HAND PUMP PARTS LIST

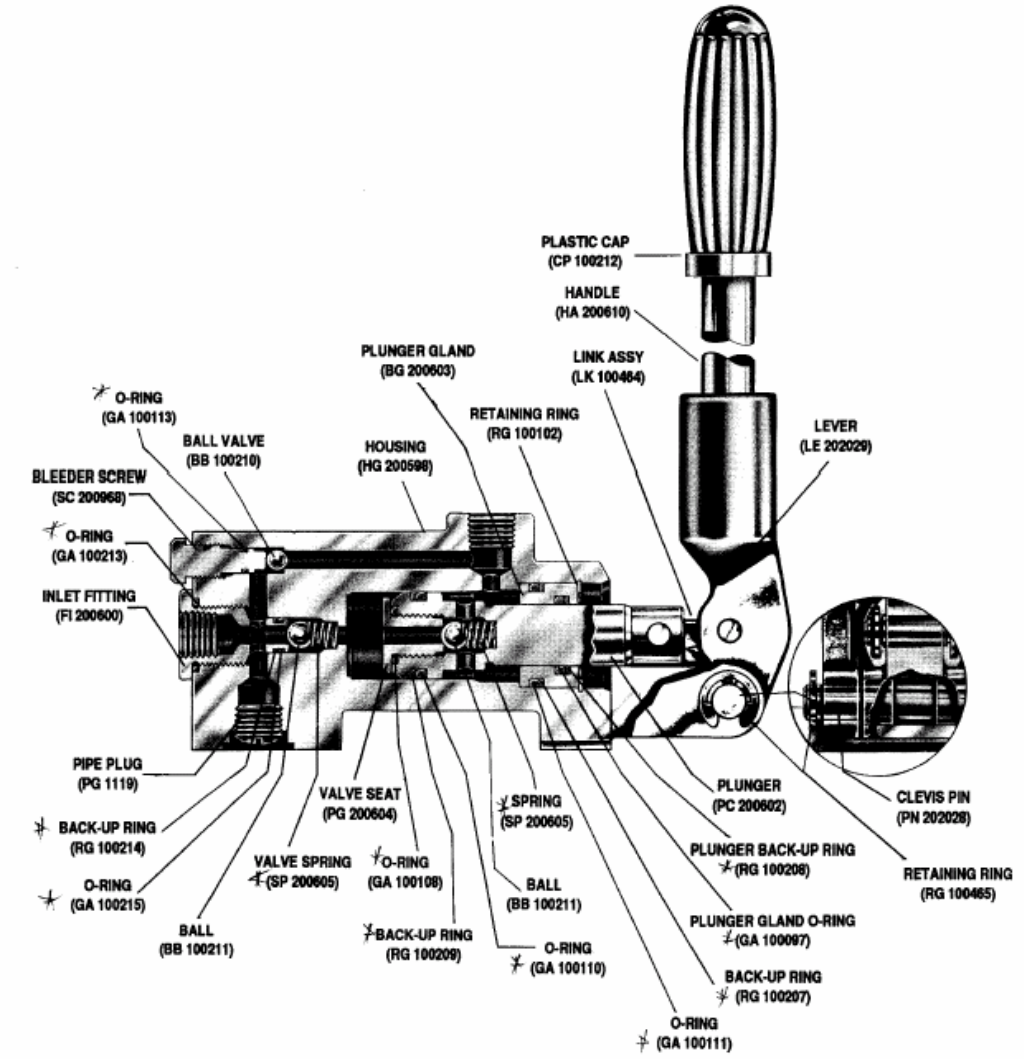
Service Kit KT 202565

Service kit 202565 is available for HPA 300118, HPA 308074, HPA 308165 and HPA 308166 and includes the following:

