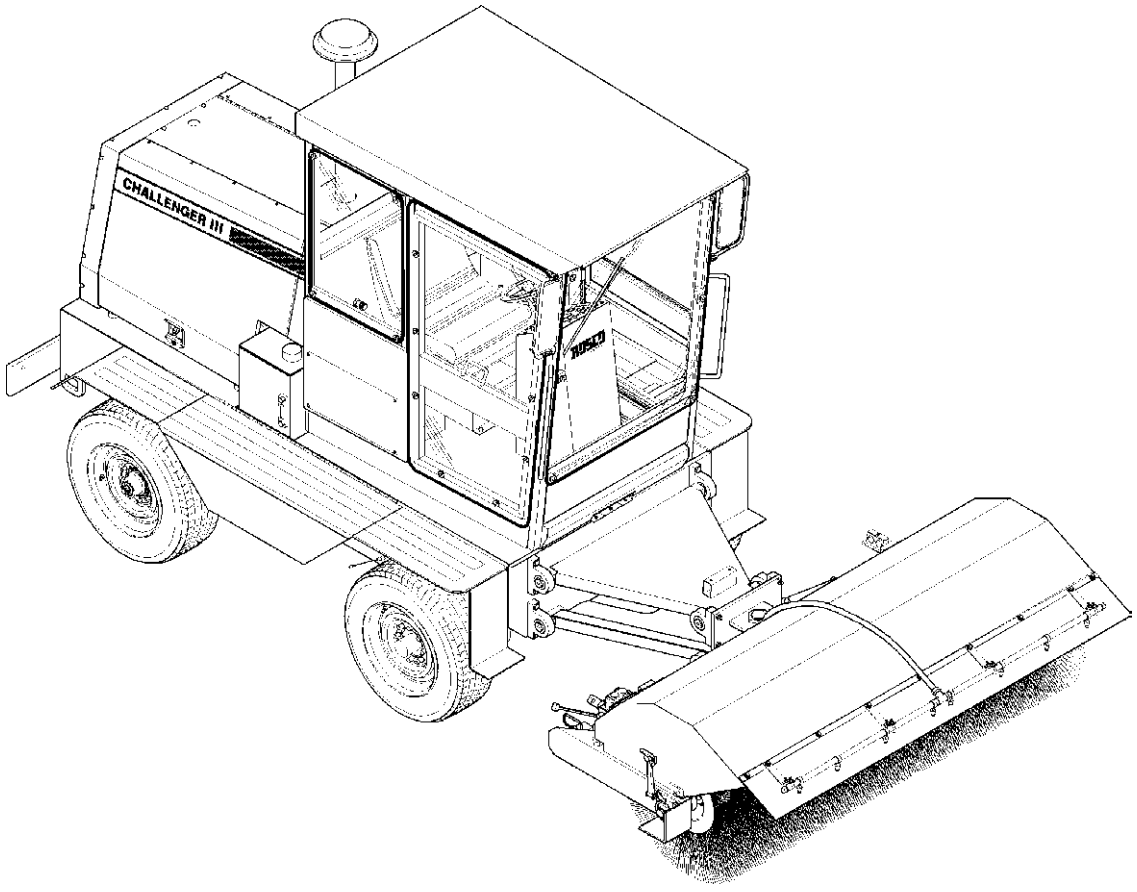
ROSCO

A LeeBoy Company

OPERATIONS, SERVICE AND PARTS MANUAL



CHALLENGER III BROOM

Manual No. 38474-03

For Units with Serial No. 46936 and higher

Revised 03-15-07

Section 1
INTRODUCTION & SAFETY

TABLE OF CONTENTS

Steering

Steering is performed by a hydraulically powered orbital system and operated by a steering wheel. In the event of a hydraulic power failure, the machine can still be steered.

Brush Control

The brush drive speed is regulated by the engine speed. Brush lift, swing, and forward/reverse are controlled by push buttons on the travel control lever. The buttons operate solenoid controlled hydraulic valves.

SPECIFICATIONS

Tables 2-1 through 2-7 list major system specifications for the Challenger III Broom. Additional maintenance tables are shown in Section 4, **Maintenance**.

TABLE 2-1. ENGINE SPECIFICATIONS

ITEM	SPECIFICATION
ENGINE	
Model and Manufacturer	Caterpillar 3044T
Type	4 Cycle Diesel, Water Cooled
Number of Cylinders	Four
Bore & Stroke	3.7 in. (94 mm) x 4.72 in. (120 mm)
Displacement	203 cu. in. (3.33 liters)
Power @2500 RPM	85 HP (63 kw)
Idle Speed	1000 RPM
Engine Oil Type	15W-40
Oil Capacity	8.4 quarts (8 liters)
ENGINE COOLING SYSTEM	
Type	Radiator
Capacity	4 gallons (15 liters)
ENGINE FUEL	
Type	Diesel
Capacity	35 gallons (132 liters)
FUEL FILTER	
Cartridge	P/N 984909-01
OIL FILTER	
Cartridge	P/N 984909-02
AIR FILTER	
Primary (Dry-type)	P/N 38385-01
Safety (Cartridge)	P/N 38385-02

TABLE 3-2. STEERING CONSOLE

FIGURE	ITEM	CONTROL NAME	TYPE	FUNCTION
3-2	1	Steering Wheel		Controls right and left steering function of the front wheels.
3-2	2	Park Brake Lever		Raise to set park/emergency brake. Lower lever to release.
3-2	3	Service Brake Pedal		Used to slow and stop the machine.
3-2	4	Brake Master Cylinder		Pressurizes the brake system.
3-2	5	Main Fuse Panel		Contains fuses for the instrument panel, brush controls, heat, blower fan, air conditioning, and exterior lights.

12. Idle the engine at 1/2 speed (RPM) for 3 to 5 minutes.
13. Place engine throttle at slow idle.
14. Place ignition switch in the OFF position and remove the key.
15. Cover the exhaust opening with heavy gauge plastic to prevent dust and moisture from entering the engine.

NOTE: Remove the plastic cover from the exhaust before operating the broom.

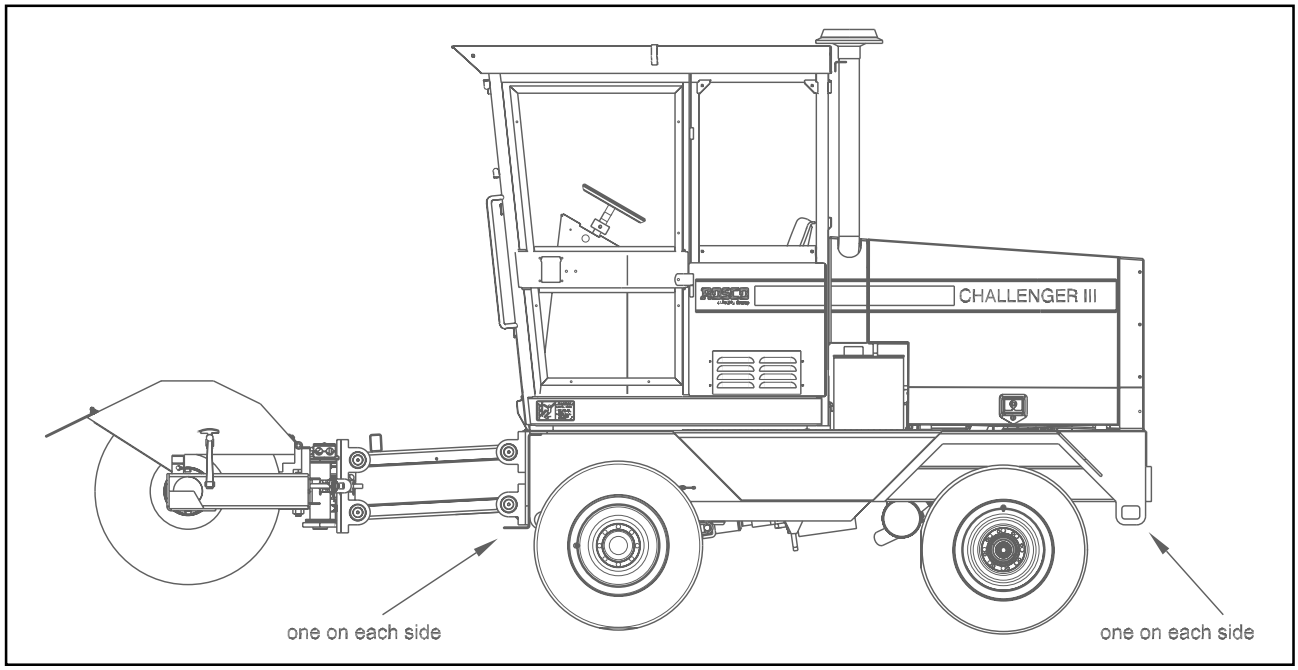


FIGURE 3-8. TIE-DOWN POINTS

TABLE 4-5. TORQUE SPECIFICATIONS FOR METRIC FASTENERS

The following table gives the correct torque values for standard fasteners and is intended as a guide for average applications involving typical stresses and machined surfaces. Values are based on physical limitations of clean, plated and lubricated hardware. Check tightness of bolts periodically, using this table as a guide. When using locking fastener, increase torque values by 5%.

CAUTION: **Aways replace original equipment with hardware of equal grade. When an individual torque value is specified, it should be followed instead of values given in this table.**

NOMINAL SIZE & PITCH	CLASS 8.8 (GRADE 5 EQUIVALENT)				CLASS 10.9 (GRADE 8 EQUIVALENT)			
	TORQUE FT. LB.		TORQUE N•m		TORQUE FT. LB.		TORQUE N•m	
	Dry	Lubed	Dry	Lubed	Dry	Lubed	Dry	Lubed
M4 x 0.7	2.27	1.70	3.07	2.30	2.27	2.31	4.17	3.13
M5 x 0.8	4.58	3.43	6.20	4.65	6.22	4.67	8.43	6.33
M6 x 1	7.75	5.83	10.5	7.9	10.60	7.97	14.3	10.8
M8 x 1.25	18.89	14.17	25.6	19.2	18.95	19.26	34.8	26.1
M10 x 1.25	39.11	29.52	53.0	40.1	53.87	40.59	73.0	55.0
M12 x 1.75	64.94	48.71	88.0	66.0	88.56	66.42	120.0	90.0
M14 x 2	103.32	77.49	140.0	105.0	140.22	107.01	190.0	145.0
M16 x 2	162.36	121.77	220.0	165.0	221.40	166.05	300.0	225.0
M20 x 2.5	317.34	236.16	430.0	320.0	428.04	321.03	580.0	435.0
M24 x 3	516.12	409.59	740.0	555.0	754.38	557.19	1010.0	755.0
M27 x 3	797.04	597.78	1080.0	810.0	1084.86	811.80	1470.0	1100.0
M30 x 3.5	1084.86	811.80	1470.0	1100.0	1476.00	1107.00	2000.0	1500.0

N•m = Newton meter
FT. LBS = Foot Pound

ADJUSTING BRUSH DRIVE RELIEF VALVE

The Brush Drive circuit gets the remaining hydraulic flow (approximately 19 GPM) after the priority flow divider supplies the power steering. A Brush Drive Relief Valve protects the brush drive circuit. The Brush Drive Relief Valve is located on the top of the valve assembly, attached to the rear of the cab panel.

