

RICE HYDRO, INC.
MANUFACTURER'S OPERATING INSTRUCTIONS
FIRE HOSE TESTER MODEL FH-2

FOR WARRANTY REGISTRATION CALL 800-245-4777

<u>COMPONENTS</u>	<u>DESCRIPTION</u>
Engine	5.5 HP 4 cycle gasoline engine with oil guard
Pump	3.5 GPM Triplex Plunger Pump Pressures up to 1000 PSI
Gauge	Stainless Steel Liquid-Filled
Inlet	Inlet 2 ½" NST Swivel Coupling
Outlet	4 independent Ballvalves with NST couplings
Back Bleed	½" ballvalve to bleed air and attach Pressure wand accessory
Pressure Regulator	Manual-Operated Pressure Relief valve, adjustable settings with bypass

HOOKING UP THE PUMP:

1. Connect inlet to fire hydrant outlet with 1 ½" or larger hose
2. Connect fire hose to be tested to suitable adapters on manifold outlets. Hose should have nozzles on the end to bleed the air from the lines at full flow. Hoses should be lying up hill from the pump if possible.
3. Connect garden hose to back bleed and direct to a drain area keeping test area dry.
4. ASSURE ENGINE IS "OFF".

OPERATING THE PUMP:

1. Close all ballvalves, slightly crack open the ½" bleeder ballvalve.
2. Open inlet ballvalve. Open outlet ballvalves one at a time and allow each hose to be filled through manifold. Do not turn pump on at this time.
3. To insure air is safely bled from hoses, bleed each hose, one line at a time with hydrant volume and pressure, utilizing a nozzle or shut off at the end of the hose.
4. When each line is filled, free of air, with nozzle closed, close the ballvalve at the manifold outlet to seal that line. Even if you are not using all four outlets, bleed them with full hydrant flow. All air must be removed.
5. With back bleed open, turn on the pump. This will bleed the air out of the pressure side of the pump - out to the drain area.
6. **Close 1 ½" ballvalve at inlet of manifold/unit, directing water flow from hydrant to pressure side of pump. No pressure will build until this ballvalve is closed.**
7. Slowly close the ½" back bleed ballvalve at end of 1 ½" manifold. Check the gauge to verify pressure setting of relief valve. The pressure regulator has been preset at 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 counter-clockwise to decrease the pressure. Place a ballvalve or similar open and close valve at the end of the outlet hose(s), open and close ballvalve to check pressure setting and re-adjust as necessary. It is also recommended that you open and close the ½" back bleed valve to release excess air from piping and ensure accurate pressure readings. Once desired setting is reached, **IT IS VERY IMPORTANT THAT YOU RE-TIGHTEN THE LOCK/JAM NUT**, do not leave adjustment handle free to move or vibrate out of setting. If unloader valve handle is removed or otherwise becomes disengaged, see attached diagram to rebuild assembly correctly. **CAUTION: IT IS VERY COMMON TO REPLACE POPPET/BUTTON BACKWARDS, THE LONGER LEG WITH STEEL BALL FACES AWAY FROM THE SPRING.**

8. Open the 1 1/2" ballvalves at the outlets and begin building pressure in all the lines. In the event there is an acceptable leak in the system that must be overcome by leaving the pump running. Crack the 1/2" back bleed valve allowing a small amount of cool fresh water to run in bypass. **Once pressure has been reached close all ballvalves and shut off pump.**
9. If the air has been bled as outlined, the pump will build pressure quickly and safely with only hose stretch to overcome. If a hose ruptures, the only volume of water available is through GPM of pump. NO SURGE OF VOLUME, NO WILD LINE.
10. Remember it is very important to bleed the air out of each line, the manifold and the high pressure side of the pump with as much volume at hydrant pressure as possible. This will provide the most safety during testing.
11. It is impossible to insure that air is not caught behind couplings. If air is caught behind a coupling that fails- it could cause an explosion and fragmentary effect. Do not bend over the top of the pump. Treat hoses and couplings under pressure as dangerous.

NOTE: When dealing with existing pressured hoses or to re-pressurize hose, unit's existing manifold/piping pressure must be bled back down to 70 PSI. **DO NOT LOWER PRESSURE ON HOSES OR TEST ENVIROMENT**, just in manifold/piping section of pump. High existing "head pressure" will cause motor to stall, not start at all, or pump to fail. Examples: hoses are pre-filled and have existing pressure of 120 PSI, and you need to build to 150 PSI, the positive displacement pump will struggle with overcoming this existing head pressure. **TO OVERCOME:** with 1 1/2" outlet ballvalves closed holding existing pressure open backbleed 1/2" ballvalve to release pressure in piping/manifold down to 70 PSI or below. Turn motor/unit on and close 1/2" backbleed ballvalve building pressure within piping/manifold to at least 30 PSI above existing test pressure (this will allow the pump to overcome the existing head pressure, and begin to open individually the 1&1/2" ballvalves.