QUANTITY	DESCRIPTION	PART NUMBER
1	Bleed screw "O" ring	GA 100113
1	Inlet fitting "O" ring (outer)	GA 100213
1	Inlet fitting back-up ring	RG 100214
1	Inlet fitting "O" ring (inner)	GA 100215
1	Check valve seat "O" ring	GA 100108
1	Plunger back-up ring	RG 100209
1	Plunger "O" ring	GA 100110
1	Check valve spring	SP 200605
1	Plunger gland "O" ring (inner)	GA 100111
1	Plunger gland back-up ring	RG 100207
1	Plunger gland "O" ring (outer)	GA 100097
1	Plunger gland back-up ring	RG 100208

HPA 300118

* Service Kit KT 202565



HAND PUMP SERVICE INSTRUCTIONS

DISASSEMBLY

1. Disconnect the lever from the housing and the plunger. Remove the retaining ring and the clevis pin before removing the link assembly.
2. Remove the plunger gland retaining ring from the housing. The plunger gland will come out on the plunger when the plunger is pulled from the housing. Remove the plunger gland from the plunger.
3. Remove the discharge check valve seat from end of the plunger. Discharge check ball valve and discharge check valve spring will drop out of the plunger.
4. Remove the inlet fitting from the end of the housing. Inlet check ball valve and the inlet check valve spring will drop out of the housing.
5. Back out the bleeder screw and remove the ball.

EXAMINATION OF PARTS

Housing: Check for cracks and other visible damage. Bore of cylinder must be smooth with no pitting or scoring. All threads should be checked. (It is not necessary to remove the pipe plug unless there has been leakage at threads). Bleed ball valve and its seat in housing must be checked. Replace ball valve if damaged. Replace the bleed screw "O" ring with a new one.

Inlet Fitting: Examine internal and external threads. Inspect inlet check valve seat for nicks or scratches. Replace the inner and outer inlet fitting "O" rings and back-up rings with new ones. Examine inlet check ball valve and spring. Replace if damaged.

Plunger: Check plunger for scoring on large diameter and on plunger shank where it rides in plunger gland. A wear pattern may be evident but no scores or scratches should be present. Replace the plunger "O" ring and back-up ring and the discharge check valve seat "O" ring with new ones. Examine discharge check ball valve and spring and discharge check valve seat. Replace any damaged parts.

Lever: Check link assembly for wear or damage. Replace if necessary.

Plunger Gland: With the inner plunger gland "O" ring and back-up ring removed, check gland on plunger shank to be sure it does not bind. Inner and outer plunger gland "O" rings and back-up rings should be replaced with new ones.

ASSEMBLY

NOTE: Make sure that all parts are clean before assembling. To facilitate assembly use light silicane based oil or grease on "O" rings and back-up rings.

1. Install inlet check valve spring and ball into housing. With the inner and outer inlet fitting "O" rings and back-up ring on the inlet fitting, install the fitting into the housing. Tighten the inlet fitting securely being sure that the inlet check ball valve seats properly in end of the inlet fitting.
2. Install discharge check valve spring and ball into plunger. With discharge check valve "O" ring in place, thread discharge check valve seat into plunger and tighten securely.
3. Insert the plunger into the housing, bottoming plunger in pump bore. Install the plunger gland being sure that the inner "O" ring is closest to the leading edge (see illustration). Press the plunger gland in until groove for the retaining ring is uncovered, then insert the retaining ring.
4. Drop bleed ball valve into place and with bleed screw "O" ring in position insert bleed screw. Tighten the bleed screw securely.
5. Install the link assembly to the plunger and the lever. Place the lever into position and insert the clevis pin and the retaining ring. Put other side of link on and secure with clip.

TEST PROCEDURE

1. Mount hand pump in suitable holding fixture and connnect all hoses to appropriate fittings as illustrated in Test Circuit Schematic (see page 11, Figure 1) leaving the discharge connection loose. Slowly operate the hand pump until all the air is expelled. Retighten connection. This operation will also assure that the plunger is free in the housing. With high pressure valve open, operate the hand pump long enough to sufficiently purge the system.

2. Close the high pressure valve. Operate the hand pump until the system pressure is approximately 1800 psi (124 bars). Check for external leakage.

3. Operate the hand pump until system pressure is 3000 psi (207 bars). Observe the pressure gage closely to determine if the unit is pumping on each stroke. (Pump is double acting.)

