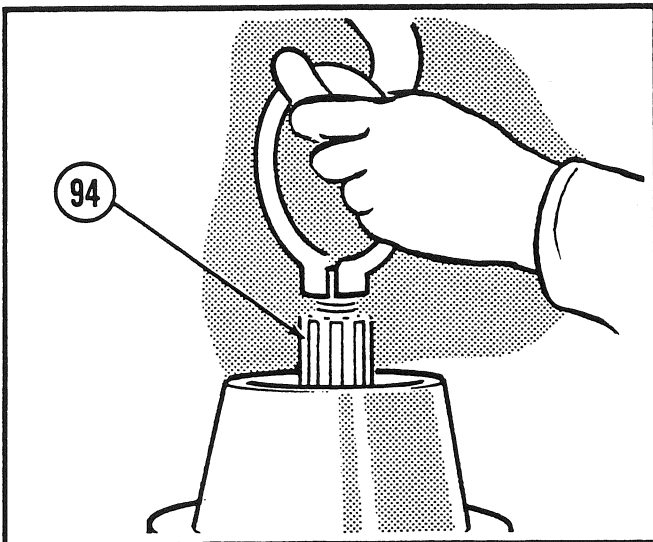


Fig. 50

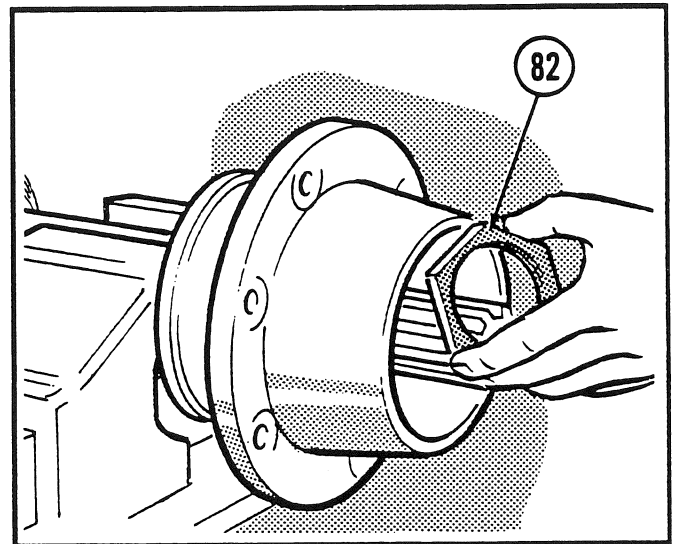


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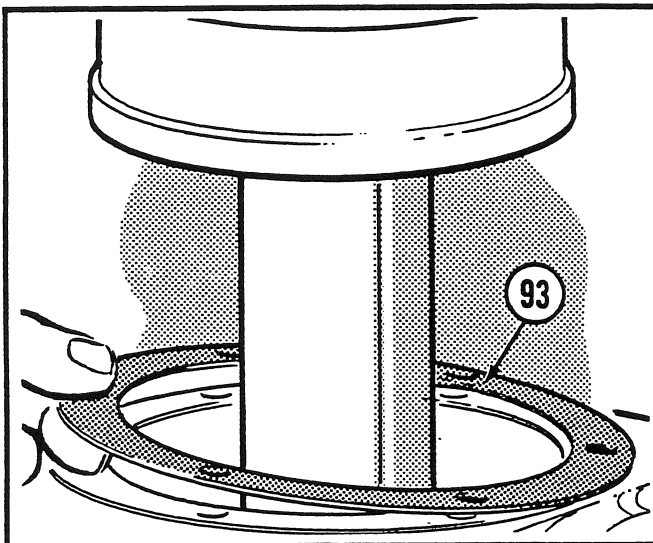


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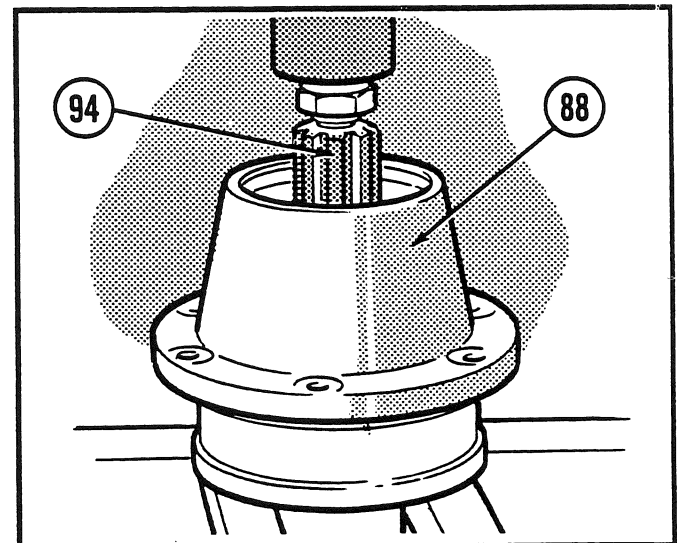


Fig. 54

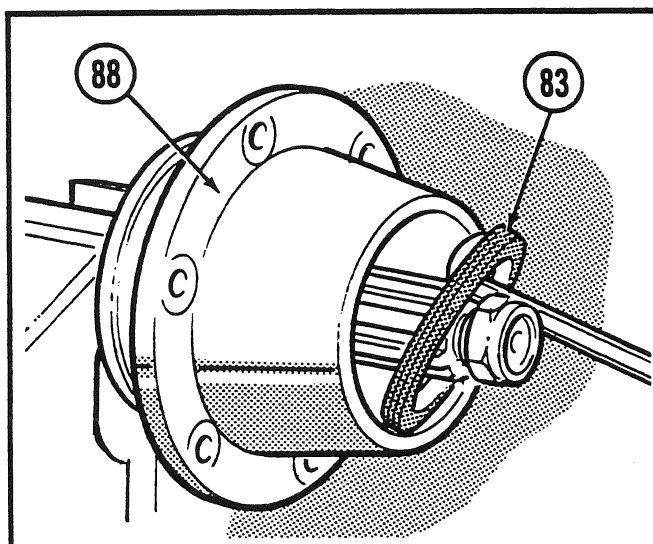


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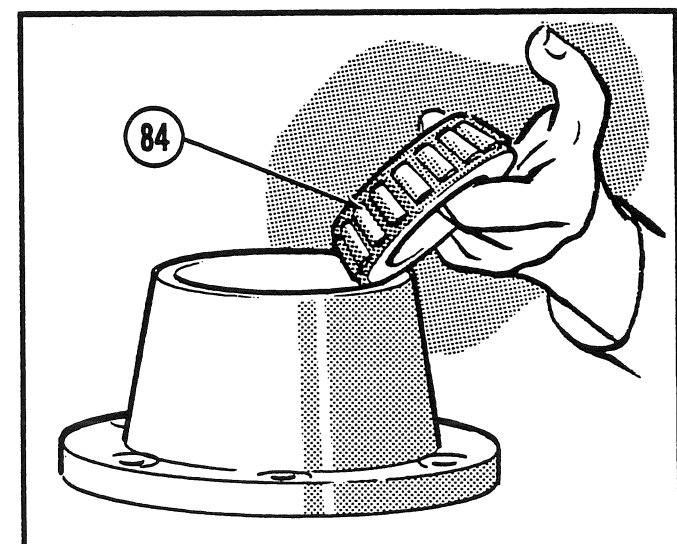


Fig. 55

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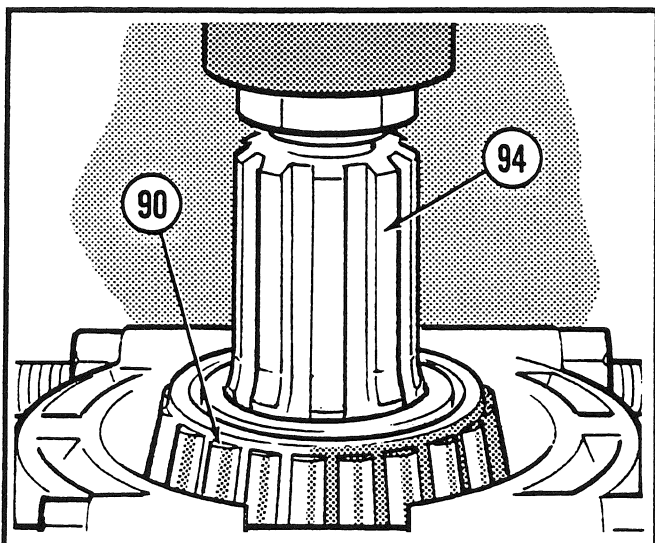


Fig. 56

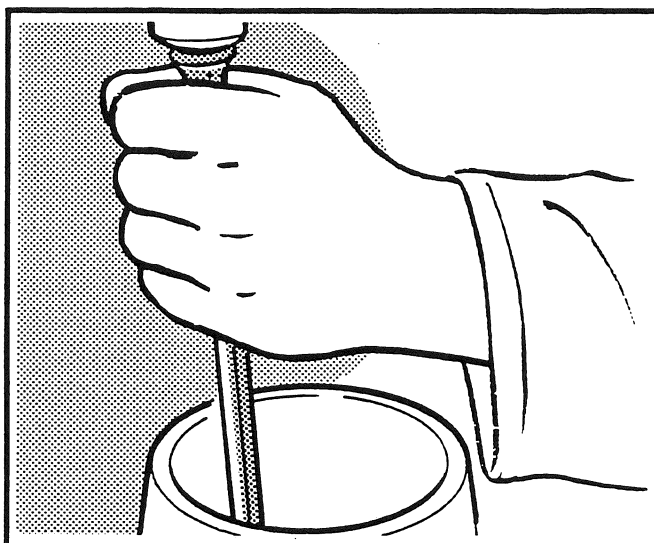


Fig. 59

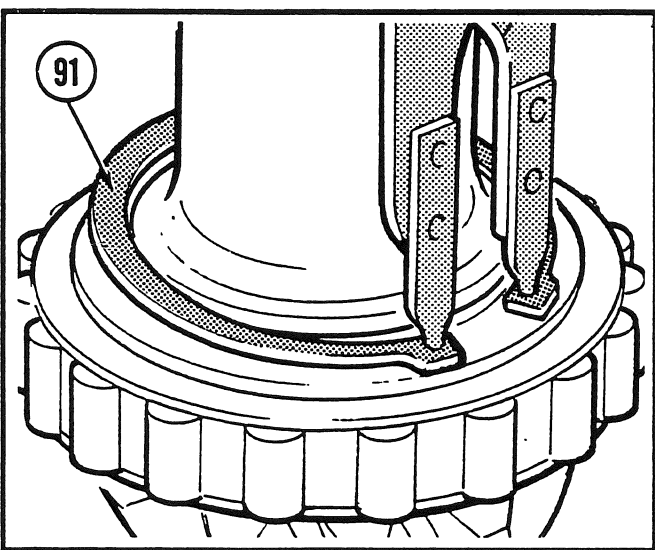


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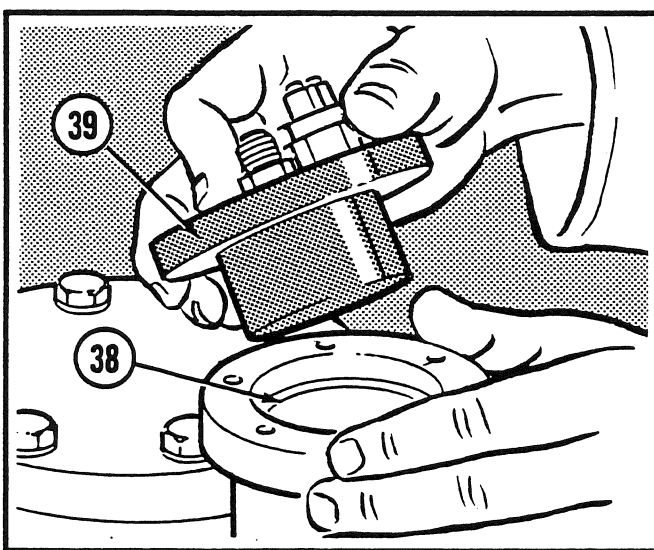


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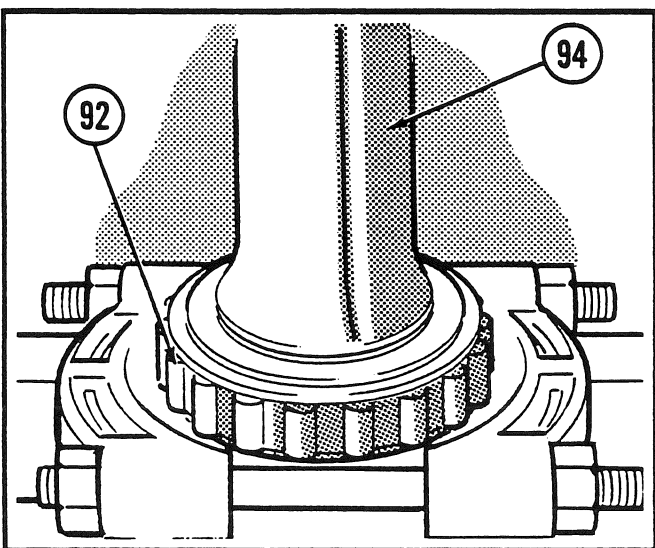


Fig. 58

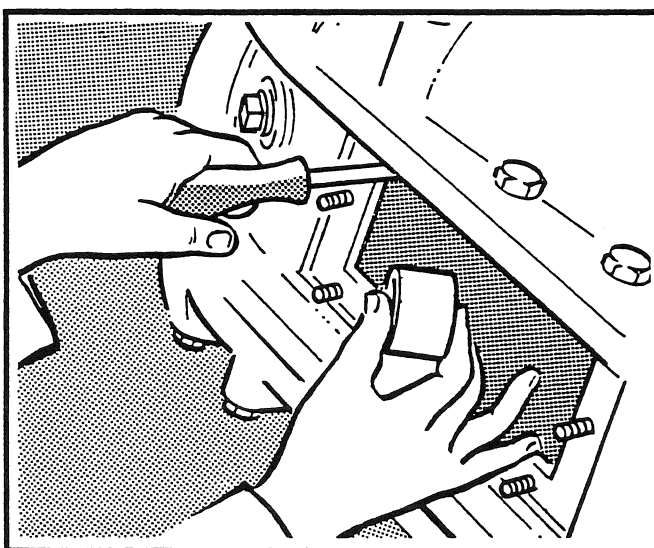


Fig. 61

700 SERIES SHOP MANUAL
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Differential Final Drive - Disassembly (cont.)

Fig. 56

Using a press, remove the inner bearing cone (90) from the spiral pinion shaft (94).

Fig. 59

Using a soft metal drift, remove the bearing cups (85 and 89) from the pinion cap.

Fig. 57

Using snap ring pliers, remove and discard the bearing snap ring (91).

Fig. 60

Remove the capscrews (41) and lockwashers (40) retaining the shift cylinder cap (39) located on the left hand side housing (51). Remove the shift cylinder cap. Remove and discard the O ring (38).

Fig. 58

Using a press, remove the bearing (92) from the spiral pinion shaft (94).

Fig. 61

Gaining access through the inspection port, install a 5 cm (2 in.) spacer between the differential housing (20) and the shifter fork (28).

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Differential Final Drive - Disassembly (cont.)

Fig. 62

Compress the shift cylinder spring (44) by pushing down on the piston (35). Using snap ring pliers, remove the snap ring (42) from the shift rail (31). Remove the retainer (43).

Fig. 65

Remove the washer (45).

Fig. 63

Remove the piston (35). Remove and discard the piston rings (34, 36 and 37).

Fig. 66

Remove the capscrews (33) and lockwashers (32) retaining the shift barrel (47). Remove the shift barrel.

Fig. 64

Remove the spring (44).

Fig. 67

Remove the capscrews (121 and 115) and lockwashers (122 and 114) retaining the right hand side housing (113).

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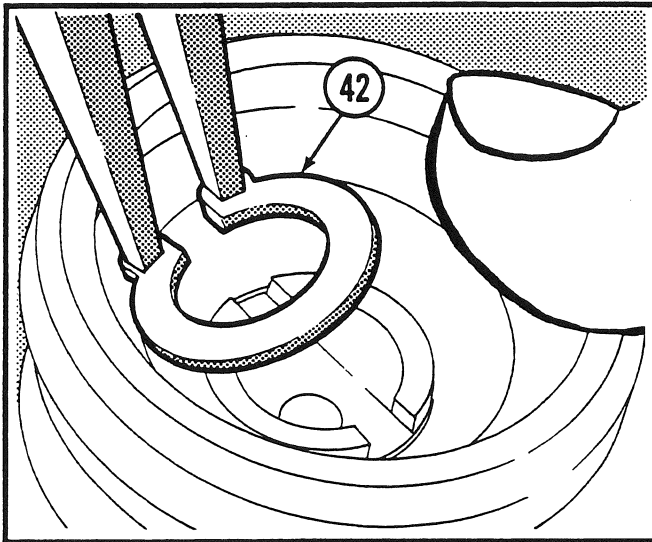


Fig. 62

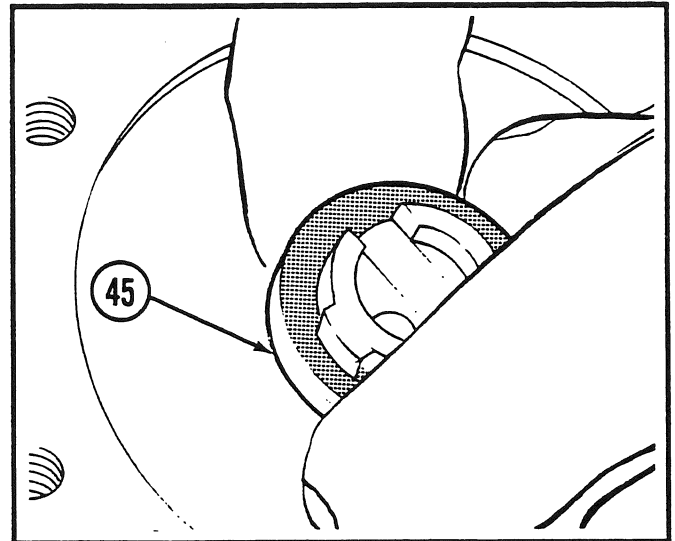


Fig. 65

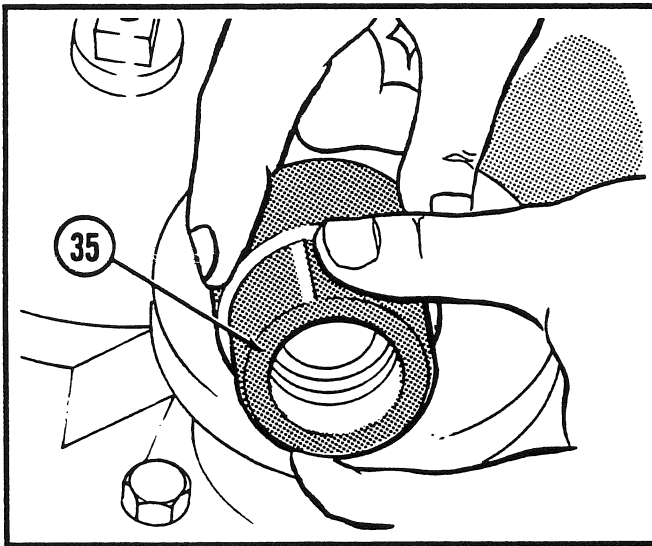


Fig. 63

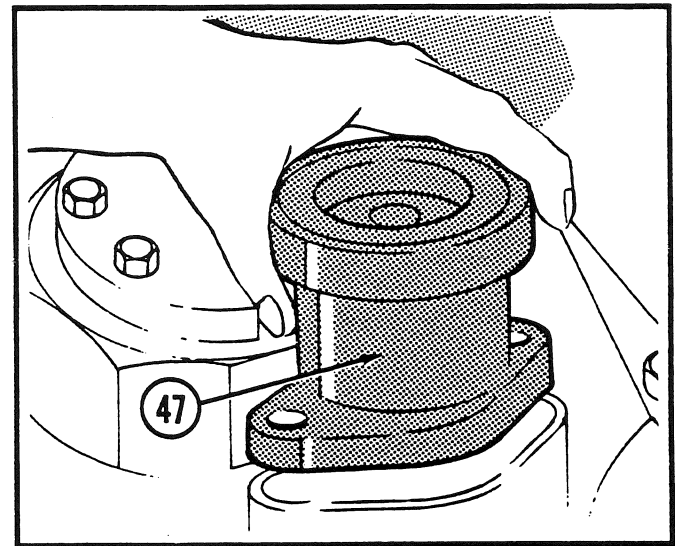


Fig. 66

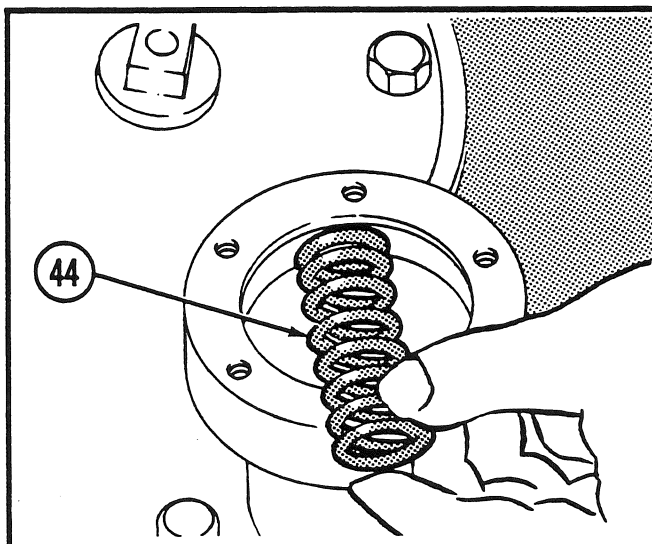


Fig. 64

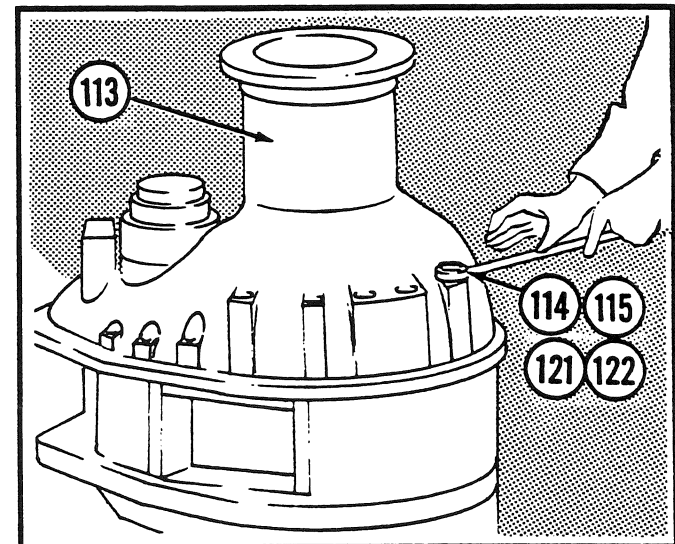


Fig. 67

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Fig. 68

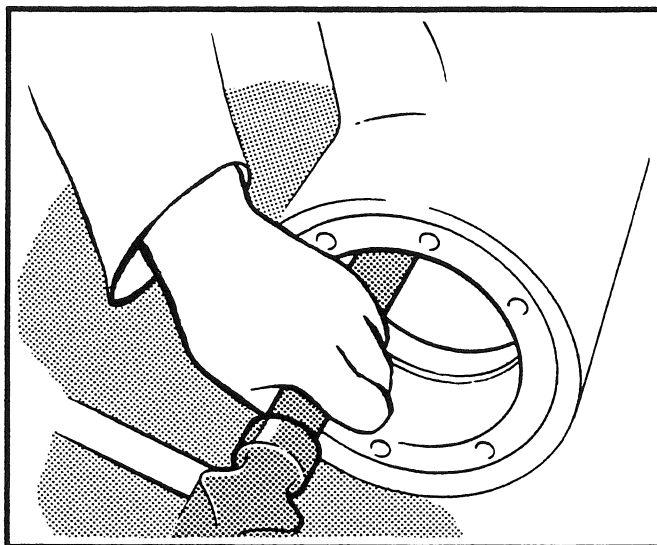


Fig. 71

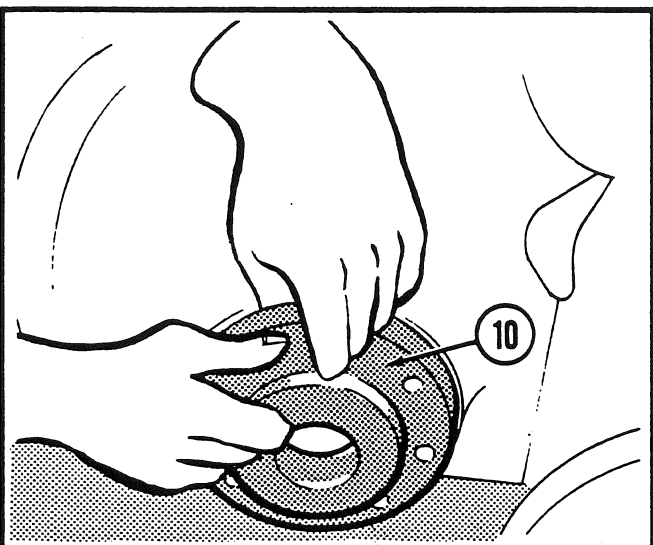


Fig. 69

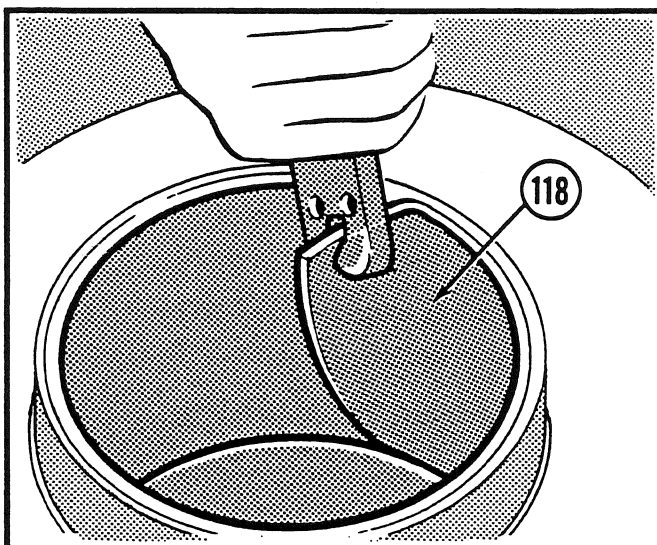


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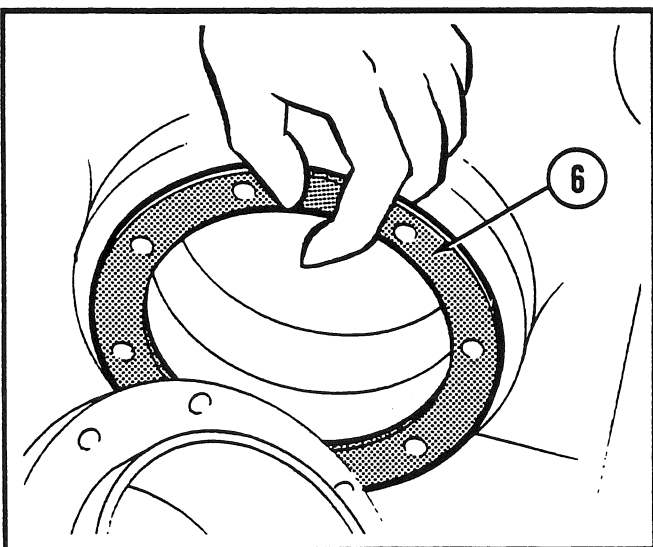


Fig. 70

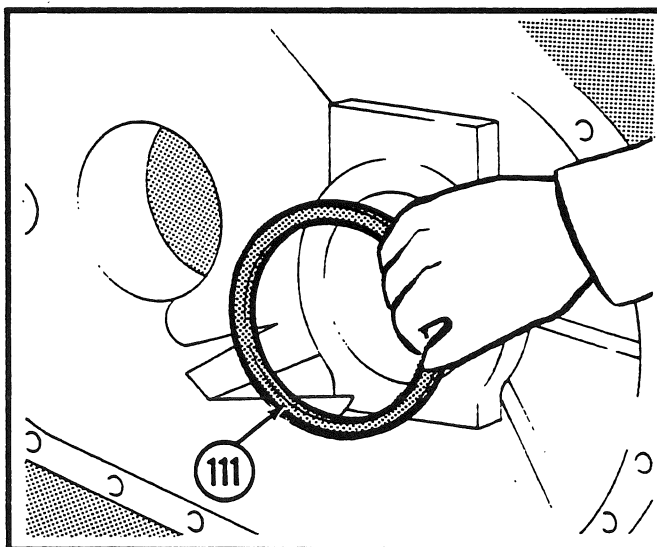


Fig. 73

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Differential Final Drive - Disassembly (cont.)

