



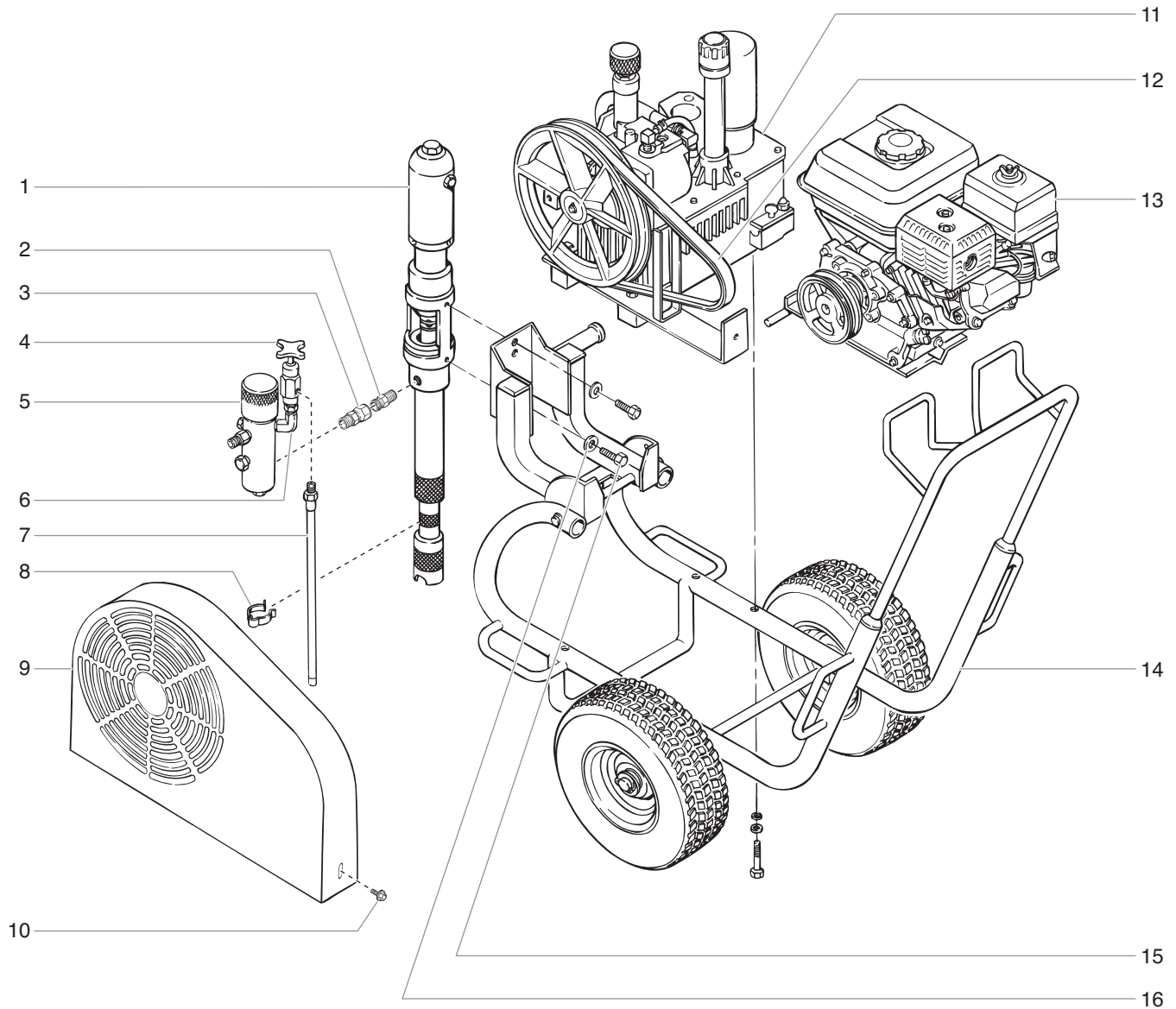
For professional use only

PowrTwin 6900GHD Insert Sheet

Model Numbers:	
Gas Bare	448-605
Gas Complete	448-606
Gas/Electric Complete	448-607
230V Electric International	448-610

