

H•E•R•O

Industries

950GS

SAFETY, OPERATING AND MAINTENANCE INSTRUCTIONS, AND PARTS LISTS

CAUTION: RISK OF BURSTING -

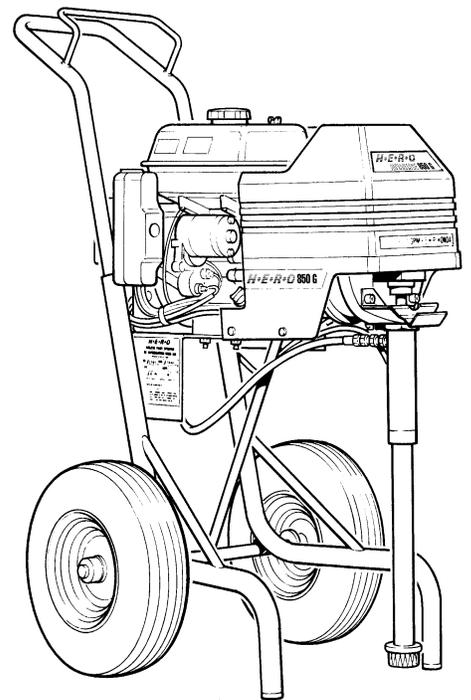
DO NOT USE AT PRESSURE GREATER THAN 3000 PSI

WARNING: RISK OF EXPLOSION - DO NOT SPRAY
FLAMMABLE LIQUIDS.

WARNING: RISK OF INJECTION - DO NOT DISCHARGE
DIRECTLY AGAINST THE SKIN

WARNING:

**DO NOT ATTEMPT TO OPERATE THIS
MACHINE UNTIL YOU
HAVE READ AND UNDERSTOOD ALL
SAFETY PRECAUTIONS AND OPERATING
INSTRUCTIONS. EQUIPMENT AND
CHEMICALS, WHEN USED IMPROPERLY,
CAN BE DANGEROUS.**



H.E.R.O. INDUSTRIES LTD.

FACTORY LOCATED AT:

2719 LAKE CITY WAY,
BURNABY, B.C., CANADA
V5A 2Z6

U.S.A. CORRESPONDENCE:

P.O. BOX 75
CUSTER, WASHINGTON
98240-0052

PHONE: 604 - 420 - 6543 FAX: 604 - 420 - 8725
TOLL FREE: 800 - 494 - 4376

WARNING

Prior to the use of the sprayer, ensure that the grounded continuity between the gun and the sprayer is maintained. The hose shall be at least 50 feet in length. All hoses, guns, and involved accessories shall be suitable for the maximum pressure involved (2800 PSI). The gun shall be provided with a "Safety" which locks the trigger in the "OFF" position. DO NOT point the gun at another person or spray at operator's skin. These are only minimum requirements. If there are any special or unique conditions for this appliance, they shall be further noted and addressed and must be followed.

Read and understand this manual completely, especially with regard to all safety precautions. Read and follow all warning labels on your equipment. Keep the warning labels clean and readable at all times.

The manufacturer shall not be responsible for any loss, damages, or injury of any kind or nature whatsoever resulting from the use of equipment other than in strict compliance with the instructions, cautions and warnings contained in this operating and instruction manual and as displayed on the face of the equipment.

H.E.R.O. WARRANTY

H.E.R.O. INDUSTRIES, guarantees this airless pump to be free of defects in materials and workmanship to the original owner, for a period of one full year from the date of purchase.

The warranty entitles the owner to parts replacement at no charge. The parts replacement warranty is valid for any necessary replacement, whither caused by material or workmanship defect or simple wear. H.E.R.O. Industries Ltd. offers no warranty on the hoses, gun, tip or accessories, plastic, rubber, other soft goods or motor used in or supplied with the H.E.R.O. sprayer.

In addition to the general coverage listed above, a 5 YEAR WARRANTY is offered on the Drive Train components. The drive train components are defined as the items contained within, but not including, the "Drive Housing". Drive motor and clutch not included.

Further more, this warranty does not cover, damage or wear caused by faulty installation, abrasion, corrosion, inadequate or improper maintenance, negligence, or accident.

Motor, accessories, etc., which are supplied by other manufacturers and are attached to or supplied with the H.E.R.O. airless pump, are warranted only to the extent that these parts are warranted by their respective manufacturers. Warranty claims must be made directly to such manufacturers or their local authorized service depots.

The warranty is only applicable to the original purchaser and the equipment has been properly used, operated and maintained in accordance with all instructions, precautions and warnings contained in this manual. For the purpose of this warranty, damage resulting from accident, abuse, improper cleaning, storage, operation, fire, flood, or Act of God, is not covered.

H.E.R.O.'s liability is limited to replacing parts found to be defective or worn and does not include; transportation costs, damage or other expenses of any kind incurred in connection with the purchase and use of this sprayer.

Repairs claimed under warranty must be performed at an authorized H.E.R.O. Service Center, using only genuine H.E.R.O. parts. Parts necessary under warranty claim will be supplied by your local H.E.R.O. Service Center.

DO NOT return worn parts to factory without authorization.

To qualify for the warranty, the warranty card (attached to this page) supplied with this H.E.R.O. airless pump, must be completed with equipment serial number and signed by the purchaser, and postmarked within ten (10) days of purchase.

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IMPORTANT SAFETY PRECAUTIONS

WARNING

NEVER PLACE FINGERS NEAR SPRAY TIP OF GUN. NEVER POINT GUN TOWARD ANY PART OF YOUR BODY, OR THAT OF ANY OTHER PERSON. MATERIAL ISSUING FROM THE SPRAY TIP IS AT HIGH PRESSURE. IF FINGERS, OR ANY PART OF THE BODY ARE PLACED NEAR THE TIP OF THE SPRAY GUN, IT IS POSSIBLE THAT THE SPRAY COULD BREAK THE SKIN AND INJECT SOME OF THE SPRAY MATERIAL. IF INJURY DOES OCCUR, SEEK THE IMMEDIATE ATTENTION OF A MEDICAL DOCTOR. BE PREPARED TO INFORM THE DOCTOR WHAT FLUID WAS INJECTED, IF THE INJURY IS OF AN INJECTION NATURE. EQUIPMENT AND CHEMICALS WHEN USED IMPROPERLY CAN BE DANGEROUS!

- ☒ **NEVER** place any part of the body in front of the spray tip or aim the gun toward any part of the body.
- ☒ **NEVER** point the gun toward any individual.
- ☒ **NEVER** treat any injury as a simple cut. If injury does occur, seek immediate medical attention. Be prepared to inform the doctor what fluid was injected.
- ☒ **NEVER** allow another person to use the sprayer unless he is thoroughly instructed on its operation and has read all safety precautions in this manual and all safety warning labels attached to unit.
- ☒ **NEVER** use around children.
- ☒ **NEVER** attempt to perform any maintenance or service on any part of the unit spray system without first;
 1. Shutting the engine ON/OFF switch to OFF.
 2. Relieving all pressure in the pump by triggering the gun.
 3. Locking gun trigger in "LOCKED" position, with gun locked closed.
 4. Open prime valve to drain.
- ☒ **NEVER** operate the sprayer without the tip guard complete and in place.
- ☒ **NEVER** spray any material in the vicinity of open flame, pilot lights, electrical outlets or any other source of ignition.
- ☒ **NEVER** spray volatile materials with flash points lower than 140 F (60 C).
- ☒ **NEVER** attempt to stop any leakage in the paint line or at any fitting with your hand or any part of your body. Immediately shut off the unit should leakage occur.
- ☒ **NEVER** allow paint hose to become kinked, or to vibrate against rough or sharp surfaces.
- ☒ **NEVER** operate the unit at pressures higher than the pressure rating of the lowest rated component in the system, or at pressure higher than factory preset.
- ☒ **NEVER** spray in an enclosed area. The spraying area must be well ventilated to safely remove chemical vapors.
- ☒ **NEVER** operate the unit with worn or damaged accessories, or with accessories other than those supplied by H.E.R.O. Industries, unless the accessories have been first specifically approved in writing by H.E.R.O. Industries Ltd.
- ☒ **NEVER** allow the unit to be serviced or repaired anywhere other than an authorized H.E.R.O. Service Center, or with other than genuine H.E.R.O. parts or components.
- ☒ **NEVER** leave unit unattended without first shutting off, triggering the gun to relieve all pump pressure, and setting the trigger lock on gun in "LOCKED" position, with gun locked closed.