Fig. 68

Attach lifting tackle to the right hand side housing (113), pry it free, and remove it. Remove and discard the gasket (112).

Fig. 69

Remove the capscrews (12) and lockwashers (11) retaining the pump mount adapter (10).

Fig. 70

Remove the pump mount adapter (10) and remove any shims (6).

Fig. 71

Using a soft metal drift, remove the cross shaft bearing cup (4) from the bearing bore.

Fig. 72

Using a hammer and chisel, lift one corner of the outer bushing (118). Using vise grips clamped on the bushing, remove the bushing. Repeat this procedure for the inner bushing (119).

Fig. 73

Using a drift, remove the bull gear outer bearing race (111) from the side housing.

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Disassembly (cont.)

Fig. 74



Remove the bull gear (110).

Fig. 75

Check the bull gear inner bearing races (111) for damage. Replace the complete bearing if necessary.

Fig. 76

Remove two socket head capscrews (17) from the differential housing (20) and install lifting eyes.

Fig. 77

Remove the cross shaft and differential housing assembly from the main case (134) using the lifting device. Place the assembly on a clean work bench.

Fig. 78

Remove the bearing locknut (3) from the end of the cross shaft (49).

Fig. 79

Remove the bearing cone (5) from the cross shaft using an appropriate pul-
ler.

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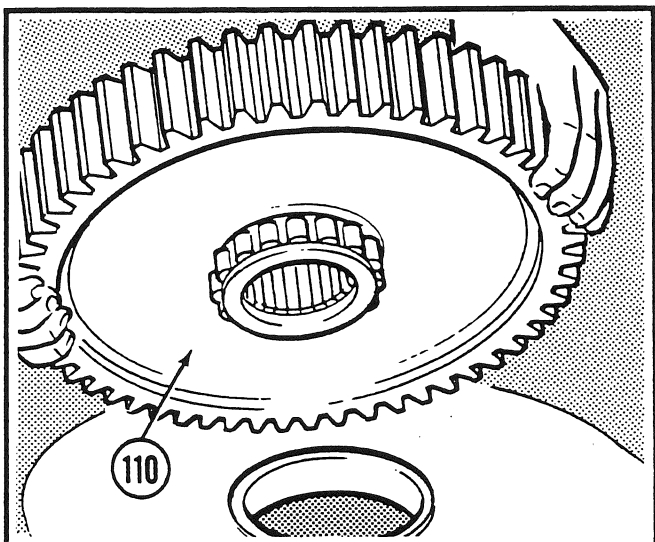


Fig. 74

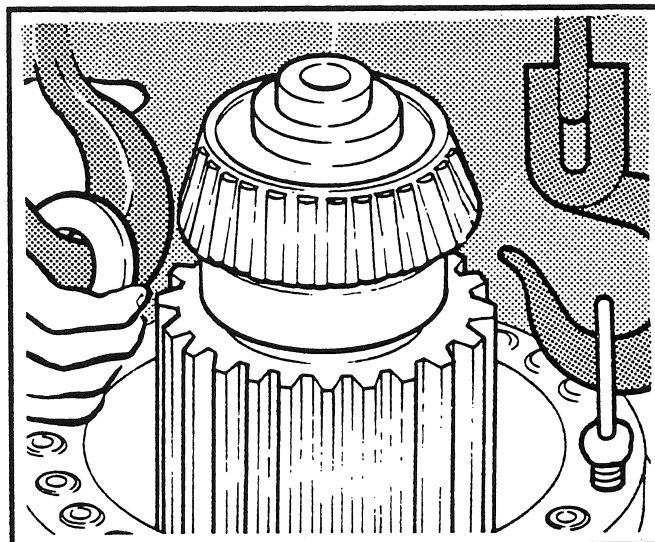


Fig. 77

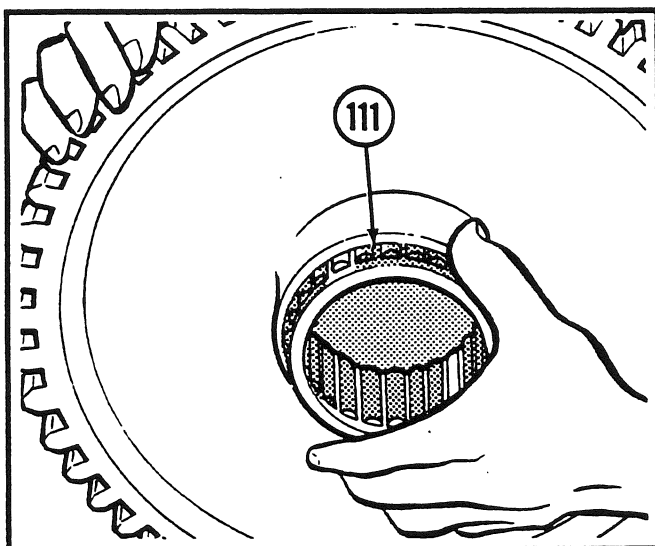


Fig. 75

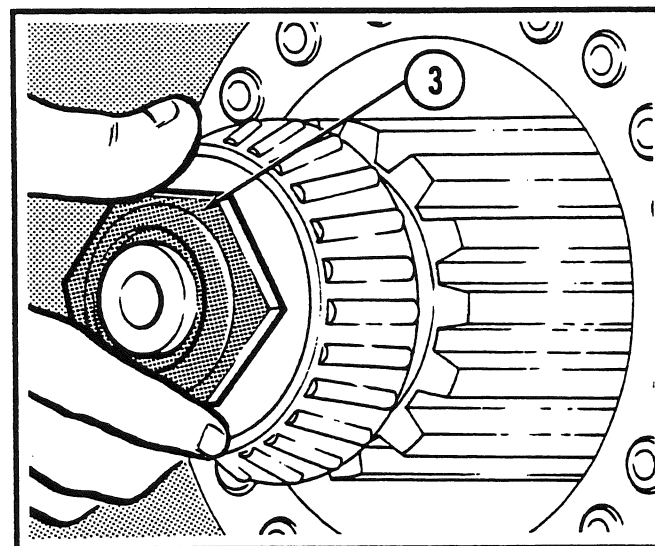


Fig. 78

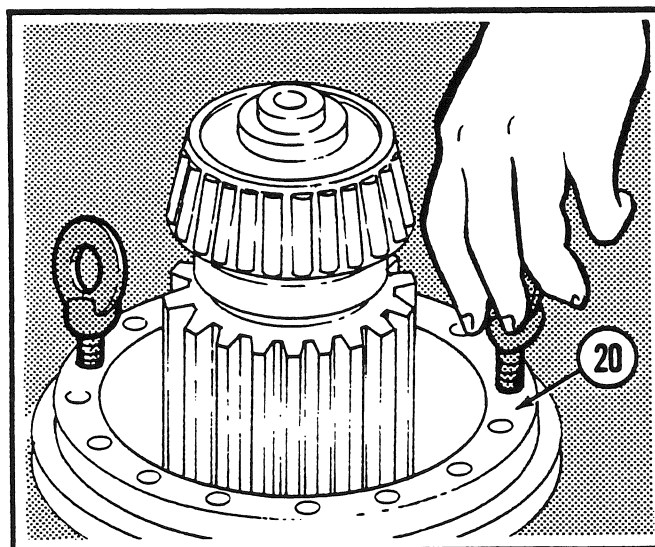


Fig. 76

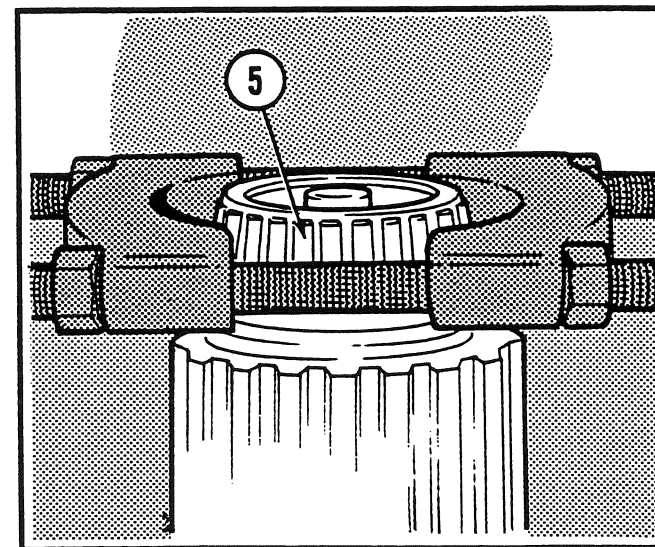


Fig. 79

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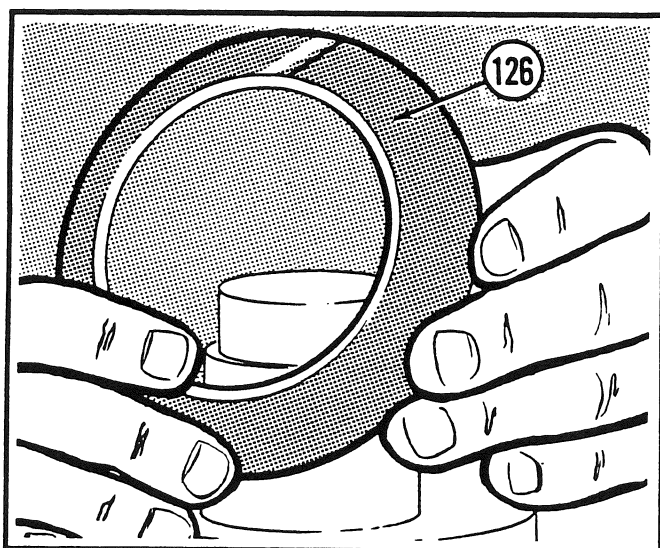


Fig. 80

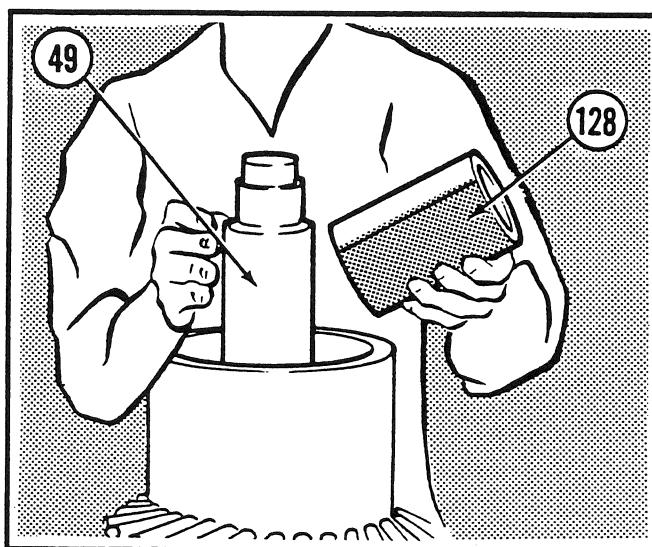


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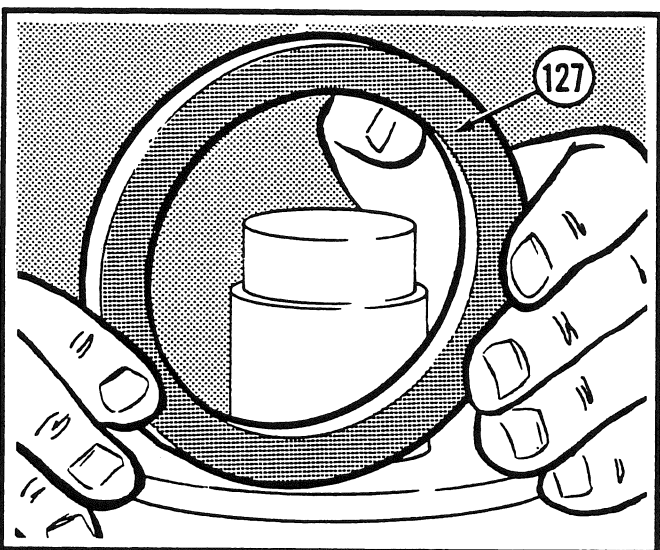


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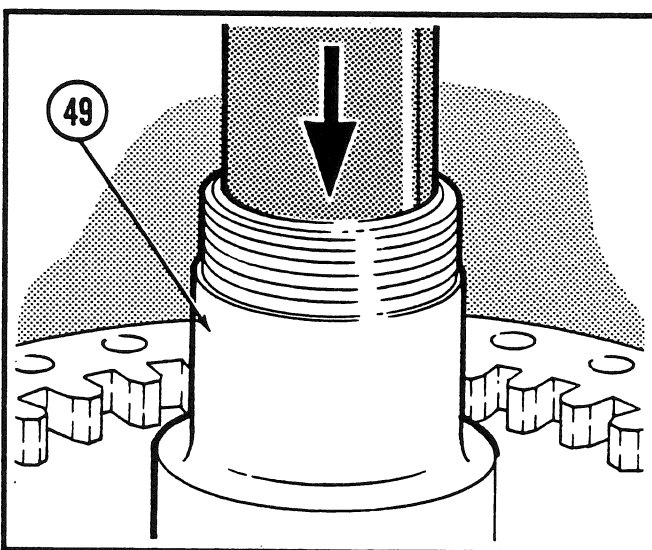


Fig. 84

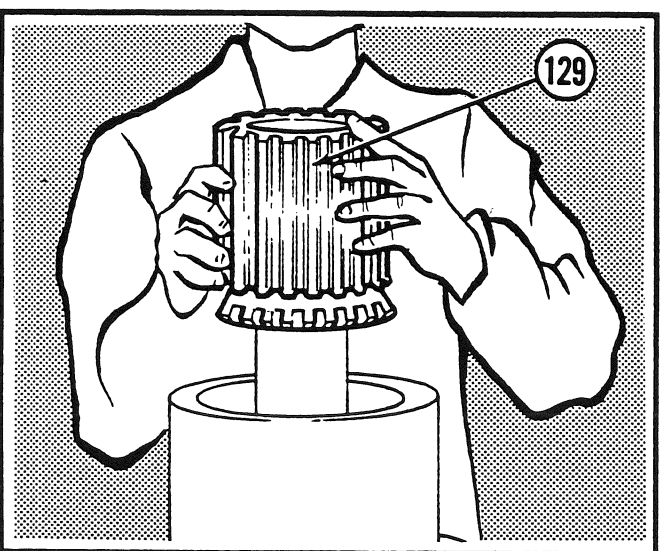


Fig. 82

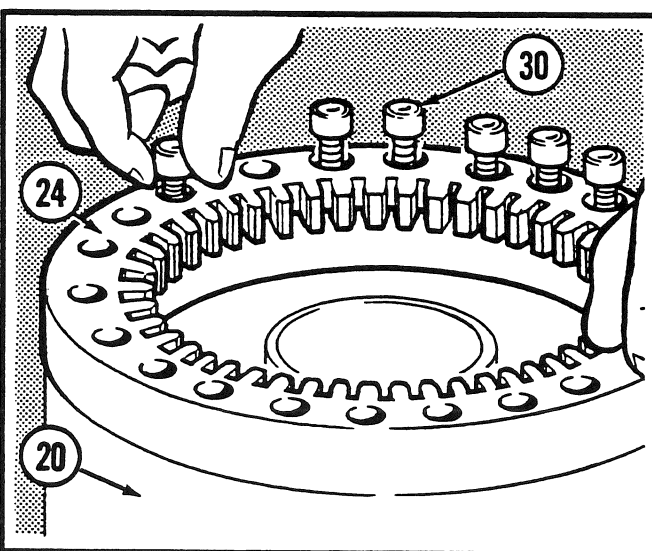


Fig. 85

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Differential Final Drive - Disassembly (cont.)

Fig. 80

Remove the thrust washer (126).

Fig. 83

Remove the pinion sleeve (128) from the cross shaft (49). Repeat the procedures described in Figure 78 through Figure 81 to disassemble the opposite end of the cross shaft.

Fig. 81

Remove the thrust bearing (127).

Fig. 84

Using a press, force the cross shaft (49) out of the differential housing (20).

Fig. 82

Remove the spider pinion gear (129).

Fig. 85

Remove the socket head capscrews (30) retaining the shift clutch gear (24) to the differential housing (20).

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Differential Final Drive - Disassembly (cont.)

Fig. 86

Using a long drift, remove the three dowel pins (29) from the housing (20). The dowel pins are used to retain the spider gear pins (13).

Fig. 89

To release the spiral pinion gear (21) from the differential housing (20), use a suitable drift to carefully remove the four dowel pins (14).

Fig. 87

Remove the shift clutch gear (24) from the differential housing (20).

Fig. 90

Remove the spider gear pins (13) from the differential housing (20).

Fig. 88

Turn the housing over and remove the capscrews (17) retaining the spiral pinion gear (21).

Fig. 91

Remove the three spider gears (15), bushings (16), needle thrust bearings (18), and washers (19).

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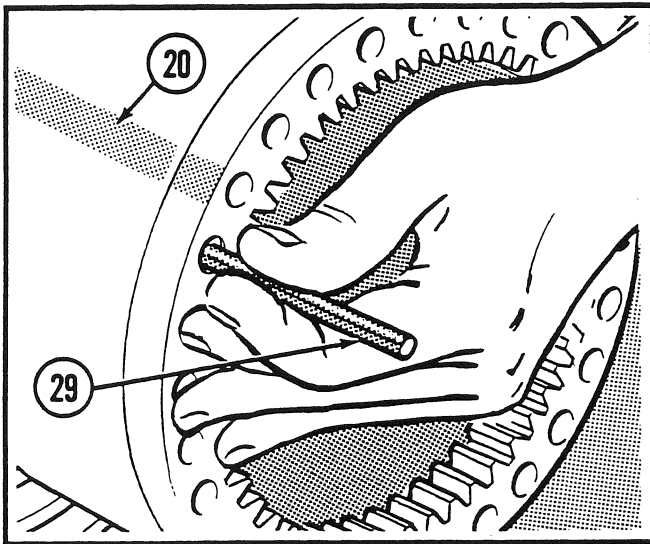


Fig. 86

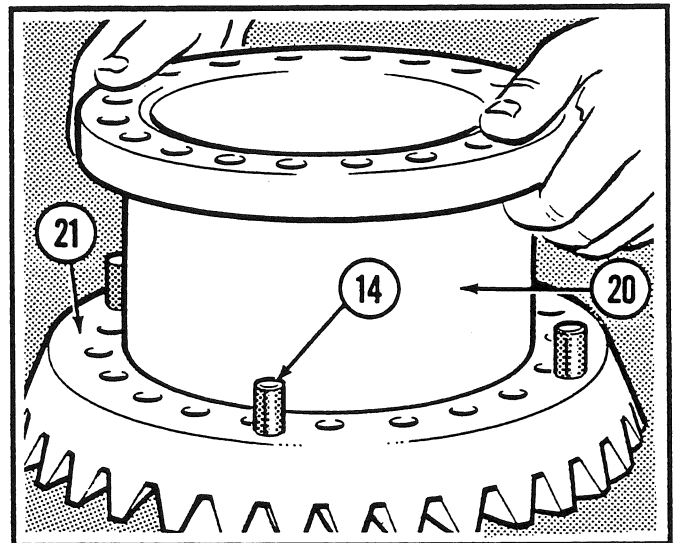


Fig. 89

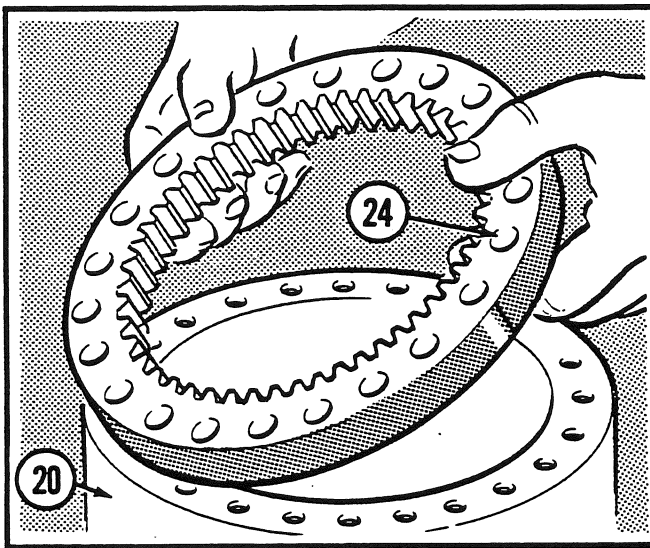


Fig. 87

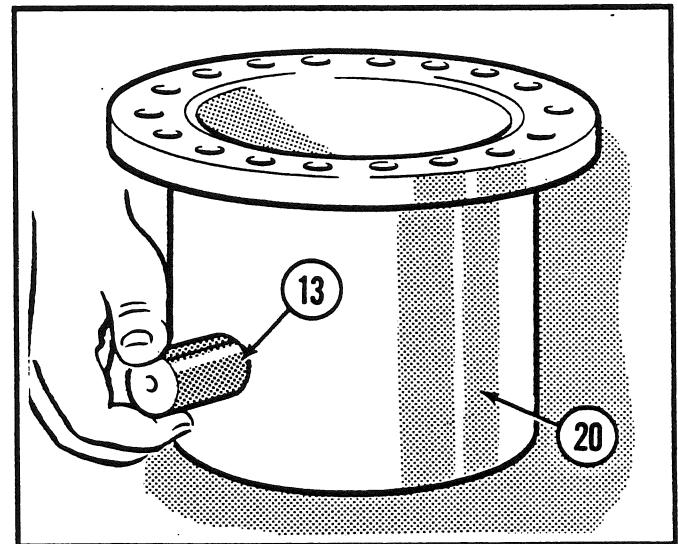


Fig. 90

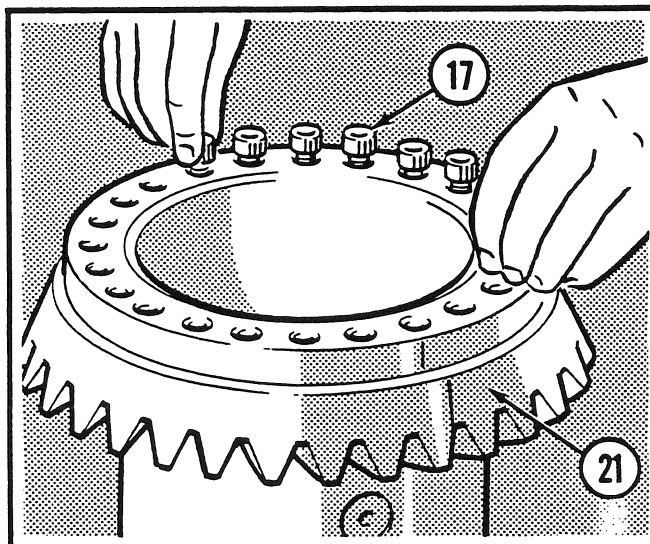


Fig. 88

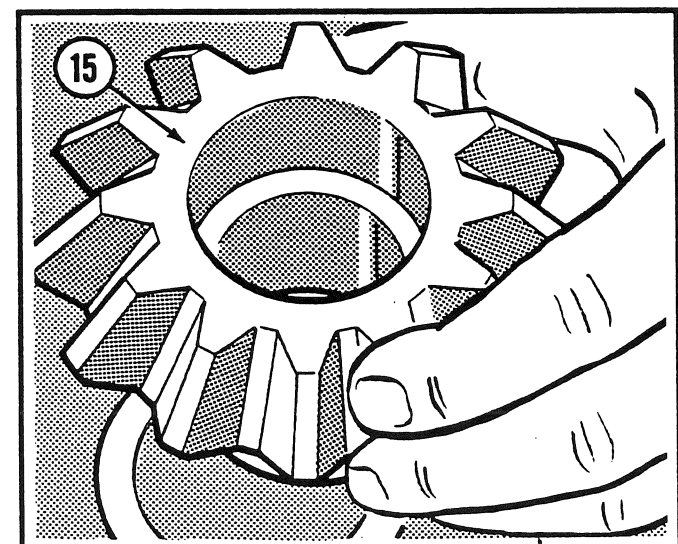


Fig. 91

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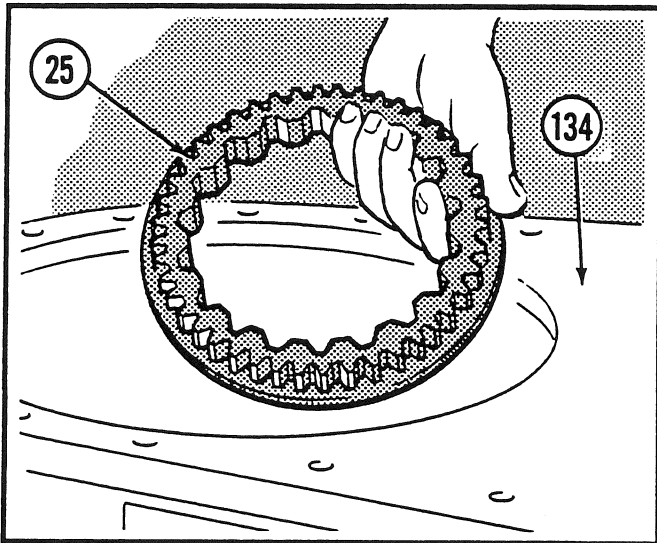


Fig. 92

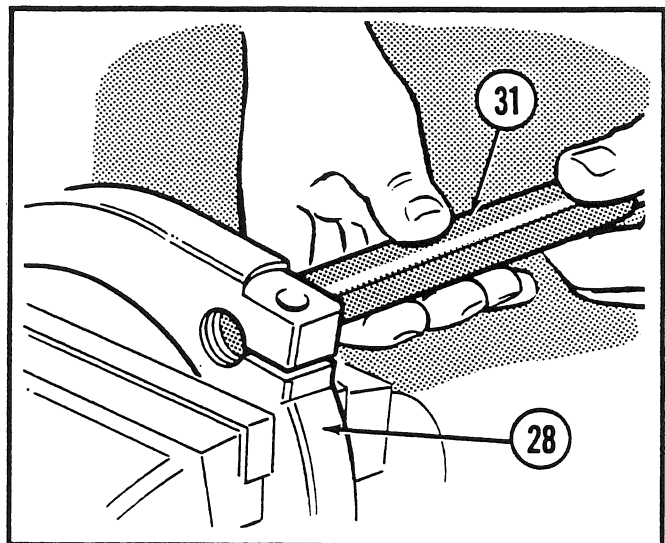


Fig. 95

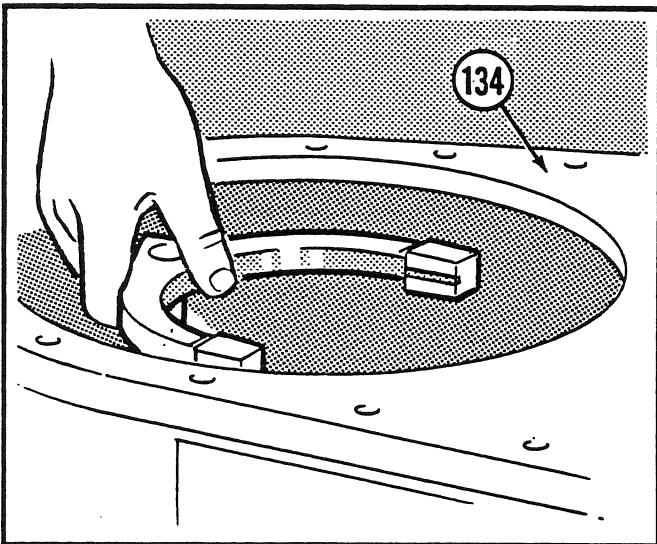


Fig. 93

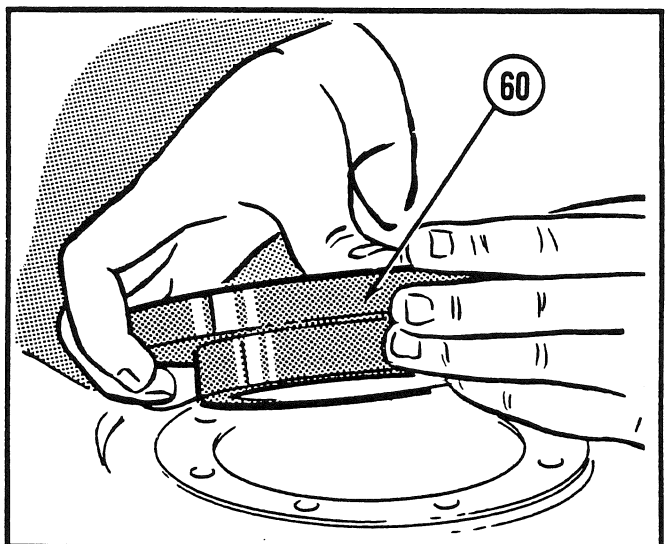


Fig. 96

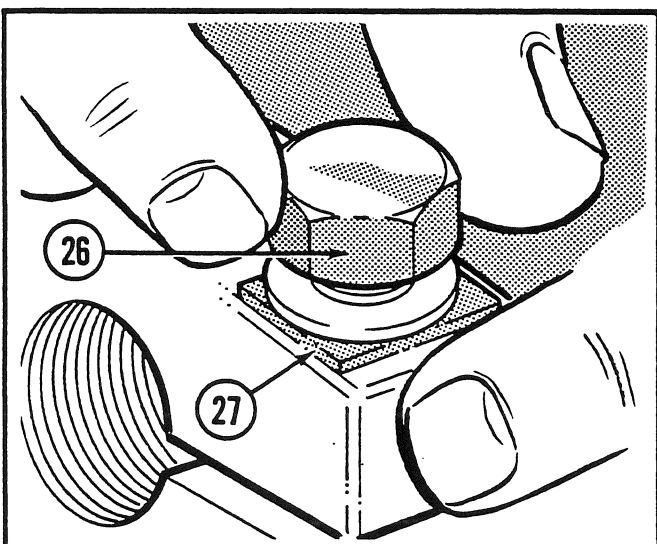


Fig. 94

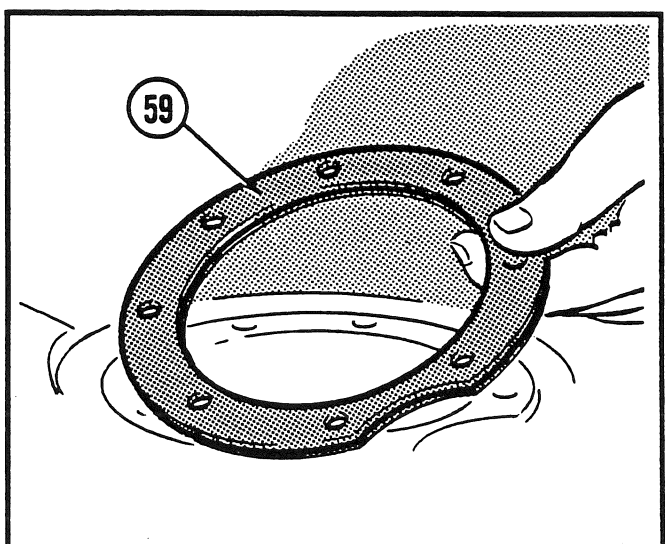


Fig. 97

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Differential Final Drive - Disassembly (cont.)