Adjust the relief valve if:

- Brush stalls frequently
- Brush lacks sweeping power
- There is a constant noise while sweeping

To adjust the Brush Drive Relief Valve:

1. Remove the hose from the manifold at port M1.
2. Plumb a 0 to 5000 psi pressure gauge into the manifold at port M1 (Figure 4-8). Parts needed for this, including a pressure gauge, can be obtained from your authorized dealer..
3. Start the engine and warm the hydraulic oil to at least 100° F.
4. Set the park brake and be sure the transmission is in neutral. Use the foot brake as an extra precaution.

CAUTION: **Use extreme caution when working on the Challenger III Broom while adjusting Brush Drive Relief Valve pressure. Have another person who is familiar with the machine assist you.**

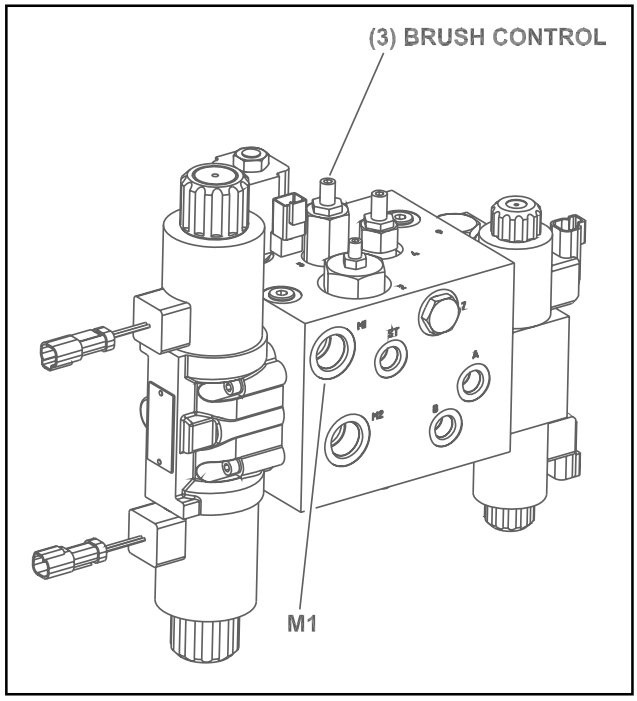


FIGURE 4-8. BRUSH DRIVE RELIEF VALVE

6. Increase engine speed to full RPM (2500 RPM).
7. Using the Brush FWD/REV Control on the joystick, turn the brush motor ON to engage the control valve.
8. The pressure gauge should read 2400 +/- 50 psi.
9. Turn the brush motor OFF.
10. Adjust relief pressure by removing the locknut at item 3, and turning the adjusting screw clockwise to increase pressure and counterclockwise to decrease pressure.

NOTE: Turn the adjusting screw in 1/8 turn increments, and repeat steps until correct pressure is obtained.

BRUSH SYSTEM MAINTENANCE

WARNING: **Do not service the Challenger III Broom while it is in motion or while the engine is running. If the engine must be running to service a component, place transmission in neutral, apply park brake, block wheels, and use extreme caution.**

Grease the brush core shaft pillow block bearing and brush lift pivot bushings daily using a multi-purpose grease.

Grease the brush swing bearings with a multi-purpose grease every 250 hours.

CHANGING THE BRUSH CORE

1. Lower the brush completely to the ground but do not put pressure on the brush. Put unit in neutral and set park brake.
2. Remove cotter pin from brush cover pin. Remove the cover latch pin and raise the brush cover.
3. On the under side of the swing arm, remove hairpin clip from the swing arm pin. Remove pin and pull swing arm away from brush core.
4. Pull the Quick-Change-Cylinder handle to activate, and swing the the brush core out.
5. Pull the core away from the drive hub and slide it out of the way.
6. Your unit may be equipped with Lube For Life U-Joints. If it is not, check both hubs for any damage and grease the U-joint on the idle hub.
7. Slide new brush onto slotted drive hub making sure that the key stock inside the brush core goes onto the drive hub side.

NOTES:

FIGURE 2. AXLE ASSEMBLY, DRIVE

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
2	**26259**	**•AXLE ASSEMBLY, DRIVE (SEE FIGURE 1 FOR NHA)**	**1**
1	26983	••DRIVE AXLE,W/M	1
2	38329	••LEVER,PARK BRAKE	1
3	38330	••LEVER,PARK BRAKE	1
4	38342	••CABLE,PARK BRAKE	2

FIGURE 5A. OPTIONAL 8 FOOT BRUSH FRAME ASSEMBLY PAGE 1 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
5A	**27458**	**OPTIONAL 8 FOOT BRUSH FRAME ASSEMBLY**	
1	27459	•BRUSH FRAME,W/M,8FT.	1
2	26571	•QUICK CHG ARM,W/M	1
3	26531	•BRUSH HINGE,W/M	2
4	27460	•BRUSH COVER,W/M,8 FT.	1
5	27461	•APRON,8 FT.	1
6	27462	•PLATE,APRON,8 FT.	1
9	26558	•SWING ARM BOLT	1
10	26549	•HUB,IDLER,W/M	1
11	26547	•DRIVE HUB,W/M	1
12	38511	•PIN,HITCH,.750X6.50 GRIP	1
13	38286	•MOTOR,HYD,BRUSH DRIVE	1
14	81237	•RING,RETAINING EXT 1.250 SHAFT	2
17	312030	•BEARING,FLANGE,4-BOLT,1.50	2
18	26520	•IDLE SHAFT PIN	1
19	26523	•QUICK CLAMP SLEEVE	1
20	38546	•CYL,HYD,2.00X6.00X1.125 ROD	1
-2001	38546-01	••KIT,SEAL,CYLINDER	A/R
21	26557	•QUICK CHANGE BAR	1
22	26524	•QUICK CHANGE LEVER BOLT	1
23	38307	•VLV,HYD,SINGLE SPOOL	1
24	26522	•LATCH BAR	1
25	38576	•LATCH,T-HANDLE	2
26	26521	•PIVOT BUSHING,BRUSH FRAME	2
27	610110	•CYL,HYD,2.00X8.00X1.00 ROD	1
-2701	851484	••KIT,SEAL,CYLINDER	A/R
28	38280	•CLAMP HALF,1-1/4" HOSE	2
29	35541	•CLAMP,COVER PLATE	1

- ITEM NOT ILLUSTRATED

FIGURE 8. ENGINE SUBASSEMBLY, CATERPILLAR

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
8	**987105**	**ENGINE SUBASSEMBLY, CAT**	**1**
1	984909	•ENGINE,CAT,3044T,80 HP	1
2	987086	•MOUNT,REAR,LH,ENG,W/M	1
3	987085	•MOUNT,REAR,RH,ENG,W/M	1
4	987084	•MOUNT,FRONT,LH,ENG,W/M	1
5	987083	•MOUNT,FRONT,RH,ENG,W/M	1
6	987077	•MOUNT,ENG/COMPRESSOR,W/M	1
7	986264	•DRIVE PL ASSY,SAE#4,C MT,CAT	1
8	38321	•PUMP,HYD,PISTON,4.57 CIR	1
9	39082	•MOUNT,ISOLATION,425#	4
10	33146-6	•BATTERY,12V,1000 CRK AMPS	1
-101	72313	••HOLD DOWN,BATTERY (Part of Final Group)	REF
11	72689	•FITT,TEST 06MB-02PD	1
12	987502	•BRACKET,PUMP CABLE,W/M	1
13	983185	•BRKT,THROTTLE,CABLE,CAT/PER3.3	1
14	99552	•PIPE,RED,08FP-06FP,MI	1
15	35546	•VALVE,HEATER SHUTOFF	1
16	38954	•RELAY,STARTER	2
17	986686	•KIT,OIL DRAIN,CAT	1
18	6274	•FITT,STR 06MP-06FPX	1
19	986687	•KIT,FITTINGS,LIFT PUMP,CAT	1
20	985757	•HARNESS,ENGINE,CAT 3.3	1
21	400020	•CABLE,BATTERY,NEG,16",EYE/POST	1
22	852510	•CABLE,BATTERY,POS,44",EYE/POST	1
23	5804	•CABLE,BATTERY,NEG,13",EYE/EYE	1

- ITEM NOT ILLUSTRATED

FIGURE 13. RADIATOR/COOLER ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
13	**987064**	**RADIATOR/COOLER ASSEMBLY**	**1**
1	38784	•RADIATOR	1
2	987080	•RADIATOR MOUNT,RH,W/M	1
3	987081	•RADIATOR MOUNT,LH,W/M	1
4	35423	•COOLER,HYD OIL	1
5	28224	•CONDENSER HINGE,W/M	2
6	36745-06	•HEATER/EVAPORATOR ASSY (Part of Cab Air Cond. /Heater)	REF
7	910150	•VALVE,DRAIN COCK,.250 NPT	1
8	983285	•SHROUD, FLAT REDUCING FAN	1
9	35546	•VALVE,HEATER SHUTOFF	1
10	73150	•FITT,STR 08MB-06FB	1
11	986461	•ADAPTER,HOSE,1.5IDX1.25ID	1
12	986892	•HOSE,FLEX,2"TO1.75X16.5"	1
13	986462	•HOSE,FLEX,1.5X1.75X15	1
14	230240	•CLAMP,HOSE,# 28 (2-1/8")	4
-50	80038	•NUT,HEX,.375-16	4
-55	80162	•WASHER,LOCK,.375	4
-60	80802	•CSHH,.375-16X7.00,GR5	4
-65	81155	•WASHER,FLAT,SAE,.375,HARDENED	8

- ITEM NOT ILLUSTRATED

FIGURE 16. CAB ASSEMBLY (PAGE 2 OF 6)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
16	**28235**	**CAB ASSEMBLY**	**1**
22	35136-21	•PLUG,HOLE,.312,FLUSH MT,PLSTC	2
24	81275	•NUT,ACORN,.250-20,SS	18
26	81277	•CSBHS,.250-20X.88,SS	18
36	36688-16	•BUSHING,NYLON	18
37	36688-17	•GROMMET,.250	18
38	36688-18	•SEAL,WINDOW	44
39	81278	•WASHER,FLAT,.250X1.00,SS	20
67	80192	•CSHH,.250-20X.75,GR5	4
70	80140	•WASHER,FLAT,USS,.250	4
-100	985514	•KIT,CAB,INSULATION	1
		ATTACHING PARTS	
13	28342	••FLOORMAT	1
14	36688-12	••HEADLINER	1
16	36688-14	••FOAM,RIGHT SIDE	2
17	36688-15	••FOAM,REAR PANEL	1
		-----*-----	

