

FEATURES

- Features patented “high tech” packings:
 - dynamic low-pressure seal retainer
 - superior low-pressure seal
 - innovative intermediate ring
 - superior high-pressure seal
- Ceramic plungers
- Patent-pending inlet/outlet valve cage
- Nickel-plated inlet/outlet valve plugs
- Nickel-plated forged brass manifold
- Specifically Designed to handle rigorous duty cycles, high temperatures and chemicals
- Ideal for use in carpet cleaning and other high pressure cleaning applications



Emperor
Pumps That Rule Any Environment

**SPECIFICATIONS**

Pump Model	HTC1505E345	HTC1509E175
Max Volume	2.1 GPM	2.1 GPM
Max Discharge Pressure	2200 PSI	2200 PSI
Horsepower	3.5 EBHP	3.5 EBHP
Max Pump Speed	3400 RPM	1750 RPM
Inlet Pressures	Flooded to 70 PSI	
Plunger Bore (in / mm)	.591 in. / 15 mm	
Plunger Stroke (in / mm)	.197 in. / 5 mm	.370 in. / 9.4 mm
Oil Capacity	11.8 oz.	
Maximum Fluid Temperature	185°F	
Inlet Port Thread	1/2 -14 BSP-F	
Discharge Port Thread	3/8 -19 BSP-F	
Shaft Diameter	.626 in. / 16 mm Hollow Shaft	
Weight	15.1 lbs.	
Dimensions - Nominal	7.8 x 7.3 x 5.5 in	

Instructions and Recommendations for the Installation of *HTC Series Pumps*

The high-temperature pumps of the HTC series have been designed for use in applications where the water must be preheated, such as in car wash, food and pharmaceutical industries.

Maximum temperature of the water through the pump is 185°F (85°C).

In order to obtain maximum performance in terms of duration of seals and valves, it is necessary to respect a few simple rules, as follows:

- 1) **In order to avoid damage caused by cavitation, the pump must be pressure fed.**

Note: Contact General Pump's technical sales department for guidance when operating the pump outside of the related inlet specs.

- 2) **The plumbing which feeds the pump must be of a diameter at least equal to the inlet port.**

Also, follow the suggestions below:

- a) Make the plumbing as short and straight as possible, preferably in an upward direction to facilitate the expulsion of eventual air bubbles naturally if compatible with the requirements of the system.
- b) It is always useful to put a filter at the inlet with capacity of 4 to 5 times the flow of the pump, for example for a 4 gpm (15 l/min) pump, put a filter from 16 to 20 gpm (60-75 l/min). The mesh size suitable for this application is 0.016" (.4 mm).
- c) It is extremely important to put a pressure switch on the suction port of the pump, and in any case downstream from the filter, so that it can stop the pump should the feed pressure drop by 20% due to the filter clogging or failure of the feed pump, etc.

3) Change of oil

We recommend the **first oil change after the first 50 hours**, with the **pump stopped** and the **oil still warm**.

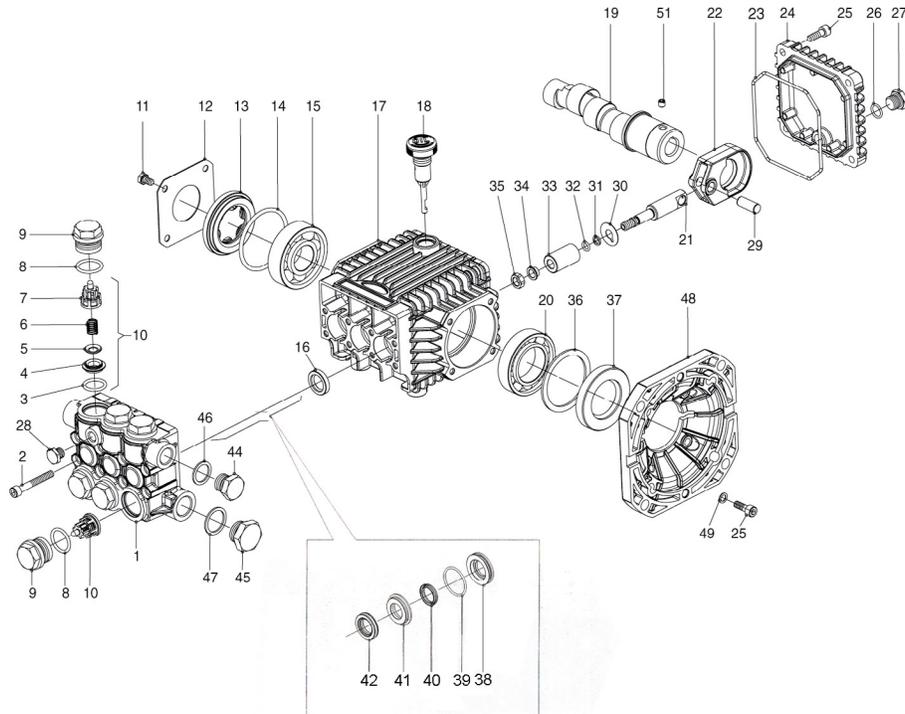
This change is not recommended because the oil has lost its properties, but rather to eliminate the impurities that have gotten into the oil during the running-in phase. If these impurities are not removed, but are allowed to remain in the oil, they *may cause premature wear* to the moving parts and the oil seals. **After this initial change, the oil can then be changed every three months or 300 hours of operation thereafter.**