Fig. 92

Remove the shift clutch (25) from the shifter fork (28). Remove the shift clutch from the main case (134).

Fig. 95

Unscrew the shift rail (31) from the shifter fork (28).

Fig. 93

Remove the shifter fork assembly from the main case (134).

Fig. 96

Remove the capscrews (62) and lockwashers (61) retaining the cross shaft bearing cap (60) and remove the cap.

Fig. 94

Release the tabwasher (27) and loosen the shifter fork lockscrew (26).

Fig. 97

Remove the cross shaft bearing cap shim pack (59) and discard any fiber shims. Put steel shims aside for reuse.

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Differential Final Drive - Disassembly (cont.)

Fig. 98

Using a pry bar, remove the shift rail oil seals (46). Repeat the procedures described in Figure 67 to Figure 75 to remove the left side housing (51), bull gear (75), and other related components.

Fig. 101

Discard all O rings, seals, gaskets, and snap rings.

Fig. 99

Remove the lockscrew (97) and lock-washer (96) securing the pinion bearing outer race (92) to the main case (134).

Fig. 102

Clean the housings in a hot tank, then carefully rinse and dry them.

Fig. 100

Using a soft metal drift, remove the outer race (92) from the main case (134). Disassembly of the differential final drive is now complete.

Fig. 103

Clean gears, shafts and bearings with solvent. Inspect for any scratches, damage or wear. Use an approved crack detection process whenever possible.

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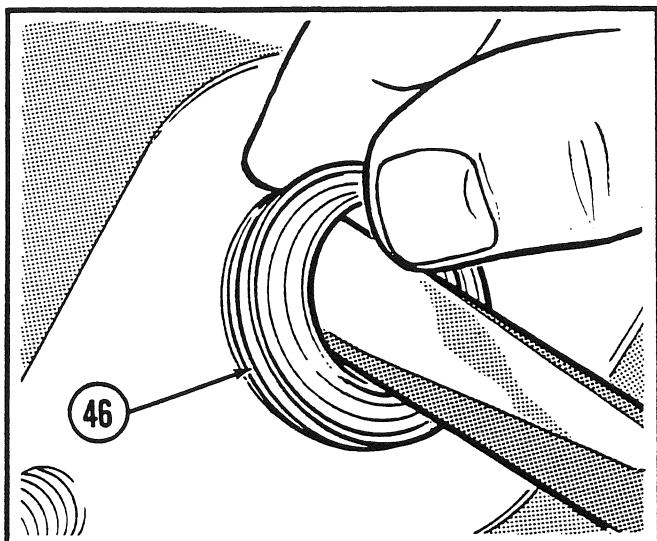


Fig. 98

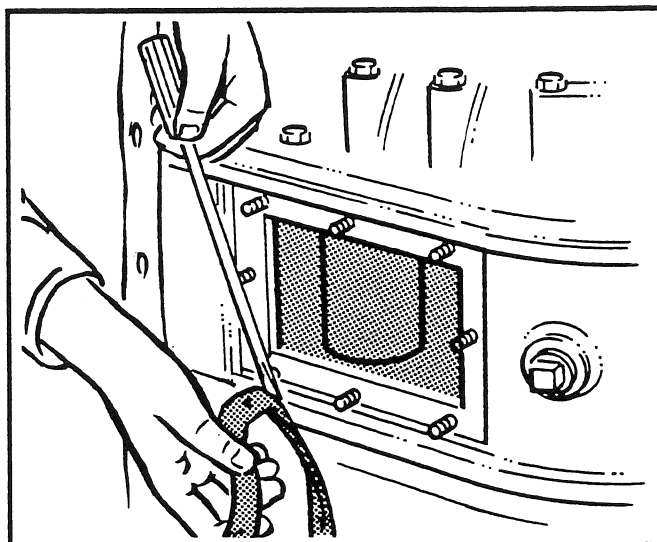


Fig. 101

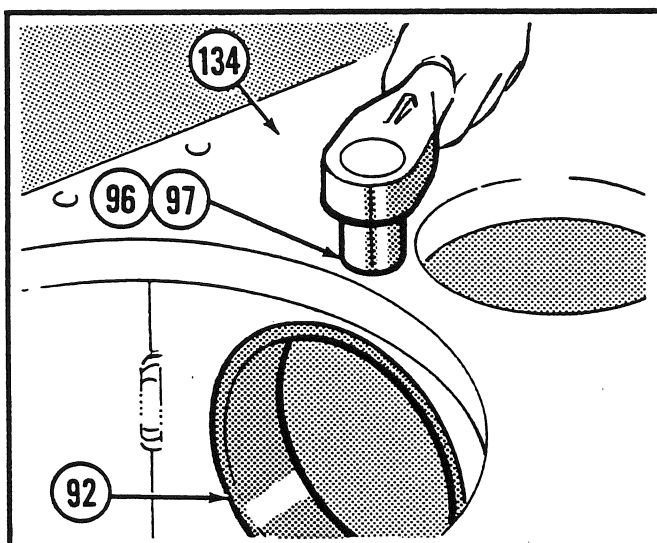


Fig. 99



Fig. 102

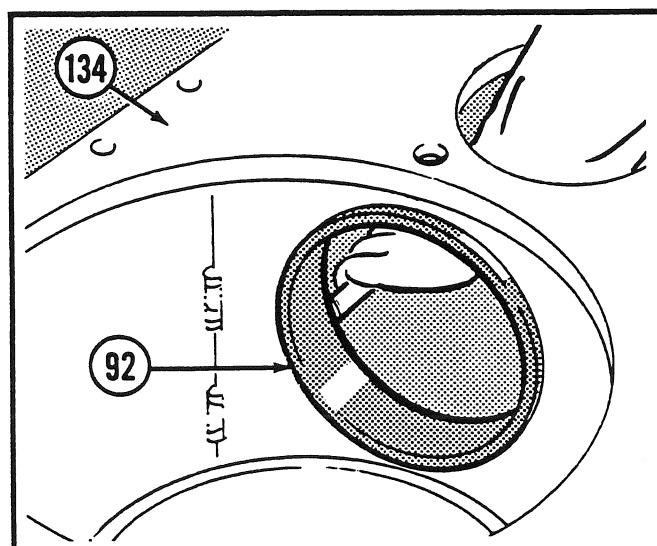


Fig. 100

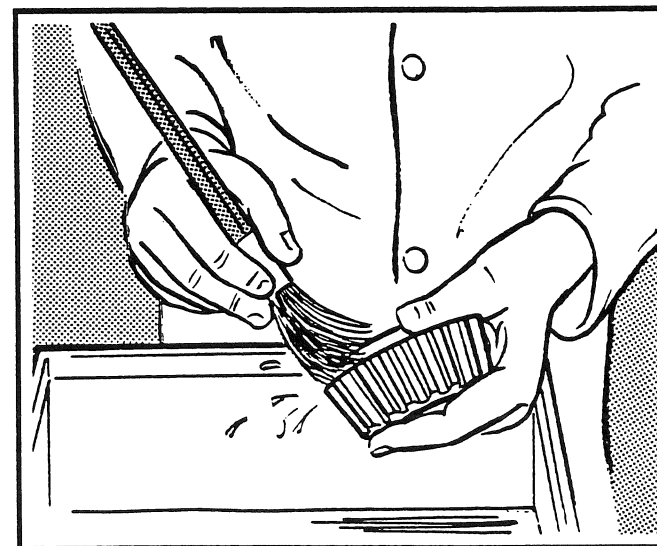


Fig. 103

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

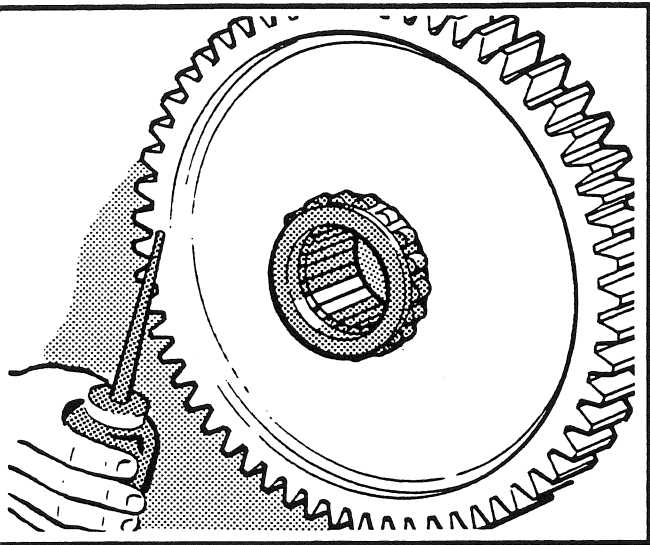


Fig. 104

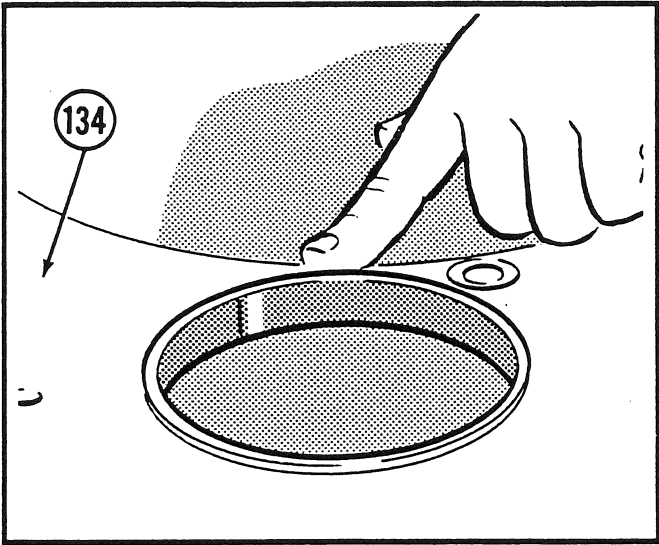


Fig. 107

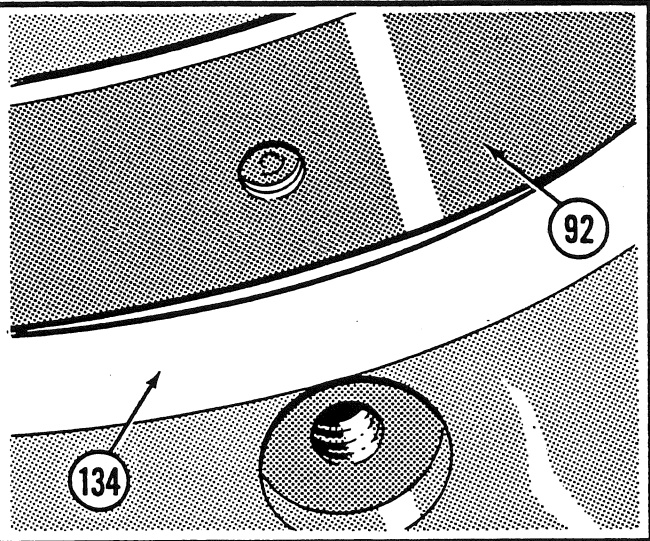


Fig. 105

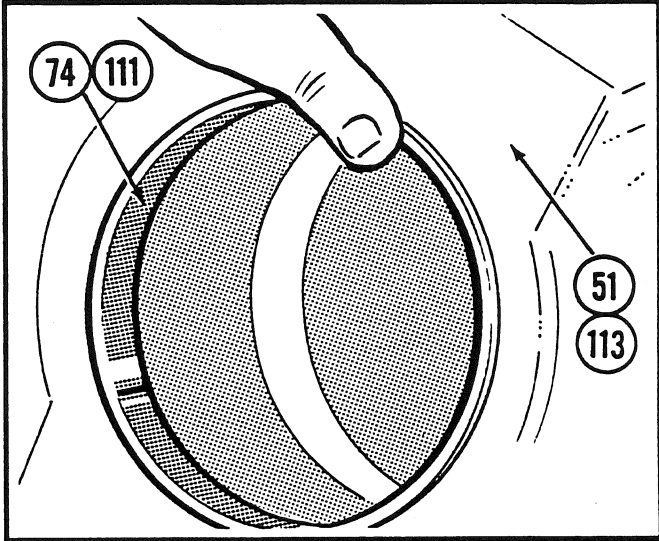


Fig. 108

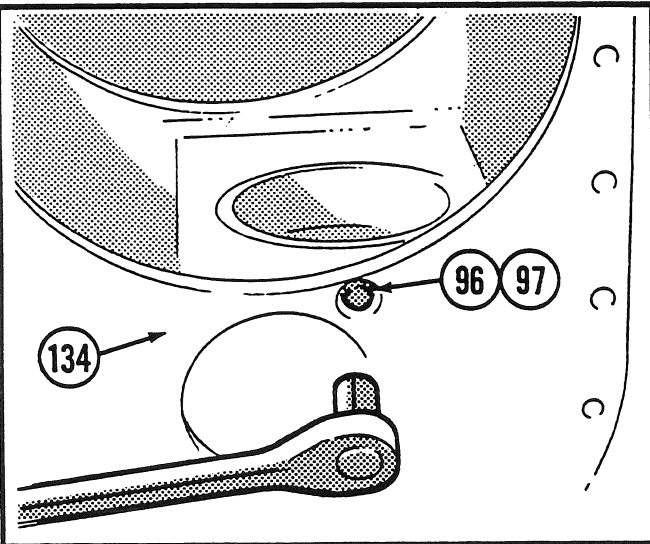


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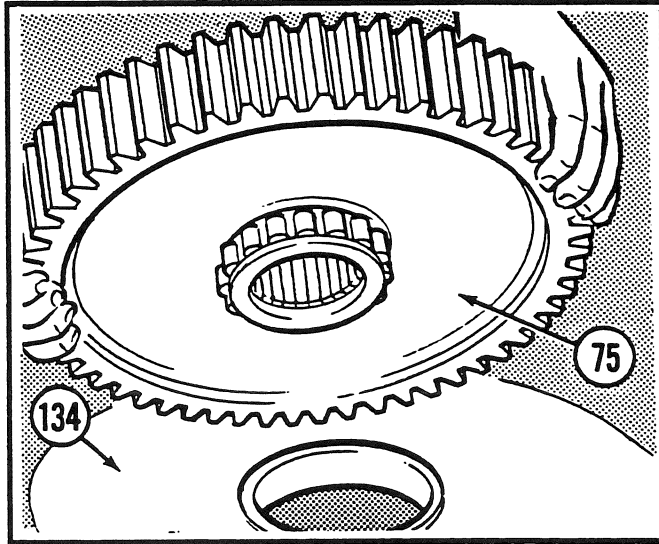


Fig. 109

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly

Fig. 104

Apply fresh lubricant to all bearings and bearing surfaces. Wrap bearings in paper or lint-free cloth and store them in a cool, dry place.

Fig. 105

Apply lubricant to the outer race of the pinion bearing (92) and install it in the main case (134). Take care to align the dimple in the race with the lockscrew hole.

Fig. 106

Install the lockscrew (97) and lock-washer (96) in the main case (134). Tighten the lockscrew to the specified torque.

Fig. 107

Install the bull gear bearing outer races in the main case (134).

Fig. 108

Install the bull gear bearing outer races (74 and 111) in the side housings (51 and 113).

Fig. 109



Install the first bull gear (75) in the main case (134).

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 110

Install a new gasket (50) on the main case (134). Check to see if the "extra" hole in the gasket aligns with the pry slot. If it does, turn the gasket over.

Fig. 111

Using a press and the special tools listed at the beginning of this Shop Manual section, install new inner (70 and 119) and new outer (69 and 118) sleeve bushings in the side housings.

Fig. 112

Lower the left hand side housing (51) onto the main case (134). Take care to engage the bull gear bearing inner race (74) with the outer race in the side housing.

Fig. 113

Install the dowel pins. The dowel pins verify assembly of the side housing to the main case.

Fig. 114

Install the side housing capscrews (115 and 121) and lockwashers (114 and 122). Two capscrew holes are open into the main case - be sure to apply sealing compound, Champion part number 19167, to these capscrews before you install them. See Figure 192.

Fig. 115

Tighten the capscrews to the specified torque.

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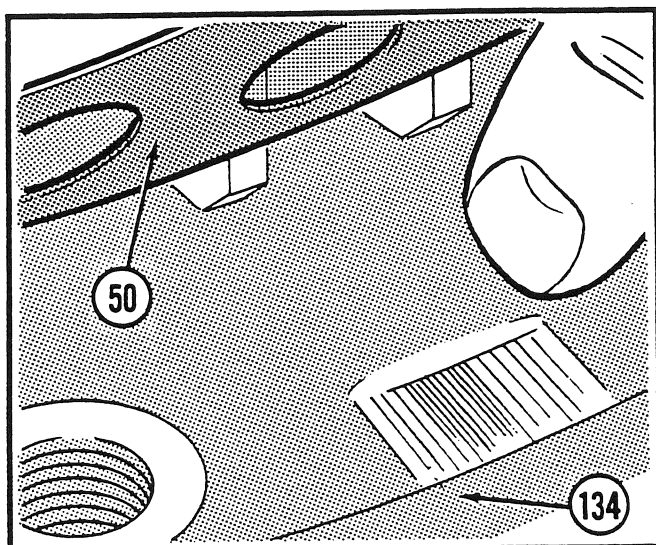


Fig. 110

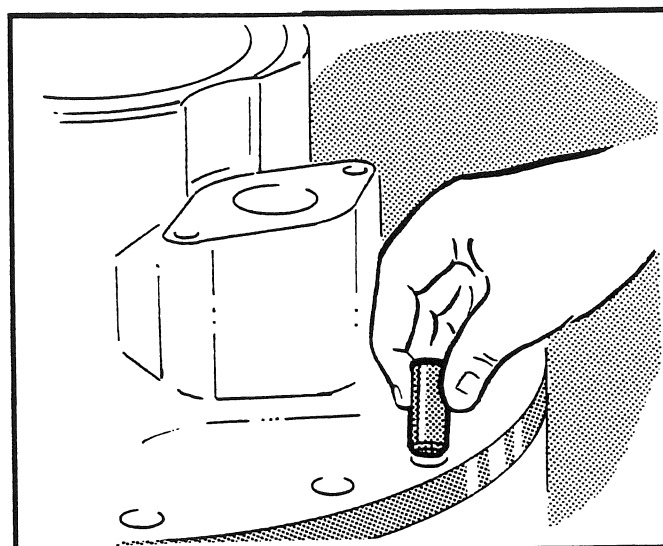


Fig. 113

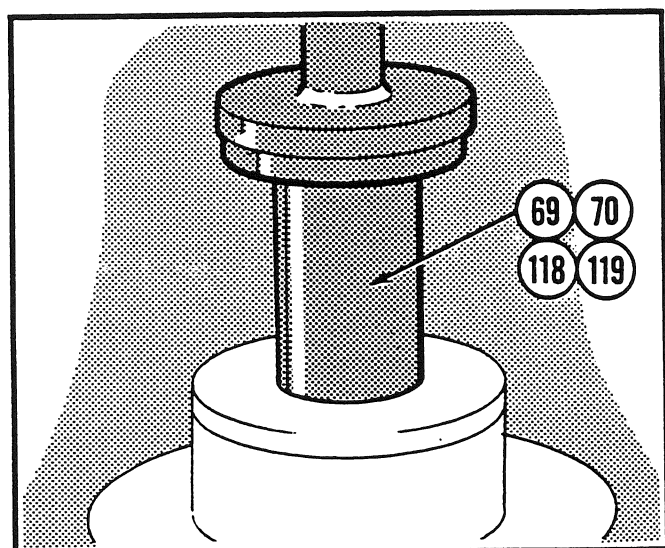


Fig. 111

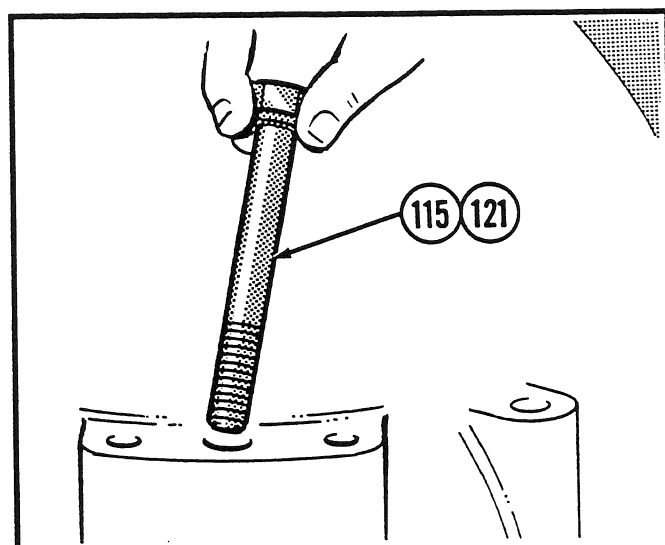


Fig. 114

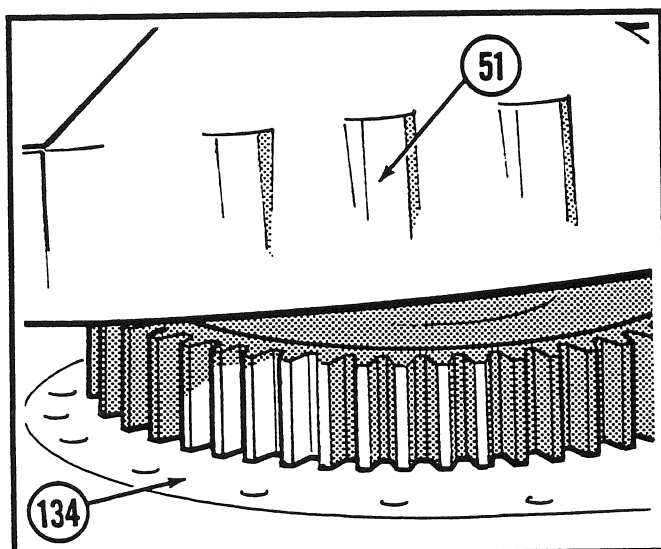


Fig. 112

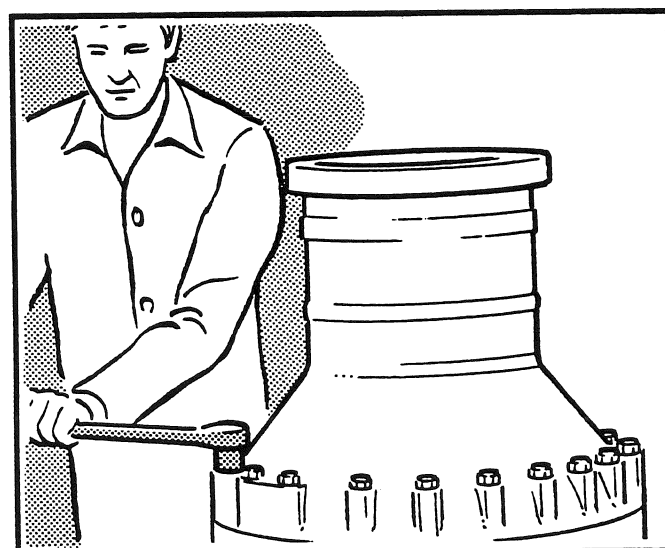


Fig. 115

700 SERIES SHOP MANUAL
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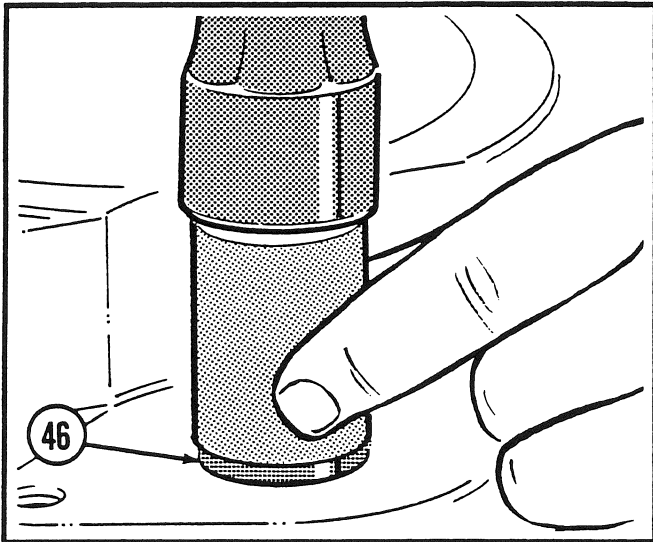


Fig. 116

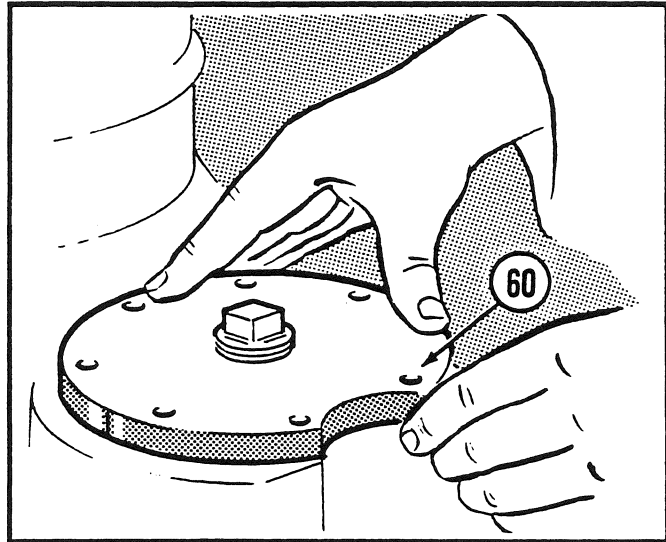


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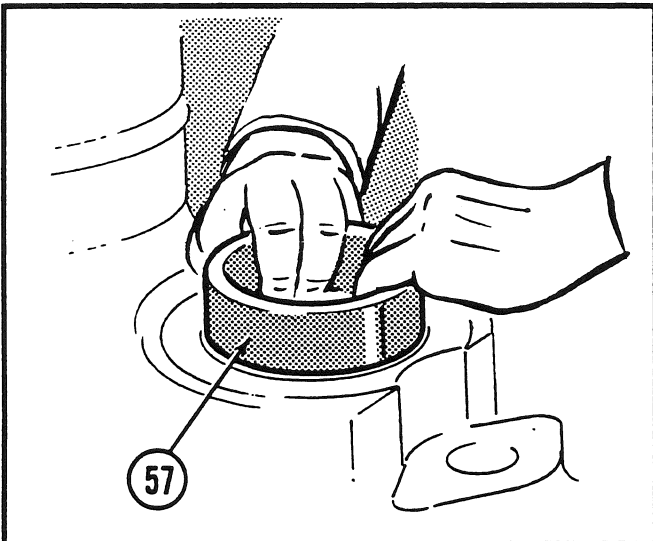


