

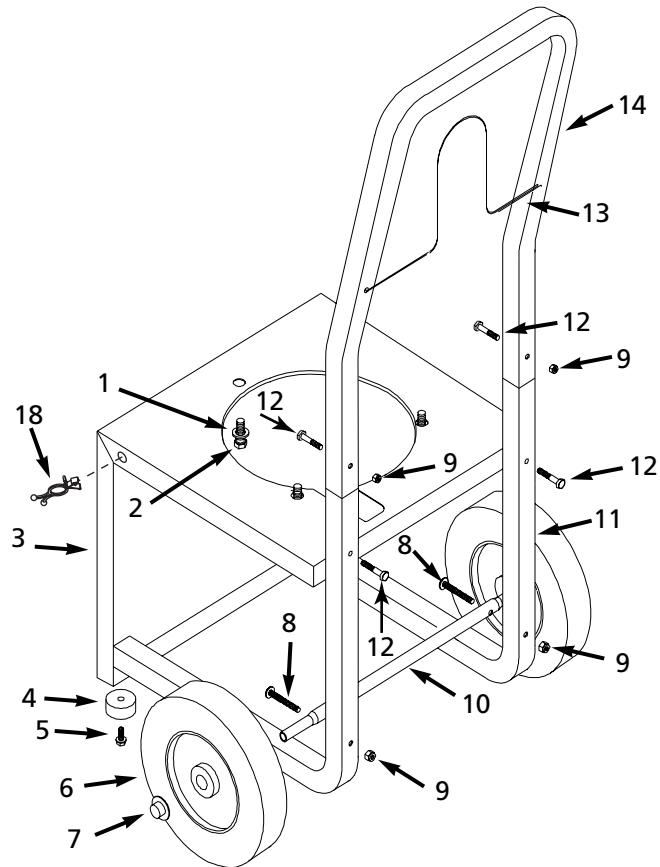
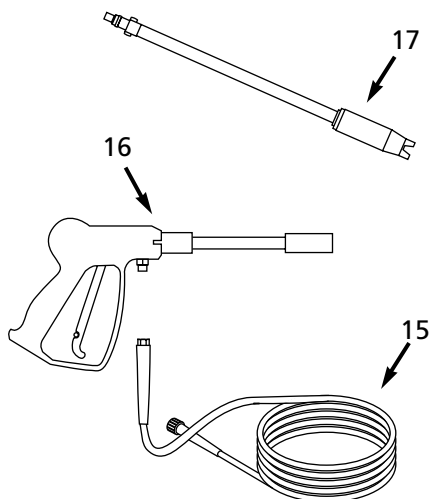
**For Replacement Parts,
Call 1-800-330-0712**

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:

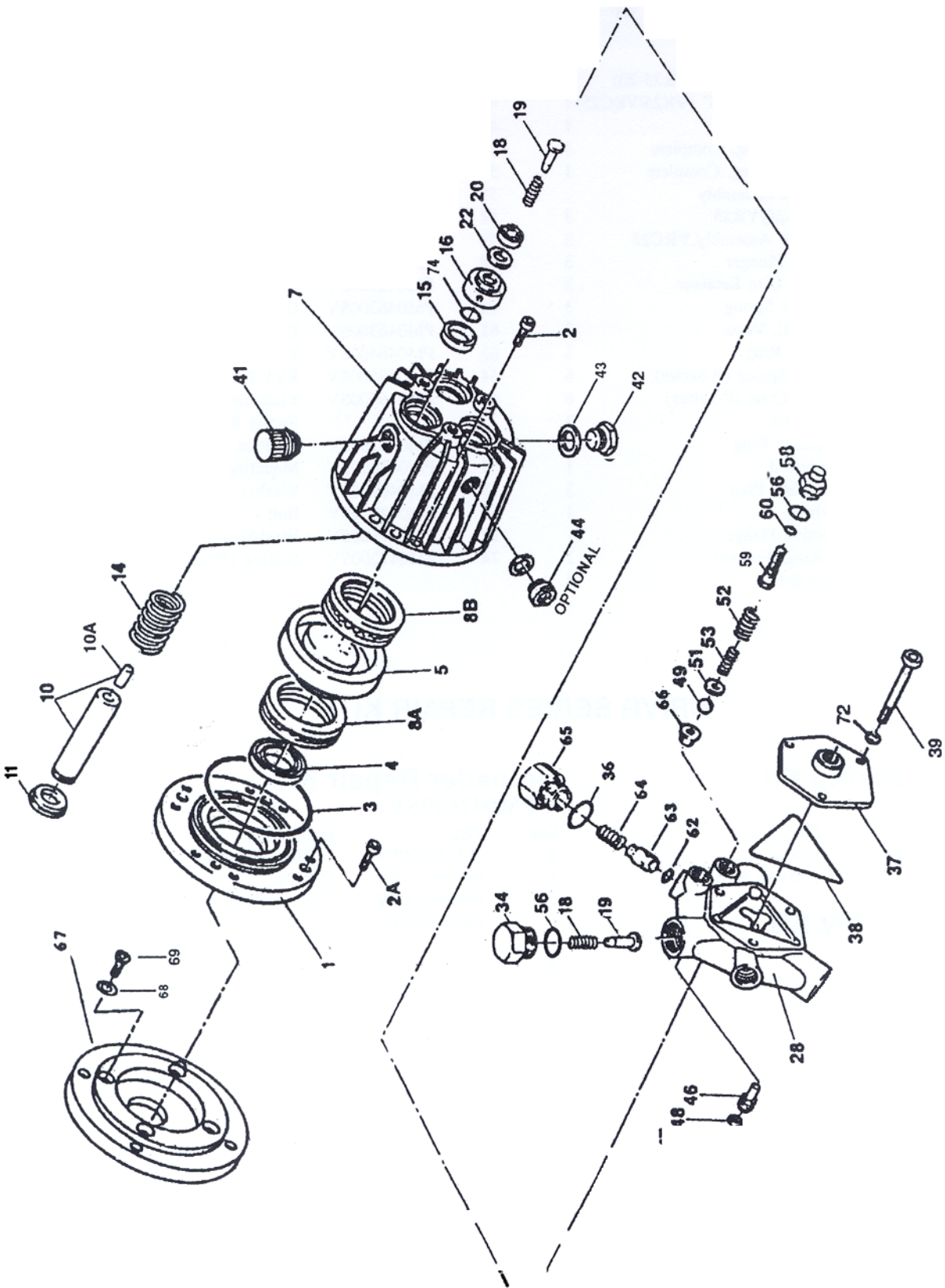
The Campbell Group
Attn: Parts Department
100 Production Drive
Harrison, OH 45030 U.S.A.