- ITEM NOT ILLUSTRATED

FIGURE 17. CAB, 2 DOOR

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
17	**28171**	**•CAB, 2 DOOR (SEE FIGURE 16 FOR NHA)**	**1**
-1	76003-01	••CAB W/M,RH SIDE	1
2	27572	••CAB,W/M LH SIDE	1
-3	76005-01	••PANEL,REAR	1
-4	76008-01	••GUSSET,GLASS SUPPORT	6
-5	78008-01	••ROOF (OPEN ROPS)	1
6	76013-01	••CROSSBRACE,UPPER REAR	1
7	76014-01	••CROSSBRACE,UPPER FRONT	1
8	76017-01	••GUSSET,CENTER	2
9	28259	••FLOOR	1
-11	80959	••NUT,WELD,.312-18	3
12	269905	••EYE,LIFTING,RB48	2
-14	28258	••PLATE,CONSOLE,TOP	1
-15	81042	••NUT,WELD,.250-20	14
-16	81268	••NUT,HEX,HEAVY,.375-16 UNFINISH	6
17	28243	••STAND,STEERING CONSOLE	1
-18	21034	••MOUNT,ROTATION CONTROL LEVER	1
-19	81090	••NUT,WELD,.375-16	4

- ITEM NOT ILLUSTRATED

FIGURE 21. CONTROL GROUP

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
21	**987493**	**CONTROL GROUP**	**1**
1	987467	•PLATE,Z-GATE,PLUG	1
2	28549	•CONSOLE,SIDE COVER	1
3	29157	•CONTROL SHIFT LEVER,REWORK	1
4	26166	•THROTTLE CABLE ASSY	1
5	350050	•CLEVIS,.250-28	1
6	32939-2	•CABLE,PUSH/PULL,54"X3" STROKE	1
7	987515	•CONTROL HANDLE,WIRING (SEE FIG 22 FOR BREAKDOWN)	1
8	987662	•PLATE,CONSOLE,NEEDLE VLV,COVER	1
9	28258	•PLATE,CONSOLE,TOP (Part of Cab, 2 Door, Assy)	REF
-50	80192	•CSHH,.250-20X.75,GR5	6
-55	80208	•CSHH,.312-18X1.00,GR5	4
-60	80219	•CSHH,.375-16X.75,GR5	2
-65	80226	•CSHH,.375-16X1.50,GR5	1
-70	80243	•CSHH,.437-20X2.25,GR5	4
-75	80037	•NUT,HEX,.312-18	4
-80	80140	•WASHER,FLAT,USS,.250	2
-85	80161	•WASHER,LOCK,.312	4
-90	987043	•WIRING HARNESS,CHALL3 (Schematics at end of IPL)	1
-100	**33963**	**ALARM, BACK UP (Part of Final Group)**	**1**

- ITEM NOT ILLUSTRATED

FIGURE 26. LIGHTS AND MIRROR GROUPS

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
26	**987748**	**LIGHTS AND MIRROR GROUPS**	**1**
1	6161	•LIGHT,TURN SIGNAL,AMBER	2
2	160040A	•WORK LIGHT	4
4	851342007	•LIGHT,TURN/BRAKE,RED	2
5	987747	•WIRE HARNESS,REAR/WORK LIGHTS (Schem at end of IPL)	1
7	35465-06	•GROMMET,INSULATION,.375ID	3
8	38840	•LIGHT,DOME	1
-9	35139	•CONNECTOR,SEALED,TOWER,2-PIN	2
-10	35213	•HOLDER,WIRE TIE,ADHESIVE BACK	1
-11	36165	•TERM,SEALED CONN,16-14 GA,FEM	4
-12	36166	•SEAL,CABLE,18-16 GA	4
-13	36340	•FUSE,10 AMP,ATC	1
-14	36349	•TERM,PUSH-ON,.25,FEM,18-14,SLV	7
-15	36746	•FUSE,5 AMP,ATC	1
-16	70953	•CONN,MALE TERMINAL	6
-17	72135	•TERM,RING,12-10 GA,.500 STUD	2
-19	851390204	•TERM,RING,16-14 GA,#10 STUD	3
-20	38687	•LIGHT,STROBE,AMBER,8J,80SFPM	1
-50	**21176**	**MOUNT,WARNING LIGHT GROUP**	**1**
-501	16962	•MOUNT,RISER,STROBE LIGHT	1
-502	35465-06	•GROMMET,INSULATION,.375ID	2
-503	36746	•FUSE,5 AMP,ATC	1
-504	80140	•WASHER,FLAT,USS,.250	4
-505	80141	•WASHER,FLAT,USS,.313	4
-506	80161	•WASHER,LOCK,.312	4
-507	80192	•CSHH,.250-20X.75,GR5	4
-508	80202	•CSHH,.312-18X.50,GR5	4
-509	80350	•NUT,FLEXLOC,.250-20,FULL,LT	4
-60	**25703**	**MIRROR GROUP, 7x16 WEST COAST**	**1**
-601	38057	•MIRROR,WEST COAST,7X16	1
-602	80219	•CSHH,.375-16X.75,GR5	2
-603	80142	•WASHER,FLAT,USS,.375	4
-604	80352	•NUT,FLEXLOC,.375-16,FULL,LT	2

- ITEM NOT ILLUSTRATED

FIGURE 29. HYDRAULICS GROUP (PAGE 3 OF 4)

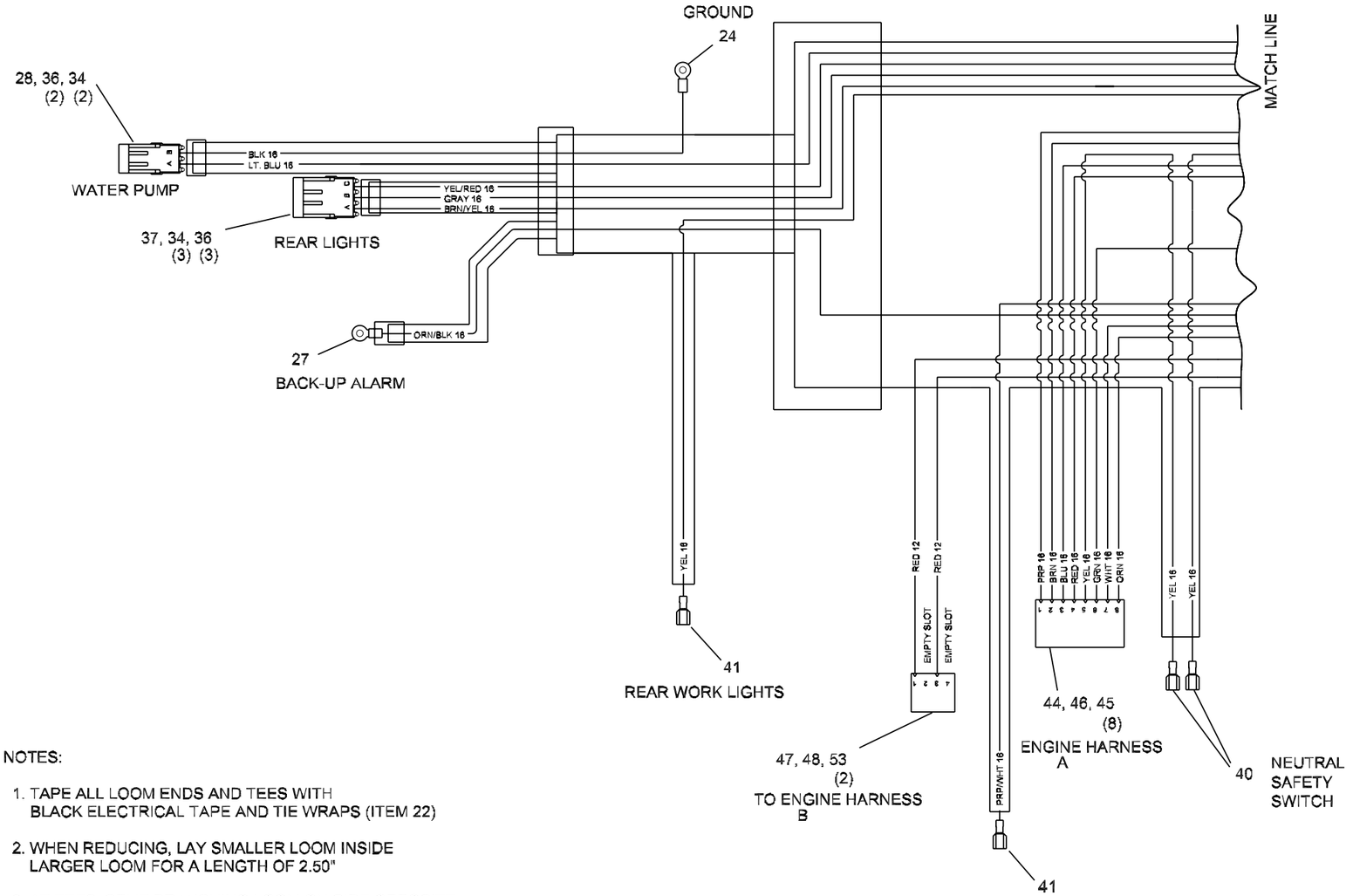
FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
29	**987496**	**HYDRAULICS GROUP**	**1**
1	72543	•FILTER ASSY,HYD RETURN	1
-1001	6442	••FILTER ELEMENT	1
-1002	25646	••SUPPORT,FILTER,(FOR 72543)	1
2	500070	•GAUGE,SIGHT LEVEL/TEMP,HYD OIL	1
3	34463	•FILTER ASSY,HYD RETURN	1
-3001	34464	••FILTER ELEMENT	1
-3002	15984	••SUPPORT,FILTER	1
4	987520	•TANK W/M,HYD,CHAL3	1
5	33148	•STRAINER,SUCT,2NPT,25GPM,100ME	2
6	35423	•COOLER,HYD OIL (Part of Radiator/Cooler)	REF
7	987527	•CAP /W STRAINER,HYD FILL,5PSI	1
8	38321	•PUMP,HYD,PISTON,4.57 CIR (Part of Engine)	REF
9	38323	•PUMP,HYD,GEAR,2.3 CIR,CW	1
10	38514	•MOTOR,HYD,100CC	1
11	36754	•CYL,HYD,2.00X10.75X1.00 ROD (Part of Chassis)	REF
24	987521	•HOSE KIT,CHAL3	1
		ATTACHING PARTS	
113	987521-13	••HOSE,6M3K-6FJX-(BE)-129"	1
114	987521-14	••HOSE,6MK3K-6FJX-(BE)-129"	1
115	987521-15	••HOSE,12G2-12FJX-(BE)-40"	1
116	987521-16	••HOSE,16G1-16FJX-12FJX-86"	1
117	987521-17	••HOSE,16G1-16FJX-(BE)-86"	1
118	987521-18	••HOSE,12G2-12FJX-12FJX90M-28"	1
119	987521-19	••HOSE,10G2-10FJX-10FJX90M-45"	1
120	987521-20	••HOSE,10G2-10FJX-10FJX90M-45"	1
121	987521-21	••HOSE,12G1-12FJX-(BE)-29"	1
122	987521-22	••HOSE,20GMV-20FJX-(BE)-44"	1
123	987521-23	••HOSE,16GMV-16FJX-(BE)-49"	1
124	987521-24	••HOSE,16G6K-16FLH90-16FJX90-48"	1
125	987521-25	••HOSE,16G6K-16FLH90-16FJX-52"	1
126	987521-26	••HOSE,16G2-16FJX-(BE)-33"	1
127	987521-27	••FITT,45 6802-16-16	2
128	987521-28	••FITT,90 6801-20-20	1
129	987521-29	••FITT,STR 6801-12-16	1
130	987521-30	••FITT,90 2501-16-20	1