Fig. 117

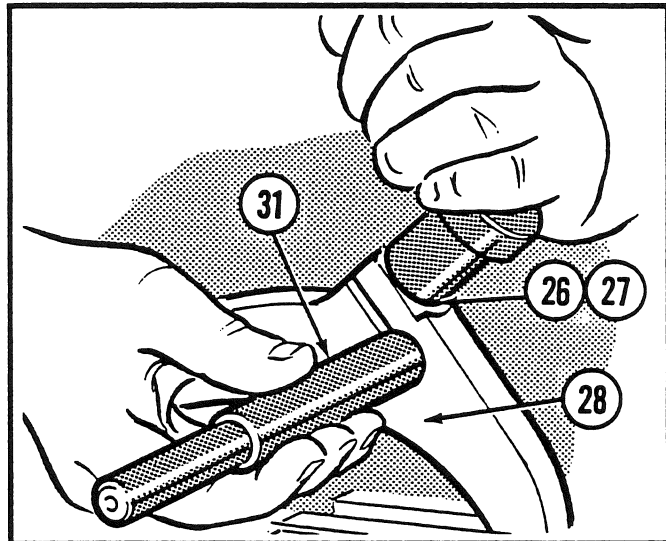


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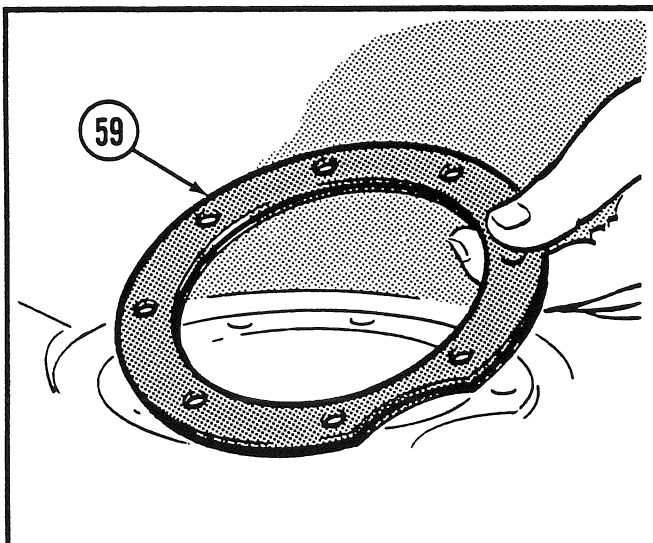


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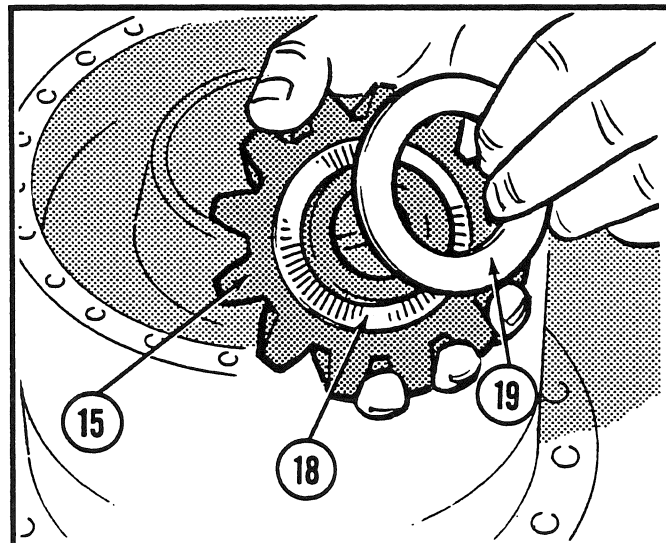


Fig. 121

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 116

Apply a thin layer of adhesive/sealant, Champion part number 19200, onto the outside diameter of both shift rail seals (46). Install them in the side housing (51) using the special tool listed at the front of this Shop Manual Section; or a drift with an outside diameter equal to that of the seals. Wipe away any excess sealant.

Fig. 117

Use a soft faced hammer and install the cross shaft bearing cup (57) in the side housing.

Fig. 118

Assemble a shim pack (59) 1,27 mm (.050 in.) thick and place it on the housing.

Fig. 119

Install the bearing cap (60), capscrews (62) and lockwashers (61). Tighten the capscrews to the specified torque.

Fig. 120

Install the shifter rail (31) into the shifter fork (28) and retain it with the lockscrew (26). Tighten the screw sufficiently enough so that you can just turn the rail. Bend the tabwasher (27) to secure the screw.

Fig. 121

Install the bushings (16), thrust bearings (18) and washers (19) onto the spider gears (15).

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 122

Install the spider gear pins (13); taking care to align the dowel holes with the holes in the differential housing (20).

Fig. 125

Force the three dowel pins (29) into the differential housing assembly.

Fig. 123

Place the spiral pinion gear (21) on the differential housing (20). Install the dowels (14) and align with the holes in the flange. Use capscrews to pull the spiral pinion gear into position.

Fig. 126

Apply the threadlocking compound, Champion part number 40945, to the shift clutch gear capscrews (30) and install them. Tighten the capscrews to the specified torque.

Fig. 124

Install the shift clutch gear (24); making sure to align the dowel pin holes.

Fig. 127

Turn the differential housing assembly over. Apply threadlocking compound, Champion part number 40945, to eighteen of the spiral pinion gear capscrews (17). Install and tighten the capscrews to the specified torque.

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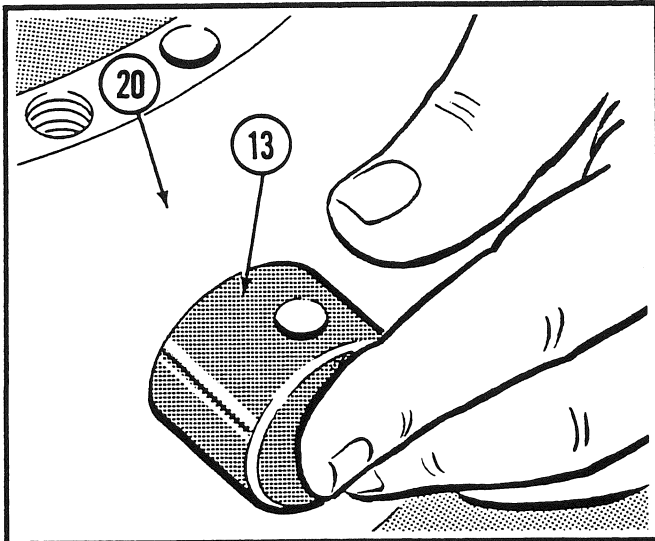


Fig. 122

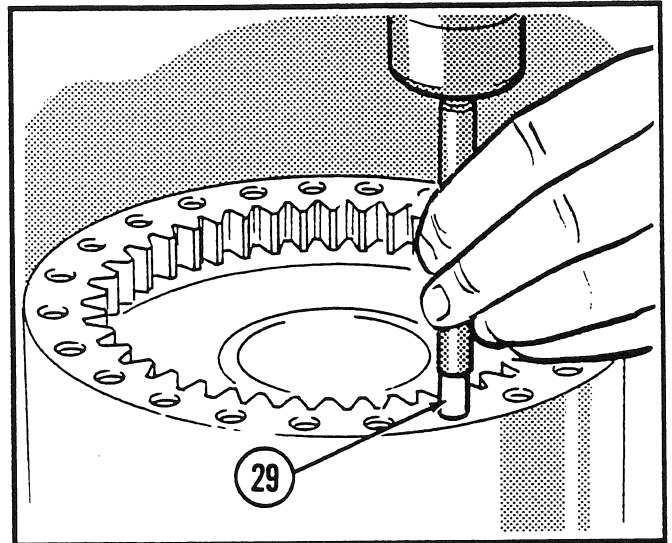


Fig. 125

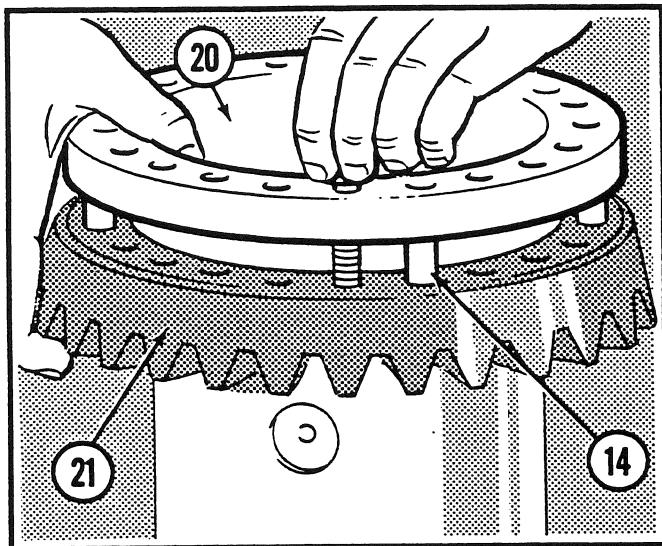


Fig. 123

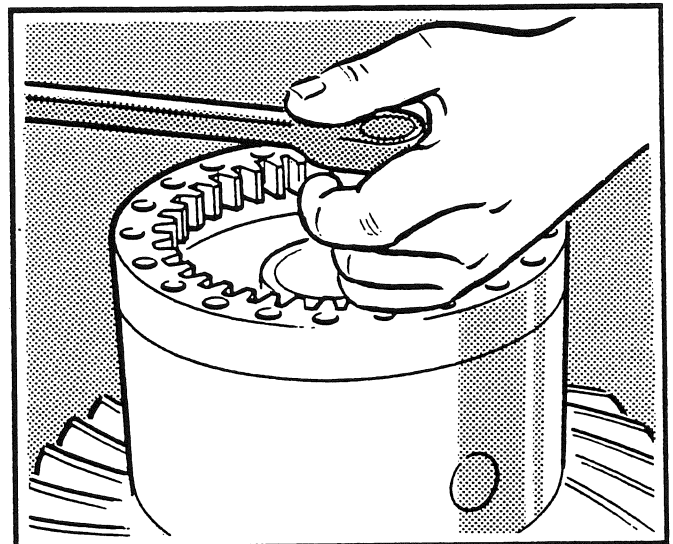


Fig. 126

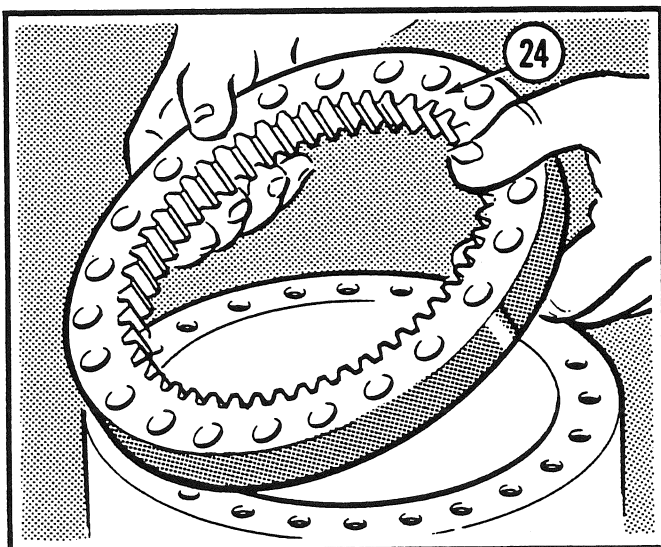


Fig. 124

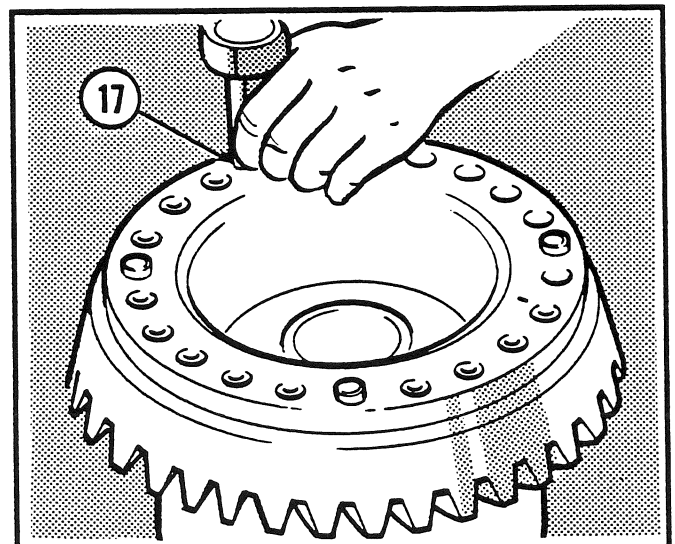


Fig. 127

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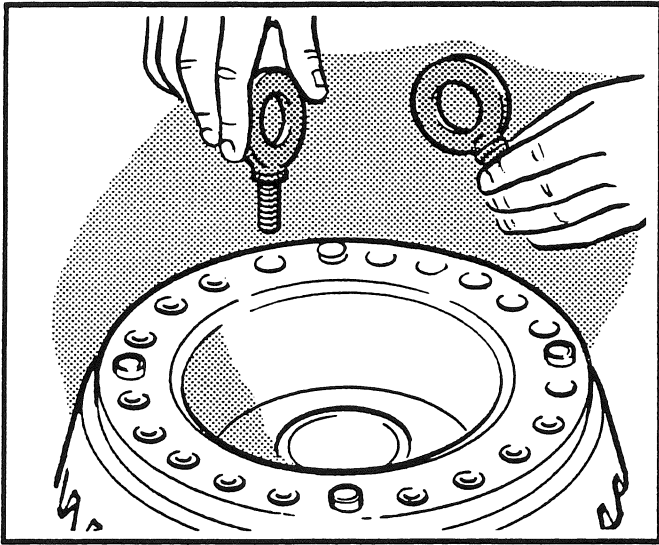


Fig. 128

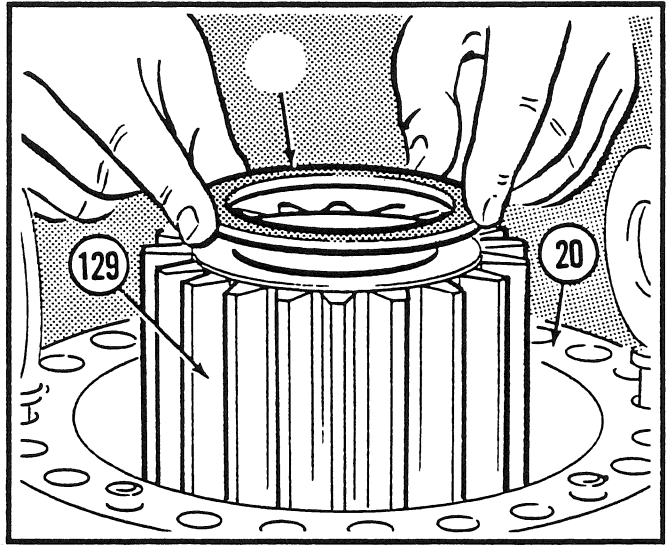


Fig. 131

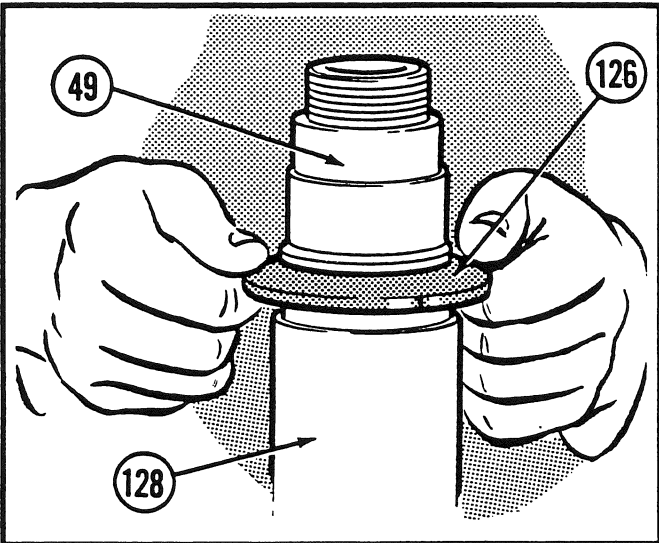


Fig. 129

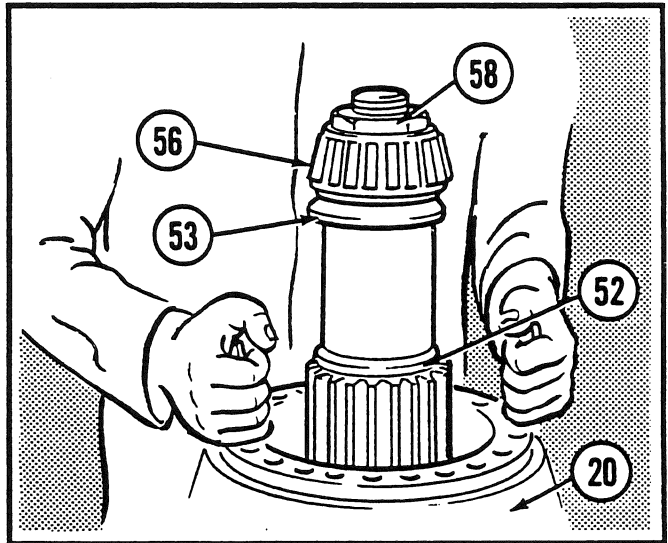


Fig. 132

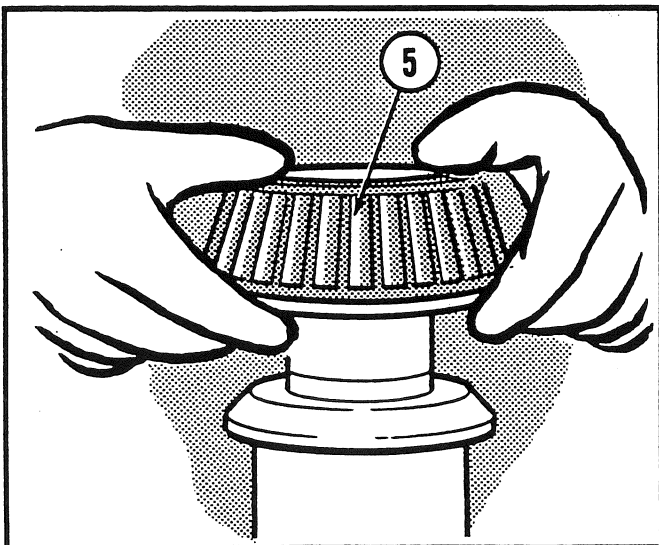


Fig. 130

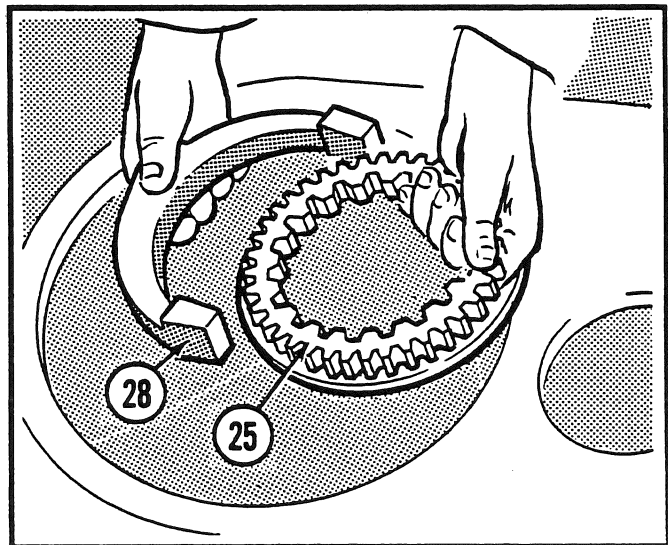


Fig. 133

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 128

Install lifting eyes into the two remaining holes.

Fig. 129

Install the pinion sleeve (128) and thrust washer (126) on the pump end of the cross shaft (49).

Fig. 130

Heat the cross shaft bearing cone (5) evenly in an oven or oil bath type heater to 121 C (250 F) maximum. DO NOT use an induction heater. If the bearing cone must be pressed into place, use a tubular steel drift that contacts the cone face only. Lubricate the bearing before installation. Install the bearing cone onto the end of the shaft. Retain the cone with the self-locking nut (3) and tighten to the specified torque.

Fig. 131

Install the spider pinion gear (129) and the thrust bearing (127) into the differential housing (20).

Fig. 132

Press the cross shaft into the differential housing (20), and install the thrust bearing (52), thrust washer (53), bearing cone (56) and retainer nut (58) on the opposite side. Tighten the nut to the specified torque.

Fig. 133

Slide the shift clutch (25) into the shifter fork (28).

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Differential Final Drive - Assembly (cont.)

Fig. 134

Install the shift rail and shifter fork assembly into the left hand side housing (51).

Fig. 137



Install the remaining bull gear (110) on the main case (134).

Fig. 135

Install the differential assembly into the final drive main case (134) using the lifting device.

Fig. 138

Install the right-hand side housing (113) using the procedures described in Fig. 112 through Fig. 115.

Fig. 136

Remove the lifting eyes. Apply thread-locking compound, Champion part number 40945, to the two remaining spiral pinion gear capscrews (17) and install them. Tighten the capscrews to the specified torque.

Fig. 139

Install the remaining cross shaft bearing cup (4) in the side housing using a soft faced hammer.