ALWAYS

- ☑ **ALWAYS** follow H.E.R.O. recommendations for operation and safety completely.
- ☑ **ALWAYS** set trigger lock on gun in "LOCKED" position when not in use, with gun locked close.
- ☑ **ALWAYS** check connections and fittings for tightness before operating the unit.
- ☑ **ALWAYS** locate the unit in a well ventilated area a minimum of 25 feet from the spray area.
- ☑ **ALWAYS** ground the unit, the paint containers, and the object being sprayed to eliminate static discharge. Ensure that all these objects remain grounded throughout the entire spraying operation.
- ☑ **ALWAYS** use accessories and components approved for at least 3000 psi (working pressure) in the spraying system.
- ☑ **ALWAYS** use accessories and components supplied by H.E.R.O. Industries, or specifically approved in writing by H.E.R.O. Industries on with the unit.
- ☑ **ALWAYS** examine accessories for wear or damage before operating the unit.
- ☑ **ALWAYS** use lowest possible pressure when flushing and cleaning the unit, and hold the gun firmly against a metal container to reduce static discharge possibility.
- ☑ **ALWAYS** wear a face filter mask when operating the unit.
- ☑ **ALWAYS** ;
 1. Shut the engine ON/OFF switch to OFF.
 2. Relieve all pressure in the pump by triggering the gun.
 3. Open prime valve to drain.
 4. Lock gun trigger in "LOCKED" position, before attempting to perform any maintenance or service on any part of the unit spray system.
- ☑ **ALWAYS** wear safety glasses when operating the unit.
- ☑ **ALWAYS** ensure fire extinguishing equipment is readily available and properly maintained in the spray area.
- ☑ **ALWAYS** observe good housekeeping and keep the spray area free from obstructions.
- ☑ **ALWAYS** be aware that certain chemicals may react with aluminum, carbide, or other components in the pump system. Read the manufacturer's label on all materials to be sprayed, and follow the manufacturer's recommendations. If in doubt, consult your material supplier to be sure.
- ☑ **ALWAYS** replace any damaged airless paint hose. A scratched, torn, cut or otherwise damaged outer core of the paint hose can lead to a rupture. DO NOT attempt to repair a damaged hose.

WARNING

DO NOT ATTEMPT TO OPERATE THIS MACHINE UNTIL YOU HAVE READ AND UNDERSTOOD ALL SAFETY PRECAUTIONS AND OPERATING INSTRUCTIONS. EQUIPMENT AND CHEMICALS WHEN USED IMPROPERLY CAN BE DANGEROUS.

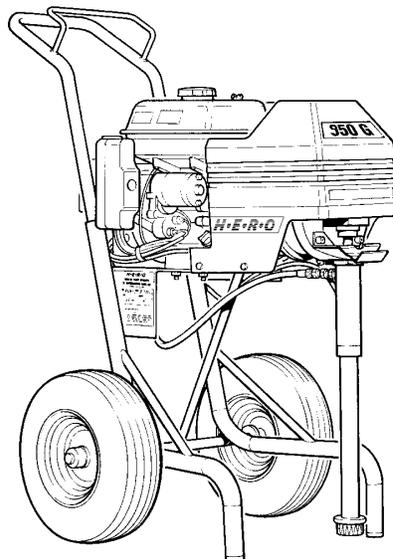
H.E.R.O. AIRLESS SPRAY PAINTING

Welcome to the world of H.E.R.O. airless paint spraying. We are sure you will enjoy owning and operating your new H.E.R.O. model 950GS. With H.E.R.O. airless spray equipment you will avoid the inconvenience and mess of overspray. You are spraying paint, not air, and the paint is driven to the painting surface in a clean, fan shaped spray which penetrates all cracks and corners. To attain these results, you must adjust the pressure as low as possible. We recommend that you become familiar with your H.E.R.O. unit. Discuss with your dealer the useful accessory items he has to offer - various types of tips, extension poles for hard to reach areas, extra hose, etc. Use of accessory items is often the difference between a good job and an excellent one!

Your H.E.R.O. airless sprayer has been fully factory tested prior to shipment.

BEFORE STARTING YOUR H.E.R.O. PUMP....

- ☑ **CHECK** all fittings and connections in the pump system, hose, and gun to ensure that they are tight.
- ☑ **CHECK** paint hose for nicks, cuts or abrasions. Replace if necessary, **DO NOT** attempt to repair.
- ☑ **CHECK** to ensure that there is a spray tip in the gun, and that the tip is the correct size for the coating you are to spray. (There are various tips available, for each type of coating or configuration. See " Airless Spray Tip " on page 24 / 25, for proper tip selection.
- ☑ **CHECK** to ensure that you have H.E.R.O. strainer bags, H.E.R.O. Wonder Wash, appropriate thinner for the paint, a waste container, and any other accessories you may require for the job.
- ☑ **CHECK** packing nut and piston pump lubricant. Ensure that the packing nut reservoir is at least 1/2 full at all times. This will help prevent build up of material on the piston rod and will extend packing life. See page 11.
- ☑ **READ THIS MANUAL THOROUGHLY.**
- ☑ **READ THE "HONDA" OPERATORS MANUAL SUPPLIED WITH THIS UNIT.**
- ☑ Follow **ALL** Safety, Maintenance, and Operating instructions as contained in the Honda manual.
- ☑ **PERIODICALLY CHECK** entire unit for loose fittings, bolts or nuts, miss-aligned parts and physical damage to frame or cart. A little preventive maintenance can prevent a much larger or more serious problem from developing.
- ☑ ***Prior to starting, thin the paint according to manufacturer's specifications and strain the paint through a H.E.R.O. strainer bag.***

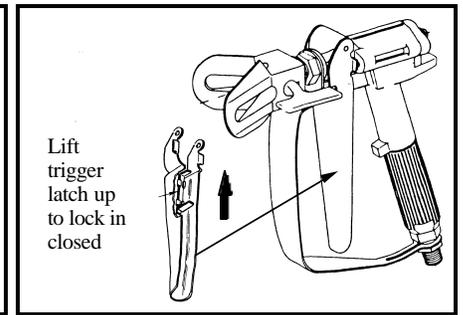
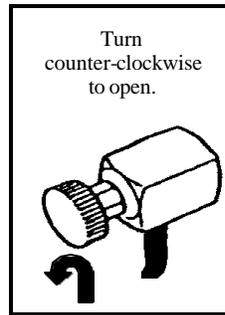
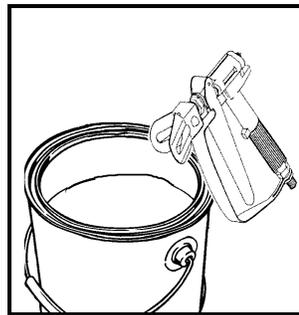
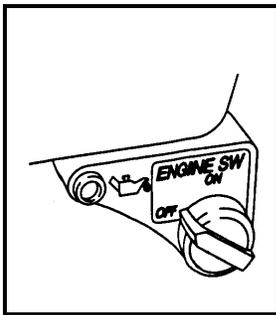


1.0 OPERATING

PRESSURE RELIEF PROCEDURE

Always adhere to the following procedure whenever you shut off the sprayer, examine or work on any part of the spray system, work on the spray gun or whenever you have finished spraying. Failure to do so could result in serious bodily injury or electric shock.