- ITEM NOT ILLUSTRATED

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
9	35139	CONNECTOR,SEALED,TOWER,2-PIN	77
14	36300	CONNECTOR,SEALED,TOWER,3-PIN	75
15	36352	CONNECTOR,SEALED,TOWER,4-PIN	75
11	36163	CONNECTOR,SEALED,TOWER,6-PIN	75
2	28549	CONSOLE,SIDE COVER	67
1	987298	CONTROL HANDLE,JOYSTICK,CHAL3	69
7	987515	CONTROL HANDLE,WIRING	67
3	29157	CONTROL SHIFT LEVER,REWORK	67
4	35423	COOLER,HYD OIL	37
6	35423	COOLER,HYD OIL	87
24	34861	COVER PLATE,HOSE CLAMP	21
603	33238-03	COVER,10 INCH,VENTED,RAVEN	23
39	36745-25	COVER,BOTTOM	41
2	27422	COVER,FUEL TANK,W/M	35
8	36688-08	COVER,PLASTIC	53
41	36745-29	COVER,RECIRC.	41
9	36688-09	COVER,SIDE ACCESS	49
30	36745-24	COVER,TOP	41
7	76014-01	CROSSBRACE,UPPER FRONT	57
6	76013-01	CROSSBRACE,UPPER REAR	57
5	81106	CSBHS,.250-20X.75,SS	73
11	81106	CSBHS,.250-20X.75,SS	59
31	81106	CSBHS,.250-20X.75,SS	51, 53
26	81277	CSBHS,.250-20X.88,SS	47
30	81282	CSBHS,.250-20X1.25,SS	45
15	81279	CSBHS,.250-20X2.00,SS	59
203	36687	CSBHS,.312-18X.75,BLACK FINISH	55
27	81280	CSBHS,.312-18X2.25,SS	59
23	81281	CSBHS,10-24X1.50,SS	53
25	80192	CSHH,.250-20X.75,GR5	39
50	80192	CSHH,.250-20X.75,GR5	67
67	80192	CSHH,.250-20X.75,GR5	47
107	80192	CSHH,.250-20X.75,GR5	55
507	80192	CSHH,.250-20X.75,GR5	77
60	80185	CSHH,.250-20X1.00,GR5	33
100	80185	CSHH,.250-20X1.00,GR5	5
25	80194	CSHH,.250-20X1.50,GR5	21
28	80197	CSHH,.250-20X2.25,GR5	21
57	80197	CSHH,.250-20X2.25,GR5	15, 19
26	80787	CSHH,.250-20X2.50	89
29	81072	CSHH,.250-20X3.50,GR5	39
508	80202	CSHH,.312-18X.50,GR5	77

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
105	80058	NUT,HEX,.500-20	33
3	80043	NUT,HEX,.750-10	23
85	80061	NUT,HEX,.750-16	5
16	81268	NUT,HEX,HEAVY,.375-16 UNFINISH	57
75	80093	NUT,HEX,JAM,.500-20	81
80	80095	NUT,HEX,JAM,.625-18	81
11	21114	NUT,HEX,JAM,1.00-16,LH	11
10	21113	NUT,HEX,JAM,1.00-16,RH	11
10	620520	NUT,LUG,.500-20	5
408	620520	NUT,LUG,.500-20	11
20	38525-22	NUT,MOUNTING CONTROL	41
31	31713	NUT,SPINDLE,6BF	11
15	81042	NUT,WELD,.250-20	57
11	80959	NUT,WELD,.312-18	57
19	81090	NUT,WELD,.375-16	57
		O	
11	91464	OIL,GEAR LUBE,LS	5
70	91500	OIL,HYD,ISO68	89
145	36745-10	O-RING,#10	43
155	36745-12	O-RING,#6	43
150	36745-11	O-RING,#8	43
9	39140-9	OVERLAY	71
		P	
17	36688-31	PADDLE LATCH	59
50	984626	PAINT GROUP	91
503	981666	PAINT,BLACK,URETHANE,H-SOLID	91
504	853230	PAINT,WHITE,PRIMER	91
502	853220	PAINT,YELLOW,LEEBOY TOPCOAT	91
3	76005-01	PANEL,REAR	57
10	76005-01	PANEL,REAR	33
1	25037	PEDESTAL,SPRING SEAT	63
1	24511	PEDESTAL,STD SEAT	61
2	26583	PILLOW BLOCK	21
30	80332	PIN,COTTER,.125X1.50	11
55	80336	PIN,COTTER,.188X1.50	15, 19
12	38511	PIN,HITCH,.750X6.50 GRIP	13, 17
160	987521-60	PIPE PLUG 5406-HHP-16	89
601	33238-01	PIPE,BULKHEAD,1.25 FP,PVC	23
602	33238-02	PIPE,BULKHEAD,12 FP,PVC	23
22	99450	PIPE,BUSH,08MP-06FP,MI	83
27	91152	PIPE,CAP,.500,GALV	25
6	99610	PIPE,NIPPLE,.125XCLOSE	31

ILLUSTRATED PARTS LIST



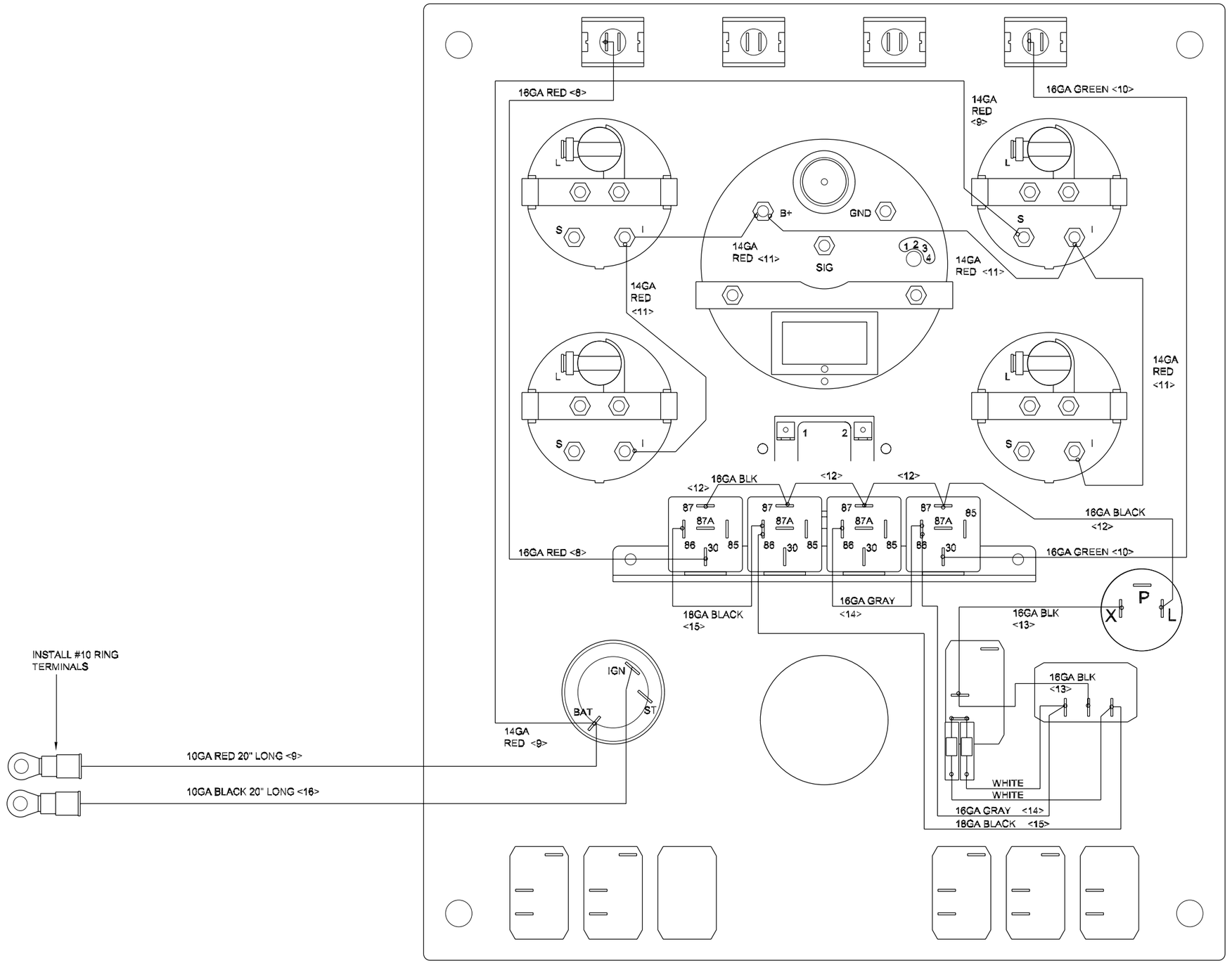
NOTES:

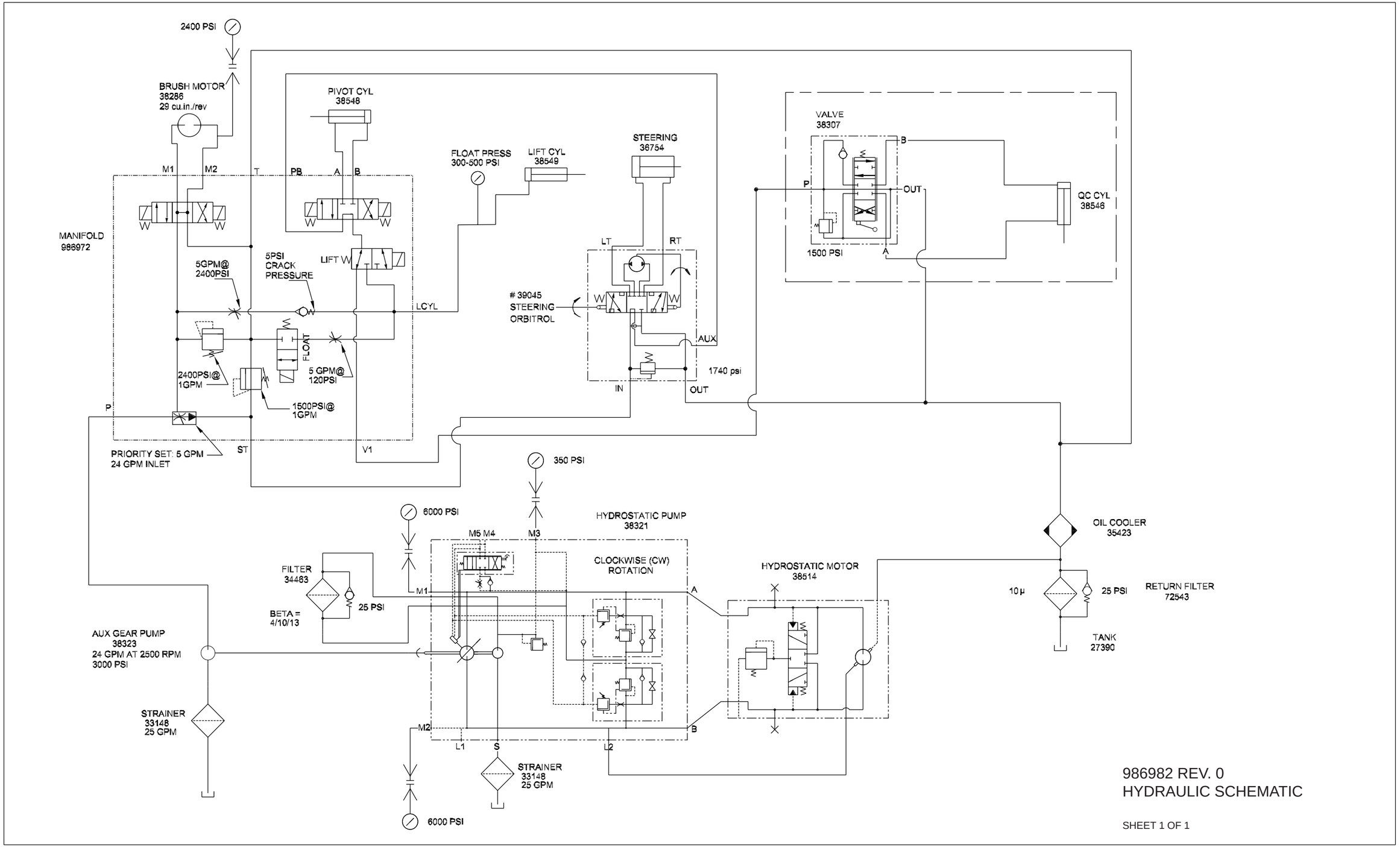
1. TAPE ALL LOOM ENDS AND TEES WITH BLACK ELECTRICAL TAPE AND TIE WRAPS (ITEM 22)
2. WHEN REDUCING, LAY SMALLER LOOM INSIDE LARGER LOOM FOR A LENGTH OF 2.50"
3. AT TEES, SPLIT BRANCHING LOOM ON SIDE OPPOSITE EXISTING SPLIT FOR 2.50" AND RESULTING STRIPS INSIDE MAIN LOOM BEFORE TAPING AND TIE WRAPING
4. BRAIDED LOOM IS AN ACCEPTABLE OPTION

ITEM	PART NO.	DESCRIPTION	QTY.
1	33271-0	WIRE,16GA,GRAY	12
2	33271-1	WIRE,16 GA,BLACK	26
3	33271-11	WIRE,16 GA,BLUE	20
4	33271-13	WIRE,16GA,BLK/YELLOW STRIPE	14
5	33271-14	WIRE,16GA,YELLOW/RED STRIPE	12
6	33271-15	WIRE,16GA,BRN/YELLOW STRIPE	12
7	33271-16	WIRE,16GA,PURPLE,WHITE STRIPE	16
8	33271-24	WIRE,16 GA,LT.BLUE	13
9	33271-18	WIRE,16GA,BLUE,RED STRIPE	10
10	33271-19	WIRE,16GA,GRN/YELLOW STRIPE	5
11	33271-2	WIRE,16GA,YELLOW	22
12	33271-21	WIRE,16GA,ORG/YELLOW STRIPE	5
13	33271-3	WIRE,16GA,BROWN	20
14	33271-4	TUBING,HEAT SHRINK,.750	19
15	33271-5	WIRE,16GA,WHITE	19
16	33271-6	WIRE,16 GA,ORANGE	11
17	33271-7	WIRE,16GA,RED	15
18	33271-8	WIRE,16GA,PINK	5
19	33271-9	WIRE,16 GA,PURPLE	20
20	33271	WIRE,16 GA,ORANGE/BLACK	21.005
21	33882-1	WIRE,12GA,RED	23
22	33589	LOOM,SPLIT,CONVOLUTED,.500	1.1
23	33596	TIE WRAP,.188X7.500	35
24	33607	TERM,RING,16-14 GA,.250 STUD	2
25	33609	TERM,RING,16-14 GA,.375 STUD	1
26	33620	TERM,RING,12-10 GA,#10 STUD	1
27	851390204	TERM,RING,16-14 GA,.#10 STUD	6
28	35138	CONN,SEALED,SHROUD,2-PIN	2
29	71060	LOOM,SPLIT,CONVOLUTED,.250	41.5
30	71864	LOOM,SPLIT,CONVOLUTED,.375	3
31	71870	LOOM,SPLIT,CONVOLUTED,.750	9.4
32	36162	CONN,SEALED,SHROUD,6-PIN	1
33	36163	CONN,SEALED,TOWER,6-PIN	1
34	36164	TERM,SEALED CONN,16-14 GA,M	14
35	36165	TERM,SEALED CONN,16-14 GA,F	10
36	36166	SEAL,CABLE,18-16 GA	24
37	36350	CONN,SEALED,SHROUD,3-PIN	1
38	36351	CONN,SEALED,SHROUD,4-PIN	1
39	36352	CONN,SEALED,TOWER,4-PIN	1
40	36348	TERM,PUSH-ON,.25,M,18-14,SLV	2
41	3634	TERM,PUSH-ON,.25,F,18-14,SLV	8
42	36297	TERM,PUSH-ON,.25,FEM,12-10,SLV	1
43	987259	CONN,BUSS,BULKHEAD,8PIN,DEU	1
44	983216	CONN,WEDGE,RECP,8P,DEUTSCH	2
45	982456	TERM,PIN,DEUTSCH,14-16AWG	17
46	984255	CONN,SOC,DT04-8PA,DEUTSCH	1
47	985768	CONN,WEDGE,SOC,4P,DTP,DEU	1
48	985765	CONN,SOC,DTP-4P,DEUTSCH	1
49	983199	CONN,PLUG,DT06-2S,DEUTSCH	6
50	982448	TERM,SOC,DEUTSCH,14-16AWG	12
51	983208	CONN,WEDGE,PLUG,2P,DEUTSCH	6
52	985759	CONN,BUSS,8-GANG,WAGO	1
53	985769	TERM,PIN,DTP,10GA	2

987043 REV. 0
MAIN HARNESS

SHEET 2 OF 2


16GA RED <8>
16GA GREEN <10>
14GA RED <9>
B+
GND
SIG
14GA RED <11>
14GA RED <11>
14GA RED <11>
14GA RED <11>
16GA BLK <12>
<12>
<12>
16GA BLACK <12>
16GA RED <8>
16GA GREEN <10>
16GA BLACK <15>
16GA GRAY <14>
16GA BLK <13>
16GA BLK <13>
WHITE
WHITE
16GA GRAY <14>
16GA BLACK <15>
INSTALL #10 RING TERMINALS
10GA RED 20" LONG <9>
10GA BLACK 20" LONG <16>
14GA RED <9>
IGN
BAT
ST
39140 REV. 0
INSTRUMENT PANEL
SHEET 2 OF 5



986982 REV. 0
HYDRAULIC SCHEMATIC

SHEET 1 OF 1

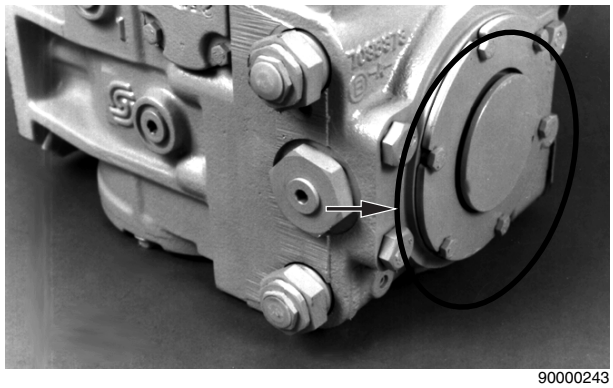
Pump Features

Charge Pump

The charge pump is necessary to supply cool fluid to the system, to maintain positive pressure in the main system loop, to provide pressure to operate the control system, and to make up for internal leakage. Charge pressure must be at its specified pressure under all conditions of driving and braking to prevent damage to the transmission.

The charge pump is a fixed-displacement, gerotor type pump installed in the variable displacement pump and driven off the main pump shaft. Charge pressure is limited by a relief valve.

The standard charge pump will be satisfactory for most applications. However, if the charge pump sizes available for the given main pump size are not adequate, a gear pump may be mounted to the auxiliary mounting pad and supply the required additional charge flow.

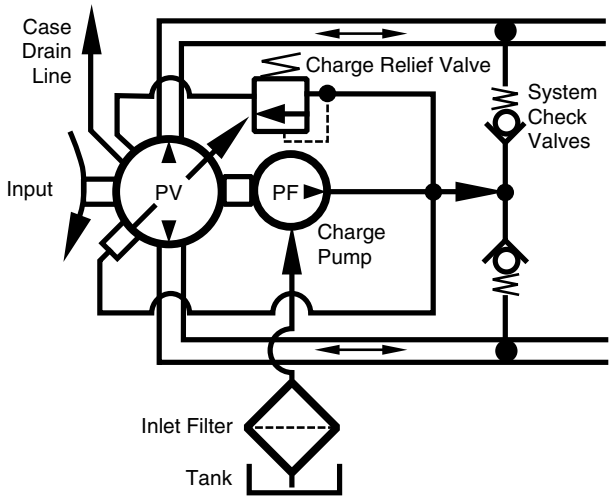


90000243

PV with Charge Pump

Charge Relief Valve

The charge relief valve on the pump serves to maintain charge pressure at a designated level. A direct-acting poppet valve relieves charge pressure whenever it surpasses a certain level. This level is nominally set referencing case pressure at 1500 rpm. This nominal setting assumes the pump is in neutral (zero flow); in forward or reverse charge pressure will be lower. The charge relief valve setting is specified on the model code of the pump.