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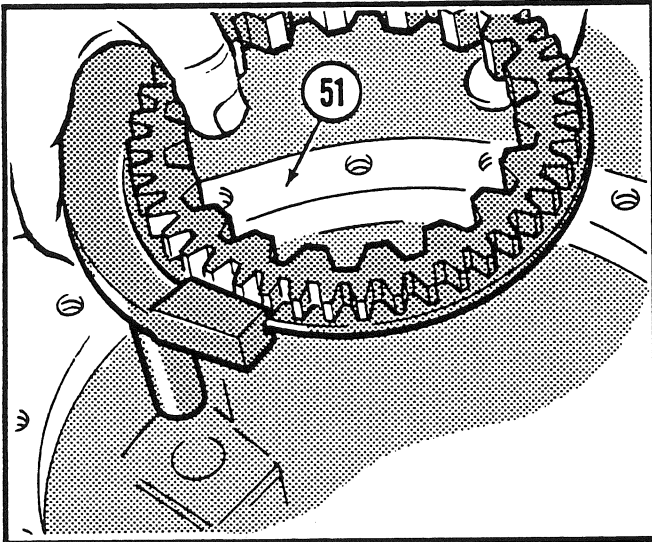


Fig. 134

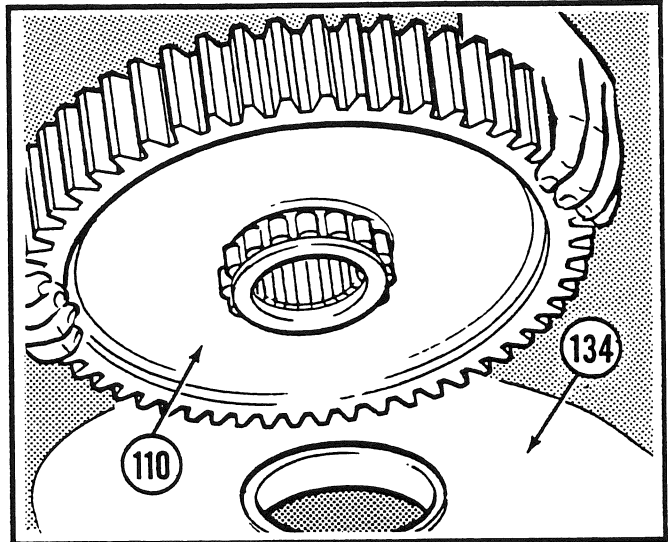


Fig. 137

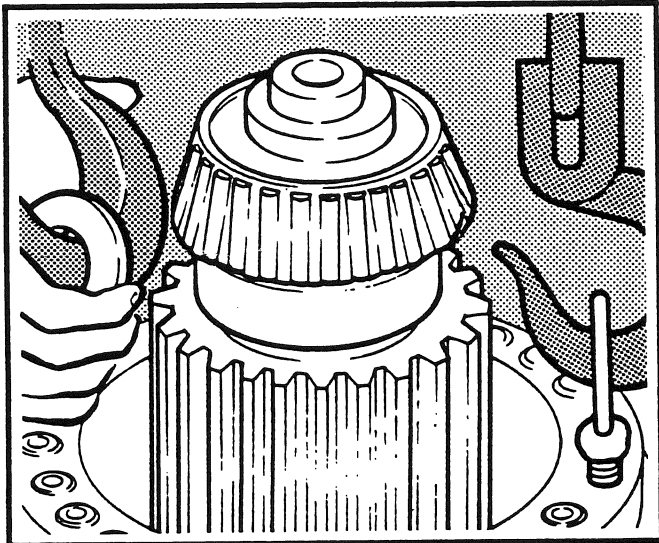


Fig. 135



Fig. 138

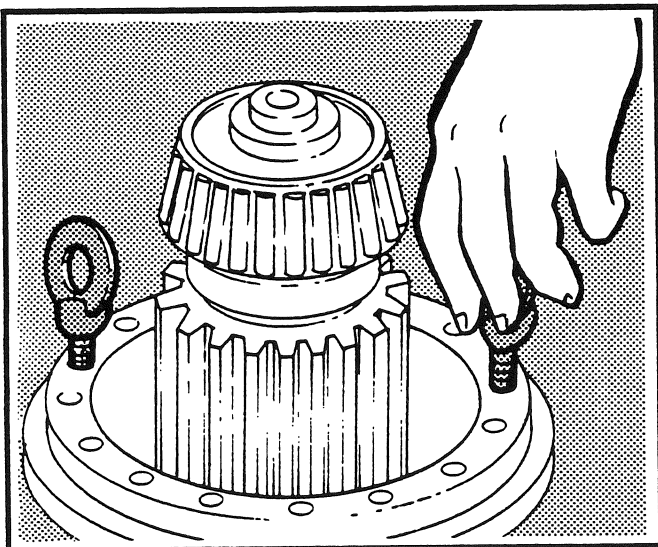


Fig. 136

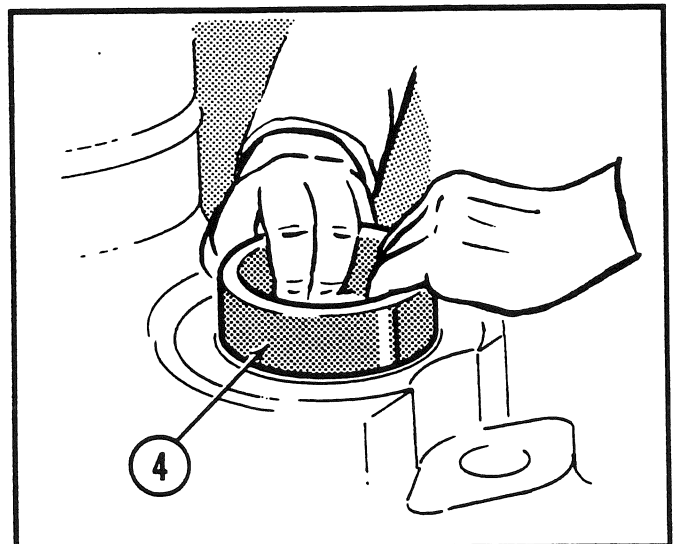


Fig. 139

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

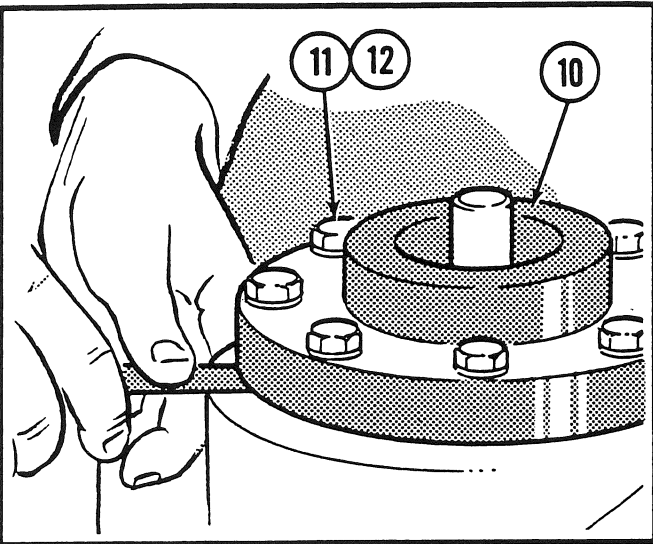


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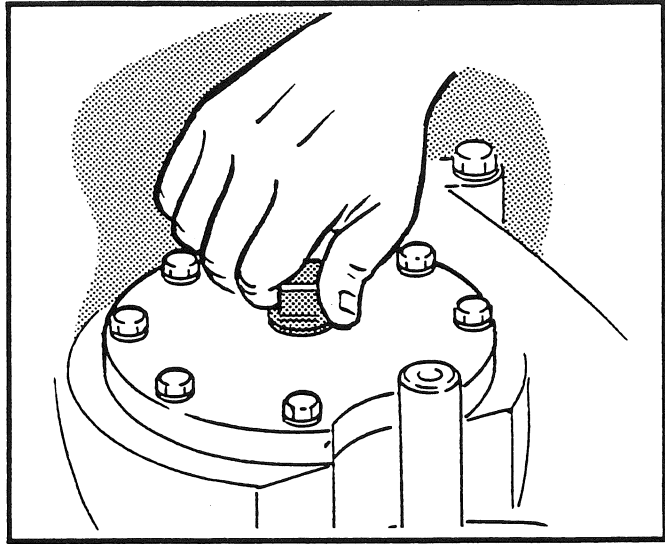


Fig. 143

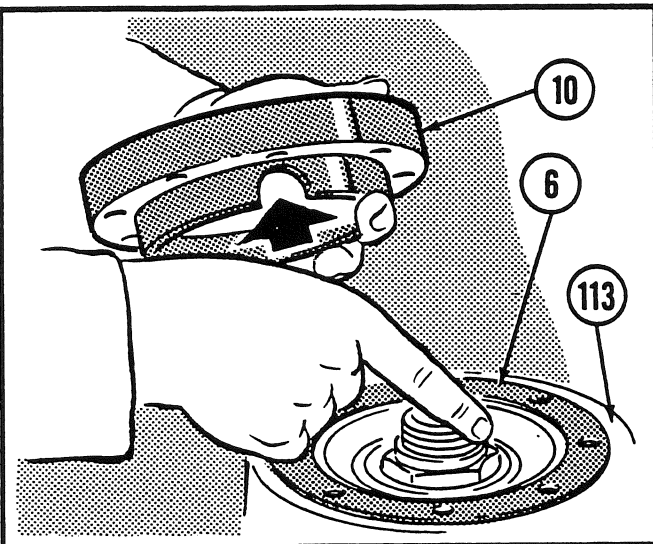


Fig. 141

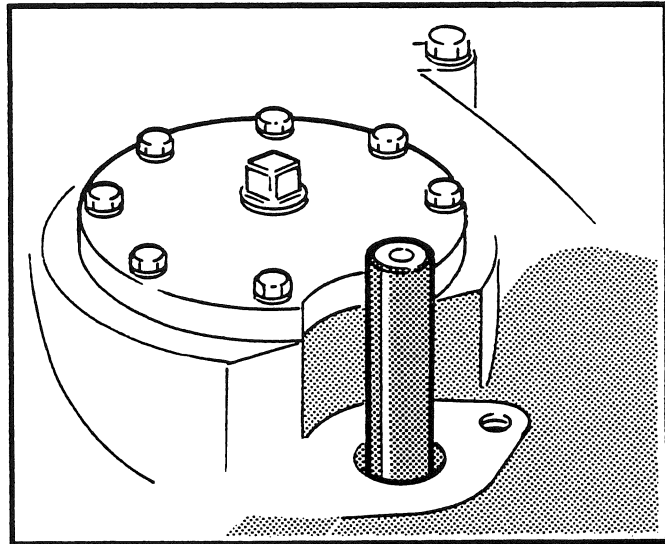


Fig. 144

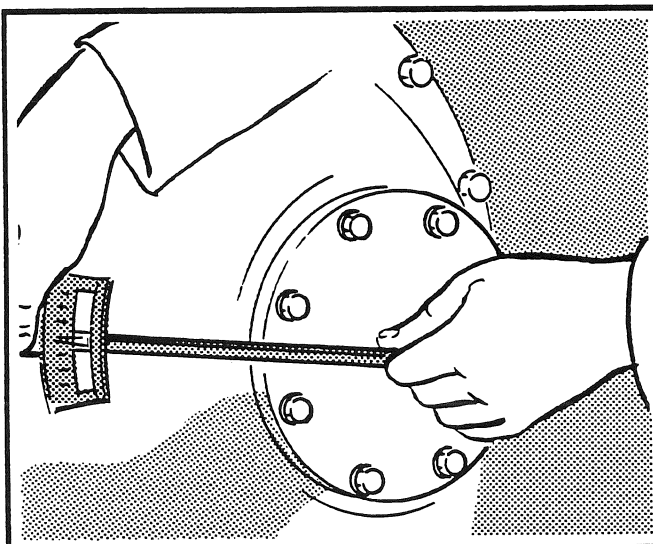


Fig. 142

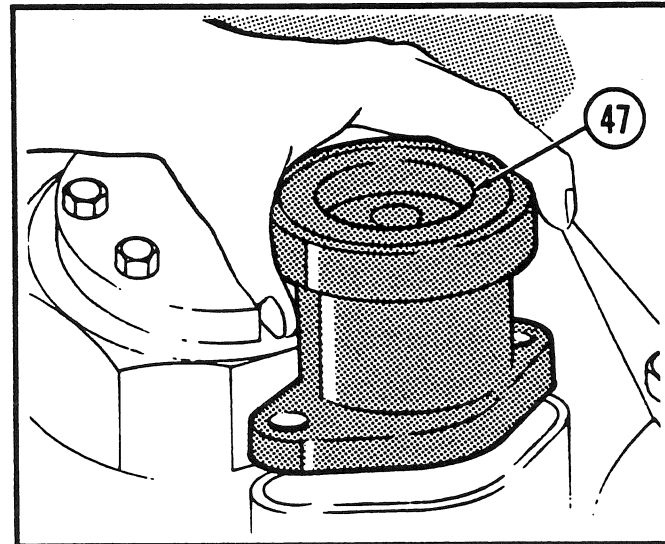


Fig. 145

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 140

Install the pump mount adapter (10). Install the adapter capscrews (12) and lockwashers (11) and tighten them evenly to the specified torque. Using feeler gauges, measure the gap between the adapter and the side housing surface. Remove the pump mount adapter.

Fig. 141

Assemble a shim pack (6) equal in thickness to the previous feeler gauge measurement. Install the shim pack and re-install the adapter (10), making sure that the cap aligns with the upper lubrication port in the side housing (113). Tighten the capscrews to the specified torque.

Figure 142

Rotate the differential assembly. Check the rolling torque until it agrees with the adjustment specification listed at the front of this Shop Manual Section.

Fig. 143

Install the pipe plug in the bearing cap.

Fig. 144

Slide the shift clutch into the disengaged position and place a 5 cm (2 in.) spacer between the shifter fork and the shift clutch gear.

Fig. 145

Install the shift cylinder barrel (47) onto the side housing. Install the capscrews (33) and lockwashers (32). Tighten the capscrews to the specified torque.

700 SERIES SHOP MANUAL
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Differential Final Drive - Assembly (cont.)

Fig. 146

Install new piston rings (34, 36 and 37) onto the piston (35).

Fig. 149

Install the piston (35) and retainer (43).

Fig. 147

Install the washer (45).

Fig. 150

Compress the shift cylinder spring by pushing down on the piston. Using snap ring pliers, install a new snap ring (42) on the shift rail (31). Release the pressure applied to the piston.

Fig. 148

Install the spring (44).

Fig. 151

Remove the spacer between the shifter fork (28) and the shift clutch gear (24).

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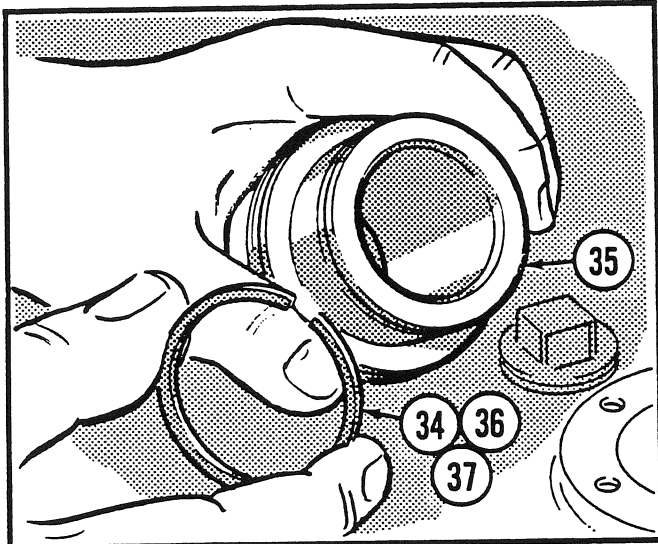


Fig. 146

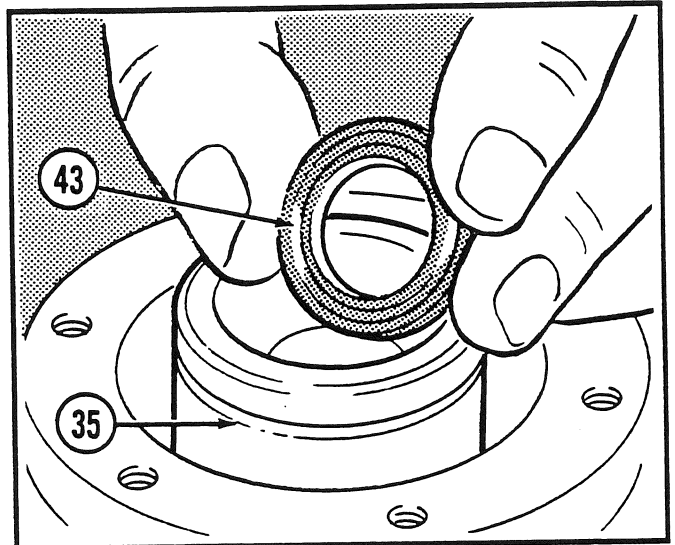


Fig. 149

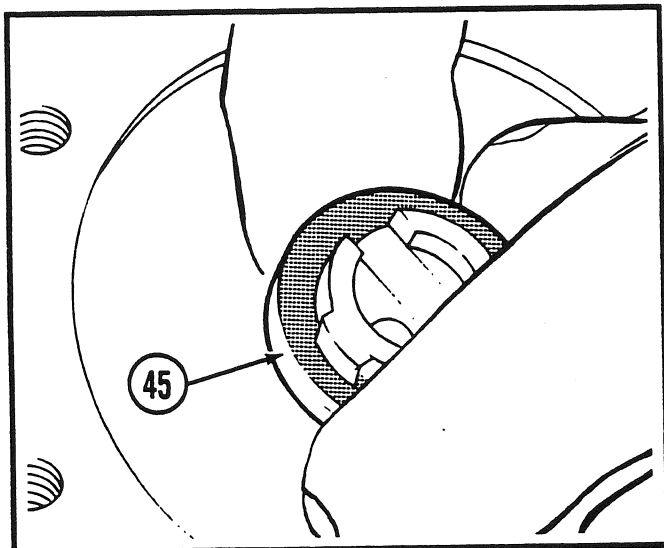


Fig. 147

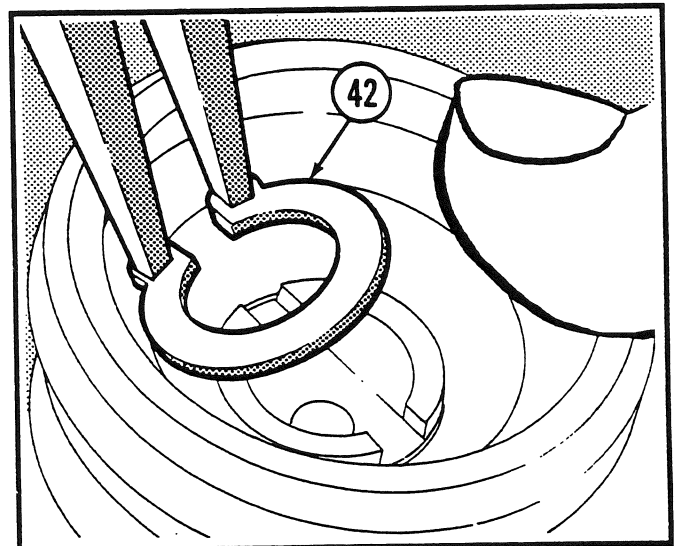


Fig. 150

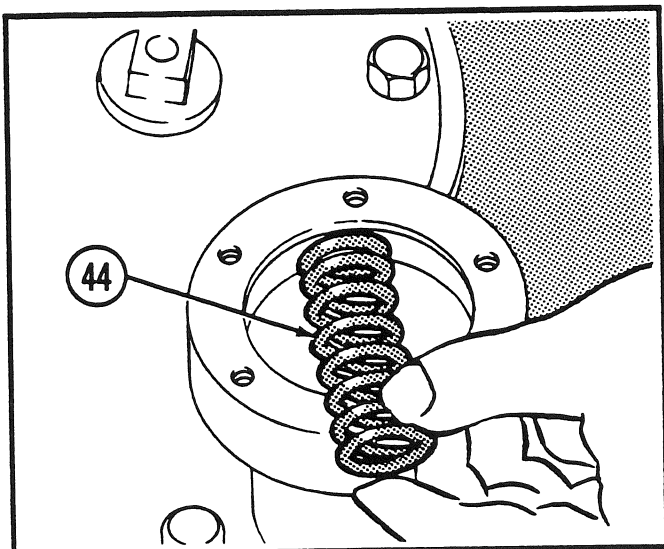


Fig. 148

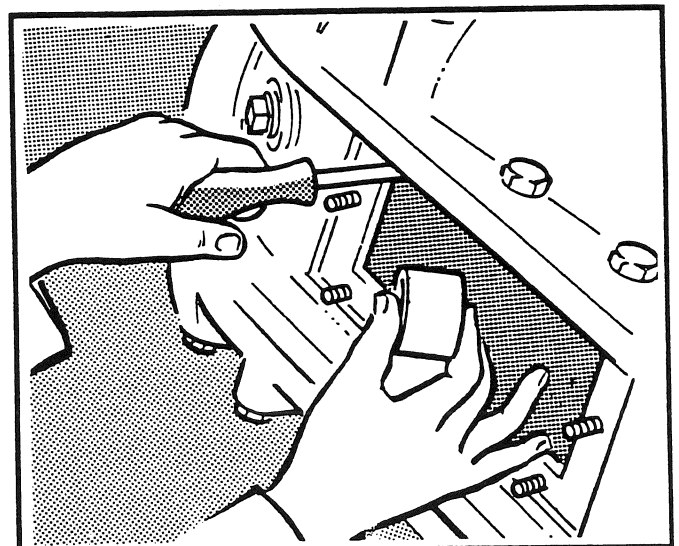


Fig. 151

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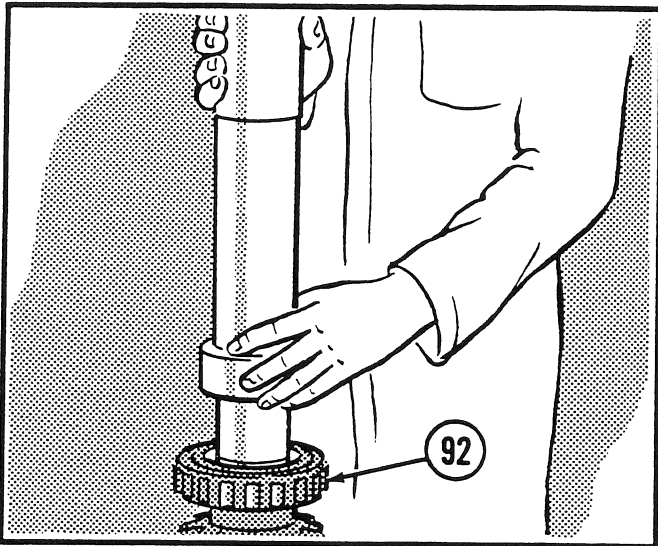


Fig. 152

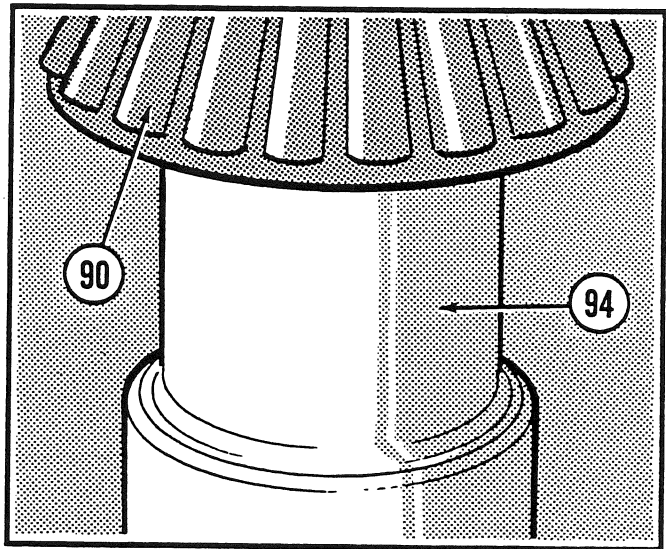


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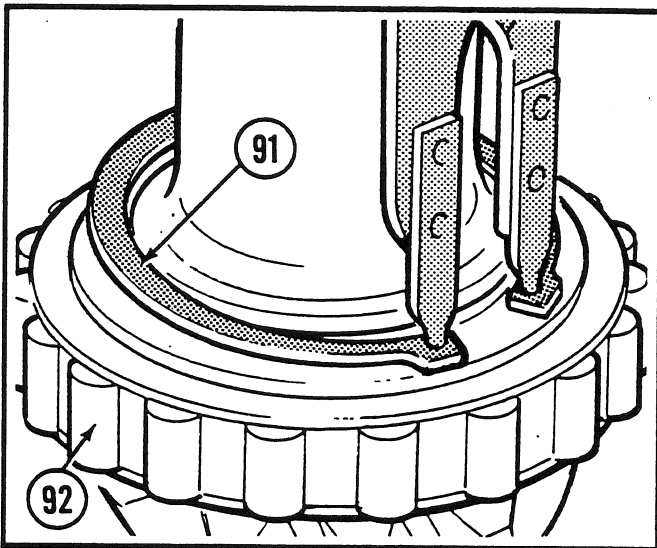


Fig. 153

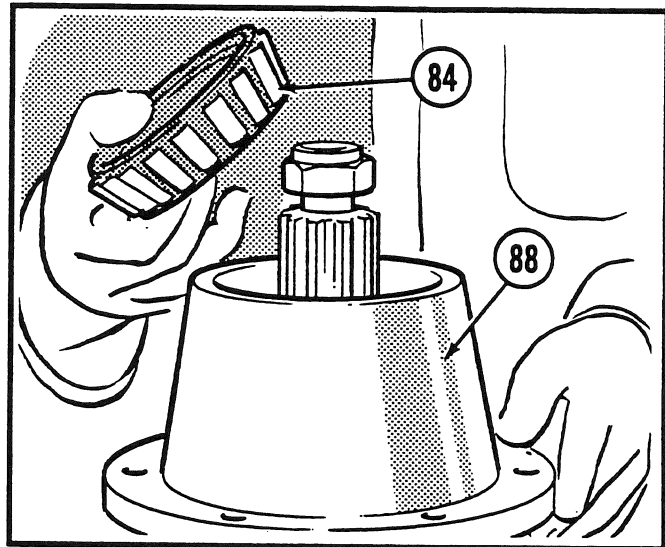


Fig. 156

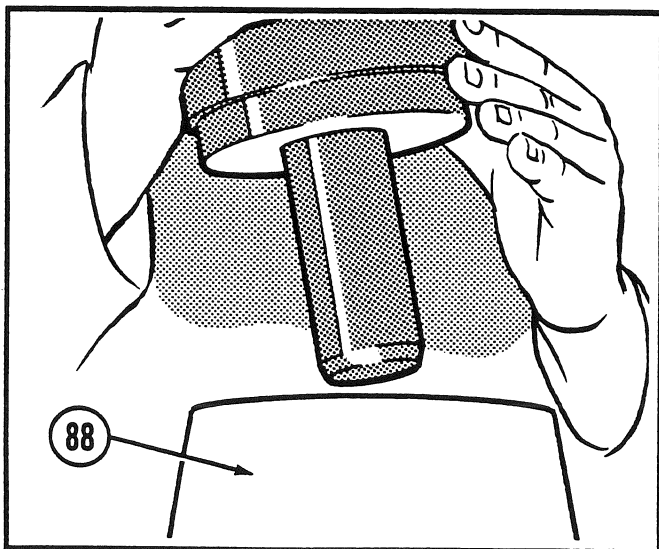


Fig. 154

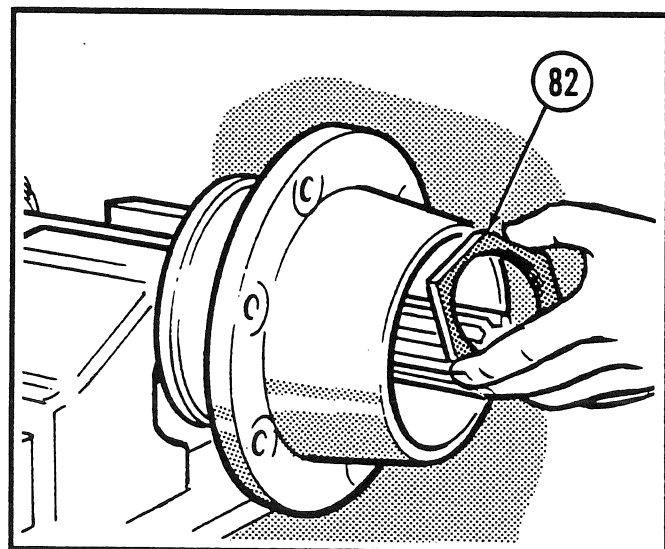


Fig. 157

700 SERIES SHOP MANUAL
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Differential Final Drive - Assembly (cont.)

Fig. 152

Apply adhesive/sealant, Champion part number 19200, onto the inner surface of the bearing (92). Install the bearing using an appropriate tubular drift and a hydraulic press.

Fig. 153

Retain the bearing (92) with a new snap ring (91).

Fig. 154

Install the pinion bearing cups (85 and 89) in the pinion cap (88) using an appropriate soft metal drift. The cups are easier to install when chilled in a freezer or in dry ice.

Fig. 155

Heat the spiral pinion shaft inner bearing cone (90) evenly in an oven or oil bath type heater to 121°C (250°F) maximum. **DO NOT** use an induction heater. If the bearing cone must be pressed into place, use a tubular soft metal drift that contacts the cone face only. Lubricate the bearing before installation. Install the bearing onto the end of the shaft (94).

Fig. 156

Install the pinion cap (88). Heat the spiral pinion shaft outer bearing cone (84) evenly in an oven or oil bath type heater to 121°C (250°F) maximum. **DO NOT** use an induction heater. If the bearing cone must be pressed into place, use a tubular soft metal drift that contacts the cone face only. Lubricate the bearing before installation. Install the bearing cone onto the end of the shaft.

Fig. 157

Secure the spiral pinion shaft in a vise and install the nut (82).

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Differential Final Drive - Assembly (cont.)

Fig. 158

Secure the spiral pinion shaft assembly in a vise with soft jaws. Tighten or loosen the nut (82) using the special tool listed at the front of this Shop Manual Section. Wrap soft wire around the pinion cap (88) and attach a spring balance scale to the end of the wire. Pull the wire and adjust the nut tightness until the assembly rolling torque agrees with the adjustment specification listed at the front of this Shop Manual Section.

Fig. 159

When the rolling torque is correctly adjusted, secure the nut (82) by bending the raised portion into the spline hollows in four places.

Fig. 160

Apply a thin layer of adhesive/sealant, Champion part number 19200, onto the outside diameter of a new oil seal (83). Install the oil seal in the pinion cap (88). Lubricate the seal lips.

Fig. 161

Record the pinion depth number etched on the end of the spiral pinion shaft (94). This number will be used to calculate the thickness of the shim pack used under the pinion cap.

Fig. 162

Install the threaded lifting eye on the end of the spiral pinion shaft (94). Install the shaft into the main case (134) using the lifting device. Align the drain hole with the horizontal center of the pinion shaft.

Fig. 163

Place a 0,5 mm (.021 in.) feeler gauge between the face of the pinion gear and the differential housing (20). Lower the spiral pinion shaft (94) onto the gauge.

