

RICE HYDRO, INC.  
MANUFACTURER'S OPERATING INSTRUCTIONS  
TEST PUMP MODEL DP-Series (3/4/6/8/56-250)

**FOR WARRANTY REGISTRATION CALL: 1-800-245-4777**

**TO ATTACH FLOW METER - CALL FACTORY FOR INSTRUCTIONS**

**CONNECTING THE PUMP:**

1. Check pump oil thru reservoir sight glass, half-way to the top is full. Use 30w non-detergent oil.
2. Check oil level in engine crankcase, use (10W30) as needed.
3. Check oil level in the gear reduction, use (90W) as needed. Oil should be level with side plugs.
4. On units 4/6/8 accumulator head is equipped with a valve stem to adjust air pressure of the accumulator diaphragm, set between 90 to 120 psi.
5. Connect inlet hose assembly provided. The pump **MUST** be either suction fed (such as out of a barrel), or gravity fed (from a watertruck).  
**A PRESSURIZED LINE CANNOT BE USED TO SUPPLY WATER TO THE PUMP.** Never connect this unit to a water source such as a standpipe, hose bib, tap water faucet, etc... ***unless a PRESSURED Tank accessory is added.***  
The source of the water should be within 8-10 ft. maximum.
6. Connect the supplied high-pressure outlet hose.

**OPERATING THE PUMP:**

1. Turn the outlet ballvalve to the open position, and start the engine. The engine RPM is preset at the factory, **DO NOT ADJUST.**
2. The pressure regulator has been preset at the factory. ***To change this setting you must make this adjustment while the water is flowing freely, under no pressure.*** To adjust pressure, first loosen the locknut. Turn the T-handle/Knob clockwise to increase and counterclockwise to decrease the pressure. Place a ballvalve or similar open and close valve at the end of outlet hose, open and close this valve to check pressure setting and re-adjust as necessary. It is also recommended that you open and close the hosebib located under the gauge to bleed excess air from piping and ensure accurate pressure gauge readings. Upon reaching desired pressure setting, tighten locknut and prepare to begin test.
3. With the ballvalve open begin building pressure in test environment. Bleeding air from hosebib under gauge at least once during this process. Once test pressure has been reached, **close the ballvalve and shut off the engine.** An inline checkvalve prevents water pressure from bleeding back into the pump.
4. Once the outlet ballvalve is closed and your test begins, you have now isolated the test pump from your test environment, any loss of pressure is due to leaks or trapped air in the lines.

**REMEMBER THESE CAUTIONS:**

1. Check all fluid levels prior to operating pump.
2. Use inlet hose supplied, or a suction hose the same size as inlet piping.
3. NEVER connect the inlet of the pump directly to a pressurized source.
4. Protect the pump from freezing, FLUSH with anti-freeze.