Parts Lists and Service Instructions

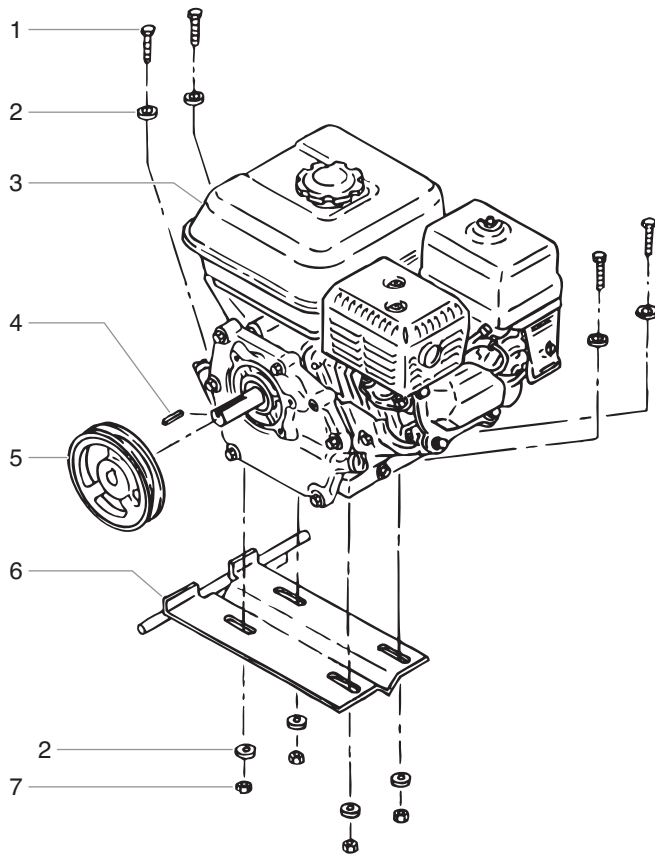
Main Assembly



Item	Part #	Description	Quantity	Item	Part #	Description	Quantity
1	451-290	Motor/pump assembly	1	12	449-125	Belt, "V"	1
2	228-002	Adapter	1	13	506-275	Convertokit, 5.5 HP, Honda, gasoline (gas model)	1
3	200-555	Swivel adapter	1	14	451-070	Cart assembly	1
4	944-028	Bleed valve	1	15	862-428	Screw	2
5	930-514	Filter assembly	1	16	862-002	Washer	2
6	818-014	Elbow, 90°	1	17	506-279	Convertokit, DC electric, 120V (electric model, not shown)	1
7	755-106	Bleed hose	1	18	506-251	Convertokit, 3 HP, 230V (electric model, not shown)	1
8	730-334	Hose clamp	1				
9	448-614	Belt guard assembly	1				
10	449-1006	Screw	1				
11	-----	Hydraulic system	1				

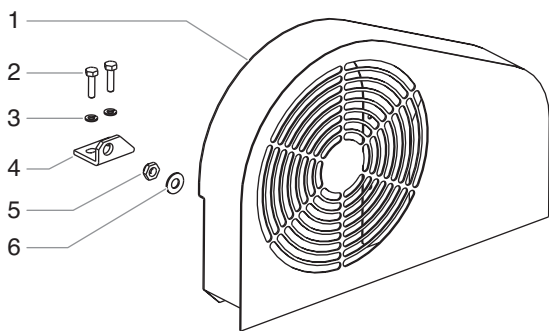


Gas Convertokit (P/N 506-275)



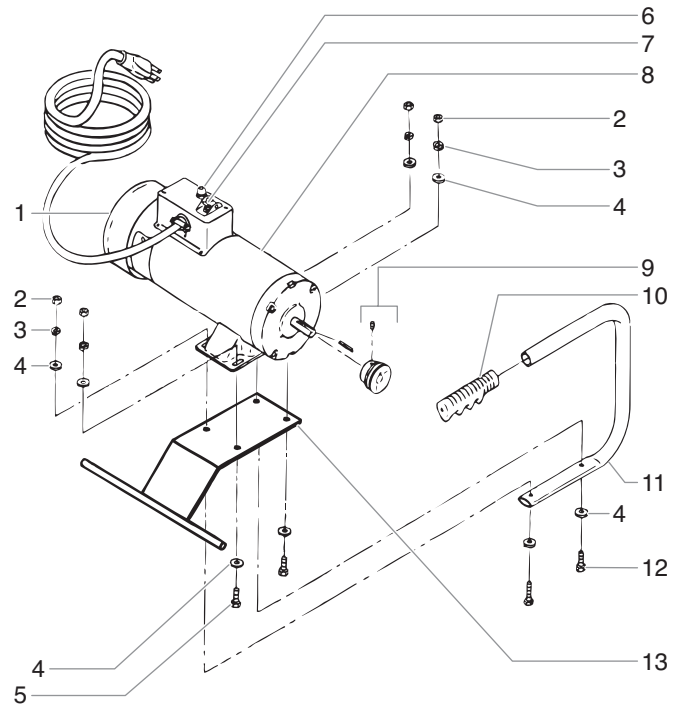
Item	Part #	Description	Quantity
1	860-552	Screw	4
2	860-004	Flat washer.....	8
3	980-331	Engine, gas 5.5 HP, Honda.....	1
4	980-307	Key	1
5	448-910	Pulley.....	1
6	449-103	Mounting plate, gas eng.....	1
7	860-502	Stop nut.....	4
8	449-181	Belt, "V" (not shown, not part of assembly)	

Belt Guard Assembly (P/N 448-614)