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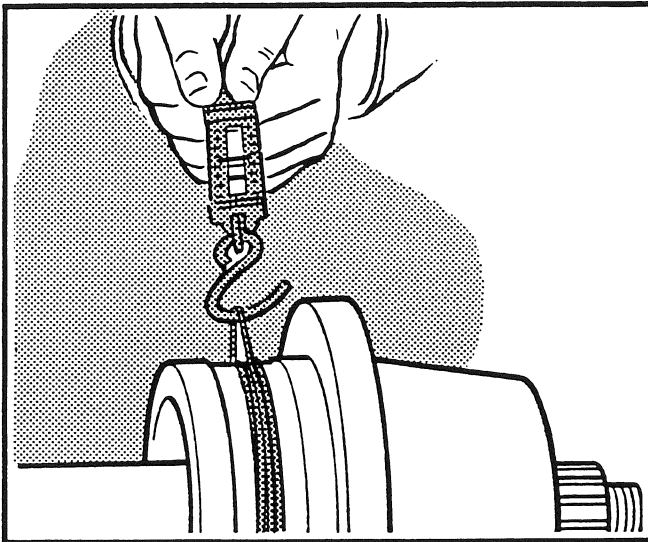


Fig. 158

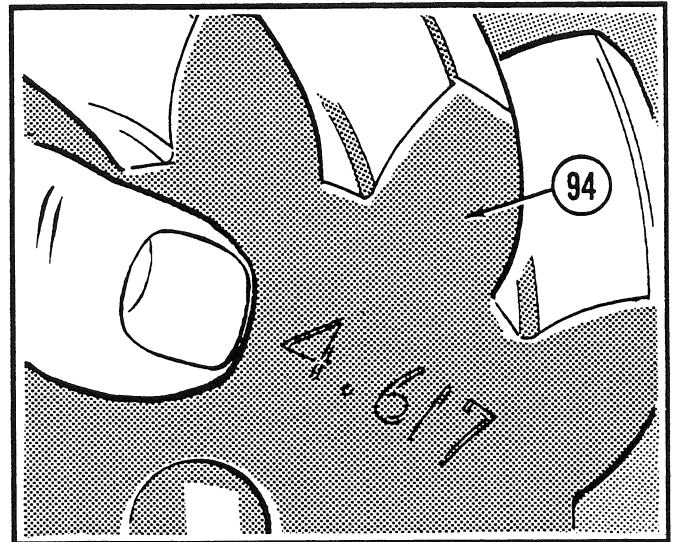


Fig. 161

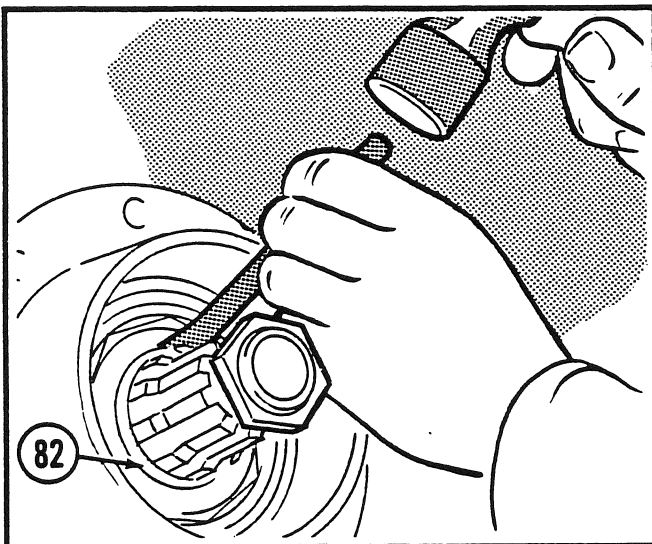


Fig. 159

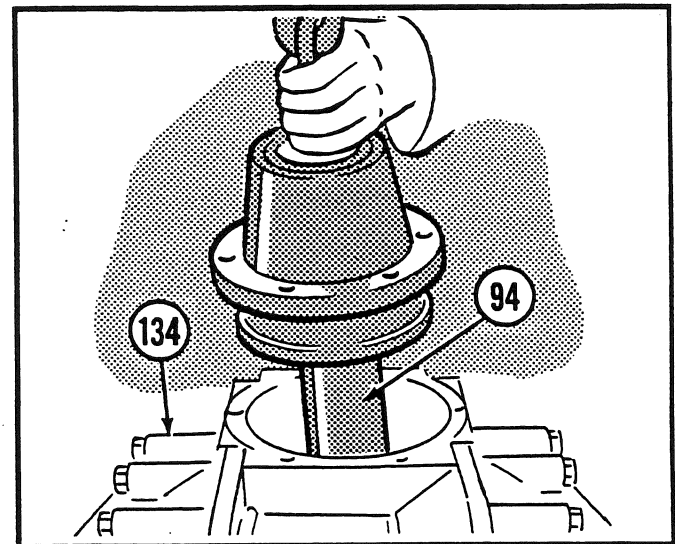


Fig. 162

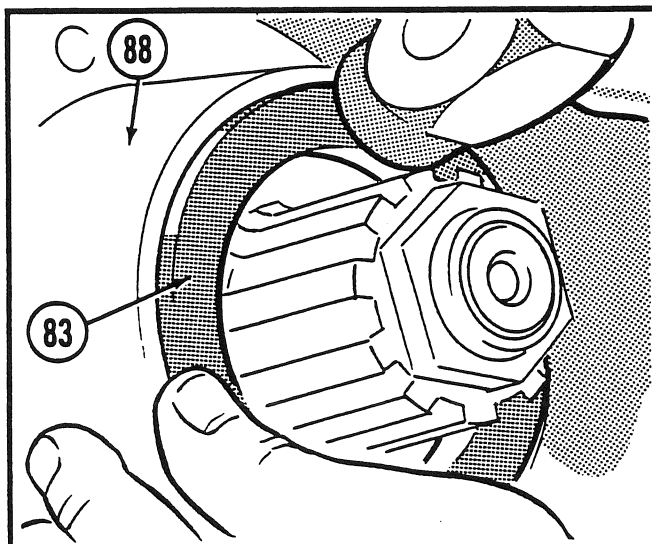


Fig. 160

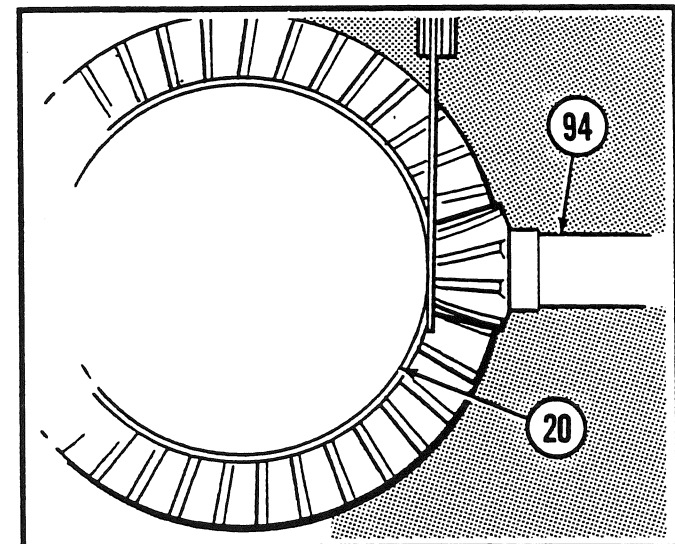


Fig. 163

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

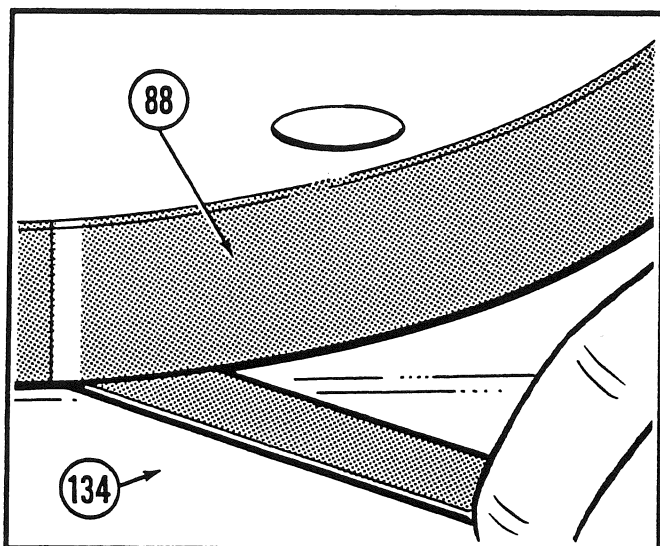


Fig. 164

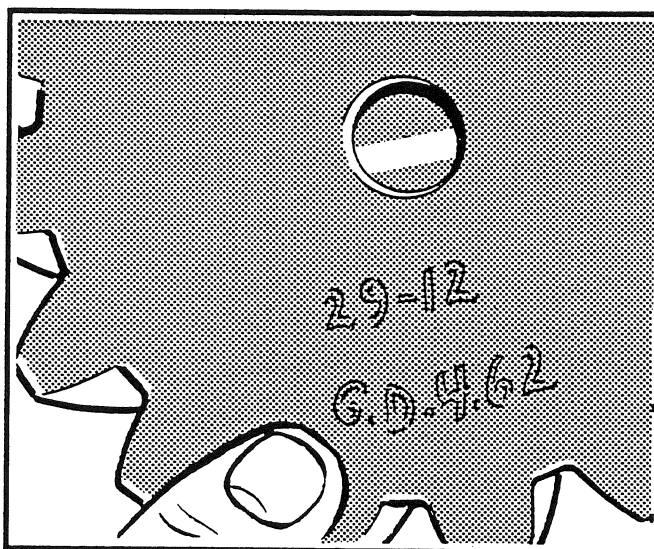


Fig. 167

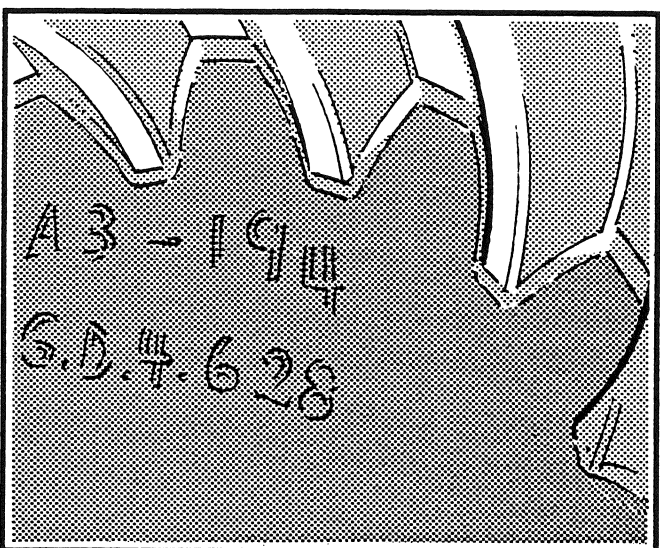


Fig. 165

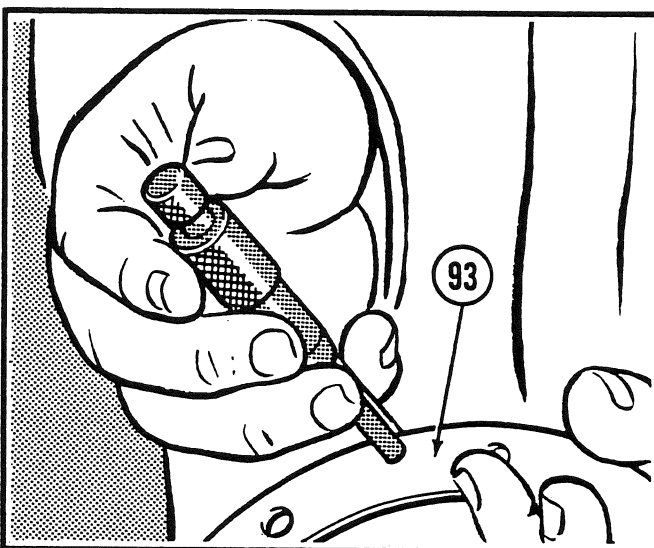


Fig. 168

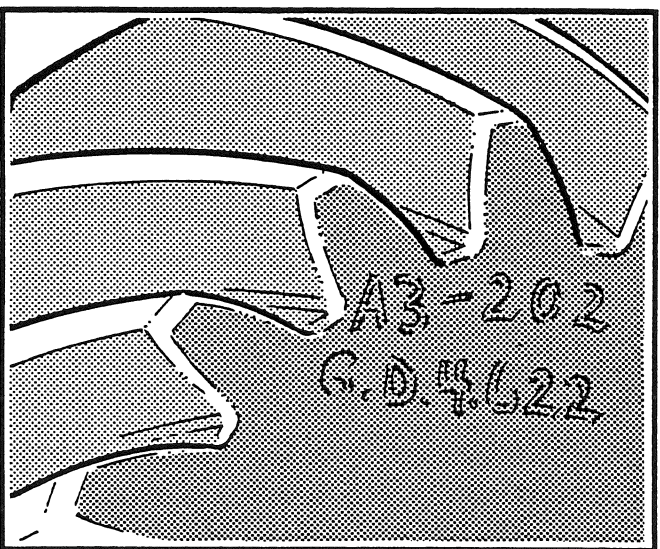


Fig. 166

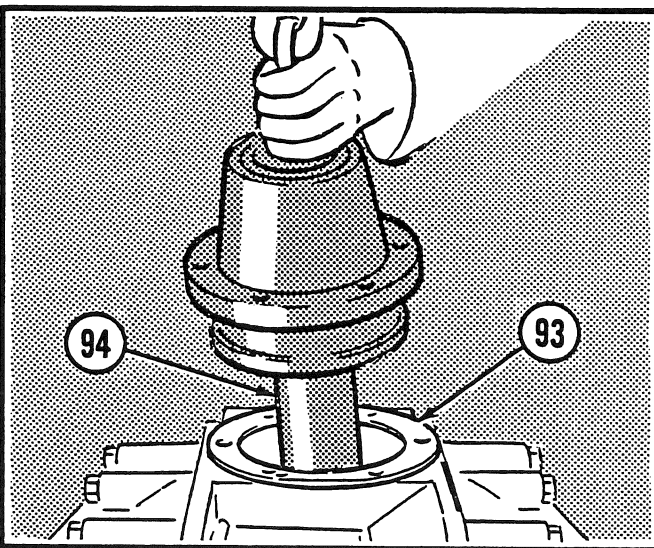


Fig. 169

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 164

Measure the gap between the pinion cap (88) and the machined surface of the main case (134) in at least four places. Calculate the average measurement.

Fig. 165

Compare the pinion depth number previously recorded with the design constant number 4.625. If the depth number is LARGER than the constant, ADD THE DIFFERENCE TO YOUR GAP MEASUREMENT.

Fig. 166

If the depth number is SMALLER than the constant, SUBTRACT THE DIFFERENCE FROM YOUR GAP MEASUREMENT.

Fig. 167

If the pinion depth number and constant are EQUAL, USE THE GAP MEASUREMENT.

Fig. 168

Remove the pinion shaft and assemble a shim pack (93) equal in thickness to the calculated measurement.

Fig. 169

Install the shim pack (93) and reinstall the pinion shaft (94). Make sure to align the lubrication ports in the cap with those in the main case. Install the capscrews (86) and lockwashers (87). Tighten the capscrews to the specified torque.

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 170

Install a dial indicator through the inspection hole, engaging the plunger onto the center of one of the spiral pinion gear teeth. Rotate the gear slightly and measure the backlash in at least four places; and compare with the adjustment specification listed at the front of this Shop Manual Section.

Fig. 171

To decrease backlash, remove a shim or shims (6) from the spiral pinion gear side and install them on the opposite side. Reverse this procedure to increase backlash. **Remember**, if you take a shim from one side of the cross shaft, you **must** install it on the opposite side!

Fig. 172

Measure the gap between the shifter fork (28) and the shift clutch gear (24) using a feeler gauge. Compare with the adjustment specification listed at the front of this Shop Manual Section. Adjust by rotating the shift rail with the clutch engaged.

Fig. 173

Install the shift cylinder cap (39) with a new O ring (38) on the shift barrel housing (47). Install the cap-screws (41) and lockwashers (40). Tighten the capscrews to the specified torque.

Fig. 174

Rotate the differential final drive assembly. Install the pump spring (7).

Fig. 175

Install the plunger (8).

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

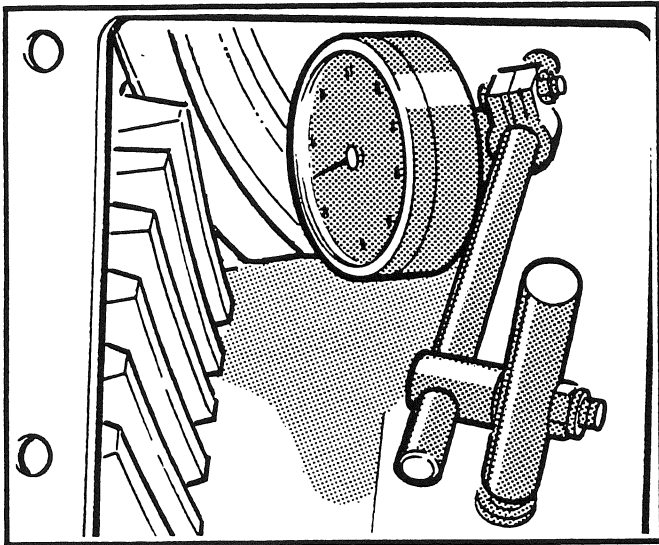


Fig. 170

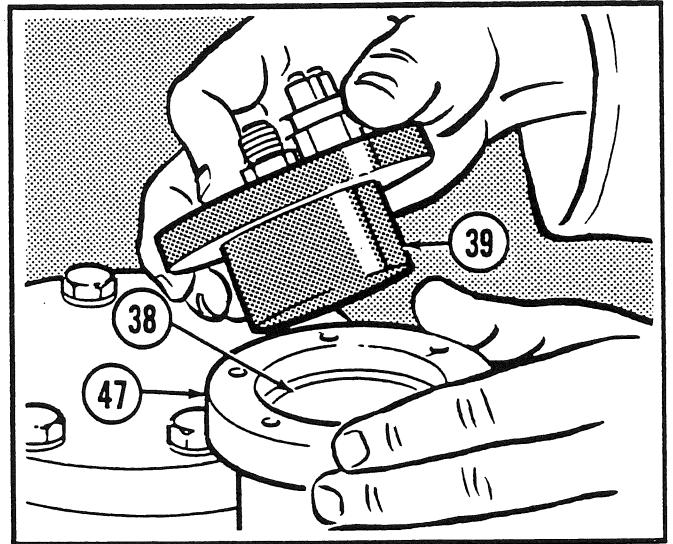


Fig. 173

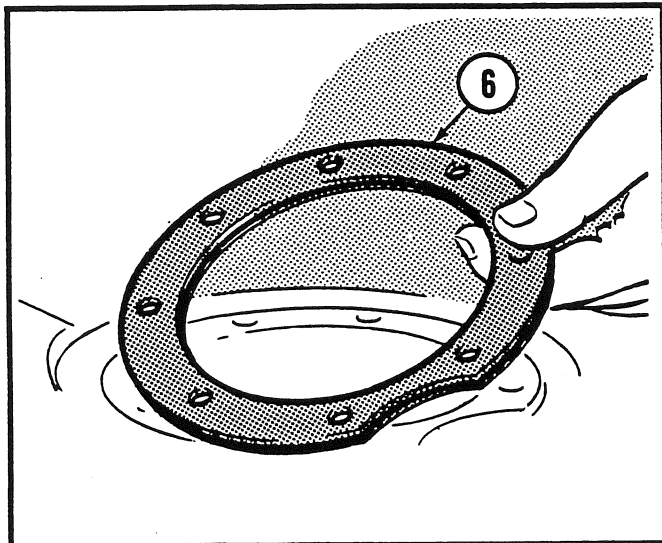


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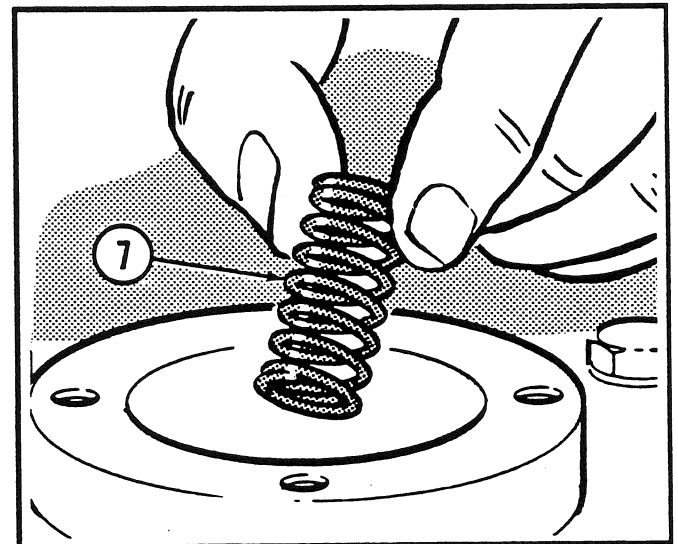


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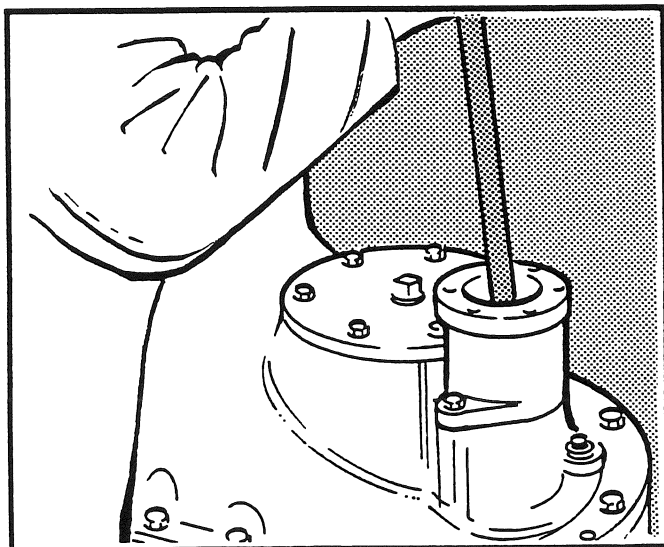


Fig. 172

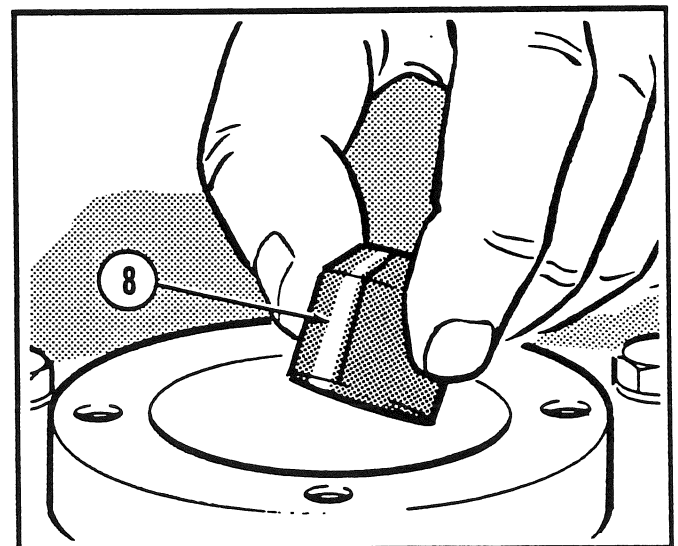


Fig. 175

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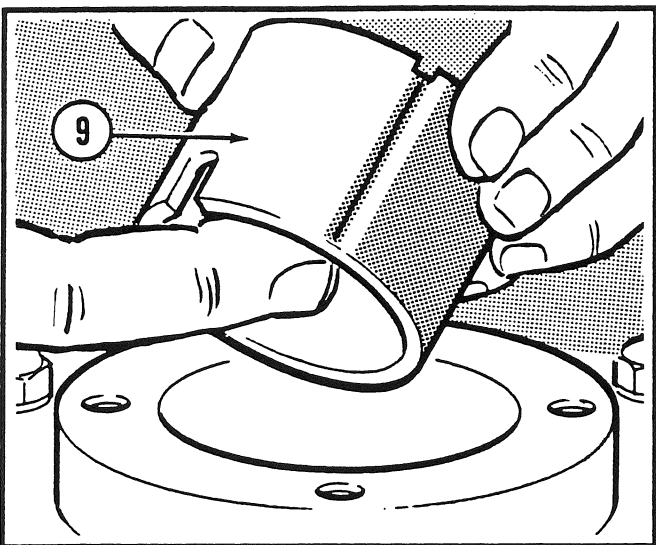


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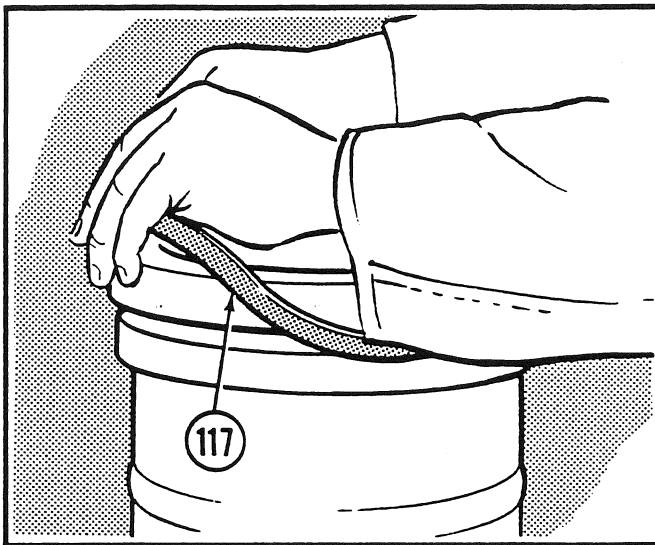


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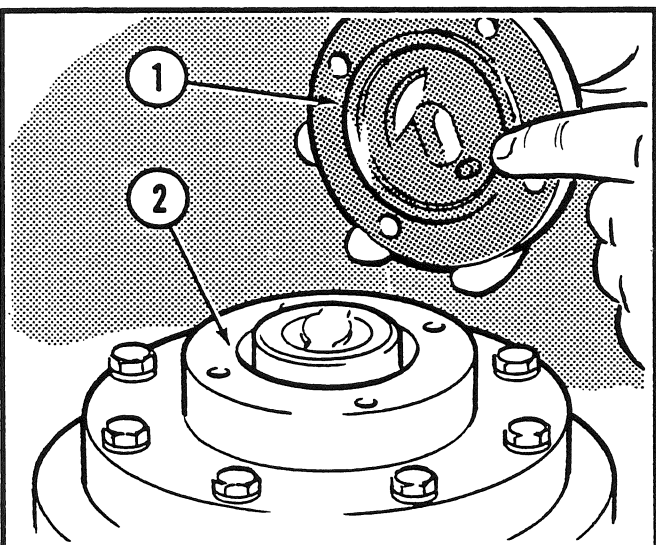


Fig. 177

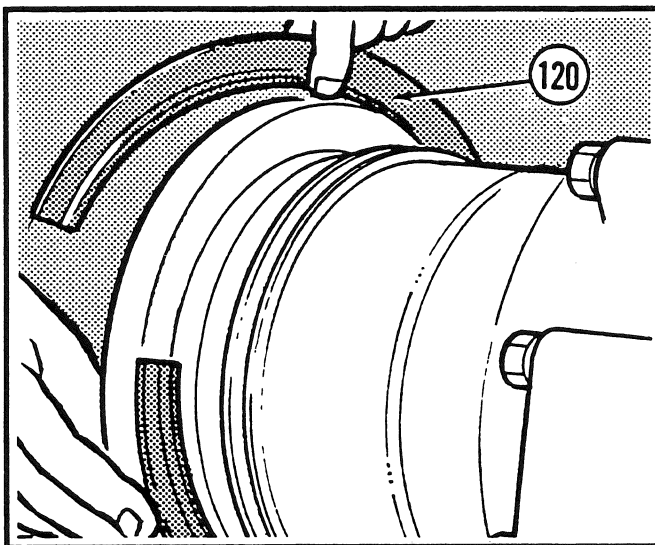


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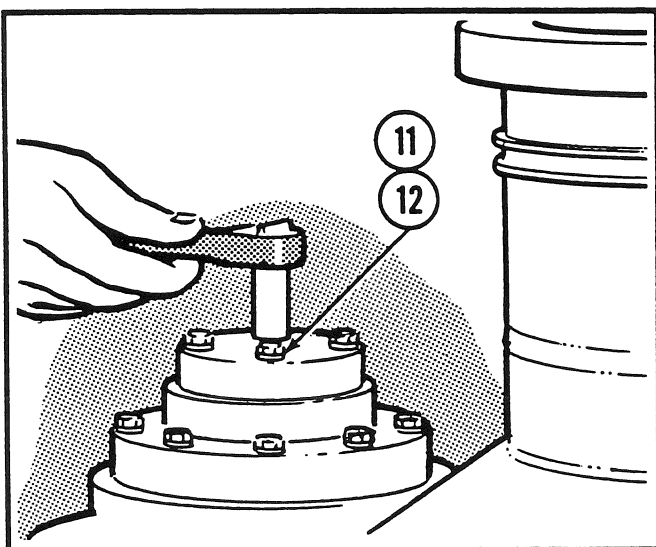


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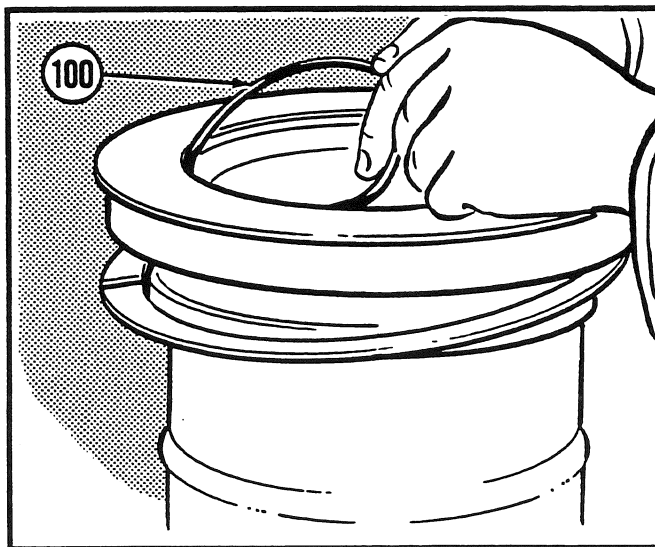


Fig. 181

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 176

Install the pump (9), aligning the drive slot with the roll pin on the cross shaft (49).