Ref. No.	Description	Part No.	Qty.	Ref. No.	Description	Part No.	Qty.
1	3/8" Flatwasher	*	3	10	Axle	GN005500AV	1
2	3/8-16 x 1-1/4" Self-tap screw	MJ101301AV	3	11	Legs	GN004014AV	2
3	Mounting base	PM015503AV	1	12	1/4-20 x 1 1/2" HH bolt	PM001902AV	4
4	Rubber foot	AL062300AV	2	13	Rack, Wire hose	PM033200AV	1
5	1/4-20 x 3/4" Self-tap screw	MJ102100AV	2	14	Handle	GN004013AV	1
6	Wheel	WA002401AV	2	15	Hose	PM005001AV	1
7	Pal nut	MJ104700AV	2	16	Gun	PM005130AV	1
8	Hex head 1/4-20 x 2"	PM001904AV	2	17	Lance	PM035140AV	1
9	1/4-20 Serated Flange Nut	PM031101AV	6	18	Lock, Stand-off purse	PM041350AV	1

* Standard hardware item, available locally.

Exploded View - HR/VR Series



HR25-20/VR25/VRC25 PUMP PARTS LIST

ITEM	PART #	DESCRIPTION	QTY.	ITEM	PART #	DESCRIPTION	QTY.
1	PM042100SV	Adapting Plate	1	41	PM044700SV	Oil Fill Cap	1
2	PM042200SV	Socket Head Cap Screw, 1/4"	8	42	PM044800SV	Oil Drain Plug	1
2A	PM042300SV	Socket Head Cap Screw, 3/8"	4	43	PM044900SV	Gasket	1
3	PM042400SV	O-Ring	1	44	PM045000SV	Sight Glass (Optional)	1
4	PM042500SV	Radial Shaft Seal	1	46	PM045100SV	Piston	1
5	PM042601SV	Swash Plate, 3/4" (HR25-20)	1	47	PM045200SV	O-Ring	1
5	PM042600SV	Swash Plate, 7/8" (VR25/VRC25)	1	48	PM045300SV	Back up Ring	2
7	PM042700SV	Crankcase	1	49	PM045400SV	Ball, By pass Valve	1
8A	PM042800SV	Rear Bearing, Complete	1	51	PM045500SV	Washer	1
8B	PM042900SV	Front Bearing, Complete	1	52	PM045600SV	Adjusting Spring	1
10	PM043000SV	Plunger Assembly		53	PM045700SV	Pressure Spring	1
		HR25-20/VR25	3	54	PM045800SV	Guide Plug	1
10	PM043100SV	Plunger Assembly, VRC25	3	56	PM045900SV	O-Ring	5
10A	PM043200SV	Insert, Plunger	3	58	PM046000SV	Adjusting Plug	1
11	PM043300SV	Spring Disc Retainer	3	59	PM046100SV	Adjusting Screw	1
14	PM043400SV	Plunger Spring	3	60	PM046200SV	O-Ring	1
15	PM043500SV	Oil Seal, Viton	3	62	PM046300SV	O-Ring	1
16	PM043600SV	Spacer Ring	3	63	PM046400SV	Kick-Back Valve Cone	1
18	PM043700SV	Valve Spring (P-Series)	6	64	PM046500SV	Kick-Back Valve Spring	1
19	PM043800SV	Valve Cone (P-Series)	6	65	PM046600SV	Kick-Back Valve	
20	PM043900SV	V-Sleeve	3			Spring Retainer	1
22	PM044000SV	Pressure Ring	3	66	PM046700SV	By Pass Valve Seat	1
28	PM044100SV	Manifold	1	67	PM046800SV	Mounting Plate	1
34	PM044200SV	Manifold Plug	3	68	PM046900SV	Washer	4
36	PM044300SV	O-Ring	1	69	PM047000SV	Bolt	4
37	PM044000SV	Suction Flange	1	72	PM047100SV	Washer	3
38	PM044500SV	O-Ring, Formed	1	74	PM047200SV	O-Ring (Flinger)	3
39	PM044600SV	Stud Bolt	3				