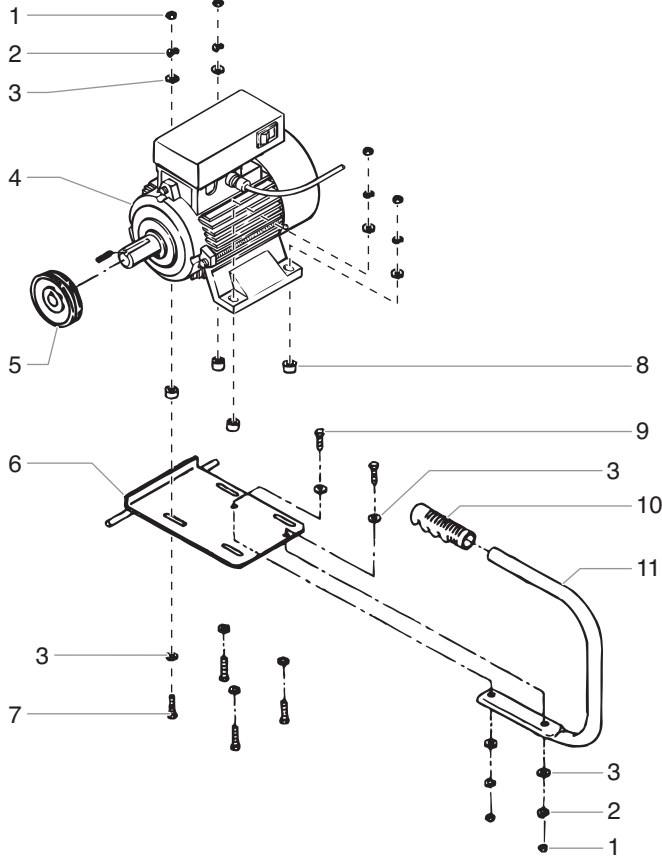
1	449-216	Belt guard	1
2	858-636	Screw	2
3	858-002	Lockwasher	2
4	449-187	Clip	1
5	862-411	Nut.....	1
6	862-001	Washer	1

DC — Electric Convertokit (P/N 506-279)



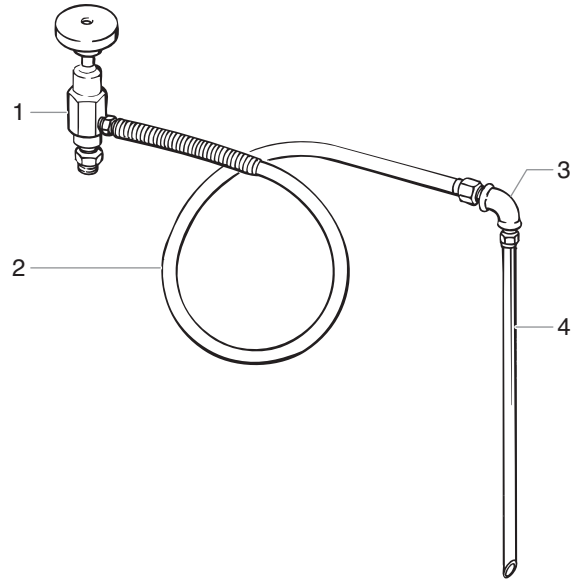
Item	Part #	Description	Quantity
1	506-259	Cover	1
2	860-501	Nut stop	4
3	860-002	Lock washer	4
4	860-004	Flat washer.....	8
5	860-535	Screw	2
6	506-257	Circuit breaker reset.....	1
7	506-260	ON/OFF switch.....	1
8	978-350	Motor, DC-Electric, 2 HP, 50 / 60 Hz, 115 V	1
9	977-228	Pulley.....	1
10	590-068	Handle grip	1
11	335-017	Handle	1
12	860-552	Screw	2
13	459-018	Mount plate.....	1
14	506-255	Rectifier (not shown)	1
15	506-258	Fan (not shown)	1
16	449-125	Belt, "V" (not shown, not part of assembly)	

Electric Convertokit, 230V (P/N 506-251)



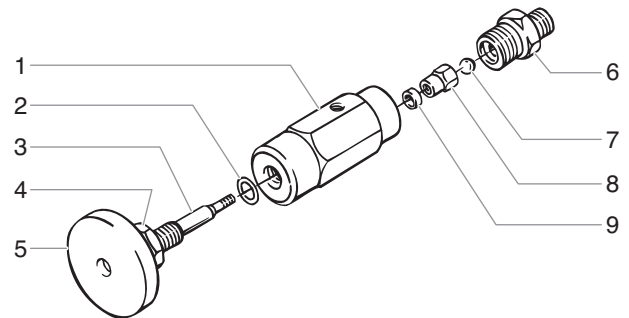
Item	Part #	Description	Quantity
1	860-501	Stop nut.....	6
2	860-002	Lock washer	6
3	860-004	Flat washer.....	12
4	978-365	Motor, electric, 3 HP, 50 Hz, 230 V.....	1
5	449-152	Pulley.....	1
6	449-121	Mounting plate, elec. motor, 3 HP.....	1
7	860-552	Screw, HH	4
8	590-411	Spacer	4
9	860-544	Screw, HH	2
10	590-068	Handle grip.....	1
11	335-016	Handle.....	1
12	449-181	Belt, "V" (not shown, not part of assembly)	

Heavy Duty Outlet Assembly (optional, P/N 448-615)