## **RECOMMENDED PERIODIC MAINTENANCE PROCEDURE**

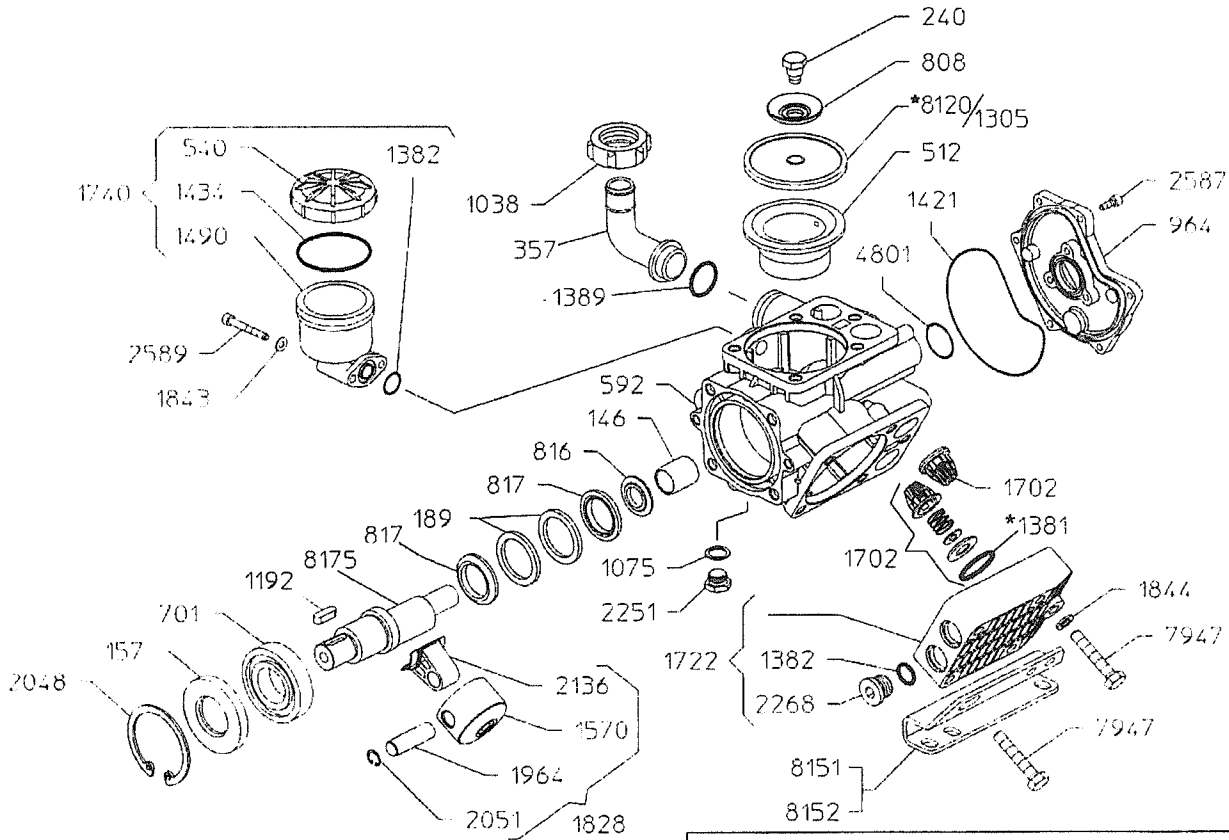
1. Change engine oil after the first 80 hours of operation thereafter every 250 hours of use or every season.
2. Change the oil in the pump body after the first 50 hours of operation thereafter every 250 hours.

## **TROUBLE SHOOTING FOR DP-SERIES HYDROSTATIC TEST PUMP**

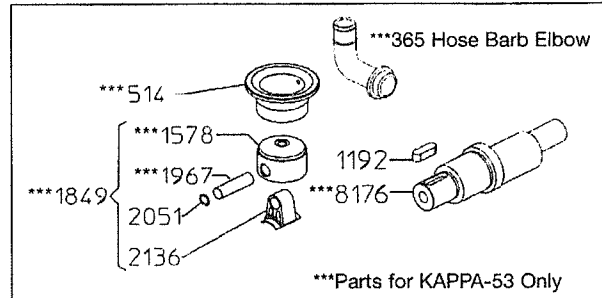
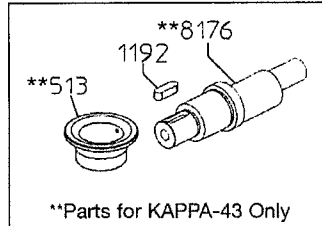
### **IF PUMP FAILS TO BUILD PRESSURE:**

1. Look for leaks in water supply hose and connections.
2. Supply hose is too small. Filter may be clogged.
3. Supply hose may be kinked or collapsed. Maximum 9 feet.
4. Pump may be sucking air. Small holes in supply hose are hard to find because air is drawn inward. Replace supply hose. Loose piping or connections.
5. T-Handle/knob on pressure regulator may be set incorrectly.
6. Faulty pressure gauge, replace.
7. Pump is running too slow. Advance throttle on engine to between 3400 - 3600 RPM, NO higher.
8. Pipeline being tested may have leaks, or open valve. Isolate pump and self-test, by placing a ballvalve on the end of the outlet hose.
9. Foreign material may be lodged in a valve, preventing valve from seating properly. Remove cylinder head. Remove valve assemblies, clean and replace.
10. Airlock. With pump running, open and close bleed valves several times to remove air trapped in piping.
11. Diaphragms may be ruptured, oil in crankcase will be milky white. Drain oil from pump and install new diaphragms.
12. No air in accumulator head on models 4/6/8, reset between 90-120 psi.