90000804E

Pump Charge System

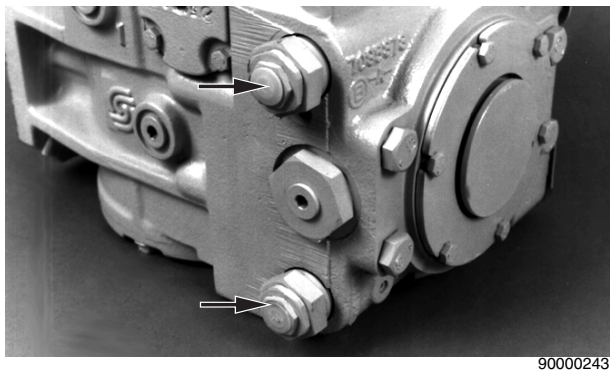
Multi-Function Valves

The multi-function valve incorporates
the system check valve,
the pressure limiter valve,
the high pressure relief valve and
the bypass valve

in a replaceable cartridge.

These functions are described separately. There are two multi-function valve cartridges in each Series 90 pump to handle functions in either direction. See corresponding Sections for adjustments and repairs.

NOTE: Some multi-function valves do not include a pressure limiter valve.



90000243

Multi-Function Valve

Size Specific Data

Variable Displacement Pumps

	Dimension	030 PV	042 PV	055 PV	075 PV	100 PV	130 PV	180 PV	250 PV
Displacement (maximum)	cm^3 in^3	**30** 1.83	**42** 2.56	**55** 3.35	**75** 4.57	**100** 6.10	**130** 7.93	**180** 10.98	**250** 15.25
Minimum Speed	min^{-1} (rpm)	500	500	500	500	500	500	500	500
Rated Speed	min^{-1} (rpm)	4200	4200	3900	3600	3300	3100	2600	2300
Maximum Speed	min^{-1} (rpm)	4600	4600	4250	3950	3650	3400	2850	2500
Maximum attainable Speed at max. Displacement	min^{-1} (rpm)	5000	5000	4700	4300	4000	3700	3150	2750
Theoretical Torque at max. Displacement	Nm/bar lbf•in/1000 psi	**0.48** 290	**0.67** 380	**0.88** 530	**1.19** 730	**1.59** 870	**2.07** 1260	**2.87** 1750	**3.97** 2433
Weight (only base unit)	kg lb	**28** 62	**34** 75	**40** 88	**49** 108	**68** 150	**88** 195	**136** 300	**154** 340

T002 257E

Fixed and Variable Displacement Motors

		Einheit	030 MF	042 MF	055 MF	075 MF	100 MF	130 MF	055 MV	075 MV
Displacement (maximum)		cm^3 in^3	**30** 1.83	**42** 2.56	**55** 3.35	**75** 4.57	**100** 6.10	**130** 7.93	**55** 3.35	**75** 4.57
Displacement (minimum)		cm^3 in^3	--	--	--	--	--	--	19	26
Rated speed	at maximum displacement	min^{-1} (rpm)	4200	4200	3900	3600	3300	3100	3900	3600
	at minimum displacement	min^{-1} (rpm)	--	--	--	--	--	--	4600	4250
Maximum speed	at maximum displacement	min^{-1} (rpm)	4600	4600	4250	3950	3650	3400	4250	3950
	at minimum displacement	min^{-1} (rpm)	--	--	--	--	--	--	5100	4700
Max. attainable speed at max. displacement		min^{-1} (rpm)	5000	5000	4700	4300	4000	3700	4700	4300
Theoretical torque at max. displacement		Nm/bar lbf•in/1000 psi	**0.48** 290	**0.67** 380	**0.88** 530	**1.19** 730	**1.59** 970	**2.07** 1260	**0.88** 530	**1.19** 730
Maximum flow ar max. displacement		l/min gal/min	**138** 36.5	**193** 51	**234** 62	**296** 78	**365** 96	**442** 117	**234** 62	**296** 78
Max. corner power		kW hp	**111** 149	**155** 208	**187** 251	**237** 318	**292** 392	**354** 475	224 300	282 378
Weight SAE-Flange		kg lb	**11** 24	**15** 34	**22** 49	**26** 57	**34** 74	**45** 99	**39** 86	**44** 98
Weight Cartridge Motor		kg lb	--	**21** 46	**26** 57	**33** 72	--	--	**40** 88	**46** 101

T002 258E

Refer to Series 90 technical information for definitions.

10. Pump displacement control.	Control linkages are not secure, control orifices are blocked, etc.	Repair or replace control module as necessary.
11. System pressure.	Low system pressure will not provide power necessary to move load.	Measure system pressure. Continue with next step.
12. System multi-function valves.	Defective multi-function valves will cause system pressure to be low.	Repair or replace multi-function valve(s).

If the above actions do not remedy the problem
contact a SAUER-SUNDSTRAND Authorized Service Center.

Low Motor Output Torque

Check	Description	Action
1. System pressure at motor.	Low system pressure at the motor will reduce torque.	Measure system pressure at motor. If pressure limiter setting is low, increase setting.
2. Variable motor stuck at minimum displacement.	Minimum motor displacement yields low output torque.	Check control supply pressure or repair displacement control. Check motor control orifices.
3. For internal leakage.	Internal leakage will reduce system pressure.	Check for leakage in O-rings, gaskets, and other fittings. Repair unit as required, or replace leaky unit.

If the above actions do not remedy the problem
contact a SAUER-SUNDSTRAND Authorized Service Center.

Improper Motor Output Speed

Check	Description	Action
1. Oil level in reservoir.	Insufficient hydraulic fluid will reduce motor speed.	Fill oil to proper level.
2. Pump output flow.	Incorrect outflow will affect output speed. Incorrect output flow indicates the swashplate is out of position.	Measure pump output and check for proper pump speed and see that the pump is in full stroke.
3. Variable motor displacement control.	If variable motor displacement control is not functioning correctly, variable motor swashplate may be in wrong position.	See if variable motor displacement control is responding. If not, repair or replace control.
4. For internal leakage.	Internal leakage will reduce system pressure.	Check for leakage in O-rings, gaskets, and other fittings. Repair unit as required, or replace leaky unit.

If the above actions do not remedy the problem
contact a SAUER-SUNDSTRAND Authorized Service Center.

Non-Linear Manual Displacement Control (MDC)

A centering spring, located on the control input shaft, locates the control shaft in its “neutral” position. A bias spring on the control spool maintains a force on the spool and the control linkage to eliminate looseness (“free-play”) in the linkage.

The “neutral” adjustment is the only adjustment that can be made on the nonlinear manual displacement control. All other functions are preset at the factory.

This adjustment must be made on a test stand or on the vehicle/machine with the prime mover operating.

WARNING
The following procedure may require the vehicle/machine to be disabled (wheels raised off the ground, work function disconnected, etc.) while performing the procedure in order to prevent injury to the technician and bystanders. Take necessary safety precautions before moving the vehicle/machine.
S000007E

1. Install two 50 bar (or 1000 psi) gauges in each of the displacement control cylinder gauge ports (M4 and M5). Disconnect the external control linkage from the control handle and make certain the control shaft is in its “neutral” position. Start the prime mover and operate at normal speed.

2. Loosen the lock nut on the neutral adjusting screw with a 13 mm hex wrench.

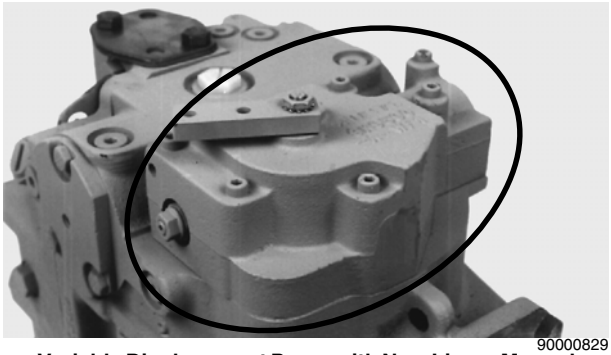
3. Using a 4 mm internal hex wrench, rotate the neutral adjusting screw clockwise until the pressure increases on one of the pressure gauges. Note the angular position of the wrench.

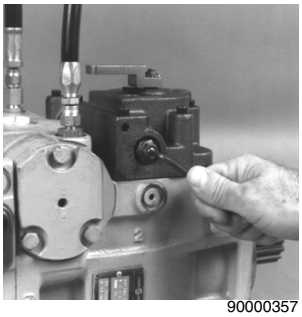
4. Rotate the adjusting screw counterclockwise until the pressure increases by an equal amount on the other gauge. Note the angular position of the wrench.

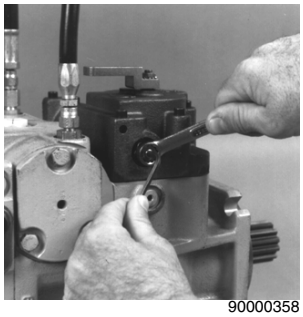
5. Rotate the adjusting screw clockwise half the distance between the locations noted above. The gauges should read the same pressure (case pressure), indicating that the control is in its “neutral” position.

6. Hold the adjusting screw stationary and tighten the lock nut to 13.5 Nm (10 lbf•ft). **Do not overtorque the nut.**

7. Once the neutral position is set, stop the prime mover, remove the gauges, and install the gauge port plugs. Reconnect the external control linkage.


90000829
Variable Displacement Pump with Non-Linear Manual Displacement Control


90000357
Rotate Neutral Adjusting Screw


90000358
Tighten Neutral Adjusting Screw Lock Nut

Displacement Limiter Adjustment (MV)

Both the maximum and minimum displacement may be limited.

1. Remove the tamper resistant cap from the displacement limiter screw. Loosen the seal lock nut retaining the displacement limiter adjusting screw with a 19 mm wrench.

Caution
The displacement limiters act as travel stops for the swashplate. Do not turn the limiter screws counterclockwise beyond the point of contact with the swashplate for either the maximum or minimum displacement position.

S000015E

2. All adjustments can only be done when the motor is running and the pump is in neutral position. Steer the respective displacement limiter by the control.