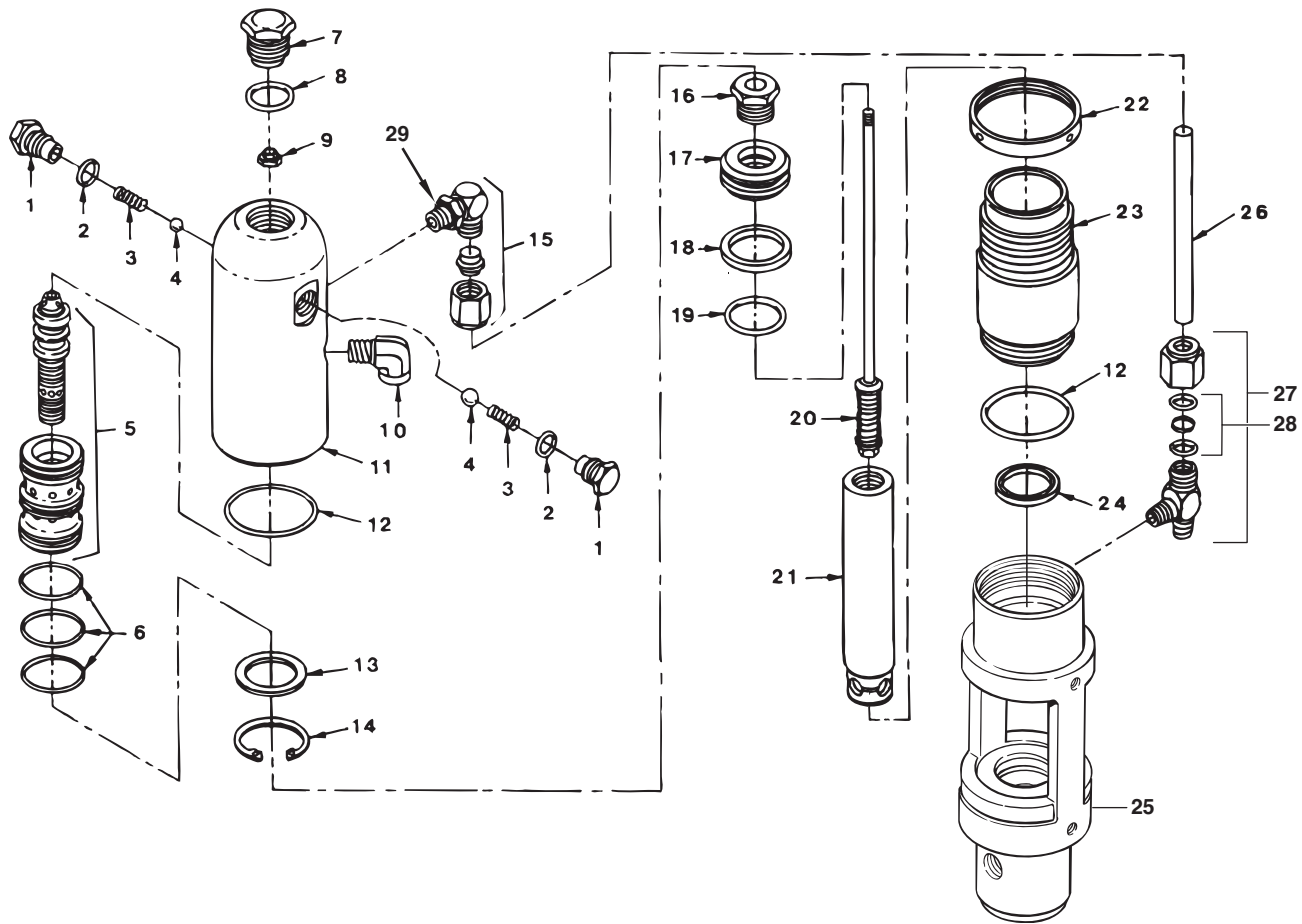
Item	Part #	Description	Quantity
1	945-600	Heavy duty bleed valve assembly.....	1
2	538-031	Hose assembly.....	1
3	201-555	Elbow.....	1
4	103-317	Tube	1
5	103-106	Heavy duty bleed line assembly (includes items 2-4).....	1

Heavy Duty Bleed Valve Assembly (optional, P/N 945-600)



Item	Part #	Description	Quantity
1	945-022	Valve body.....	1
2	891-073	O-ring, Teflon.....	1
3	945-023	Valve stem.....	1
4	970-011	Lock nut.....	1
5	945-005	Knob	1
6	945-906	Valve seat.....	1
7	138-226	Ball, T.C.	1
8	945-026	Valve stem stop.....	1
9	891-183	O-ring, Teflon.....	1

Hydraulic Motor



Item	Part #	Description	Quantity
1	235-018	Trip retainer	2
2	141-007	O-ring	2
3	325-005	Trip spring,	2
4	569-016	Ball, SS.....	2
5	441-908	Spool / sleeve set.....	1
6	441-152	O-ring	3
7	235-030	Cylinder head plug	1
8	441-217	O-ring	1
9	858-811	Flex lock nut.....	1
10	451-121	Street elbow, 90°	1
11	235-112	Cylinder head	1
12	431-032	O-ring	2
13	431-053	Sleeve retainer	1
14	431-054	Retainer ring.....	1
15	192-000	Elbow.....	1
16	235-022	Piston retainer screw.....	1
17	235-014	Piston	1
18	235-027	Piston seal.....	1
19	235-026	O-ring	1
20	235-021	Valve rod assembly	1
21	235-948	Piston rod	1
22	235-001	Lock ring.....	1
23	235-007	Cylinder	1
24	235-028	Rod seal	1
25	235-929	Motor/pump block.....	1
26	235-029	Motor tube	1
27	197-031	Tee.....	1
28	431-019	O-ring kit.....	1
29	700-499	O-ring	1