# KAPPA-33/43/53 - Exploded View Diagram & Parts List



**KAPPA-33/43/53 PUMPS**  
 Require 20 oz.  
**UDOR LUBE**  
 or SAE 30W  
 Non-detergent Oil



REF#	PART#	DESCRIPTION	QTY	REF#	PART#	DESCRIPTION	QTY
146	02-0006.14	Bearing	1	1740	02-6033.01	Oil Reservoir Assembly	1
157	02-0007.05	Seal	1	1828	02-6015.45	Piston & Rod Assembly (KAPPA-33/43)	3
189	02-0001.11	Retaining Ring	2	1843	02-1403.07	Washer	2
240	02-0102.04	Diaphragm Bolt	3	1844	02-1403.09	Washer	11
357	02-0202.18	Suction Elbow	1	***1849	02-6015.46	Piston & Rod Assembly (KAPPA-53)	3
***365	02-0202.52	Suction Elbow (KAPPA-53)	1	1964	02-1502.03	Connecting Rod Pin (KAPPA-33/43)	3
512	02-0206.42	Piston Sleeve (KAPPA-33)	3	***1967	02-1502.07	Connecting Rod Pin (KAPPA-53)	3
**513	02-0206.41	Piston Sleeve (KAPPA-43)	3	2048	02-1506.07	Snap Ring	1
***514	02-0206.43	Piston Sleeve (KAPPA-53)	3	2051	02-1506.15	Snap Ring	6
540	02-0208.98	Oil Reservoir Cap	1	2136	02-1519.28	Connecting Rod (KAPPA-33/43/53)	3
592	02-0209.73	Crankcase	1	2251	02-1603.02	Plug	1
701	02-0214.05	Bearing	1	2268	02-1603.32	Head Plug	6
808	02-0301.43	Retaining Washer	3	2587	02-1805.20	Bolt	6
816	02-0301.54	Spacer	1	2589	02-1805.31	Bolt	2
817	02-0302.66	Spacer	2	4801	02-1101.C3	O-Ring	1
964	02-0501.E2	Body Flange	1	7947	02-1804.21	Head Bolt	15
1038	02-0604.18	Barb Nut	1	*8120	02-0903.50	Piston Diaphragm (DESMOPAN)	3
1075	02-0605.43	Gasket	1	8151	02-1202.63	Mounting Rail - Right Side	1
1192	02-0801.02	Shaft Key	1	8152	02-1202.64	Mounting Rail - Left Side	1
1305	02-0903.43	Piston Diaphragm (BUNA-N) optional	3	8175	02-0002.B8	Crankshaft (KAPPA-33)	1
*1381	02-1101.27	O-Ring	6	**8176	02-0002.B7	Crankshaft (KAPPA-43/53)	1
1382	02-1101.29	O-Ring	7				
1389	02-1101.41	O-Ring	1				
1421	02-1101.88	O-Ring	1				
1434	02-1101.D1	O-Ring	1				
1490	02-1203.27	Oil Reservoir	1				
1570	02-1205.07	Piston (KAPPA-33/43)	3				
***1578	02-1205.18	Piston (KAPPA-53)	3				
1702	02-6006.01	Valve Assembly	6				
1722	02-6017.13	Head Assembly	3				

\* Parts included in Diaphragm Repair Kit - Part #8700.45  
 Diaphragm Repair Kit also available in BUNA-N - Part #8700.46  
 \*\* Parts for KAPPA-43 only.  
 \*\*\* Parts for KAPPA-53 only.



PARTS BREAKDOWN FOR MODEL DP(H)-3B w/UDOR  
RICE HYDRO INC.