MAINTENANCE, TROUBLESHOOTING, AND CAUTIONS:

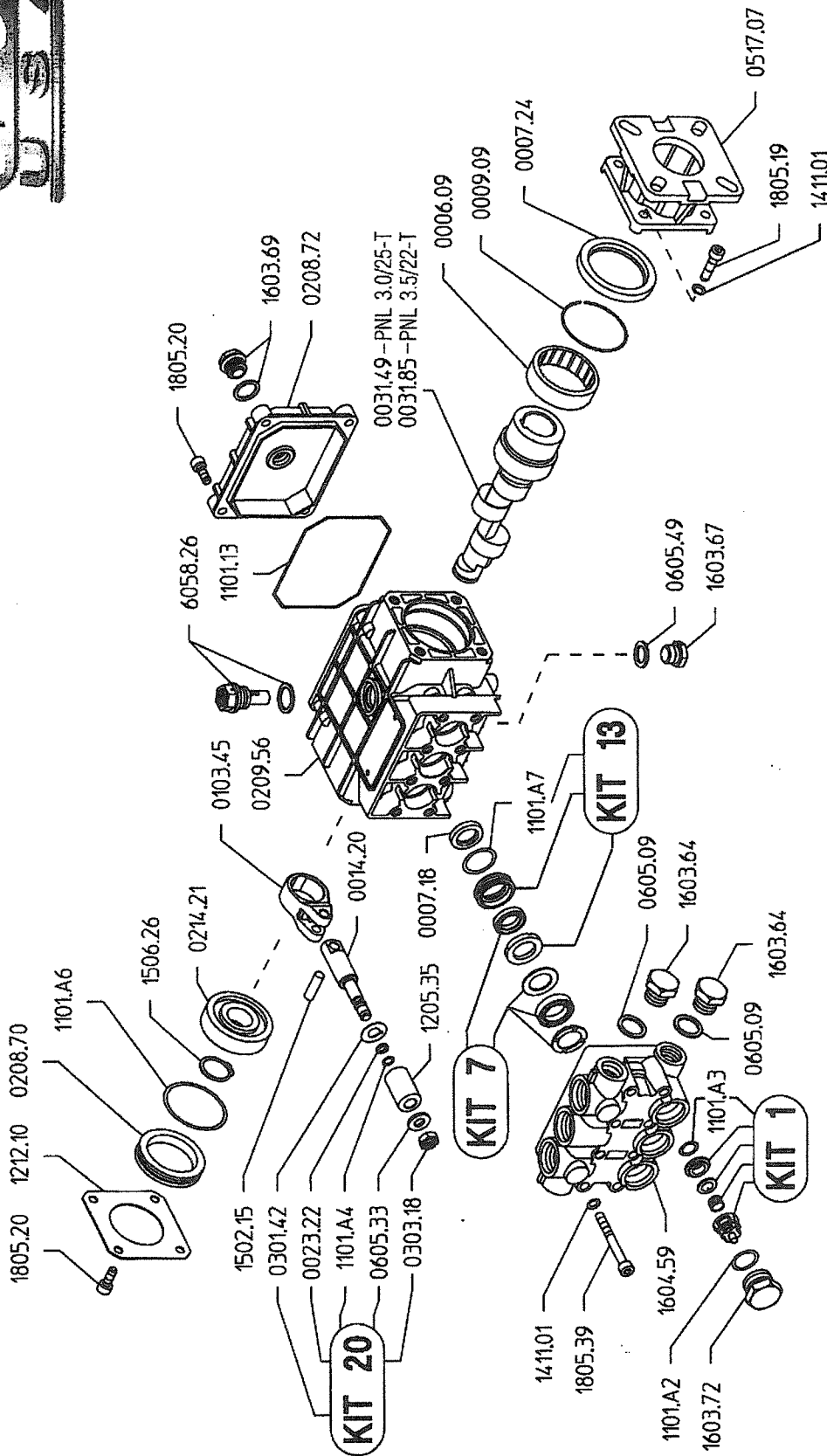
1. DO NOT RUN PUMP DRY. (EXCEPT FOR 3-5 SECONDS WHEN DRAINING)
2. DRAIN ENTIRE SYSTEM AFTER EACH USE.
3. FLUSH WITH ANTI-FREEZE TO PROTECT FROM FREEZING IN COLD CLIMATES.
4. Periodically check oil level in pump thru sight glass, 30wt non-detergent.