Motor Service Kit — Minor (P/N 235-050)

Item	Part #	Description	Quantity
2	141-007	O-ring	2
3	325-005	Trip spring	2
4	569-016	Ball, SS.....	2
6	441-152	O-ring	3
8	441-217	O-ring	1
9	858-811	Flex lock nut.....	1
12	431-032	O-ring	2
18	235-027	Piston seal.....	1
19	235-026	O-ring	1
24	235-028	Rod seal	1

Servicing the Hydraulic Motor

Perform this procedure using the necessary parts from Motor Service Kit — Minor (P/N 235-050). If the hydraulic motor is operable, start the machine and jog the piston rod (21) into its top position.

NOTE: Servicing of the hydraulic motor should be carried out in a clean, dust free area only. Any dust or metallic particles left in the motor or entering it on reassembly may damage the critical parts and affect its service life and warranty. All parts should be inspected for absolute cleanliness.

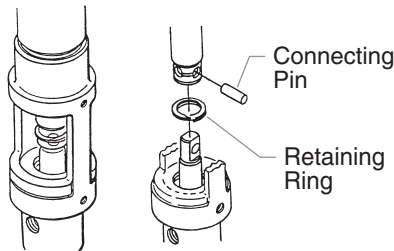
Disassembling the Hydraulic Motor

1. Disconnect the pressure hose from the elbow on the back of the hydraulic pump.
2. Remove the two mounting screws and two lock washers that attach the motor/pump assembly to the cart.

3. Place the motor/pump assembly in a vise, holding it securely by the motor/pump block (25).
4. Remove cylinder head plug (7).
5. Loosen lock ring (22) with a spanner wrench and unthread tube retaining nut on tee (27). Loosen tube retaining nut on elbow (15). Slide the nut down. Push motor tube (26) into tee (27) far enough to clear elbow (15). Slowly unthread cylinder head (11) and lift it just high enough above the cylinder (23) to reach the valve rod assembly (20) with vise grip pliers.
6. The piston rod (21) should be near the top of its stroke for disassembly. It may be necessary to use a wood or nylon driver to push the piston rod up to its top position.
7. Grip the valve rod securely with vise grip pliers and then remove the FlexLoc nut (9) from the top of the valve rod assembly (20). Be careful that spool (5) does not fall. The cylinder head (11) can now be lifted off. Unthread the cylinder (23) from the motor/pump block (25).

NOTE: An extra lock ring (22) can be used to jam the two lock rings together on the cylinder and a pipe wrench can be used to unthread the cylinder (23) from the motor/pump block (25).

8. To remove the connecting pin, slide the retaining ring down with a small screwdriver, and then push the connecting pin out.
9. Remove the piston rod assembly from the motor/pump block (25).



10. Remove rod seal (24), being extremely careful not to scratch the seal groove in the motor/pump block (25).
11. Place the piston retainer screw (16) on the piston rod assembly in a vise. Slide a long bar through the hole at the base of the piston rod for leverage, and unthread the piston rod from the piston retainer screw.
12. Remove piston (17) and lift out valve rod assembly (20).
13. Remove piston seal (18) and o-ring (19).
14. Remove trip retainers (1), trip springs (3), and balls (4) from cylinder head (11). Remove o-rings (2) from trip retainers (1).
15. Remove retaining ring (14) and sleeve retainer (13). Gently tap spool/sleeve set (5) out of cylinder head (11) using a wood or nylon rod.
16. Inspect piston rod (21) and cylinder (23) for wear, scratches, and dents. Replace if damaged.
17. Inspect spool valve (5) for wear. Replace if necessary. spool valve should move smoothly and freely with no force by holding in a vertical position. If it does not, it can cause the motor to stall.

Reassembling the Hydraulic Motor

1. Separate spool/sleeve set (5). Place o-rings (6) onto sleeve. Lubricate o-rings with hydraulic oil. Gently push the sleeve into cylinder head (11) with the flatter side of the sleeve facing out. Use a nylon rod to tap sleeve down until it reaches its full depth. Do not use any other type of tool that might damage or leave particles or residue on the sleeve. Install the spool through the top of the cylinder head, down into the sleeve.

CAUTION

Do not use Piston Lube pump packing lubricant. It is a solvent and will severely damage seals and O-Rings of the hydraulic motor.