4. Locate the pump plunger is mid-position and release the operating handle. Any movement of handle indicates leakage past inlet check ball valve or "O" rings on inlet fitting. (There should not be any perceptable drop in pressure gage reading.)

5. Move the plunger in the full extent of its travel until the plunger bottoms in housing. Disconnect inlet line from pump. A steady pressure reading of 3000 psi (207 bars) indicates that the discharge check valve plunger "O" rings and bleed valve are sealing properly. If leakage occurs at this point it will be necessary to correct and retest as required.

6. Open high pressure valve slowly and release pressure to 0 psi.

> CAUTION
> DO NOT DISCONNECT ANY HIGH PRESSURE LINES UNTIL HYDRAULIC PRESSURE IS COMPLETELY EXHAUSTED.

7. Remove the hand pump from the test circuit. Drain the remaining quantity of oil from the hand pump and close all openings with a suitable plug to prevent entrance of foreign matter during shipment or storage.

HYDRAULIC CRANKING SYSTEM TEST CIRCUIT

The Test Circuit Schematic for Hydraulic Cranking System Components illustrated in this section shows the approximate position of the equipment required for testing purposes. This may be altered to meet the individual requirements of shop lay-out and components to be tested.

Reservoir: The reservoir should be mounted high enough so that the outlet at the bottom of the reservoir is above the oil inlet to the engine pump. The reservoir should be filled to approximately 3/4 of its maximum oil volume. (This pertains to a test circuit only and does not refer to actual application specifications.) This will provide sufficient space above the oil level for the return oil to surge back into the reservoir when components are being tested without the hydrotor in the circuit.

Accumulator: The capacity of the accumulator should be 230 cu. in. (1 gal.) for the time factor used when testing the engine pump. It also provides a sufficient volume of oil for testing other components.

Electric Motor: The electric motor should be at least 1 HP and have a speed of 1750 RPM. This speed and HP are required when testing and operating the engine pump at the high pressures attained.

Hand Pump: The hand pump is not required in the circuit unless it is one of the components to be tested.

High Pressure Valve: 3000 psi (207 bars) The high pressure valve is used in the circuit when components other than hydrotors are being tested. It is to be inserted between the accumulator and reservoir to provide a means of returning the high pressure oil to the reservoir. A Crane #222 H, Steel, 1/2" valve, or equal should be used.

Fittings and Hoses: All return hoses from components to the reservoir should be larger (#10 or larger recommended) than the inlet hoses (#8 recommended). This will eliminate back pressure within the unit. Hose should be as shown as possible to prevent surging. All fittings and hoses should be inspected periodically to insure that they are in good condition. If there is any doubt about a fitting or hose it should be replaced.

HAND PUMP SERVICE INSTRUCTIONS

CAUTION
ALWAYS RELEASE ALL HYDRAULIC PRESSURE IN THE SYSTEM BEFORE DISCONNECTING ANY HOSES.

Clean all hose assemblies before installing. Do not use sealing compound when installing fittings.

Unloading Valve: Most Kocsis Technologies, Inc. engine pumps include an integral unloading valve. When testing such pumps, set the system unloading valve at approximately 3500 psi (241 bars) so as not to interfere with the integral unloading valve in the pump under test.

Hydraulic Oil Recommendation: A good clean hydraulic oil appropriate for all seals should be used in the test circuit. Test oil temperature should be maintained at 75° to 80°F (24° to 27°C), during testing.

High Pressure Filter: Follow instructions as outlined in components catalog HF-1.

ALWAYS PURGE THE SYSTEM BEFORE ATTEMPTING ANY TEST

Purging: A. Open valve at reservoir outlet.

B. To purge the hand pump (if used), loosen the discharge connection and slowly operate the hand pump until all the air is expelled. Retighten connection.

C. To purge the complete system open the control valve if a hydrotor is installed or the high pressure valve if this is being used. Start the engine pump to circulate the oil through the system. Allow the pump to operated a period sufficient to completely purge the system of air. After purging, close the appropriate valve and proceed with the test.