1. Turn engine ON/OFF switch to OFF.
2. Trigger the gun into a metal pail while firmly holding a metal part of the gun to the pail.
4. Insert prime valve bleed tube into the container.
5. Open prime valve and allow contents to drain into waste container.
6. Engage gun trigger lock.



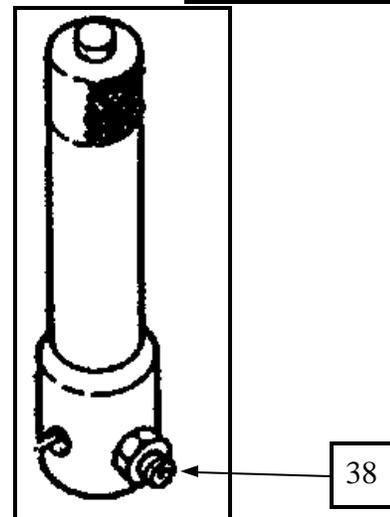
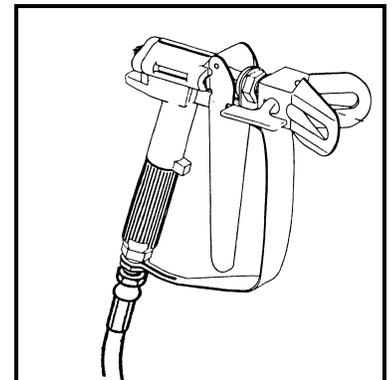
1.1 GETTING STARTED

1. Connect the hose and gun.

Connect one end of the hose to the 1/4 NPT (m) outlet (ref# 38) of the sprayer. Screw the gun, complete with spray tip and tip guard onto the other end of the hose. Ensure that a minimum of 50' of 1/4" hose is connected to the sprayer for optimum performance.

For heavy bodied products, a 50' x 3/8" paint hose is recommended.

A good airless spray application is the result of many factors. Surface preparation, which includes cleaning and degreasing, priming, material compatibility, quality finish product and



1.2 PRIMING & SPRAYING

1. Check packing nut and piston pump lubricant.

Ensure that the packing nut reservoir is at least 1/2 full of piston pump lubricant (4-02-40-3PL1) at all times. This will help prevent buildup of materials on the piston rod thus extending packing life. Use hammer and center punch to tighten packing nut (ref# 20) until material stops leaking. Do NOT over tighten. To fill, drizzle lubricant down rod and allow to fill cavity. Do Not remove pump.

2. Flush the pump with the correct thinner for the paint being used.

Refer to flushing procedure on page 12.

3. Prime the unit with paint, as follows:

3.1 Pour the paint through a H.E.R.O. strainer bag into the 5 gallon pail you will be siphoning from.

3.2 Put the intake tube (ref# 2) into the pail by tipping the unit back enough so it clears the top of the pail.

3.3 Turn prime valve knob (ref# 49) clockwise to fully closed position.

3.4 Lower the pressure setting by turning the pressure control knob (ref# 103) all the way counter-clockwise.

3.5 Disengage gun trigger lock.

3.6 Insert prime valve bleed tube (ref# 54) into a waste container, open prime valve, then close after approximately one minute to ensure pump is fully primed. Continue as above to discharge air from spray system.

3.7 While firmly holding a metal part of the gun against a metal container, trigger the gun into the container. Holding the gun triggered, turn the on/off switch on; slowly turn the pressure adjustment knob (ref# 103) clockwise until the pump starts.

3.8 Keep the gun triggered until all air is discharged from the spray system and paint is spraying from the gun. Release trigger and engage trigger lock.

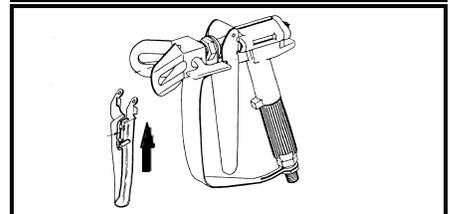
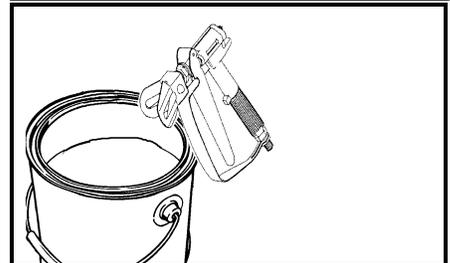
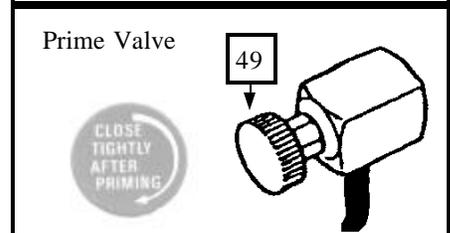
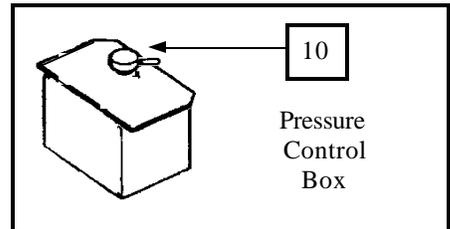
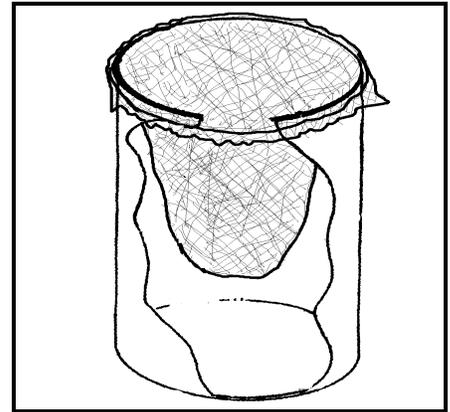
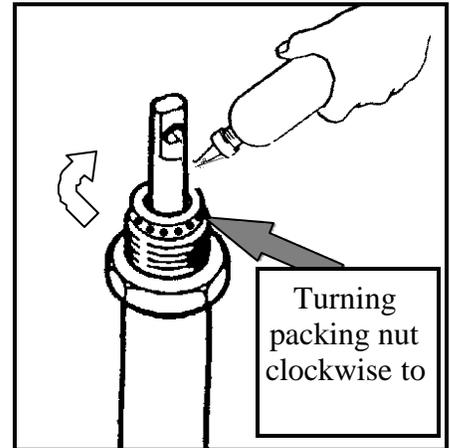
3.9 Check for leaks in the spray system. If any are found, follow pressure relief procedure prior to repair.

4. Adjust Spray Pattern

4.1 Spray a test pattern. Begin by spraying a test pattern onto old newspaper or other scrap material.

4.2 Increase pressure, slowly at first, by turning pressure control knob (ref# 103) clockwise until spray pattern is uniform from top to bottom and fully atomized. If heavy areas are still visible at maximum pressure, thin product according to the product manufacturer's recommendations.

NOTE: *To avoid excessive over spray and to reduce tip wear and prolong sprayer life, always use the lowest possible pressure setting to atomize paint fully. Replace worn tips immediately, as it is not possible to obtain satisfactory spray pattern with a worn tip.*



1.3 AIRLESS SPRAY PAINTING SUGGESTIONS

correct application technique. All are all important to the finished results.

The key to all good applications is a good spray gun technique. The finished results are what the client will look at and base his opinion on. Your skill and abilities are as important as good equipment and good paint. Proper application techniques can easily be learned by using the following simple guidelines. If you are not familiar with the basic spray techniques we recommend that you study this portion of the manual and practice the techniques shown. Practice your technique on scrap cardboard or old newspaper until you feel confident.