   Rotate the adjusting screw with a 6 mm internal hex wrench. Rotating the maximum displacement adjusting screw clockwise will decrease the maximum displacement of the motor. Rotating the minimum displacement adjusting screw clockwise will increase the minimum displacement of the motor.

Caution
Care should be taken in adjusting displacement limiters to avoid undesirable flow or speed conditions. See corresponding section for speed and pressure limits.

The seal lock nut must be retorqued after every adjustment to prevent an unexpected change in operating conditions and to prevent external leakage during unit operation.

S000016E

3. After establishing the desired displacement setting, tighten the lock nut on the adjusting screw to 54 Nm (40 lbf•ft). Install a new tamper resistant cap.

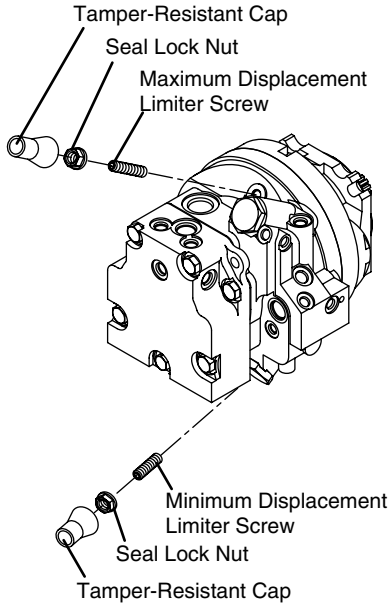
4. One turn of the adjusting screw will change the maximum or minimum displacement according to the following chart.

Frame Size	Approx Change in Disp per Rev of Adjusting Screw
055	5.6 cm^3 / Rev (0.34 in^3 / Rev)
075	7.1 cm^3 / Rev (0.43 in^3 / Rev)

T002 280E

Displacement Control Adjustments

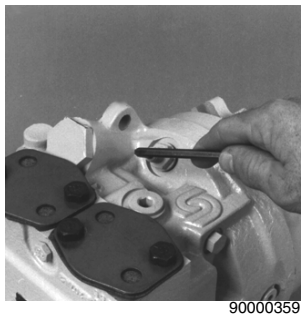
All variable motor displacement control settings do not require adjusting.



SAE Flange Version shown
(Cartridge Version similar)

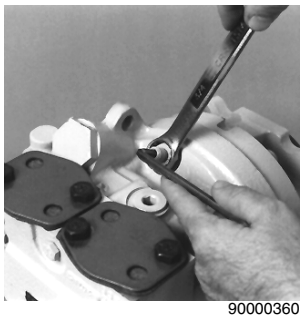
90000837E

MV Displacement Limiters



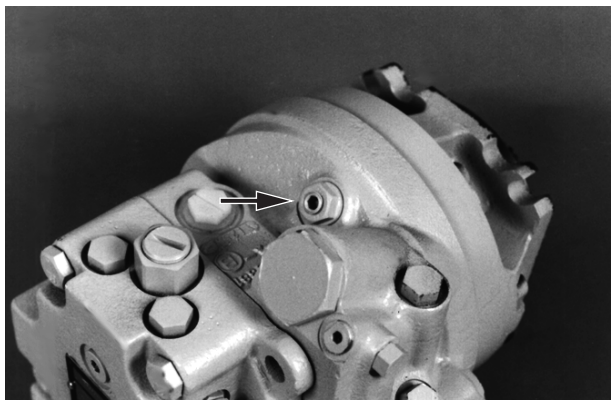
90000359

Rotate Adjusting Screw for Minimum Displacement Limiter



90000360

Tighten Lock Nut for Minimum Displacement Limiter



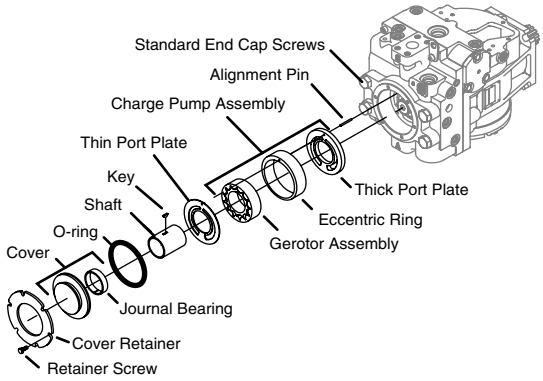
90000352

Maximum Displacement Limiter

Note: If a different displacement charge pump is being installed, the gerotor assembly, gerotor outer eccentric ring, and inner port plate (early and late production pumps) or outer spacer plate(s) (intermediate production pumps) must be replaced together. If different thickness port plates are used in an early production charge pump assembly, the thicker plate is the inner port plate (installed next to the pump end cap).

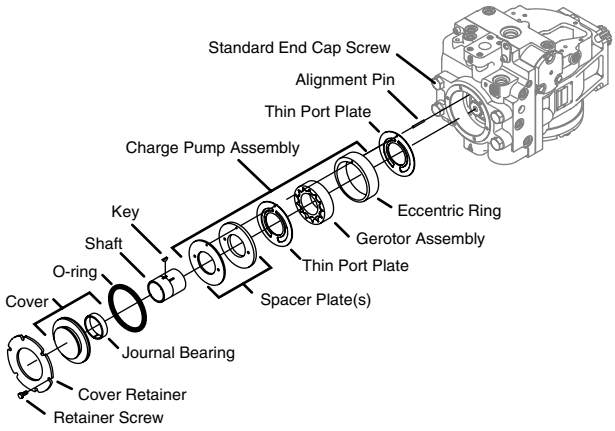
Each charge pump assembly includes a different quantity / types of port plates and spacer plates.

The charge pump kit "No Charge Pump" includes a spacer.



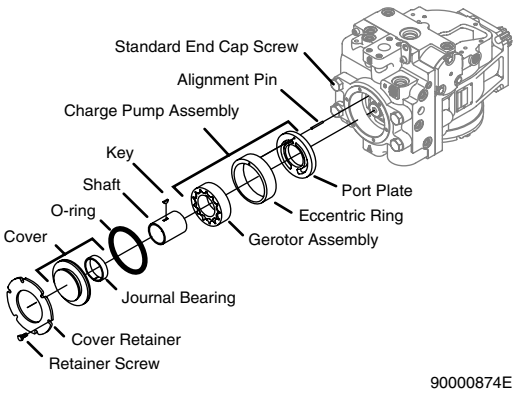
90000872E

Charge Pump Components (Early Production)



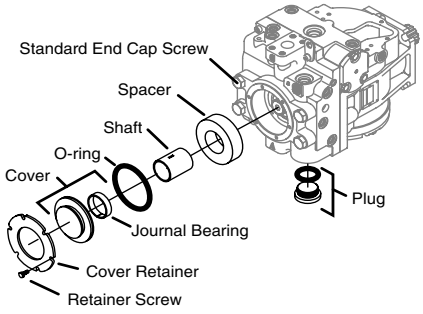
90000873E

Charge Pump Components (Intermediate Production)



90000874E

Charge Pump Components (Late Production)



90000875E

"No Charge Pump" Components

3-Position (FNR) Electric Control

1. Thoroughly clean external surfaces prior to removal of control.

2. Using a 4 mm internal hex wrench, remove the four solenoid valve mounting screws. Remove the solenoid valve (with O-rings and orifice) from the adapter plate.

3. Using a 5 mm internal hex wrench, remove the eight adapter plate mounting screws. Remove the adapter plate and gasket from housing.

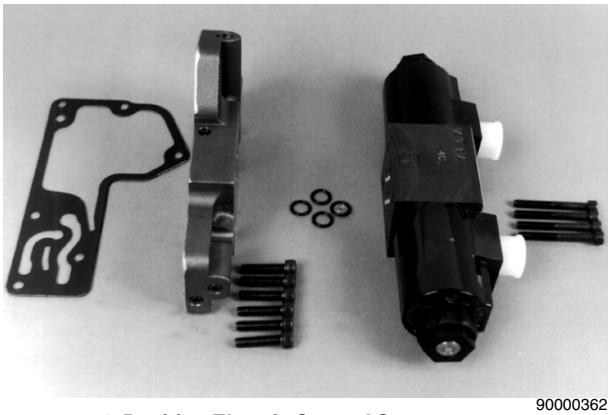
Caution
Protect exposed surfaces and cavities from damage and foreign material.
S000022E

4. Inspect the orifice installed between the valve and adapter plate. This orifice MUST be installed in the case drain passage for proper pressure limiter operation.

5. In preparation for installing the adapter plate, place a new gasket on the housing. Place the adapter plate into position and install the screws. Torque the screws to 16 Nm (12 lbf•ft).

NOTE
A sealing washer must be installed under the head of any mounting screws that are installed into „thru“ holes in the housing.
S000023E

6. Install new O-rings and the orifice onto the solenoid valve assembly and install the solenoid valve onto the adapter plate. Install the screws and torque to 5.4 Nm (48 lbf•in).


90000362

3-Position Electric Control Components

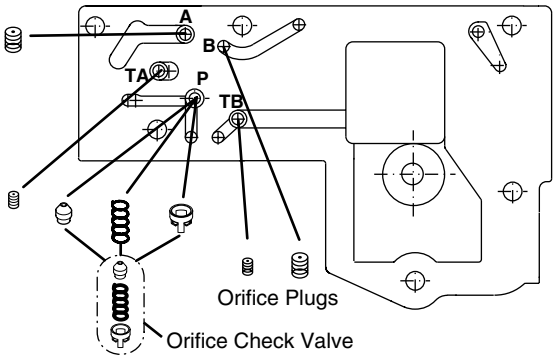
Displacement Control Components

Displacement Control Orifices

1. Remove the control assembly as described in the instructions for the specific displacement control.

2. Orifice plugs may be located in the control assembly, at the pump housing face surface. Remove the orifice plugs with a 4 mm internal hex wrench. Note the location of each plug, do not interchange plugs. Torque the orifice plugs to 3 Nm (26 lbf•in).