HR/VR SERIES REPAIR KITS

Plunger Packing Kit # PM047300SV

Qty.	Part #	Description
3	PM043900SV	V-Sleeve
3	PM044000SV	Pressure Ring

Valve Assembly Kit # PM047400SV

Qty.	Part #	Description
6	PM043700SV	Valve Spring
6	PM043800SV	Valve Cone

Oil Seal Kit # PM047500SV

Qty.	Part #	Description
3	PM043500SV	Oil Seal

Unloader Repair Kit # PM047600SV

Qty.	Part #	Description
2	PM045900SV	O-Ring, Adapter
1	PM046300SV	O-Ring
2	PM045300SV	Back up Ring, Piston
1	PM045400SV	Ball, By Pass Valve
1	PM046700SV	Seat, By pass Valve
2	PM046200SV	O-Ring, Piston, Adjusting Screw
1	PM044300SV	O-Ring

Complete Manifold Kit # PM047700SV

Includes Item Numbers:

18, 19, 20, 28, 34, 36, 38, 46, 47, 48, 49, 51, 52,
53, 54, 56, 58, 59, 60, 62, 63, 64, 65, 66

HR/VR SERIES TORQUE SPECIFICATIONS

Position	Item#	Description	Torque Amount (ft.-lbs)
2	PM042200SV	Socket Head Cap Screw	100 in.-lbs.
39	PM044600SV	Stud Bolt	260 in.-lbs.

REPAIR INSTRUCTION - HR /VRSERIES

NOTE: Always take time to lubricate all metal and nonmetal parts with a light film of oil before reassembly. This step will ensure proper fit, at the same time protecting the pump's nonmetal parts (elastomers) from cutting and scoring.