Fig. 179

Lubricate a new "Uniring" seal (117) and install it on the side housing extension.

Fig. 177

Install a new gasket (2). Install the end cap (1), aligning the roll pin with the slot in the pump body.

Fig. 180

Lubricate and install the new inner and outer thrust plates (99 and 120).

Fig. 178

Install the capscrews (12) and lockwashers (11). Tighten the capscrews evenly so that they pull the pump (9) into place against the spring (7). Tighten the capscrews to the specified torque.

Fig. 181

Lubricate and install a new O ring (100).

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 182

Carefully lower the flanged sleeve (101) into the side housing (113) using the lifting device.

Fig. 185

Heat the bearing (104) evenly in an oven or oil bath type heater to 121°C (250°F) maximum. **DO NOT** use an induction heater. If the bearing must be pressed into place, use a tubular soft metal drift that contacts the inner race only. Lubricate the bearing and install on the drive axle (105).

Fig. 183

Carefully install the half-rings (116 and 123) over the "Uniring" seal (117). Fasten the two halves together.

Fig. 186

Install a lifting eye into the end of the drive axle (105). Lower the drive axle assembly into the flanged sleeve (101). Align the drive axle and bull gear hub splines. Remove the lifting eye.

Fig. 184

Temporarily install two capscrews and nuts to secure the half-rings (116 and 123) to the flanged sleeve (101).

Fig. 187

Force the bearing (104) into place in the flanged sleeve (101) using the special tool listed at the front of this Shop Manual Section. Secure the bearing with a new snap ring (103).

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

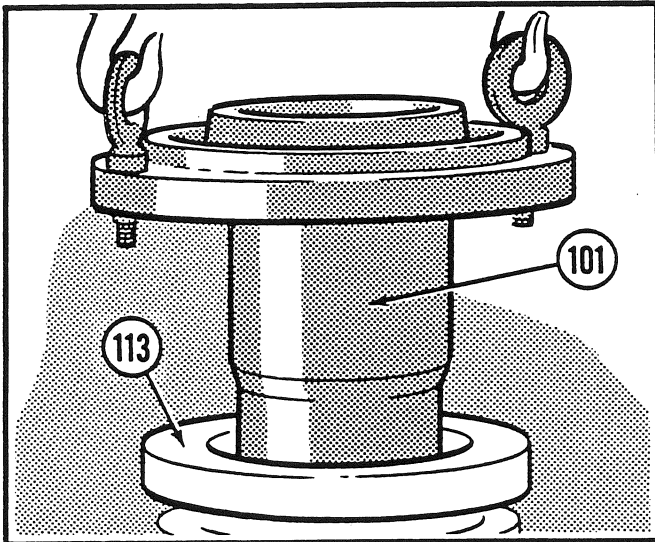


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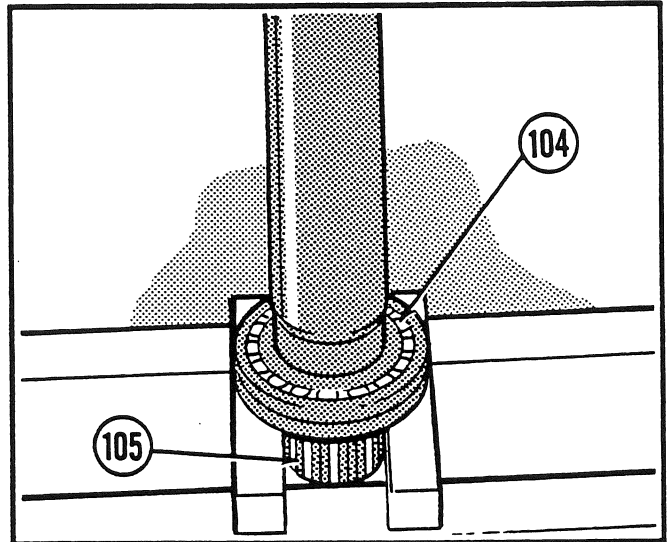


Fig. 185

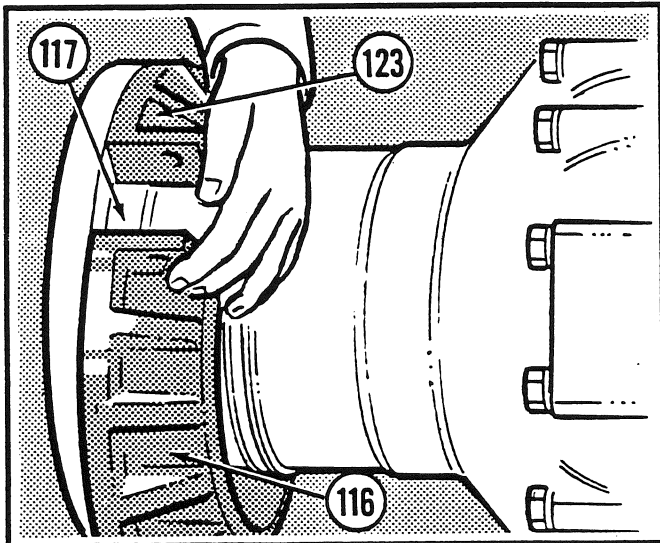


Fig. 183

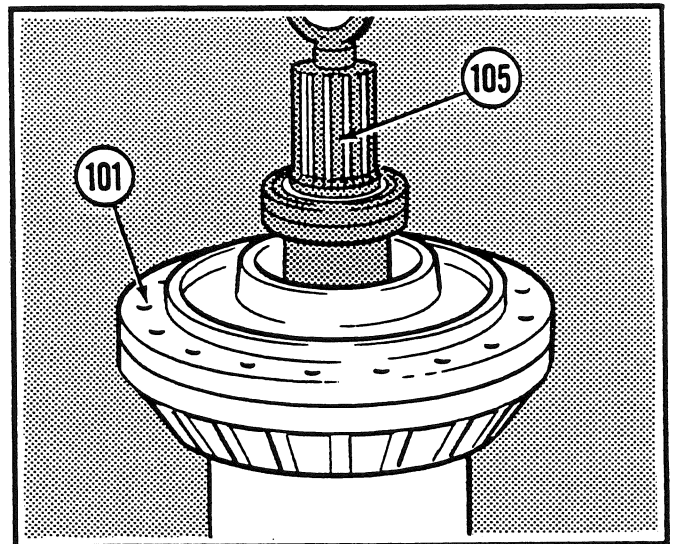


Fig. 186

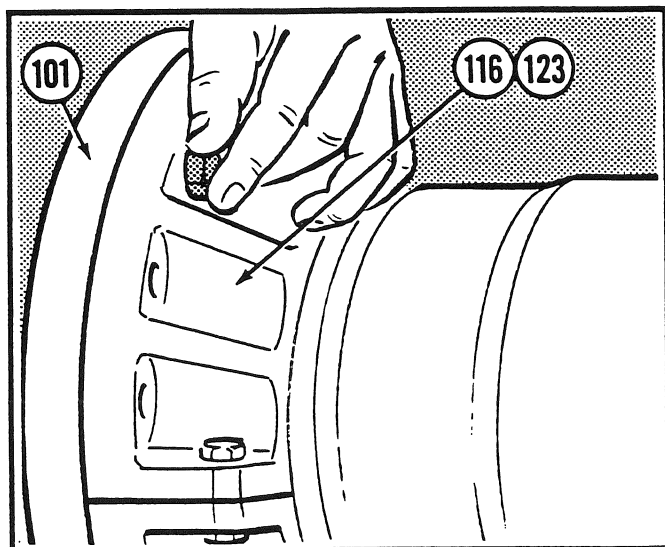


Fig. 184

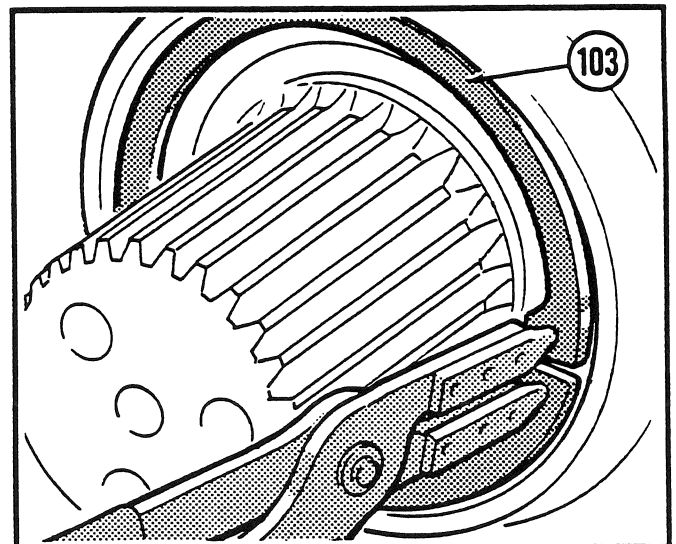


Fig. 187

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

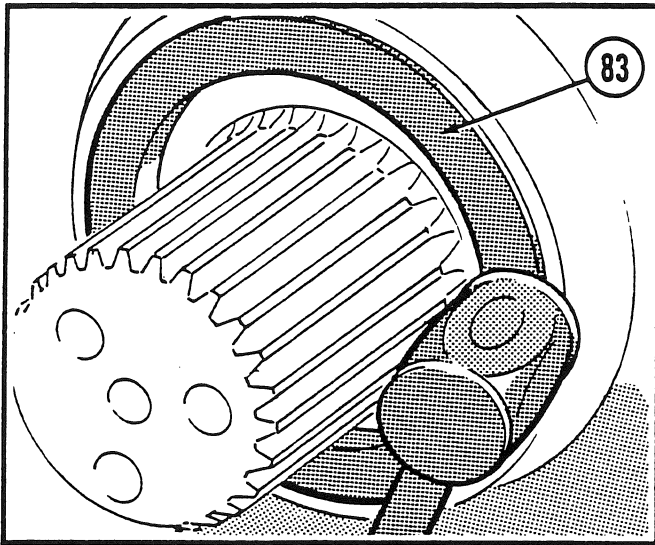


Fig. 188

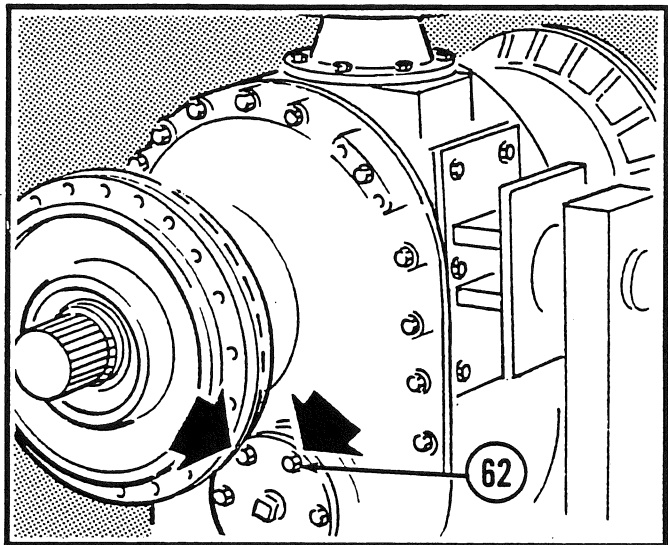


Fig. 191

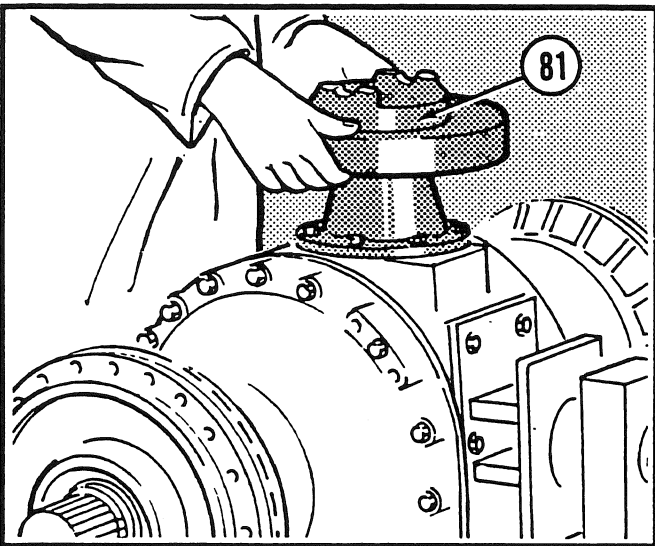


Fig. 189

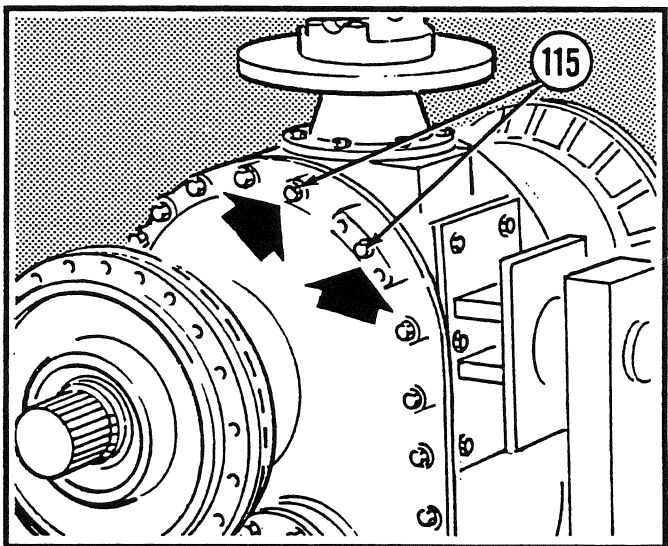


Fig. 192



Fig. 190

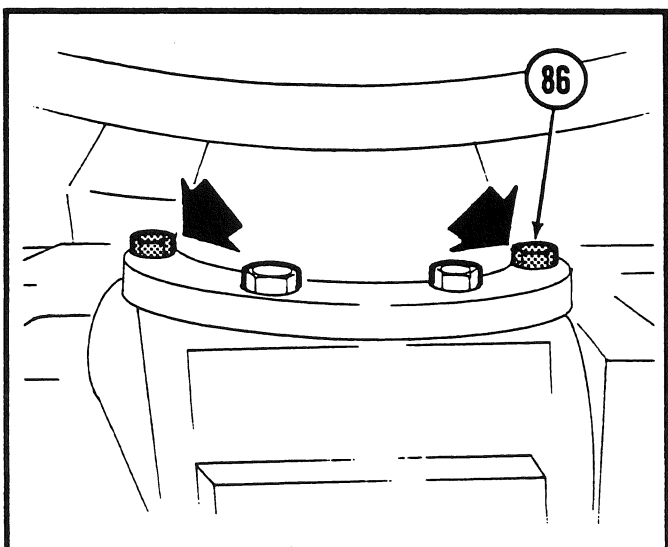


Fig. 193

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 188

Apply a thin coating of adhesive/sealant, Champion part number 19200, onto the outer diameter of a new oil seal (83). Install the seal using a soft faced hammer. Repeat the installation procedures described in Fig. 179 through Fig. 188 for the opposite flanged sleeve and axle.

Fig. 189

Install the brake disc and brake flange yoke (81). Install the washers and locknut. Tighten the locknut to the specified torque.

Fig. 190

There are certain capscrews on the final drive which could leak during normal operation. Champion recommends that you apply a thread sealing compound, Champion part number 19167, to these capscrews (Figs. 191, 192 and 193).

Fig. 191

Apply thread sealing compound to the two capscrews (62) on the cross shaft bearing cap and their equivalents on the opposite side.

Fig. 192

Apply thread sealing compound to the two capscrews (115) on both the left and right hand side housings.

Fig. 193

Apply thread sealing compound to the two capscrews (86) retaining the pinion cap.

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Assembly (cont.)

Fig. 194

Remove the differential final drive assembly from the build stand and install the suction tube (95).

Fig. 197

Install a new inspection cover gasket (106). Install the inspection cover (107), lockwashers (109) and nuts (108). Assembly of the differential final drive is now complete.

Differential Final Drive - Installation

Fig. 195

Install the hydraulic tube (48).

Fig. 198

Before installing the tandem on the differential, install new gaskets or apply gasket eliminator, Champion part number 25303, to the mounting surfaces of the flanged sleeves.

Fig. 196

Install the strainer (98) on the end of the suction tube (95).

Fig. 199

Remove the capscrews temporarily installed in Fig. 184. Install the differential onto the tandem while aligning the axle splines with those of the tandem sprocket. Take care not to damage the oil seal when installing the sprocket onto the drive axle.

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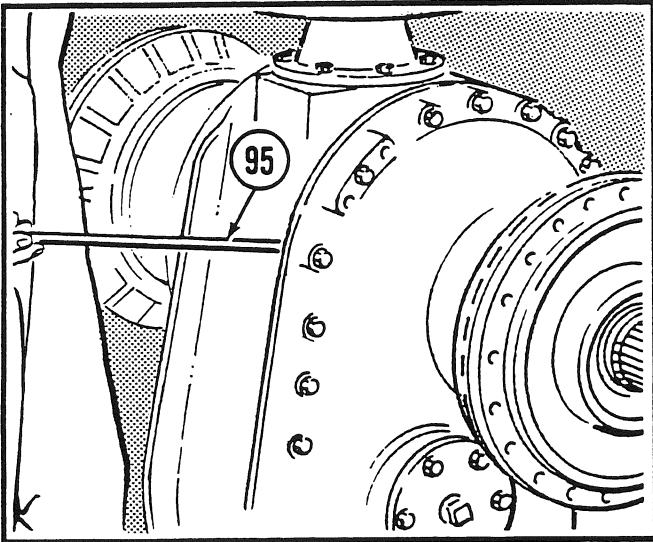


Fig. 194

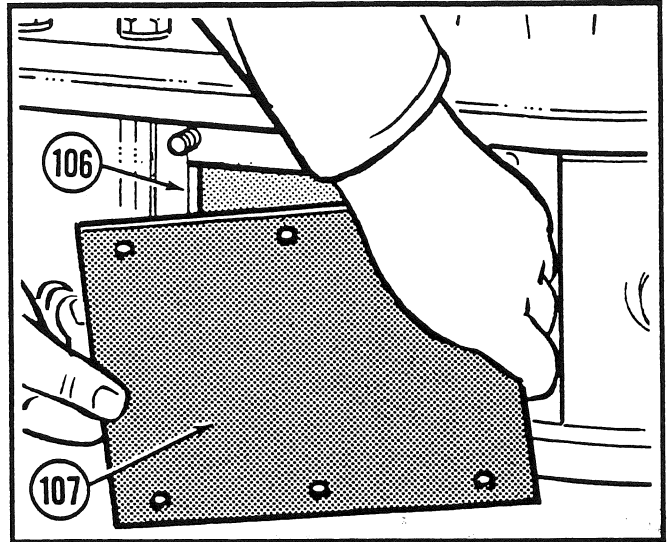


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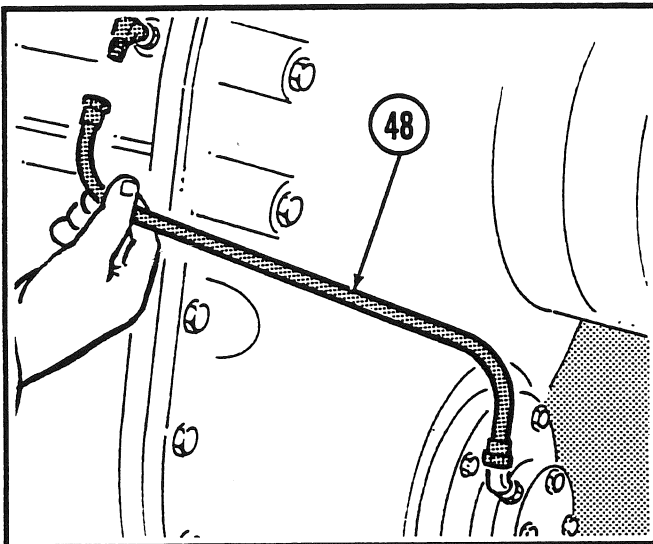


Fig. 195

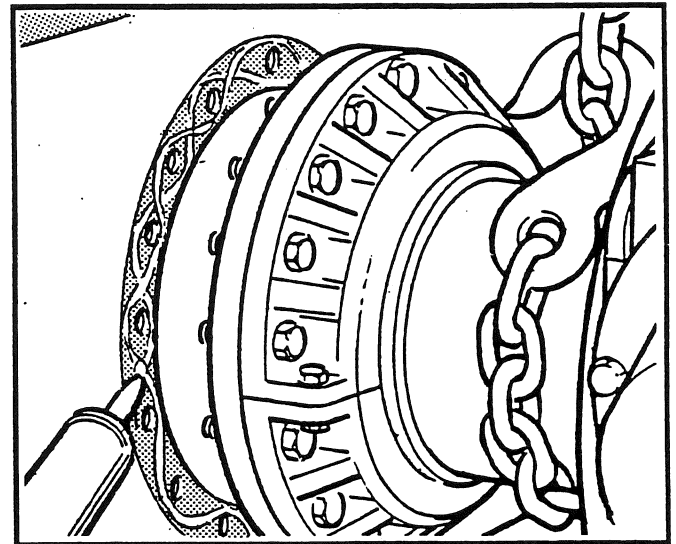


Fig. 198

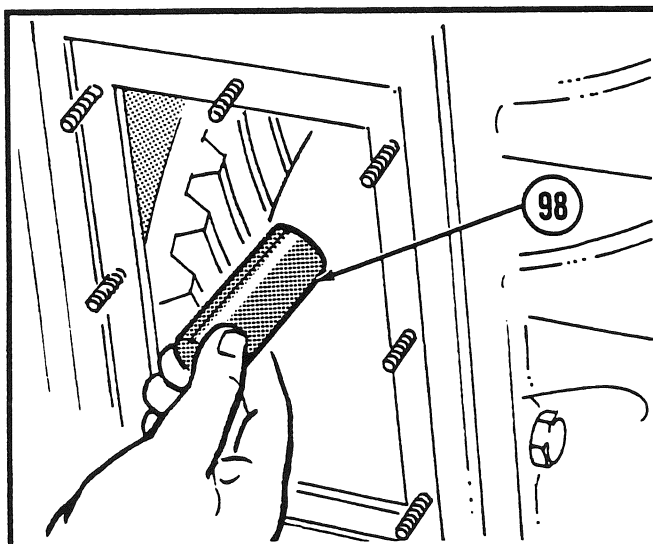


Fig. 196

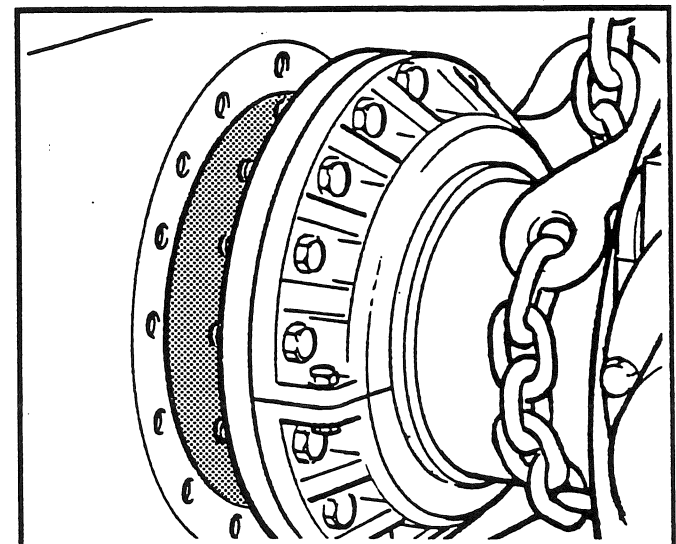


Fig. 199

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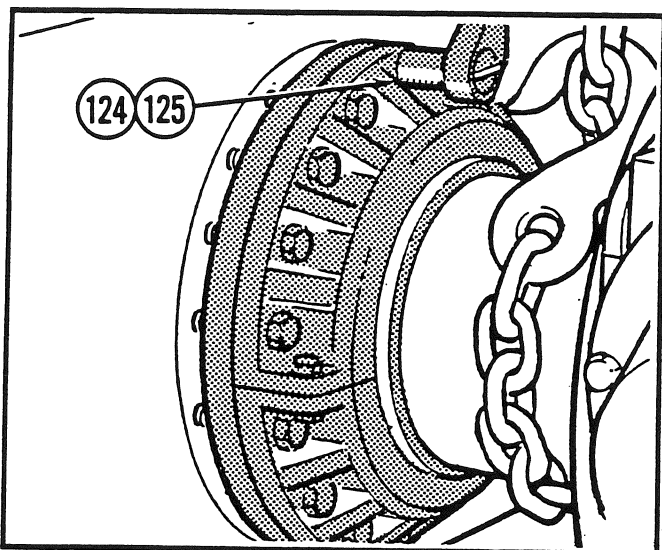