POSSIBLE CAUSE

SOLUTION

Leaks	Look for leaks in water supply or connections.
Kinked/Collapsed	Supply hose may be kinked or collapsed.
Pump Sucking Air	Small holes in supply hose are hard to find as air is sucked inward. Replace supply hose.
Relief Valve Setting	1000 PSI maximum setting.
AIR, AIR, AND MORE AIR	Ensure air is bled from hoses, manifold, piping. The length of time to build pressure and test hoses is directly related to overcoming air buildup.
Not building pressure	Inlet ballvalve has not been closed.
Faulty Gauge	Replace gauge.
Piston Pump - Old Style	Worn seals or cups rebuild pump.
Motor will not Run	Verify plugged directly into wall outlet, or using a minimum 12 gauge 3 wire, maximum 25' extension cord. Push thermal overload button to reset.

PNL 3.0/25-T & PNL 3.5/22-T



PNL 3.0/25-T & PNL 3.5/22-T Quick Reference

Max. Flow	PNL 3.0/25-T ..3.0 GPM	Valve Kit	04-KIT UD-1
	PNL 3.5/22-T ..3.5 GPM	Seal Kit	04-KIT UD-7
Max. Pressure	PNL 3.0/25-T ..2500 PSI	Brass Kit	04-KIT UD-13
	PNL 3.5/22-T ..2200 PSI	Plunger Bolt Kit	04-KIT UD-20
Rated Pump Speed	3400 RPM	Plunger Part #	04-1205.35
Oil Capacity	12 oz. UDOR LUBE	Plunger Diameter	15 MM
	or SAE 30W Non-Detergent Oil		

PNL 3.0/25-T
PNL 3.5/22-T

PARTS BREAKDOWN FOR MODEL FH2-B & FH2-H
RICE HYDRO, INC.

PART NUMBER..	DESCRIPTION..	QTY REQ'D
UD04-0006.09	BEARING	1
UD04-0007.18	SEAL	1
UD04-0007.24	SEAL	1
UD04-0009.09	RETAINER CLIP	1
UD04-0014.20	PLUNGER ROD P SERIES	3
UD04-0023.22	SUPPORT RING	3
UD04-0031.85	CRANKSHAFT	1
UD04-0103.45	BRONZE CONNECTING ROD P SERIES	3
UD04-0208.70	BEARING COVER	1
UD04-0208.72	BACK COVER - P SERIES	1
UD04-0209.56	CRANKCASE P - SERIES	1
UD04-0214.21	BEARING	1
UD04-0301.42	SLINGER RING	3
UD04-0303.18	PLUNGER NUT	3
UD04-0517.07	FLANGE P SERIES GAS	1
UD04-0605.33	PLUNGER WASHER	3
UD04-0605.49	WASHER	1
UD04-1101.A2	O-RING	6
UD04-1101.A4	O-RING	3
UD04-1101.A6	O-RING	1
UD04-1101.A7	O-RING	3
UD04-1101.13	O-RING	1
UD04-1205.35	PLUNGER 15 MM	3
UD04-1212.10	SIDE PLATE P PUMP	1
UD04-1411.01	WASHER	12
UD04-1502.15	CONNECTING ROD PIN	3
UD04-1506.26	SNAP RING	1
UD02-1603.67	OIL PLUG ZETA	1
UD04-1603.69	SIGHT GLASS	1
UD04-1603.72	VALVE CAP P SERIES	6
UD04-1604.59	MANIFOLD P SERIES	1
UD04-1805.19	BOLT	4
UD04-1805.20	BOLT	8
UD04-1805.39	BOLT	8
UD04-6058.26	OIL VENT CAP P SERIES	1

BRIGG-12S432-0536-F8	206 CC FLANGE MOUNT BRIGGS ENGINE	1
HONDA-GX200UT2-QX2	196 CC FLANGE MOUNT HONDA ENGINE	1
SPEC-PNL3.5/22-T	TRIPLEX PLUNGER PUMP FH2	1
GAUGE-1500	1500 PSI LIQUID FILLED GAUGE	1
VALVE-RELIEF-900PSI	100-900 PSI RED SPRING	1
HOSE-1/2X2-RH	FH SERIES HOSE	1
CHECKVALVE-1/2F	FXF INLINE CHECKVALVE	1
BALLVALVE-BR-1/2	LEGEND CARBON STEEL BALLVALVE	1
BALLVALVE-S-1&1/2	STAINLESS STEEL BALLVALVE	5
SWIVEL-INLET-FH3	1&1/2MPTX2&1/2FST SWIVEL ADPTR	1
ADAPTER-NST-1&1/2	NPTXNST HOSE THREAD	4
CASTER-RIGID-4	4" RIGID CASTER	2
CASTER-SWIVEL-4	4" SWIVEL CASTER	2

KITS:		
UD04-KIT-UD1	**KITS ARE ALL INCLUSIVE** VALVE KIT P SERIES	1
UD04-KIT-UD7	SEAL KIT P 15 MM	1
UD04-KIT-UD13	BRASS RETAINER KIT P 15 MM	1
UD04-KIT-UD20	PLUNGER / O-RING KIT P 15MM	1

Prices subject to change without notice

Revised 09/01/14