1. With a 19mm socket wrench, remove the three discharge valve plugs (34). Inspect the valve plug o-rings (56) for wear, and replace as necessary.
 2. Remove the valve spring (18) and valve cone (19) from the manifold (28). Inspect the parts for wear and replace as necessary.
 3. With a crescent wrench, remove the kickback valve spring retainer (65). Inspect the o-ring (36) for wear and replace as necessary. Remove the kickback valve spring (64), kickback valve cone (63), and the o-ring (62) from the manifold (28). Inspect the parts for wear and replace as necessary.
 4. With a 19mm crescent wrench, remove the adjusting screw assembly (58, 56, 60, and 59). Unscrew the adjusting screw (59) from the adjusting screw plug (58). Inspect the o-rings (56 and 60) for wear and replace as necessary.
 5. Remove the adjusting spring (52), pressure spring (53), washer (51) and by pass valve ball (49) from the manifold (28). Inspect the parts for wear and replace as necessary.
 6. Next, remove the three manifold studs nuts (39) with a 17mm wrench. Remove the suction flange (37) and flange o-ring (38). Inspect the o-ring for wear and replace as necessary.
 7. Tap the back of the manifold (28) with a rubber mallet to dislodge, and slide off the plungers (10). Take note of the position of the discharge port so as to place the port in the same position during reassembly.
 8. With a 19mm socket wrench, remove the guide plug (54) and o-ring (56). Remove the piston (46), o-ring (#47), and backup rings (48). Using a 7/32" Allen wrench, remove the bypass valve seat (66). Inspect the parts for wear and replace as necessary.
 9. Remove the valve cones (19), valve springs (18), v-sleeves (20) and pressure rings (22). Inspect for wear and replace as necessary.
 10. Remove the spacer ring (16) and flinger from the plungers (10).
 11. If the crankcase oil seals (15) are to be replaced, they can be removed by prying loose with a straight pin. Take care not to make contact with the plunger (10) and pry out the oil seals from their housing. Seals should not be reinstalled until after step #16.
 12. In an even sequence, remove the four socket head screws (2A) that secure the adapting plate (1) to the electric motor (or engine plate - 67 on gas engine models). Remove the adapting plate/crankcase assembly from the motor/engine plate. Place the adapting plate crankcase assembly flat on a table with the plungers (10) pointing up. In an even sequence, remove the eight socket head screws (2) that secure the crankcase (7) to the adapting plate.
- CAUTION:** The plunger springs (14) will cause the crankcase (7) to separate from the adapting plate (1) very rapidly. Be certain to maintain control of the crankcase when removing the socket head screws (2). Remove the crankcase from the adapting plate. Next, remove the front bearing (8B), swash plate (5) with race and rear bearing (8A). Inspect the o-ring (3) for wear and replace as necessary.
13. To remove the shaft seal (4) press out the shaft seal from the front of the adapting plate (1). Replace, reversing the above procedure.
 14. Pull the plunger assemblies (10, 10A, and 11) with the plunger springs (14) straight out of the crankcase (7). Inspect the parts and replace as necessary.
- NOTE:** If replacing the high pressure water seals (20), take time to first soak the seals in warm water for thirty minutes. This is necessary to ensure proper sealing upon start-up of the pump.
15. To reassemble, replace the plunger assemblies (10, 10A and 11) and plunger springs (14) into the crankcase (7), making sure the plunger springs are properly seated against the spring disc retainers (11).
- NOTE:** When mounting the swash plate (5) onto the adapting plate (1), be certain to lubricate both the shaft seal (4) and the ring which is pressed onto the swash plate. Take care not to damage the lips of the shaft seal when mounting.
16. Next, place the adapting plate (1) flat on a table. Place the o-ring (3) around the pilot on the adapting plate. Position the rear bearing (8A), swash plate (5) with race, and front bearings (8B) on top of the adapting plate. Make certain that the plunger assemblies (10, 10A, and 11) and the plunger springs (14) are pushed into the crankcase (7) as far as possible. Then wrap a rubber band tightly around the plungers (on the manifold (28) side) to secure them in place, as the next step is to turn the crankcase upside down and position it on the adapting plate and bearings. Press down firmly on the crankcase to secure the crankcase on the adapting plate, making certain that the swash plate (5) is properly positioned against the adapting plate. Replace the socket head screws (#2) and tighten securely in a sequential pattern to 100 in.-lbs. Remove the rubber band used to hold the plungers in place.
 17. Replace the oil seals (15), making sure the lips of the seal face the crankcase (7). Place the flingers (74) over the plungers (10).
 18. Replace the spacer rings (#16) over the plungers (10) and seat into the crankcase (7). Make certain that the weep holes are facing towards the oil drain plug (42).
 19. Insert the valve spring (18) and valve cone (19) into the plungers (10).
 20. Assemble the adjusting screw (59) with o-ring (60) into the adjusting screw plug (58). Assemble the o-ring (56) onto the adjusting screw plug.
 21. Replace the bypass valve seat (66) using a 7/32" Allen wrench. (A sealing compound such as Loctite 572 should be applied to the threads to ensure a proper seal.) Drop the ball (49) onto the seat. Replace the washer (51) with the concave side toward the ball. Next, replace both springs (53 and 52). Replace the adjusting screw assembly (from the above) and tighten down with a 19mm wrench.
 22. Insert the piston (46) with o-ring (47) and backup rings (48) into the manifold (28). Screw in the guide plug (54) with o-ring (56) and tighten.
 23. Replace the kickback valve cone (63) with o-ring (62) and kickback valve spring (64) in place. Assemble the o-ring (36) onto the kickback valve spring retainer (65). Screw the kickback valve spring retainer into the manifold (28) and tighten.
 24. Place the valve cones (19) and valve springs (18) into the discharge bores. Replace the valve plugs (34) with o-rings (56) and tighten.
 25. With the grooved sides pointing down, place the v-sleeves (20) into the manifold (28). Next, place the pressure rings (22) into the manifold.
 26. Grease the end of the plungers (10). Replace the manifold (28) over the plungers (10) and seat firmly against the spacer rings (16). If necessary, gently tap manifold with a rubber mallet.
 27. Grease the suction flange o-ring (38) and place it into the groove on the suction flange (37). Replace the stud bolts (39) and washers (72) and tighten bolts to 220 in.-lbs.
 29. Fill the crankcase with the required amount of oil. The pump is now ready for operation.