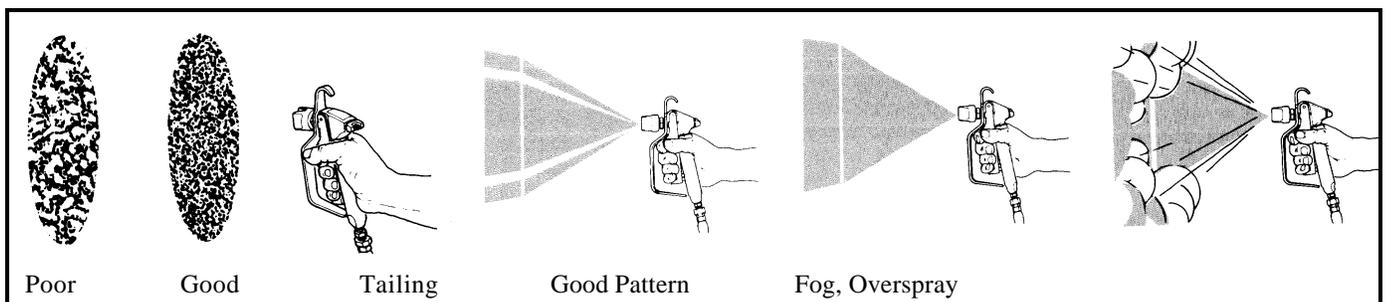
For best results, read and practice these techniques.

1. Always strain paint through a H.E.R.O. strainer bag.
2. The most common reason for airless sprayers to malfunction is foreign matter jamming the valves, or plugging the spray tip. Always strain all paint before putting through the pump.
3. Always spray at the lowest pressure setting which will provide a uniform spray fan. Once you have primed the unit with paint, slowly adjust the pressure control knob clockwise, to increase the operating pressure, until the spray fan is consistent from top to bottom with no 'heavy' areas. Spray a test pattern on a sheet of waste paper to check. If 'heavy' areas are still visible at the maximum pressure setting, thin the paint according to manufacturer's recommendations. FIG. 1
4. Always keep the spray nozzle at right angles to and approximately 12" from the surface being painted. Angling or arcing the nozzle toward the surface will cause uneven coverage and excessive over spray. FIG.2
5. Always move the gun parallel to the surface being painted, at a consistent speed. This avoids uneven coverage (thick or thin areas). FIG.3
6. Always start the spray stroke before triggering the gun, and release the trigger before completing the stroke. This avoids heavy buildup of paint at either end of the spray stroke. FIG. 4
7. Always lap your spray patterns one half. This assures full coverage of the surface being painted. FIG. 5

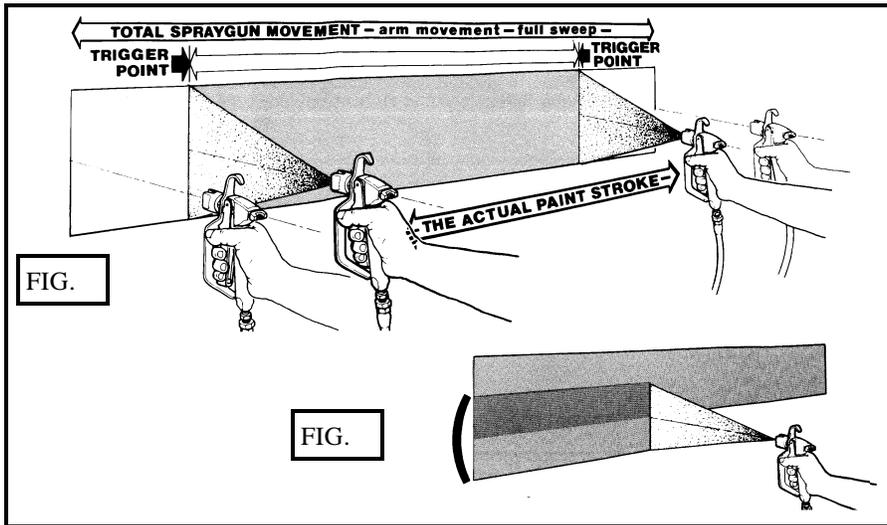
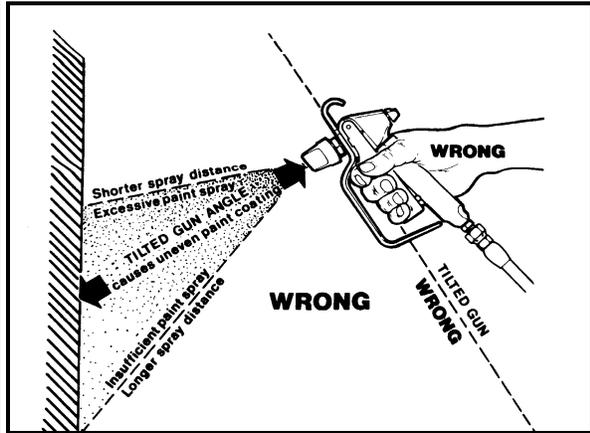
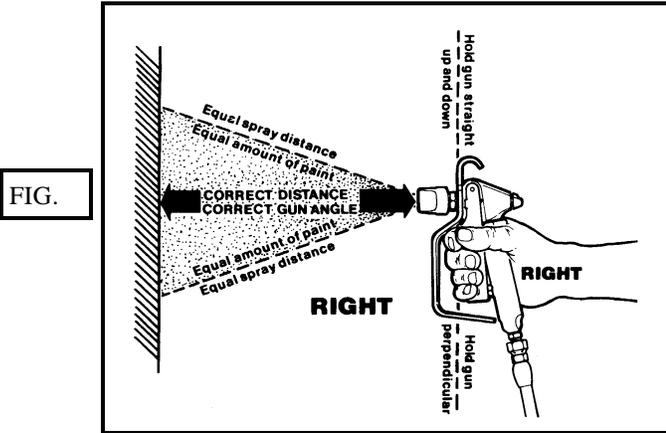
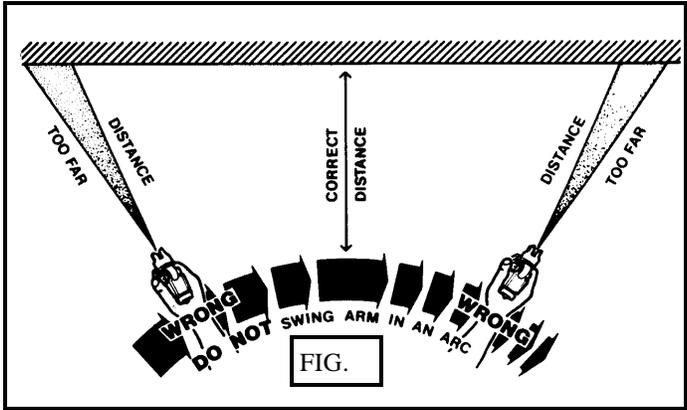
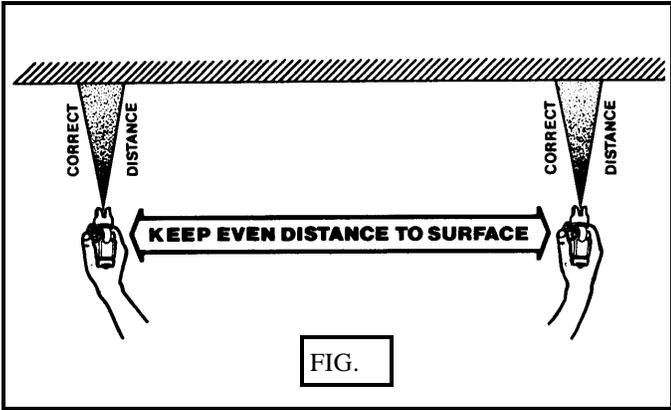
Follow the pressures relief procedure on page 7.

1. Remove and clean gun filter.

FIG.



1.3 AIRLESS SPRAY PAINTING SUGGESTIONS



1.4 SHUTDOWN AND GENERAL MAINTENANCE

1. Check the packing nut and piston pump lubricant daily.

Follow the pressure relief procedure on page .

Ensure that the packing nut reservoir is at least 1/2 full of piston pump lubricant at all times. This will help prevent buildup of material on the piston rod and it will extend packing life. Use hammer and center punch to tighten packing nut to prevent leaking, not tighter.