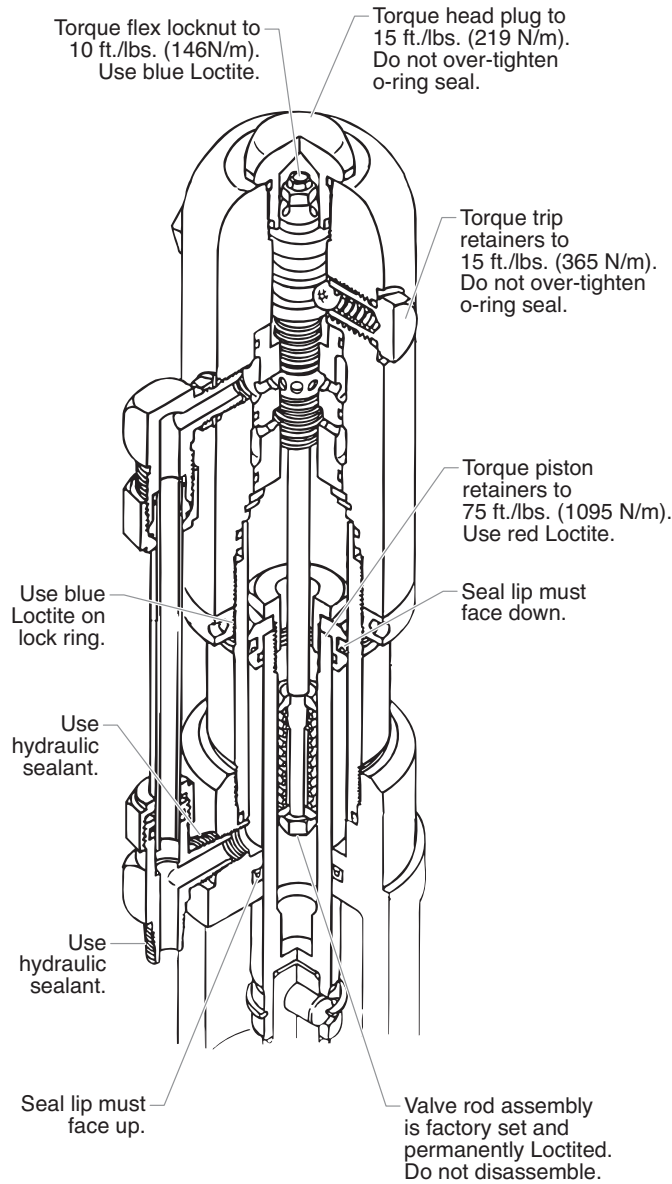
2. Install o-rings (2) on trip retainers (1). Install trip retainer balls (4) followed by springs (3) which, when installed, will hold spool/sleeve set (5) in proper place for assembly.

3. Install sleeve retainer (13) followed by snap ring (14) into cylinder head (11), which will hold valve sleeve in place. Install o-ring (12) in the o-ring groove of the cylinder head.
4. Replace lower seal (24) in motor/pump block (25). Be sure the open portion of the seal is facing upward (V). This seal requires no special tool.
5. Place piston rod (21) in vise. Inspect valve rod assembly (20) for any damage. Make sure the lock nut at the bottom of the valve rod assembly (20) is secure. DO NOT remove. Then, place into piston rod (21) as illustrated. Install o-ring (19), lubricating it well and replacing piston (17) onto piston rod (21). Put one drop of blue Loctite on the piston retainer screw (16). Tighten piston retainer screw until piston is locked into place. Check valve rod assembly (20) for normal spring action at this time.
6. Install piston seal (18) with lips facing downward. Carefully install o-ring (19). Expand the ring and stretch it sufficiently for installation.
7. With motor/pump block (25) still in vise, install lower seal (24) by pushing it towards its groove with a properly sized blunt rod. Then complete installation with the fingers. No tool is necessary. Do not twist the seal.
8. Pre-lubricate the piston and valve rod assembly with Coolflo™ hydraulic fluid (P/N 430-361). Install piston rod (21) into motor/pump block (25) with a gently pushing and rotating motion to work the piston rod in through the seal (24).

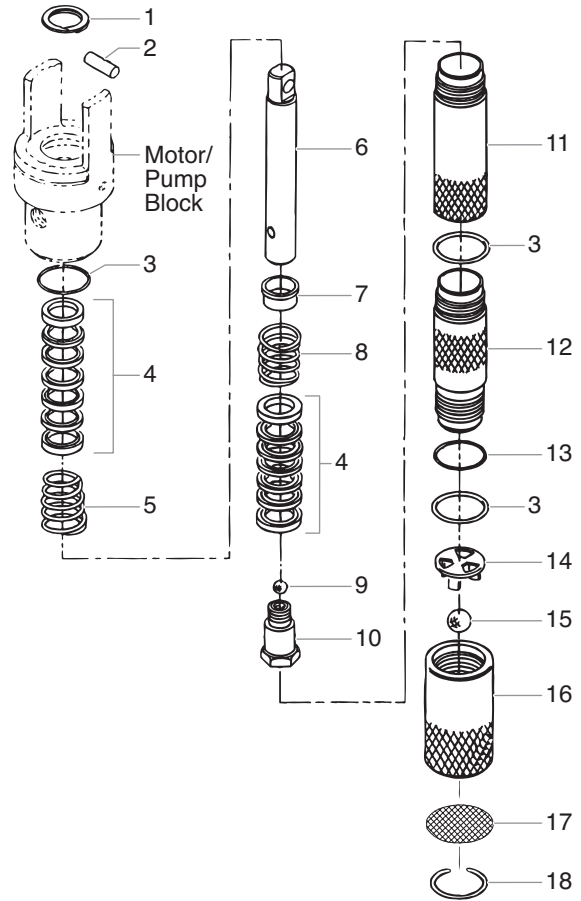
NOTE: Inspect the bottom of piston rod (21) for nicks or sharp areas that could damage the piston seal during installation through the motor/pump block (25).