Please note: If the pump works in conditions with high humidity and with sharp temperature changes, it is possible that condensation will appear inside the crankcase, which mixing with the oil can change its properties. This is easy to see because the oil changes to a white, milky color.

If the pump does not have excessive water leaking from the packings, and the oil becomes milky, the oil has to be changed more frequently. The percentage of water in the oil must not exceed 20%.

Use oil per the following chart:

CHART OF COMPATIBLE OILS	
GENERAL PUMP	SERIES 220
BP	ENERGOL HLP 220
CASTROL	Hyspin VG220, Magna 220
MOBIL	DTE OIL BB
SHELL	TELLUS C 220
TOTAL	CORTIS 220



PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	60121241	Manifold, Nickel plated,15mm	1	18.	98210300	Dipstick, Vented	1	34.	44211570	Collared Washer	3
2.	99195000	Screw, M6	8	19.	60021765	Crankshaft, 5mm	1	35.	92221600	Nut, M8, S.S.	3
3.	90384100	O-ring	6	20.	60023465	Crankshaft, 9mm	1	36.	60210189	Spacer	1
4.	36200366	Valve Seat	6	21.	91846500	Bearing, Ball	1	37.	90167500	Crankshaft Oil Seal	1
5.	36200176	Valve Poppet	6	22.	60050066	Plunger Guide	3	38.	60080270	L.P Seal Retainer, 15mm	3
6.	94737600	Valve	6	23.	60030022	Connecting Rod	3	39.	90360400	O-ring	3
7.	36202551	Valve Guide	6	24.	90391800	O-ring	1	40.	90215000	L.P. Seal. 15mm	3
8.	90384700	O-ring	6	25.	60160022	Crankcase Cover	1	41.	60216270	Int. Ring, 15mm	3
9.	98221300	Valve Cap, Nickel-plated	6	26.	99186700	Screw, M6	8	42.	90216200	H.P. Seal, 15mm	3
10.	36711501	Valve, Complete	6	27.	90358500	O-ring	1	44.	98209900	Plug, G 3/8", Nickel-plated	1
11.	99180700	Screw, M6	4	28.	98204100	Plug, G 1/4"	1	45.	98217900	Plug, G 1/2", Nickel-plated	1
12.	50150074	Side Cover	1	29.	98196700	Plug, G 1/8" Nickel-plated	1	46.	96738000	Washer, M17.5	1
13.	44211801	Oil Level Indicator	1	30.	97733300	Wrist Pin	3	47.	96751400	Washer, M21.5	1
14.	90409700	O-ring	1	31.	96707000	Flinger Washer	3	48.	10034422	Flange	1
15.	91833100	Bearing, Ball	1	32.	90502200	Anti-ext. Ring	3	49.	96693800	Washer	1
16.	710002	Oil Seal	3	33.	90357300	O-ring	3	51.	99179000	Screw, M6	1
17.	60010022	Crankcase	1		60040009	Ceramic Plunger, 15mm	3				

REPAIR KITS

KIT NO.	K83	K123	K243	K244
ITEM NO'S INCLUDED IN KIT	16	3, 4, 5, 6, 7 (10)	39, 40, 42	38, 39, 40, 41, 42
NUMBER OF ASSY'S IN KIT	3	6	3	1
NO. OF CYLINDERS KIT SERVIC	3	3	3	1

TORQUE SPECS*

Pos.	Ft.-Lbs.	Nm.
2	8.8	12
9	59.0	80
11	7.4	10
25	7.4	10
27	14.7	20
28	9.6	13
35**	11.1	15
44	29.5	40
45	29.5	40

*Decrease torque by 20% if threads are lubricated.

**Use Loctite 542