2. If shutting down for a short period of time:

It is sufficient to immerse the gun in a container of the correct thinner with the trigger locked after following the pressure relief procedure.

3. Flush the sprayer at the end of each work day.

Refer to flushing procedure below.

1.4 HONDA ENGINE MAINTENANCE

Refer to the Honda Gas Engine - Operator's Maintenance Manual supplied with the unit.

Read, understand and follow all maintenance and operating instructions provided.

The following are regarded as general guidelines for the maintenance of the Honda engine. Specific instructions are located in the Honda Manual.

- Check the engine oil level regularly. Top up only with the manufacturers' recommended oil. Running the engine with insufficient oil can cause serious damage.
- Check the engine air cleaner daily.
- Use only UNLEADED or low lead content gasoline.
- The engine requires regular operation and should not be stored for prolonged periods without operation. Run the engine for a minimum 15 minutes each week when storage.
- Have the engine professionally serviced by an approved service technician on a regular basis as recommended by the manufacturer.

- Never run the engine without the air cleaner.
- Avoid tipping or tilting the engine. Engine oil will contaminate the air cleaner and carburetor. Do Not tilt the engine more than 20° from horizontal.
- Do Not store for long periods of time with gasoline in the engine fuel tank.

NOTE: *The engine is equipped with an oil alert system. If the unit stops automatically or will not start check oil level. The RED light by the engine ON/OFF switch will illuminate when oil level is low.*

1.5 FLUSHING PROCEDURE

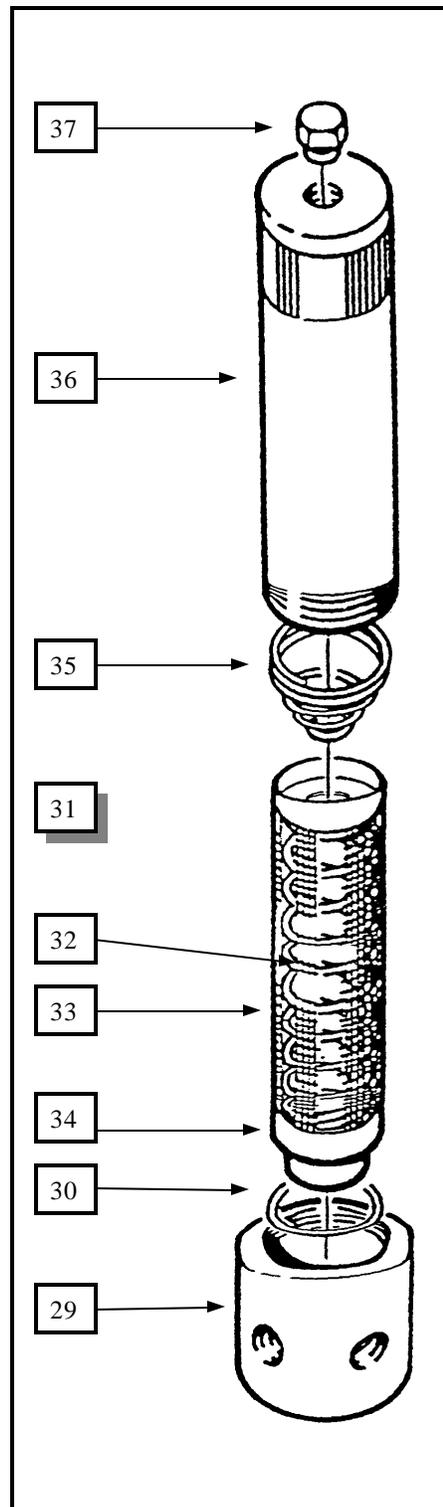
2. Unscrew filter housing (ref# 36) (should be hand tight) and remove and clean filter (ref# 31) thoroughly.
3. Re-install the filter housing. Flush sprayer without filter screen installed.
4. Close prime valve (ref# 40).
5. Pour a gallon of the correct thinner into a clean 5 gallon pail.
6. Insert the intake tube into the pail.
7. Turn pressure control knob (ref# 103) all the way counter-clockwise.
8. Point prime valve bleed tube (ref# 54) into 5 gallon pail. Turn the pump on and slowly increase the pressure until sprayer starts. Open prime valve, turning knob (ref# 49) counter-clockwise. Allow thinner to circulate back into the pail for a short period to flush the prime valve.
9. Close the prime valve.
10. While firmly holding a metal part of the gun against a metal waste container, trigger the gun into a separate waste container. Keep the gun triggered until clean solvent is sprayed from the gun. Release the trigger and engage the safety lock.
11. Remove the intake tube from the pail. Trigger the gun once again to discharge thinner from the hose. Do not let the pump run dry for more than five minutes or expensive damage to the pump packing could result.
12. Unscrew filter housing and re-install the filter screen.
13. Repeat steps 3-9 with clean solvent.
14. Turn the on/off switch off, unplug the sprayer power cord and open the prime valve.

NOTE: Filter housing only has to be hand tight.

NOTE: NEVER LEAVE THE UNIT UNDER PRESSURE WHEN NOT SPRAYING (MOTOR TURNED OFF). RELIEVE PRESSURE BY TRIGGERING GUN.

NOTE: TO PREVENT CORROSION AND TO REDUCE THE RISK OF FLUID FREEZING IN THE PUMP - NEVER STORE THE UNIT WITH PAINT OR WATER IN THE PUMP SYSTEM, EVEN OVERNIGHT!

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2.0 TROUBLESHOOTING

TROUBLE	POSSIBLE CAUSE	REMEDY
Engine will not start or run	<ol style="list-style-type: none"> 1. Engine switched not on. 2. Out of gas. 3. Oil level low. 4. Spark plug damaged or disconnected. 5. Pump at full pressure. 6. Pump seized. 7. Fuel line valve closed 	<ol style="list-style-type: none"> 1. Turn “on/off” switch to on position 2. Fill gas tank (Unleaded gasoline only) 3. Try to start engine. If red oil alert light glows, add oil. 4. Replace spark plug or re-connect plug wire. 5. Follow “pressure relief instructions” 6. Follow pressure relief procedures and check the following; ⇒ hardened paint in pump, con-rod & pin, crankshaft bearing. 7. Open fuel line valve.
Engine won't pull over	<ol style="list-style-type: none"> 1. Oil in the combustion chamber 	<ol style="list-style-type: none"> 1. Remove spark plug. Pull start cord repeatedly (5-10 times) to discharge oil from cylinder. Clean or replace plug. Unit will burn oil for several minutes.
Engine stalls or quits	<ol style="list-style-type: none"> 1. Oil level low. 2. Engine requires a tune-up. 3. Engine fuel level low or empty 	<ol style="list-style-type: none"> 1. Add correct oil to reservoir. 2. See authorized Honda Service Center. 3. Re-fuel tank.
Motor turns, but poor performance.	<ol style="list-style-type: none"> 1. Fault in pump section. 2. Worn spray tip. 3. Improper tip size. 4. Material too viscous (thick). 5. Gun filter and / or pump filter plugged. 6. Clutch worn or damaged. 7. Conn-Rod & Crosshead Assy. 8. Fluid section seized by dry paint. 	<ol style="list-style-type: none"> 1. See section 3.1, see page 15. 2. Replace tip. 3. Replace tip. 4. Thin material with appropriate thinners, per product manufacturer's instructions. 5. Clean or replace filter(s). (ref# 31 & gun) 6. Replace. See page 23 7. Repair or replace as required. 8. Clean & rebuild fluid section. See 15-17
Low or Erratic Output / Pressure	<ol style="list-style-type: none"> 1. Air leaks or blockages. 2. Worn Upper Packings, Intake or Outgo balls and / or seats. 3. Cylinder sleeve leakage. 4. Worn spray tip. 5. Clutch worn or damaged. 6. Engine RPM too low. 	<ol style="list-style-type: none"> 1. Check the following; ⇒ Intake tube fitting. (ref# 2) ⇒ Plugged intake screen. (ref# 1) ⇒ Intake Teflon O-ring. (ref# 5) 2. Re-pack pump. (Kit, ref# 22) 3. Replace copper crush washer (ref# 16). 4. Change tip. 5. Replace. See page 23 6. Increase throttle setting.