9. Replace the connecting pin and retaining ring.
10. Install o-ring (12) on cylinder wall. Lubricate ring and inner wall. With the piston rod held firmly, the cylinder should be gently driven over the piston seal with a rubber mallet. Tightly thread the cylinder into motor/pump block (25).
11. Raise piston rod (21) to top position and thread lock ring (22) all the way up on upper threads of cylinder (23).
12. Pull valve rod assembly (20) up as far as it will travel and grasp it with vise grip pliers. Then install cylinder head (11), already assembled, over valve rod until the top threads of the valve rod pass through the top of the spool/sleeve set (5). The valve rod threads must be clean and free of oil. Place one drop of blue Loctite on threads of flex lock nut (9) and thread nut onto valve rod to full tight position (do not over-tighten) while holding valve rod below with vise grip pliers.
13. Thread cylinder head (11) down onto the cylinder (23) and then back off just enough to reassemble hydraulic fittings and motor tube (26). Tighten lock ring with spanner wrench to hold cylinder head in position.
14. The tee assembly (27) and the elbow (15) use an o-ring (28) to seal on the outer diameter (O.D.) of the motor tube (26). The O.D. of the motor tube should be free of scratches or sharp edges. The lock nuts on these fittings first should be hand tightened, then wrench tightened another half turn.
15. Install o-ring (8) onto cylinder head plug (7). Tighten.

Hydraulic Motor Cut-Away



Fluid Section



Item	Part #	Description	Quantity
1	143-019	Retaining ring	1
2	143-120	Connecting pin	1
3	145-031	O-ring, Teflon	3
4	138-153	Packing set, leather/UHMWPE/steel	2
5	142-004	Upper packing spring, SS	1
6	451-031	Displacement rod, Severe Service 500	1
7	138-001	Spring retainer	1
8	142-003	Lower packing spring, SS	1
9	138-225	Ball, SS	1
10	143-945	Piston seat	1
11	451-032	Cylinder spacer	1
12	143-822	Pump cylinder, Severe Service 500	1
13	140-009	O-ring	1
14	145-032	Ball cage, SS	1
15	920-103	Ball, SS	1
16	451-021	Foot valve assembly	1
17	451-018	Inlet screen	1
18	431-054	Snap ring	1

Fluid Section Service Kit, Minor (P/N 143-051)

Item	Part #	Description	Quantity
1	143-019	Retainer ring	1
3	145-031	O-ring, Teflon	3
4	138-153	Packing set, leather/UHMWPE/steel	2
9	138-225	Ball, SS	1
13	140-009	O-ring	1
15	920-103	Ball, SS	1
	426-051	Sealant, Loctite	1

Fluid Section Service Kit, Major (P/N 143-501)

Item	Part #	Description	Quantity
6	451-031	Displacement rod	1
12	143-822	Pump cylinder	1
	143-051	Pump Service Kit, Minor	1

Servicing the Fluid Section

NOTE: USE OF NON-SPEEFLO SERVICE PARTS MAY VOID WARRANTY. ASK FOR ORIGINAL PARTS MADE BY SPEEFLO FOR BEST SERVICES. This pump should receive a routine servicing after approximately 1,000 hours of use. Earlier servicing is required if there is excessive leakage from the top packing or if pump strokes become faster on one stroke or the other. The use of Speeflo Piston Lube (P/N 700-925) is recommended as an upper packing lubricant. DO NOT SUBSTITUTE OIL, WATER, OR SOLVENT for an upper packing lubricant.

Disassembling the Fluid Section

1. Unthread foot valve (16) and pump cylinder (12) with strap wrench.
2. Slide the retaining ring (1) up with a small screwdriver, then push the connecting pin (2) out.
3. Pull displacement rod (6) through the lower cavity of the motor/pump block.
4. Remove the motor/pump block, Teflon o-ring (3), upper packing spring (5), and upper packing set (4).
5. Hold displacement rod (6) in a vise by the flats at the top of the rod and remove piston seat (10) with a wrench while holding the displacement rod horizontal with wooden support, if necessary. Remove ball (9), lower packing set (4), lower packing spring (8), and spring retainer (7).
6. Remove ball cage (14), Teflon o-ring (3), and ball (15).
7. Replace connecting pin (2) and retaining ring (1) .
8. Remove o-ring (13) from pump cylinder (12)

Reassembling the Fluid Section

NOTE: Use Teflon tape on all threaded pipe connections.

1. Place ball (15) into foot valve (16), followed by ball cage (14).
2. Insert Teflon o-ring (3) into lower groove of foot valve (16).
3. Place lower packing set (4) onto piston seat (10) with the peak of the "V" packings pointing down toward the foot valve.