3. Assemble the control onto the pump. Refer to the instructions for the specific control.



90000849E

Underside of an HDC/EDC Module Showing Orifice Locations

Parts List

Item	Description	Qty
B70	Plug	2
B71	Plug	1
B80	Plug	1
B82	Plug	1
B90	Filter screen	3
G63	Split flange clamp	4
G64	Plug	4
G172	Plug	1
G176	O-ring	1
G501	Plug	3
G502	Plug	3
G506	O-ring	3
G508	O-ring	3
G511	Plug	1
G512	Plug	1
G516	O-ring	1
G518	O-ring	1
G521	Plug	1
G522	Plug	1
G526	O-ring	1
G528	O-ring	1
G531	Plug	1
G532	Plug	1
G536	O-ring	1
G538	O-ring	1
G541	Plug	1
G542	Plug	1
G546	O-ring	1
G548	O-ring	1
K10	Plug assembly	1
K50	O-ring	1
K70	Spring	1
K80	Poppet	1
K90	Nut	1
L30	Seal carrier	1
L35	Seal carrier	1
L40	Lip seal	1
L50	O-ring	1
L60	Retainer	1
L70	Screw	3
L8	Key	1
L9	Slotted nut	1

PUMPS & MOTORS

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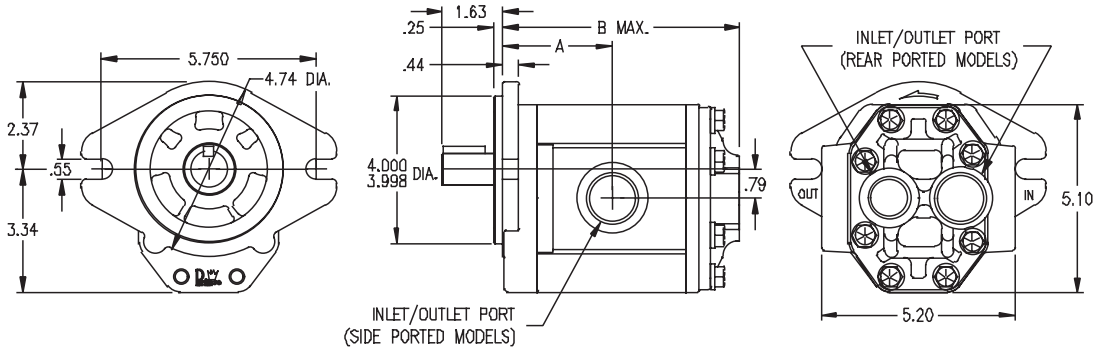
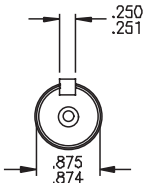
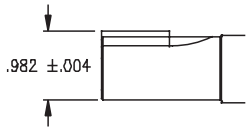
SP25 SERIES DIMENSIONAL DATA





KEYED SHAFT
SHAFT CODE 2



SPLINED SHAFT

SHAFT CODE 1
13T
16/32 DP
30° PA
FLAT ROOT SIDE FIT

TYPICAL PERFORMANCE DATA

MODEL		RPM 500	1000	1500	2000	2500	3000	PRESSURE (PSI)
SP25A19	FLOW (GPM)	2.09	4.55	6.90	9.39	11.89	14.24	3000
	INPUT HORSE POWER	4.65	9.31	13.96	18.70	23.45	28.29	
SP25A22	FLOW (GPM)	2.64	5.28	8.22	11.08	13.94	16.81	
	INPUT HORSE POWER	5.58	10.98	16.38	21.96	27.36	33.31	
SP25A27	FLOW (GPM)	3.33	6.75	10.27	13.70	17.22	20.74	
	INPUT HORSE POWER	6.99	13.48	20.22	26.97	33.96	40.95	
SP25A32	FLOW (GPM)	3.91	8.22	12.43	16.73	21.14	25.44	
	INPUT HORSE POWER	8.24	15.98	24.22	32.46	40.95	49.94	
SP25A38	FLOW (GPM)	4.26	9.10	14.09	19.08	24.07	28.77	
	INPUT HORSE POWER	8.56	18.24	27.54	36.85	46.90	56.57	
SP25A44	FLOW (GPM)	4.99	10.86	16.44	22.16	27.89	33.61	
	INPUT HORSE POWER	10.42	21.22	32.01	43.18	54.71	66.25	2500
SP25A52	FLOW (GPM)	6.16	12.92	19.67	26.42	33.17	39.63	
	INPUT HORSE POWER	11.17	21.96	32.38	43.55	55.09	67.00	
SP25A63	FLOW (GPM)	7.52	15.60	23.86	31.93	40.00	48.08	
	INPUT HORSE POWER	14.14	26.43	39.45	52.85	66.62	80.77	

Typical Performance Data Based on 140 SUS Oil at 120° F.

PRINCE MANUFACTURING CORPORATION/WORLD HEADQUARTERS • P.O. BOX 7000 • NORTH SIOUX CITY, SOUTH DAKOTA 57049-7000
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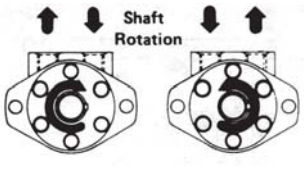
ADM SERIES GEROTOR MOTOR – LOW SPEED – HIGH TORQUE



The Prince ADM Series of high-torque, low speed motors incorporates the orbiting gerotor principle for dependable operation over a wide range of applications. Although dimensionally small, this motor is capable of providing considerable power over a wide speed range and is instantly reversible by simply reversing the direction of the hydraulic fluid flow. The needs of many applications requiring high starting, stall and running torque combined with slow speed are met by this motor.

Feature

- Fully reversible simply by reversing the direction of hydraulic fluid flow.
- Alternative port positioning for versatility of installation. (see next page).
- Optional shaft configurations. (see next page).
- Modular construction for economical servicing and repair, also permits special adaptations.

Filtration

10 micron or finer. (Per ISO cleanliness code level 17/14.

Ordering Code □ □ □ □ □ □

MOTOR TYPE:
ADM

MOTOR SIZE:
50
75
100
150
200
250
300
400

MOUNTING:
2 Hole Flange – 2
4 Hole Flange – 4

SHAFT TYPE:
Standard 1* Key R
1" Splined — S
1" Tapered — T
1" w/Cross-hole U
— **ADM MOTORS ONLY**

PORTS:
P – 1/2 NPTF (Standard)
O – 7/8 x 14 SAE O-Ring Port
T – Manifold Port Face (See Next Page)

END PLATE:
(Blank for Standard)
X – Drain Port (if required)

APPLICATIONS

Use the ADM Series for light to medium duty applications such as grain augers and elevators, salt and sand spreaders, car wash and sweeper brushes, conveyors, winches, scissor lifts, and many other. To assure optimum motor life, run motor for approximately one hour at 30% of rated pressure before application of full load.

CROSS REFERENCE

CHARLYNN "H" Series

DANFOSS "DH" Series

It is not recommended to operate at a condition requiring both maximum torque and speed. Splined shafts are recommended in application operating at above 2500 in-lbs. continuous torque or under conditions of frequent reversal.

ADM	DISPLACEMENT CC/REV	DISPLACEMENT CU.IN/REV	MAXIMUM PRESSURE PSI CONT	MAXIMUM PRESSURE PSI INT[0]	MAXIMUM PRESSURE Kgf/CM² CONT	MAXIMUM PRESSURE Kgf/CM² INT[0]	MAXIMUM SPEED RPM CONT	MAXIMUM SPEED RPM INT[0]	WT.*
50	49.1	3.0	1400	2200	98	153	800	1000	12.8
75	76.6	4.7	1400	2100	98	146	750	950	13.1
100	99.6	6.1	1300	2000	91	139	600	750	13.4
150	153.2	9.3	1200	1900	84	132	400	500	14.0
200	199.2	12.2	1200	1800	84	125	300	400	14.5
250	252.8	15.3	1100	1700	77	118	250	325	15.0
300	293.2	17.9	1000	1600	70	111	200	250	15.5
400	398.4	24.4	900	1300	63	90	125	160	16.7

Maximum Axial Thrust Load on Shaft 1000 lbs.

[0]Intermittent operation = 10% Operation of every minute

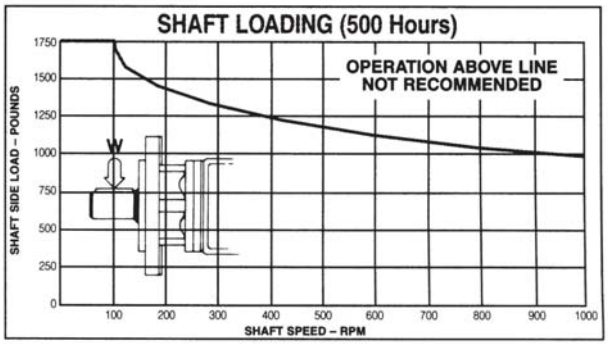
TEMP: NORMAL OPERATING 80[0] F TO 140[0] F, MAX 185[0] F

Maximum inlet pressure 2,500 psi for motors in series

Maximum back pressure 1,000 psi

OIL: Mineral based hydraulic fluid 100-200 SUS @ operating temperature.

ADM SERIES



PUMPS AND MOTORS

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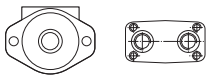
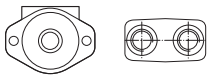
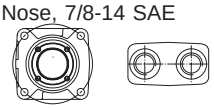
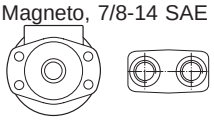
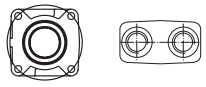
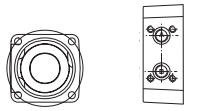
TG	XXXX	XX	XX	0	XXXX
Series	Displacement Schluckvolumen Cylindrée Desplazamiento	Mounting/Ports Gehäuse/Anschluß Carter/Plan de raccordement Montaje/Lumbreras	Shaft Welle Arbre Eje	Rotation Drehrichtung Direction de rotation Rotacion	Options Opciones

Code	cm³/tr cm³/giro cm³/U	cu in³/rev
0140	141	8.6
0170	169	10.3
0195	195	11.9
0240	238	14.5
0280	280	17.1
0310	310	18.9
0335	337	20.6
0405	405	24.7
0475	477	29.1
0530	528	32.3
0625	623	38.0
0785	786	48.0
0960	959	58.5

Code	Mounting
AM	SAE "A" 2 Bolt, 5/16-18 UNC Manifold 
AS	SAE "A" 2 Bolt, 7/8-14 SAE 
LS	Wheel, Front Brake Nose, 7/8-14 SAE 
MS	Magneto, 7/8-14 SAE 
US	Wheel,Standard, 7/8-14 SAE 
WE*	Wheel, Optional, Manifold Rear Port 

* Requires rear porting.
Nur Endanschluss moglich
Exige des orifices en arriere
Necesita lumbrera posterior

Code	Front Port Rotation
0	Standard 

Code	
AAAB	No Paint No lackiert
AAAA	Black Paint Schwarz lackiert

Code	Shaft
01*	1" 6B Spline 
03	1 1/4" Keyed 
05	1 1/4" 14 Tooth Spline 
06	19 Tooth Spline 
08	1 1/4" Tapered** 
19	1 3/8" J501 Taper 

* Abtriebswelle Coupling shaft Arbre Eje de acople	Ø 25mm Ø 1 inch 6B SAE	Max. Moment cont./int. Max. torque cont./int. Couple maxi cont./int. Coppia max cont./int.	450/550 Nm

Consult factory for other available options, configurations ordering codes and lead times.