2.0 TROUBLESHOOTING

TROUBLE	POSSIBLE CAUSE	REMEDY
Unit does not prime	<ol style="list-style-type: none"> 1. Worn packings. 2. Air leak. 3. Paint level too low. 4. Prime Valve clogged. 5. Paint too thick. 6. Valve ball stuck or glued. 	<ol style="list-style-type: none"> 1. Re-pack pump. (kit, ref# 22) 2. Check the following; <ul style="list-style-type: none"> ⇒ Intake tube connections. (ref# 2) ⇒ Plugged intake screen. (ref# 1) ⇒ Intake Teflon O-ring. (ref# 5) 3. Add paint to pail. 4. Disassemble and clean. 5. Thin material with appropriate thinners, per product manufacturer's instructions 6. Replace worn balls and / or seats. Clean residue of Loc-Tite left behind from previous repair.
No Output	<ol style="list-style-type: none"> 1. Pump not primed. 2. Pump needs rebuilding. 3. Broken drive parts; con-rod pin, piston rod, valve. 	<ol style="list-style-type: none"> 1. Prime pump. 2. Rebuild pump. (kit, ref# 22) 3. Repair as required.
Fluid leaks from packing nut / throat plug.	<ol style="list-style-type: none"> 1. Loose cylinder packing nut, ref# 20. 2. Upper packing set, ref# 19, worn or damaged. 3. Piston rod damaged or worn. 	<ol style="list-style-type: none"> 1. Tighten just enough to stop leaks. See page 8 2. Replace packings. See page 15-17 3. Replace rod. See page 15-17
Fluid weeps from pressure sensor, ref# 92	<ol style="list-style-type: none"> 1. Worn or damaged seals. 	<ol style="list-style-type: none"> 1. Replace sensor seals, ref# 95 & 96. See page 19.

(a) Fault in pump section

Check for leak past lower packing set as follows;

Remove the pump shroud and housing cover to reveal the con-rod (ref # 63).

Under pressure, when the gun trigger is released, the con-rod should remain stationery. If the con-rod moves toward the top, the fluid section (ref # 3) needs re-packing. See Section 3.1

3.0 REPAIR PROCEDURES

- ☑ Read Safety Precautions
- ☑ Follow pressure relief procedure

- ☑ Do not run sprayer dry for more than 30 seconds.
- ☑ Always ensure sprayer is unplugged

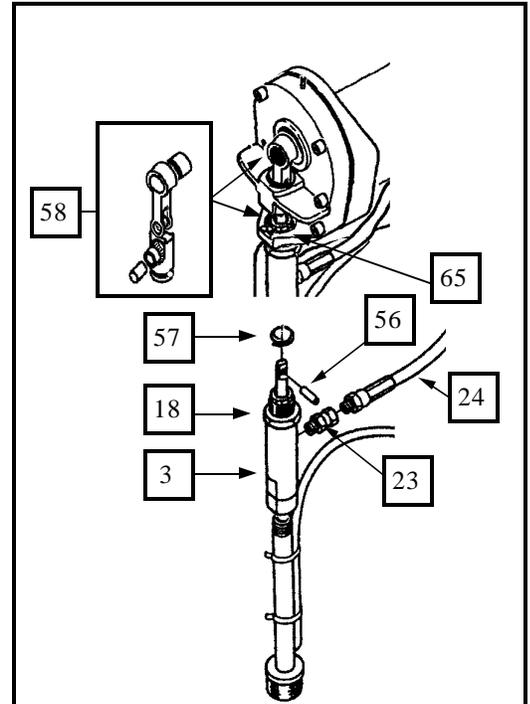
3.1 FLUID SECTION

TOOLS NEEDED:

- ☑ Vise
- ☑ screwdriver
- ☑ pipe wrench
- ☑ brass drift
- ☑ 2" adjustable wrench
- ☑ hammer
- ☑ center punch
- ☑ 11/16" open end wrench

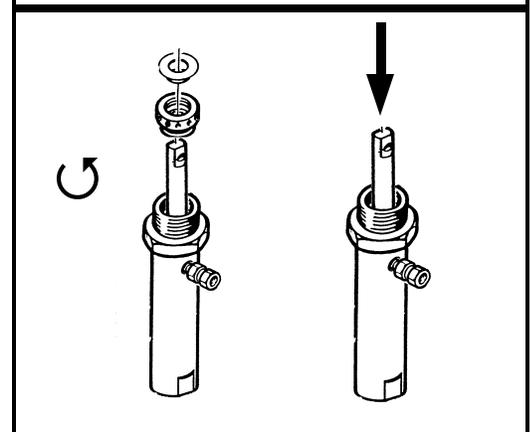
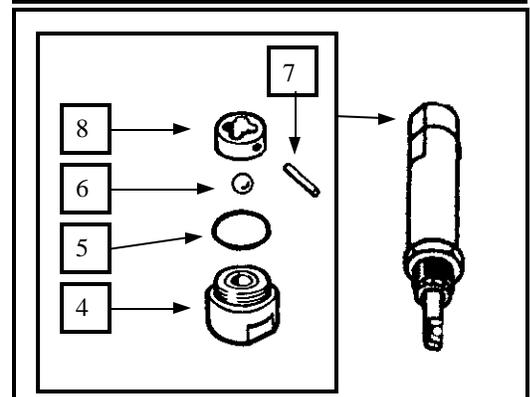
3.1.1 Removing the Fluid Section

1. Stop pump, with piston rod (ref # 13) in lowest position, and unplug pump.
2. Unscrew hose (ref# 24) from pump outlet nipple (ref# 23).
3. Push retaining spring (ref# 57) upward from coupler (ref# 59) to allow pin (ref#56) removal. Remove pin by driving from coupler using a hammer and center punch.
4. Undo locknut (ref# 18), and unscrew fluid section (ref# 3) from housing (ref# 65).



3.1.2 Pump Disassembly

1. With pump upside-down in vise on flats, unscrew intake valve housing (ref# 4) complete with Teflon white O-ring (ref# 5). Remove ball (ref# 6) and ball guide (ref# 8).
NOTE: Pin (ref# 7) in ball guide is loose.
2. Rotate pump to normal position and clamp body on flats with vise. Using center punch, remove packing nut (ref# 20).
3. Gently tap piston rod (ref# 13) down with rubber or plastic mallet and drive piston through bottom.
4. Remove 'Upper' throat packing (ref# 19). See page 17.
5. Put flats of piston rod (ref# 13) upside down in vise and secure. Unscrew piston valve (ref# 9) and remove ball (ref# 12). See page 16
6. Remove locknut (ref# 11) and packing (ref #10) from piston valve. See page 16.



See page 31 for additional, larger schematics.