Fig. 200

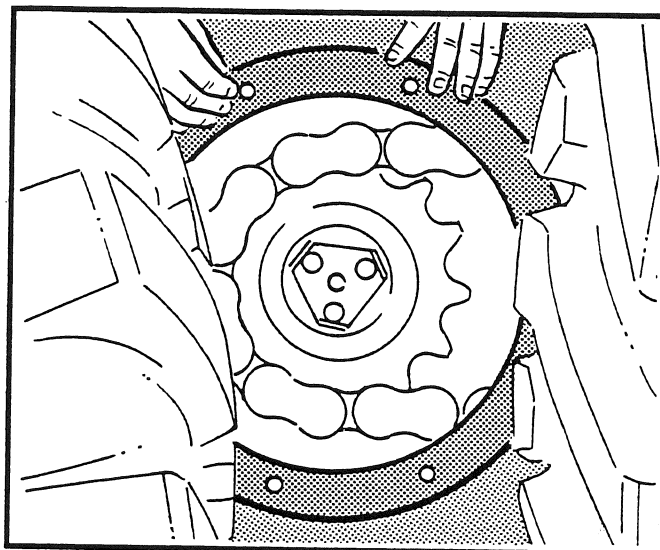


Fig. 203

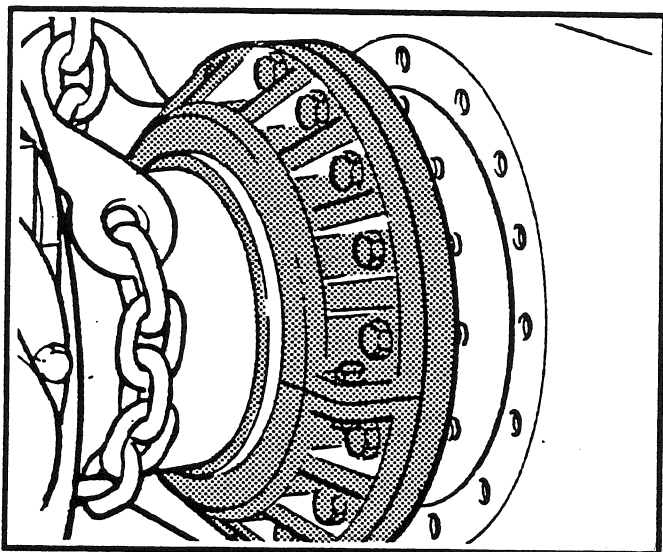


Fig. 201

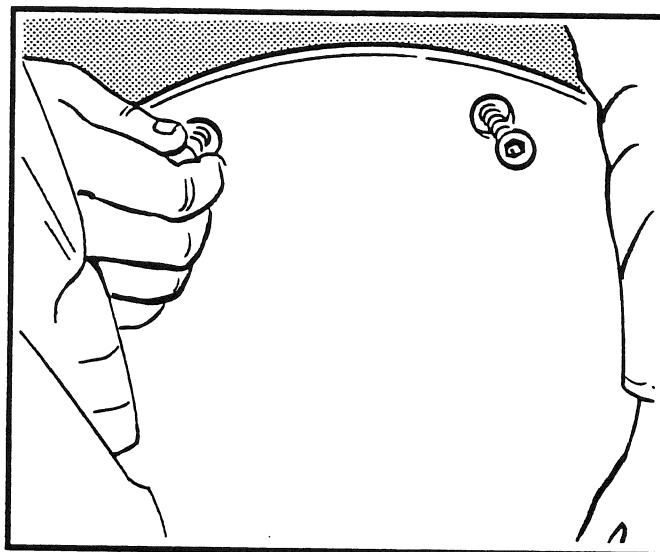


Fig. 204

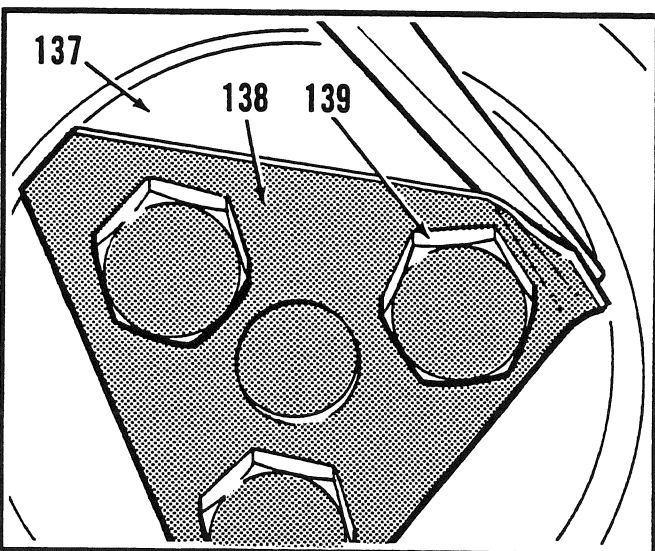


Fig. 202

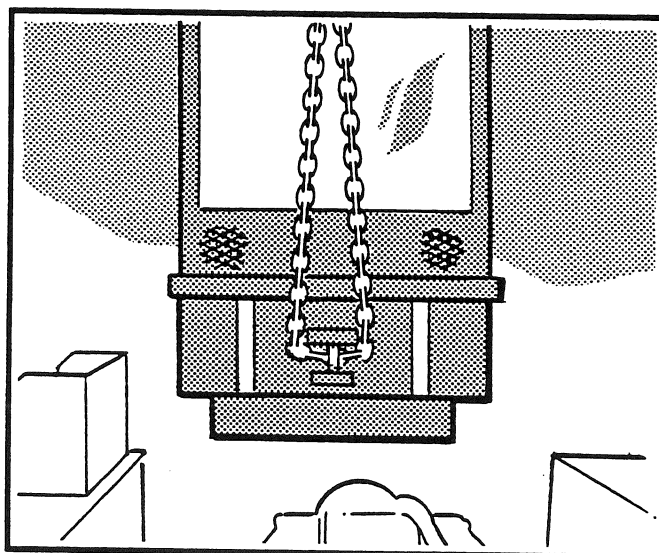


Fig. 205

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Installation (cont.)

Fig. 200

Install the capscrews (125) and lockwashers (124) that retain the half-rings to the tandem case. Tighten the capscrews to the specified torque.

Fig. 201

Support the weight of the differential final drive on proper blocks or stands. Repeat the procedures described in Fig. 198 through Fig. 200 and install the other tandem.

Fig. 202

Install the sprocket retainer (137), new lockplate (138) and capscrews (139) for each drive sprocket. Tighten the capscrews to the specified torque. Bend the lockplate corner tabs to secure the capscrew heads.

Fig. 203

Install a new gasket or apply gasket eliminator compound, Champion part number 25303, around the tandem cover plate opening.

Fig. 204

Install the tandem cover plates and fasten them with the capscrews. Remove the blocks supporting the differential final drive assembly.

Fig. 205

Raise the frame using the lifting device. Remove the stand.

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Installation (cont.)

Fig. 206

Roll the differential final drive and tandem assembly into position under the frame.

Fig. 209

Install the mounting plate (133) and retain with the nuts (130), bolts (132) and lockwashers (131). Tighten the nuts (77 and 130) to the specified torque.

Fig. 207

Carefully lower the frame onto the differential final drive housing using the lifting device. On articulated machines, **make sure** that the parking brake disc does not interfere with the mounting brackets.

Fig. 210

Re-connect the lower drive shaft to the differential final drive brake flange yoke. Tighten the capscrews to the specified torque.

Fig. 208

Install the hanger bracket half-clamps (be sure to check the matching identification marks). Retain with the nuts (77) and bolts (76), but **DO NOT** torque tighten.

Fig. 211

Install the parking brake assembly.

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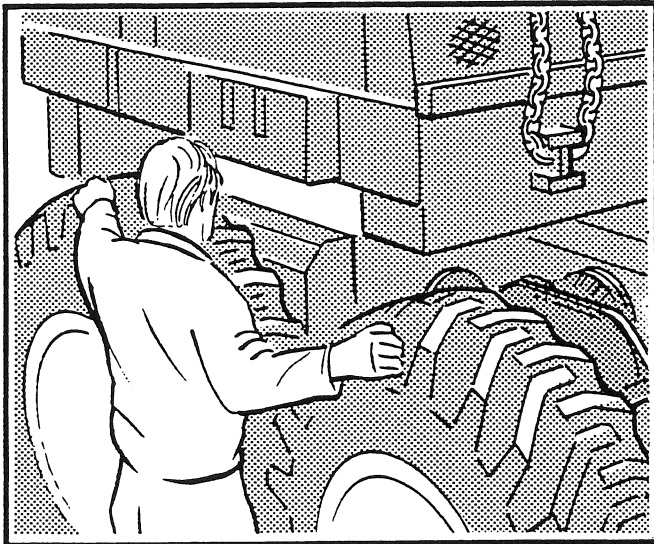


Fig. 206

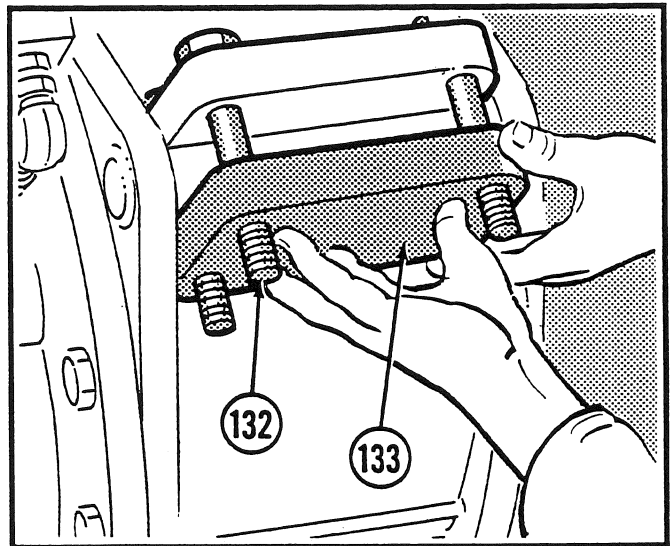


Fig. 209

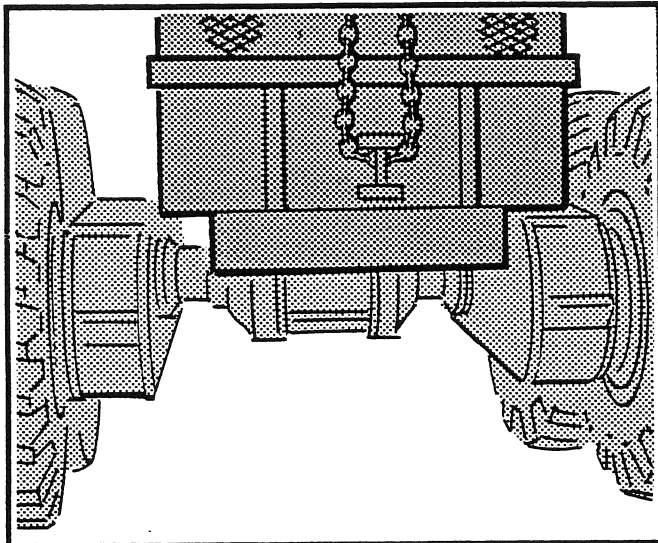


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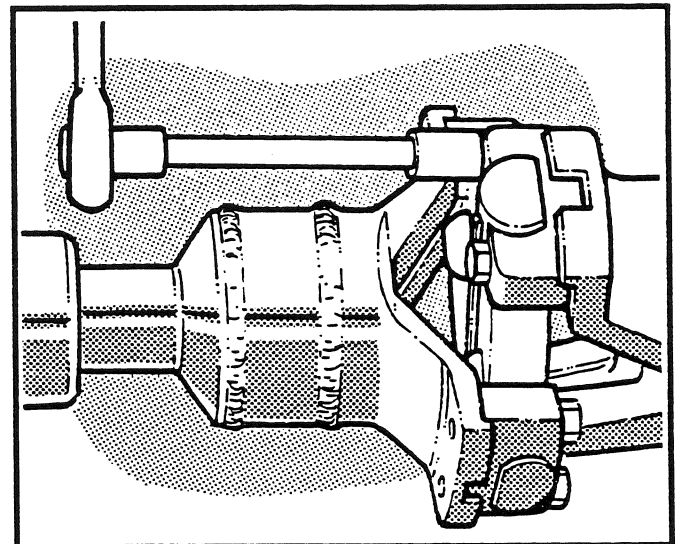


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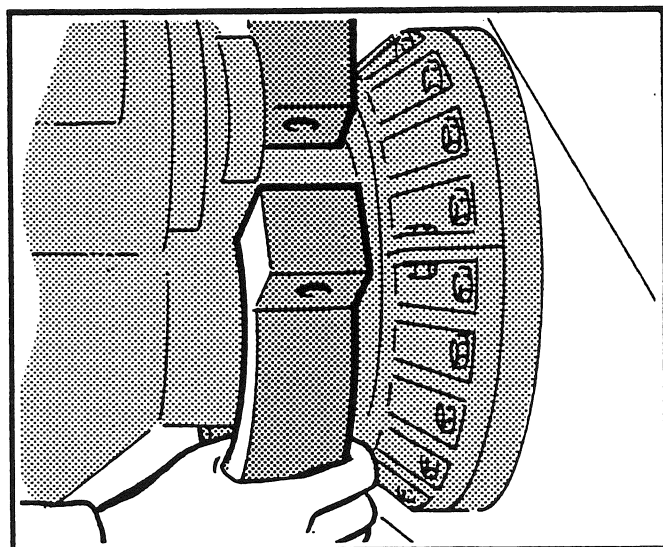


Fig. 208

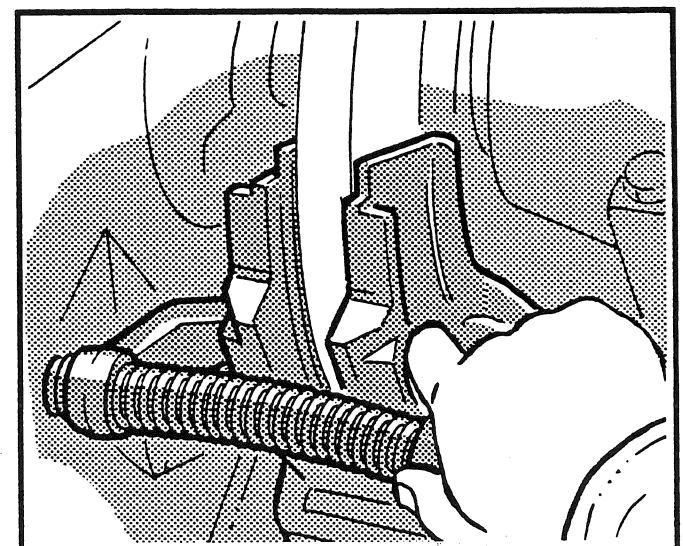


Fig. 211

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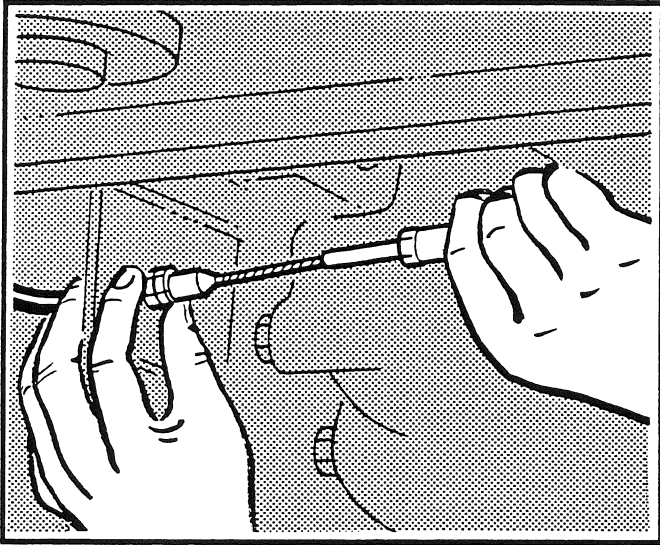


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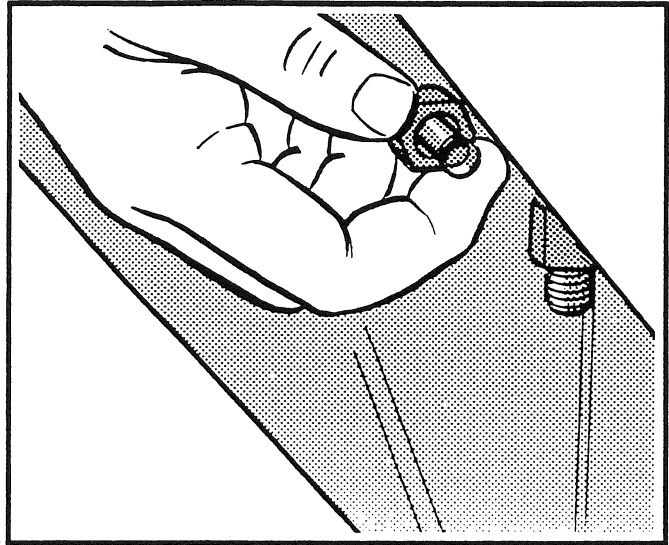


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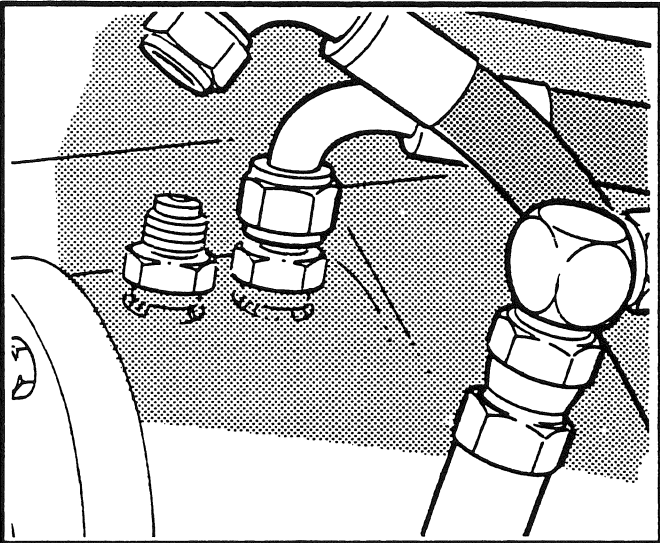


Fig. 213

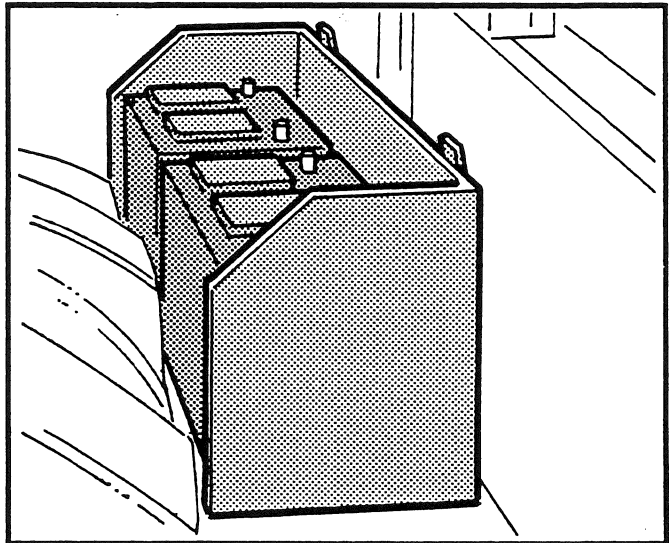


Fig. 216

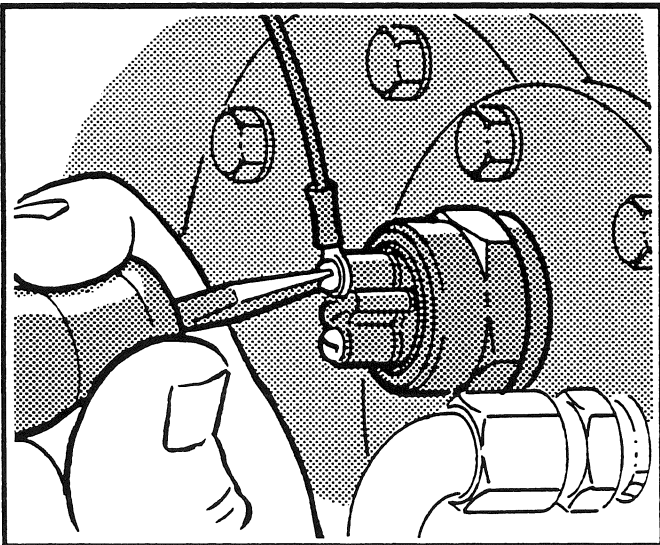


Fig. 214

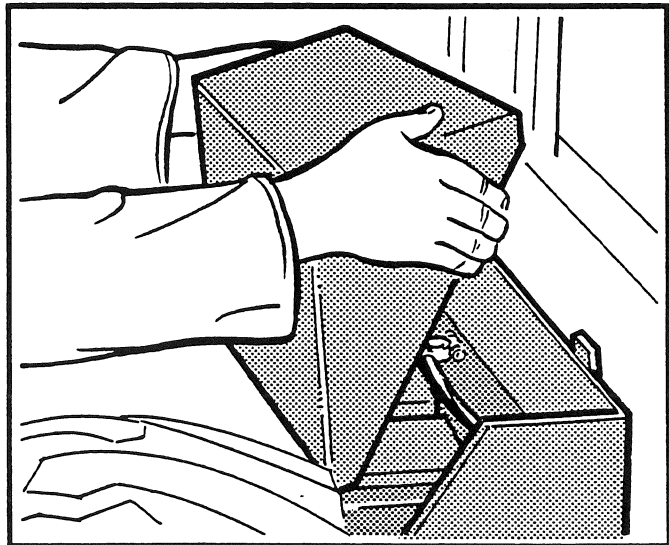


Fig. 217

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Installation (cont.)

Fig. 212

Re-connect the parking brake cable and adjust the brake shoe clearance. Install the parking brake fender.

Fig. 215

Re-connect the brake lines at the tee fittings on the frame. Be sure to wipe up any spilled fluid immediately.

Fig. 213

Identify and re-connect the three hydraulic hoses to the lock/unlock cylinder.

Fig. 216

Install the battery box and connect the battery cables to the proper terminals.

Fig. 214

Re-connect the wires to the lock/unlock switch terminals.

Fig. 217

Install the battery box cover.

700 SERIES SHOP MANUAL
LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

Differential Final Drive - Installation (cont.)

Fig. 218

Install the filler pipe (136) and hose (135) on the frame.

Fig. 221

Purge the brake system as described in the appropriate section of this Shop Manual.

Fig. 219

Fill the differential final drive to the correct level using the lubricant recommended in the Lubrication Specifications at the front of this Shop Manual.

Fig. 222

Removal and installation of the lock/unlock differential final drive is now complete. **Road test the grader to make sure that the lock/unlock differential final drive works properly.** Check all connections for leaks.

Fig. 220

Fill the tandem cases to the correct level using the lubricant recommended in the Lubrication Specifications at the front of this Shop Manual.

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LOCK/UNLOCK DIFFERENTIAL FINAL DRIVE

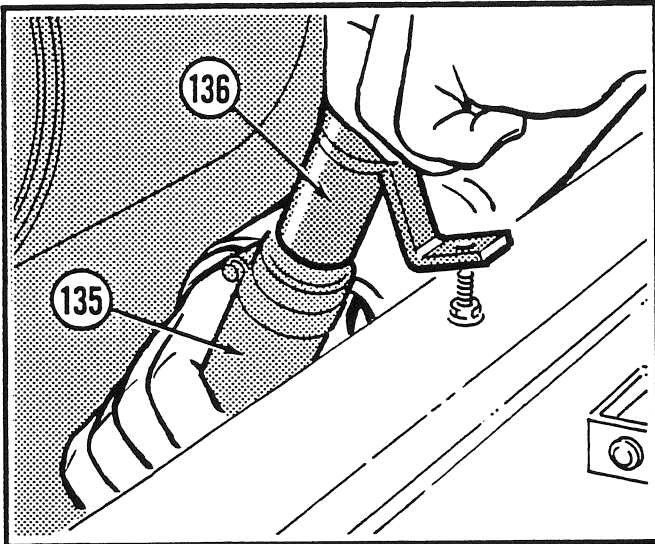


Fig. 218

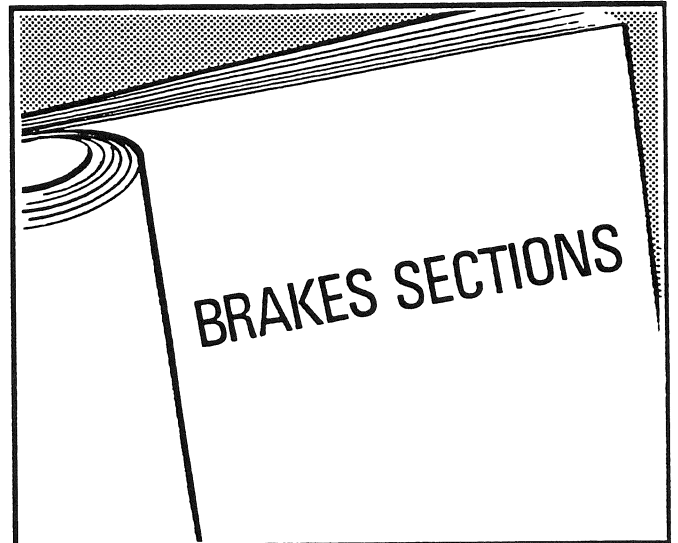


Fig. 221

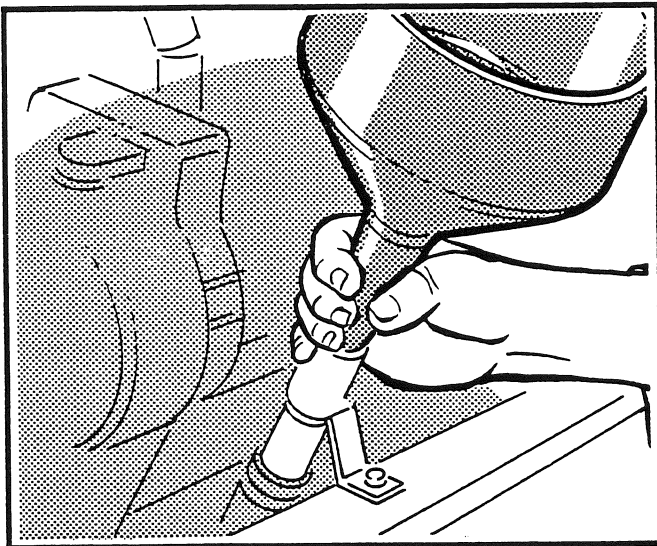


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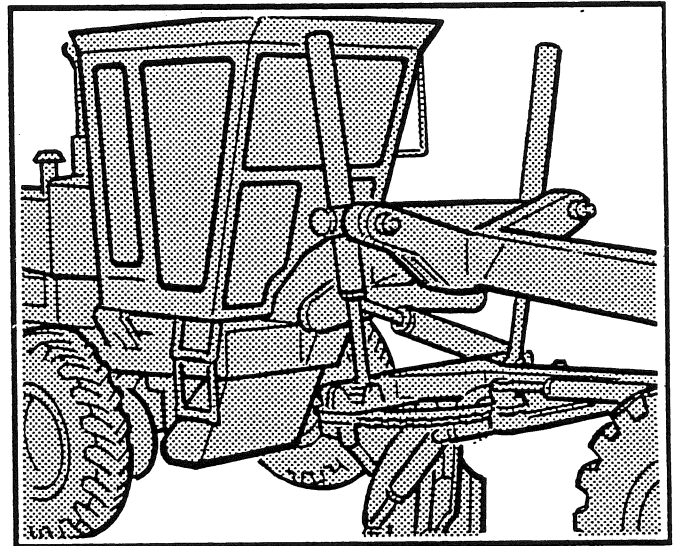


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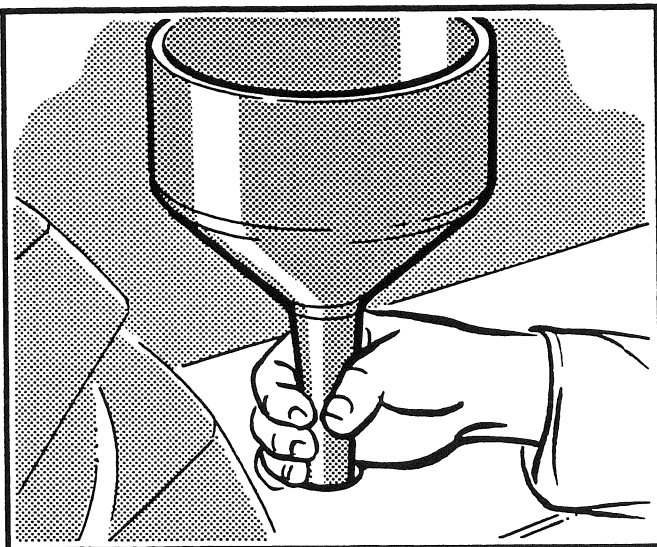


Fig. 220