PUMP PARTS:

REF#.	PART NUMBER..	DESCRIPTION..	QTY REQD
146	SPEC-00146	BEARING (02-0006.14)	1
157	SPEC-00157	SEAL (02-0007.05)	1
189	SPEC-00189	RETAINING RING (02-0001.11)	2
240	SPEC-00240	DIAPHRAGM BOLT (02-0102.04)	3
357	SPEC-00357	SUCTION ELBOW (02-0202.18)	1
513	SPEC-00513	PISTON SLEEVE (02-0206.41)	3
540	SPEC-00540	OIL RESERVOIR CAP (02-0208.98) (KIT ONLY)	1
592	SPEC-00592	CRANKCASE (02-0209.73)w/BEARING (02-0006.14)	1
701	SPEC-00701	BEARING (02-0214.05)	1
808	SPEC-00808	RETAINING WASHER (02-0301.43)	3
816	SPEC-00816	SPACER (02-0301.54)	1
817	SPEC-00817	SPACER (02-0302.66)	2
964	SPEC-00964	BODY FLANGE (02-0501.E2)	1
1038	SPEC-01038	BARB NUT (02-0604.18)	1
1075	SPEC-01075	GASKET (02-0605.43)	1
1192	SPEC-01192	SHAFT KEY (02-0801.02)	1
1305	SPEC-01305	PISTON DIAPHRAGM BUNA (02-0903.43)	3
1381	SPEC-01381	O-RING (02-1101.27)	6
1382	SPEC-01382	O-RING (02-1101.29)	7
1389	SPEC-01389	O-RING (02-1101.41)	1
1421	SPEC-01421	O-RING (02-1101.88)	1
1434	SPEC-01434	O-RING (02-1101.D1) (KIT ONLY)	1
1490	SPEC-01490	OIL RESERVOIR (02-1203.27) (KIT ONLY)	1
1570	SPEC-01570	PISTON (02-1205.07)	3
1702	SPEC-01702	VALVE ASSEMBLY (02-6006.01)	6
1722	SPEC-01722	HEAD ASSEMBLY (02-6017.13)	3
1740	SPEC-01740	OIL RESERVOIR ASSEMBLY (02-6033.01)	1
1828	SPEC-01828	PISTON & ROD ASSEMBLY (02-6015.45)	3
1843	SPEC-01843	WASHER (02-1403.07)	2
1844	SPEC-01844	WASHER (02-1403.09)	11
1964	SPEC-01964	CONNECTING ROD PIN (02-1502.03)	3
2048	SPEC-02048	SNAP RING (02-1506.07)	1
2051	SPEC-02051	SNAP RING (02-1506.15)	6
2136	SPEC-02136	CONNECTING ROD (02-1519.28)	3
2251	SPEC-02251	PLUG (02-1603.02)	1
2268	SPEC-02268	HEAD PLUG (02-1603.32)	6
2587	SPEC-02587	BOLT (02-1805.20)	6
2589	SPEC-02589	BOLT (02-1805.31)	2
4801	SPEC-04801	O-RING (02-1101.C3)	1
7947	SPEC-07947	HEAD BOLT (02-1804.21)	15
8151	SPEC-08151	MOUNTING RAIL RIGHT SIDE (02-1202.63)	1
8152	SPEC-08152	MOUNTING RAIL LEFT SIDE (02-1202.64)	1
8176	SPEC-08176	CRANKSHAFT (02-0002.B7)	1
**** GEAR REDUCTION			
112	SPEC-00112	ENGINE GEAR (02-0004.18)	1
137	SPEC-00137	BEARING (02-0006.08)	1
688	SPEC-00688	PUMP GEAR (02-0213.41)	1
756	SPEC-00756	GEAR CASE HALF (02-0228.23)	1
977	SPEC-00977	GASKET (02-0602.05)	1
988	SPEC-00988	GASKET (02-0602.27)	1
1072	SPEC-01072	GASKET (02-0605.01)	1
1400	SPEC-01400	O-RING (02-1101.57)	1
1845	SPEC-01845	WASHER (02-1403.10)	4
1847	SPEC-01847	ALUMINUM GASKET (02-1403.12)	1
1861	SPEC-01861	WASHER (02-1403.39)	1
1886	SPEC-01886	LOCK WASHER (02-1411.03)	1
2034	SPEC-02034	GEAR CASE HALF (02-1505.29)	1
2251	SPEC-02251	OIL PLUG (02-1603.02)	1
2283	UD04-1603.69	OIL SIGHT GAUGE	1
2288	SPEC-02288	VENT CAP (02-1603.81)	1
2481	SPEC-02481	BOLT (02-1804.07)	1
2580	SPEC-02580	BOLT (02-1805.01)	4
2596	SPEC-02596	BOLT OLD STYLE (1805.23) ALLEN HEAD	6
2622	SPEC-02622	BOLT 5/16" X 1" (02-1807.07)	4
2623	SPEC-02623	BOLT 5/16" X 2 1/4" (02-1807.08)	1
5678	SPEC-05678	GUIDE PIN (02-1512.08)	1
5949	SPEC-05949	BOLT (02-1804.72)	6