3.1 FLUID SECTION

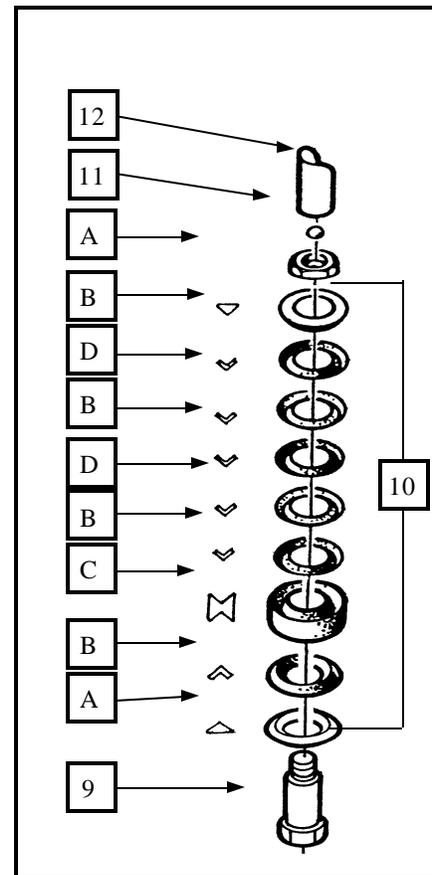
⊕ Throat “Upper Packings” ref# 19	⊕ Teflon o-ring, ref# 5
⊕ Piston “ Lower Packings” ref# 10	
⊕ Intake ball ref# 6	⊕ Locktite® 271
⊕ Outgo ball ref# 12	⊕ Teflon tape

3.1.3 Assembly

For optimum performance, the above parts should be replaced each time the pump is rebuilt:

NOTE: *After two packing replacements sleeve and piston rod should be replaced to bring packing life to a satisfactory level. See page 18.*

1. Inspect piston rod (ref #13) and cylinder sleeve (ref# 15) for scoring or wear which will affect sealing. Replace piston rod if damaged. Have sleeve removed and replaced if damaged. See page 18.
2. Place packing as shown, on work bench. Before installing, fill each cavity of cups B, C and D, flush with a good quality non-silicone, general purpose grease. This significantly helps maintain pliability and increases life expectancy of the packings. Assembly seal on piston valve in the following sequence; brass adapter (ref# 10A), plastic 'vee' (ref# 10B), female gland (ref# 10C), plastic 'vee' (ref# 10B), leather 'vee' (ref# 10D), plastic 'vee' (ref# 10B), leather 'vee' (ref# 10D), plastic 'vee' (ref# 10B), brass adapter (ref # 10A). Refer to drawing.
3. Thread and tighten locknut (ref # 11) snugly on the piston valve, then back off 1/2 turn. Wipe the grease which has squeezed out over the outside of packings leaving a thin coat.
4. Clamp piston valve in vise on flats of hex end, being careful not to clamp brass adapter. Place check ball (ref# 12) on seat of piston valve. Apply one drop of thread locking compound (Loc-Tite 271) on threads of piston valve. Install piston rod and tighten rod down to make contact with locknut. Set check ball clearance by inserting 3/32" (0.090") drill bit through the outlet port of the piston rod. Adjust rod up or down until drill bit can just be removed with a small amount of drag. Hold piston rod stationary with 1/2" wrench on flats and tighten locknut against rod with approximately 20 ft.lbs(27 N-M).



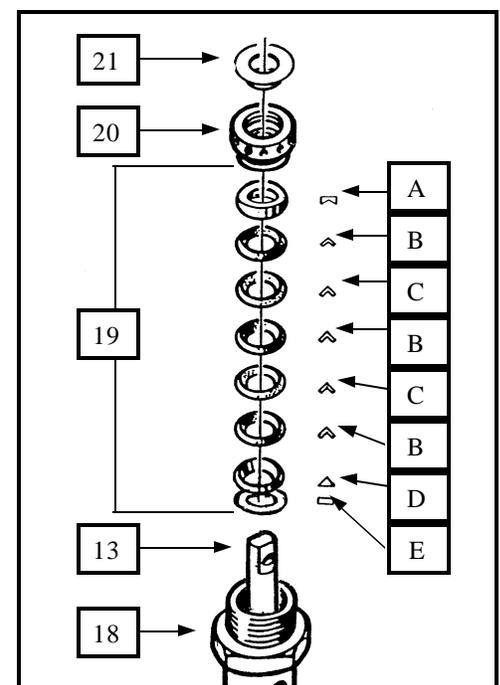
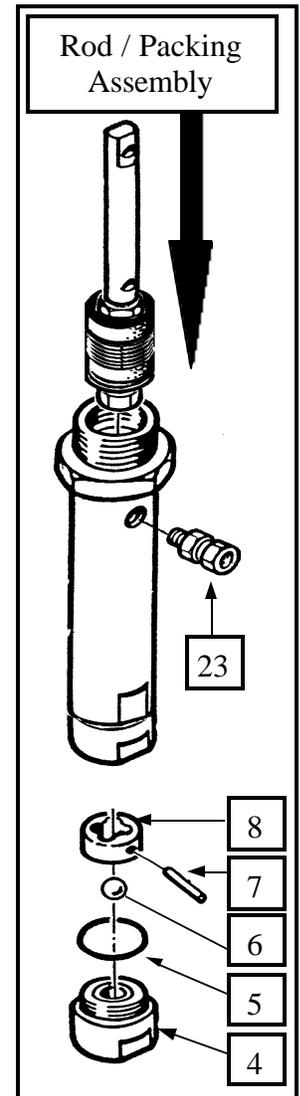
NOTE: *Ensure no thread locking compound contacts ball / seat area of piston valve. After assembly set piston aside in upright position for minimum 1 hour to allow Loc-Tite to cure.*

5. Put cylinder on flats in vise upside down and install ball guide (ref# 8), with pin (ref# 7), ball

3.1 FLUID SECTION

- (ref# 6) and intake valve housing (ref# 4) with new Teflon o-ring (ref# 5) until flat of nut meets flat of cylinder.
6. Prior to installing piston/rod assembly, remove swivel (ref# 23) before proceeding.
 7. Remove cylinder and rotate to normal position on flats in vise. Lightly grease piston and cylinder. Insert piston, slightly rocking in a circular motion into cylinder, taking care not to damage packing.
 8. Re-install swivel (ref# 23) which was removed in step 6 with Teflon tape. Ensure the body of the swivel does not protrude into cylinder to interfere with piston rod travel.
 9. Assemble cylinder packings in order as shown below; Steel Washer (ref# 19E), male gland (ref# 19D), plastic 'vee' (ref# 19B), leather (ref# 19C), plastic 'vee' (ref# 19B), leather (ref# 19C), plastic 'vee' (ref# 19B), female gland (ref# 19A). Coat outside surface of cylinder packing set with a thin layer of non-silicone, general purpose grease, allowing some grease to work into cup side of packings. It is not necessary to fill each packing cup as with piston packing set. Fit cylinder packing set over piston rod and gently push down over flats of rod and into packing chamber of cylinder bore. Seat packing set into cylinder using a deep socket and rubber mallet. Fit socket over piston rod and strike one sharp blow to seat packing set.
 10. Fit cylinder packing nut (ref# 20), over piston rod (ref# 13), and thread into cylinder until hand tight. Before making final tightening of packing nut, position piston rod until approximately 1-3/8" of rod is exposed above packing nut. This closely approximates the ideal position of the piston rod for ease of installation of the fluid section to the drive housing. Tighten the packing nut, using a blunt center punch and hammer, to compress the packings an additional 1/2 turn. Later, if packing leak, tighten in 1/4 turn increments, to stop leak.
 11. Snap throat plug (ref# 21) into place on packing nut (if previously removed).
 12. Thread the rebuilt fluid section into the aluminum drive housing completely to the end of the thread. Rotate the pump out in order to position the outlet fitting (ref # 23) pointing to the control box/transducer tee, in line with the engine.
 13. Tighten the lock nut (ref# 18) and connect fittings, pin and pin retainer in reverse of removing pump, 3.1.1
 14. Add a new supply of piston pump lubricant (4-02-40-3PL1), before starting unit.

TOOLS NEEDED:



3.2 CYLINDER SLEEVE REPLACEMENT

The cylinder sleeve (ref# 15) and piston rod (ref# 13) should be closely examined for signs of scoring or wear, when ever packings are replaced. Minor surface imperfections may be polished using emery cloth or “Scotch-Brite” pad. However, if after polishing, scoring can be felt when scratched with a fingernail or if wear is detectable when a straightedge is held parallel against the surface of the rod or cylinder sleeve, these items should be replaced.