NOTE: Packings must be soaked in oil before installation.

4. Clean the threads on piston seat (10) and coat the threads with blue Loctite. Make sure no Loctite is on the seat.
5. Place ball (9) onto piston seat (10).
6. Place lower packing spring (8) onto piston seat (10), followed by spring retainer (7).
7. Screw displacement rod (6) and piston seat(10) together. Tighten in a vise to 75 ft./lbs.
8. Insert Teflon o-ring (3) into upper groove of motor/pump block.
9. Insert upper packing set (4) into pump block with the peak of the "V" packings pointing up toward the motor.

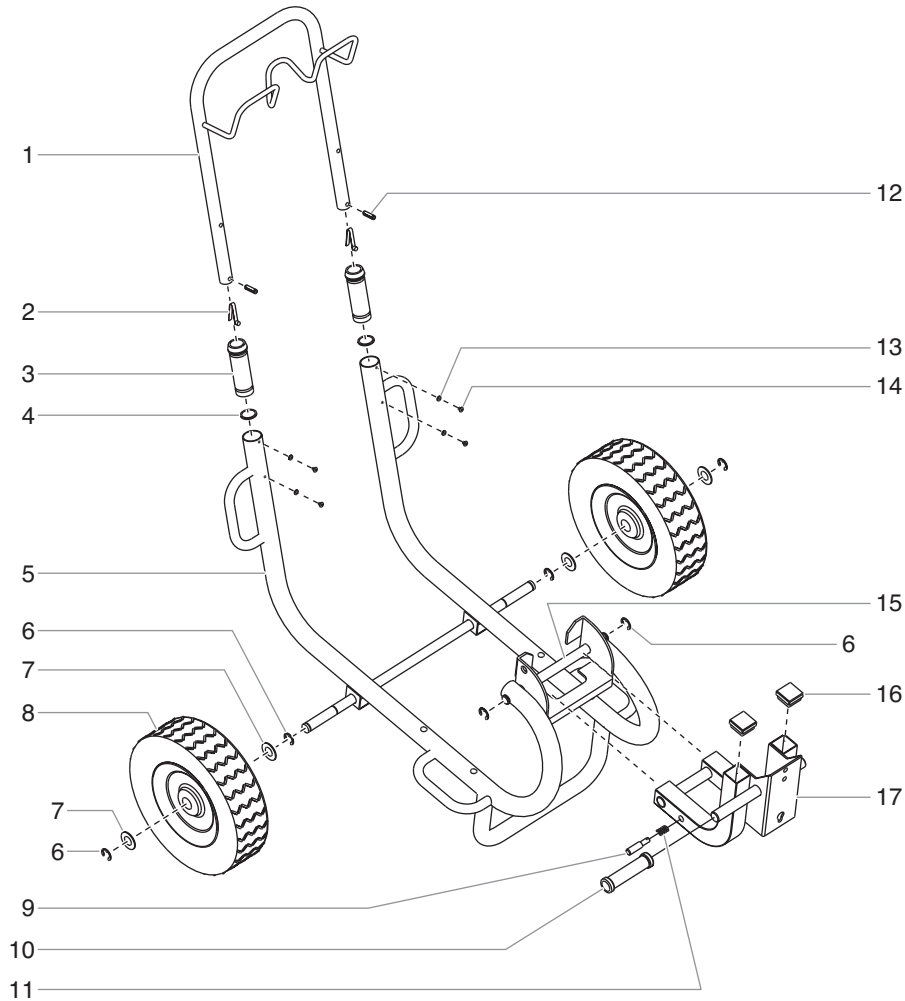
NOTE: Packings must be soaked in oil before installation.

10. Place upper packing spring (5) into the motor/pump block with the small tapered end facing up toward the motor/pump block.
11. Insert displacement rod (6) up through the upper packings in the motor/pump block.
12. Align the holes in displacement rod (6) and the hydraulic piston rod and insert connecting pin (2).

13. Thread the short threads of cylinder spacer (11) into the motor/pump block and tighten with a strap wrench.
14. Thread the short threads of pump cylinder (12) into cylinder spacer (11) and tighten with a strap wrench.
15. Place o-ring (13) onto the top groove of pump cylinder (12).
16. Thread foot valve (16) onto pump cylinder (12) and tighten with a strap wrench.

NOTE: It is not necessary to over-tighten the foot valve. O-ring seals perform sealing function without excessive tightening. Full thread engagement is sufficient.

Cart Assembly (P/N 451-070)



Item	Part #	Description	Quantity	Item	Part #	Description	Quantity
1	590-502	Handle	1	10	451-074	Handle grip	1
2	590-507	Snap button	2	11	451-112	Spring	1
3	590-504	Sleeve	2	12	590-508	Roll pin	2
4	590-506	Washer	2	13	856-002	Washer	4
5	451-055	Frame	1	14	856-921	Screw	4
6	590-100	Retaining ring	6	15	451-064	Swing arm axle	1
7	870-004	Washer	4	16	935-014	Cap, square	2
8	670-109	Wheel	2	17	451-059	Swing arm	1
9	451-113	Lock pin	1				



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