PARTS BREAKDOWN FOR MODEL DP (H)-3B  
w/UDOR PUMP

MISCELLANEOUS PARTS:

0-600 PSI LIQUID GAUGE	GAUGE-600	NA
8 FOOT OUTLET HOSE	HOSE-1/2X8-RH	NA
MALE PIPE FITTING	FITTING-1/2MPR	NA
MALE PIPE SWIVEL	FITTING-1/2-MPX	NA
SPECIFY LENGTH OF HOSE	HOSE-1/2-250XFT	NA
1/2" F X F BALLVALVE	BALLVALVE-1/2	NA
1/2" M X M INLINE CHECKVALVE	CHECKVALVE-1/2M	NA
1/2" PRESSURE RELIEF VALVE	SPRAY-6815-700-1/2	NA
206 CC FLANGE MOUNT BRIGGS ENGINE	BRIGG-12S432-0536-F8	NA
196 CC FLANGE MOUNT HONDA ENGINE	HONDA-GX200UT2-QX2	NA
SHIPPING BOX FOR DP (H)-3B	KING-LARGE	NA
FEMALE CONNECT TO OUTLET HOSE	COUPLERBODY-1/2	NA
MALE PUMP OUTLET PIPING	COUPLERPLUG-1/2	NA
1" X 9' FOOT CLEAR HOSE W/STRAINER	INLET-HOSE-ASSEMBLY	NA
REPLACEMENT PUMP WITH GEAR REDUCTION	PUMP-DP43-GR	NA
1 1/2" BLACK INLET SUCTION DIAPHRAGM	DIAPHRAGM-SUCTION	NA
1 1/2" INLET SUCTION CLAMP	DIAPHRAGM-CLAMP	NA
OUTLET ADAPTER	UD02-8704.29	NA

KITS:

DIAPHRAGM REPAIR KIT	DIAPHRAGM REPAIR KIT	(6) SPEC-01381, O-RING	(3) SPEC-01305, BUMA DIAPHRAGM	SPEC-DP43-RH1
VALVE KIT	VALVE KIT	(6) SPEC-01702, VALVE ASSY W/O-RING	(3) SPEC-01305, BUMA DIAPHRAGM	SPEC-DP43-RH2
DIAPHRAGM REBUILD KIT	DIAPHRAGM REBUILD KIT	(6) SPEC-01702, VALVE ASSY W/O-RING	(3) SPEC-01305, BUMA DIAPHRAGM	SPEC-DP43-RH3
DIAPHRAGM COMPLETE KIT	DIAPHRAGM COMPLETE KIT	(6) SPEC-01702, VALVE ASSY W/O-RING	(3) SPEC-01305, BUMA DIAPHRAGM	SPEC-8700.46CK
OIL SIGHT GLASS ASSEMBLY	OIL SIGHT GLASS ASSEMBLY	(3) SPEC-00240 BOLT	(3) SPEC-00808 WASHER	(6) SPEC-01702, VALVE ASSY W/O-RING

\*\*PRICES SUBJECT TO CHANGE WITHOUT  
F:RICEOCG/PBDDP3B\_UDOR.K1S  
REV. DATE 9/1/14