Note: *New piston rod and cylinder sleeve are recommended after two packing set replacements.*

TOOLS NEEDED:

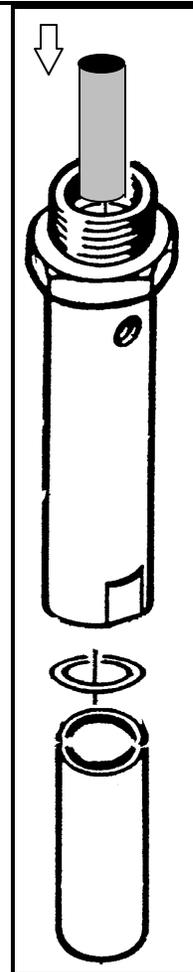
- Lacquer Thinner
- Heat Source (Propane torch)
- Vise
- 1-1/8" Drift (Sockets with approximately 1.135" O.D. can be used; 11/16, 3/4 or 13/16)
- Hammer

3.2.1 Removing Cylinder Sleeve

1. Complete steps 3.1.1 and 3.1.2 of fluid section removal found on page 15.
2. Clamp cylinder flats in jaws of vise, leaving the cylinder in a horizontal position.
3. Apply heat to the exterior of cylinder, in the area where the sleeve is located. The heat will soften the Loc-Tite and make sleeve removal easier.
4. Place drift into cylinder from the top, until contact with the sleeve is made (approximately 2-3/16" from top.
NOTE: *The cylinder has a lip, 1-1/8" from the top. The drift must reach past this point until contact with the sleeve is made.*
5. While the cylinder is still warm and the Loc-Tite is liquefied, use a hammer to tap the drift until the sleeve slides out the bottom of the cylinder.
6. Allow cylinder to cool until safe to handle.

3.2.2 Re-Assembly

1. Clean and degrease the cylinder's inside surface and the sleeve's outside surface with lacquer thinner. Dry thoroughly.
2. Invert cylinder in vise, so the bottom of cylinder is now facing upwards.
3. Insert cylinder sleeve crush washer (ref# 16) into cylinder and align flat on lip.
4. Apply two(2) beads of locking compound (Loc-Tite #609) approx. 1/8" wide around circumference of cylinder sleeve allowing any excess to drip off. With cylinder clamped on flats upside down in vise, insert sleeve into cylinder. Sleeve should be installed with the end having the wider internal taper toward the top end of the cylinder (This taper allows easier filling of the piston/packing set when the piston is installed). Ensure sleeve is fully seated against the machined shoulder in the cylinder bore. Thoroughly wipe off any excess locking compound from cylinder bore with clean rag.
5. Immediately install intake valve ball guide (ref# 8) and valve housing (ref# 4), tighten firmly. The installation of ball guide and valve housing is required to ensure the sleeve is pressed into the desired position, while the Loc-Tite dries. Allow up to 24 hours for full Loc-Tite curing.
6. Remove intake valve and ball guide and continue with the remainder of fluid section assembly as shown on pages 16-17.



3.3 PRESSURE SENSOR

open end wrenches: 5/8", 11/16", 3/4",
or 0-1" adjustable wrench
vise
Teflon tape- pipe joint sealant

Removal

1. Loosen mounting nut assembly (ref# 116) attaching filter assembly to chassis bracket.
2. Unthread swivel nut (ref# 23) connecting filter assembly to pressure sensor tee (ref# 26) and remove filter assembly.
3. Unthread and disconnect paint outlet hose (ref# 24) from the elbow (ref# 25) connected to pressure sensor tee (ref# 26). Use a 3/4" wrench.
4. Remove pressure sensor (ref# 92) and tee assembly from the control box using a 5/8" wrench on flats of pressure sensor housing.

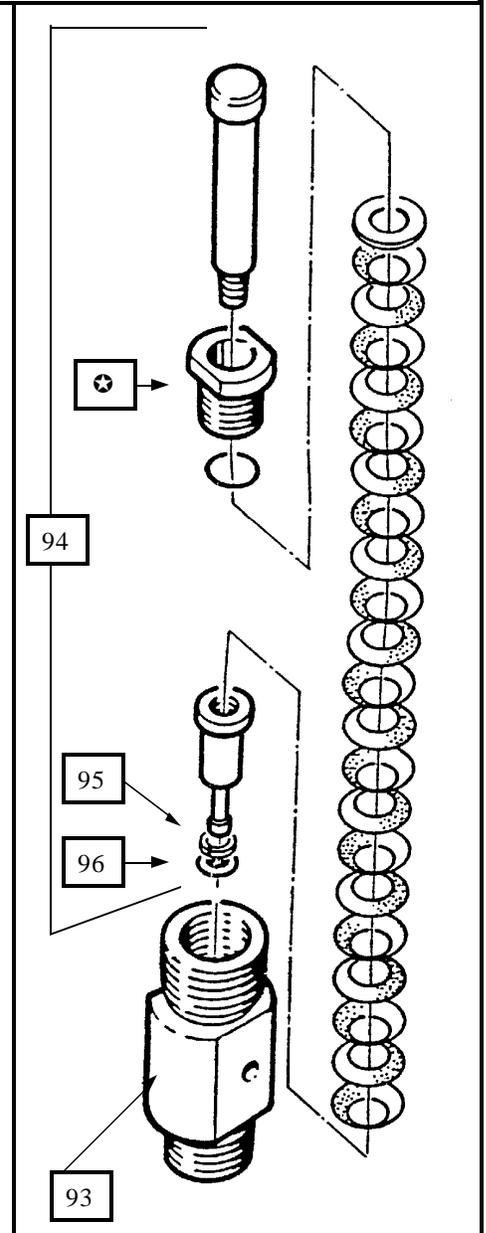
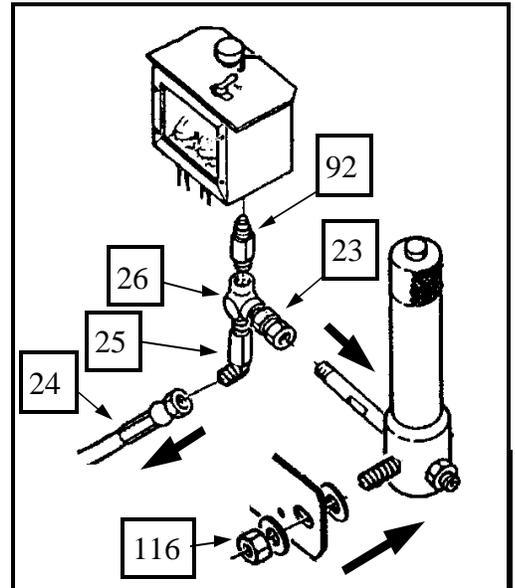
O-Ring Replacement (ref #95, 96)

1. Place sensor (ref #92) in vise and clamp securely.
2. Unthread packing nut (ref #94) and remove upper sensor assembly.
3. Replace back-up ring (ref # 95) and O-Ring (ref# 96).
4. Apply grease to new O-rings. Carefully thread upper sensor assembly (ref# 94) back into the sensor housing, (ref# 93) using Loctite 271 on the packing nut threads .

Re-assemble

1. Wrap pressure sensor (ref# 92) pipe threads with Teflon tape and thread into tee lightly - just tight enough to seal thread. Do not over tighten as the pressure sensor may require up to one full turn to align with filter.
2. Rotate pressure control knob (ref# 103) to what would be maximum pressure setting and thread pressure sensor into control box using 5/8" flats.
3. Using 3/4" wrench on flats of tee (ref# 26), tighten the tee until the 11/16" swivel (ref# 23) is parallel to chassis, pointing toward the filter.
4. Thread and tighten swivel to filter nipple. Tighten filter to chassis nut (ref# 116).
5. Thread and tighten outlet hose to tee.
6. Follow pressure control calibration instructions to reset maximum pressure on the pump (see page 20).

WARNING: *Never perform any operation to the inside of the control box while the unit is plugged in or serious electric shock could occur.*

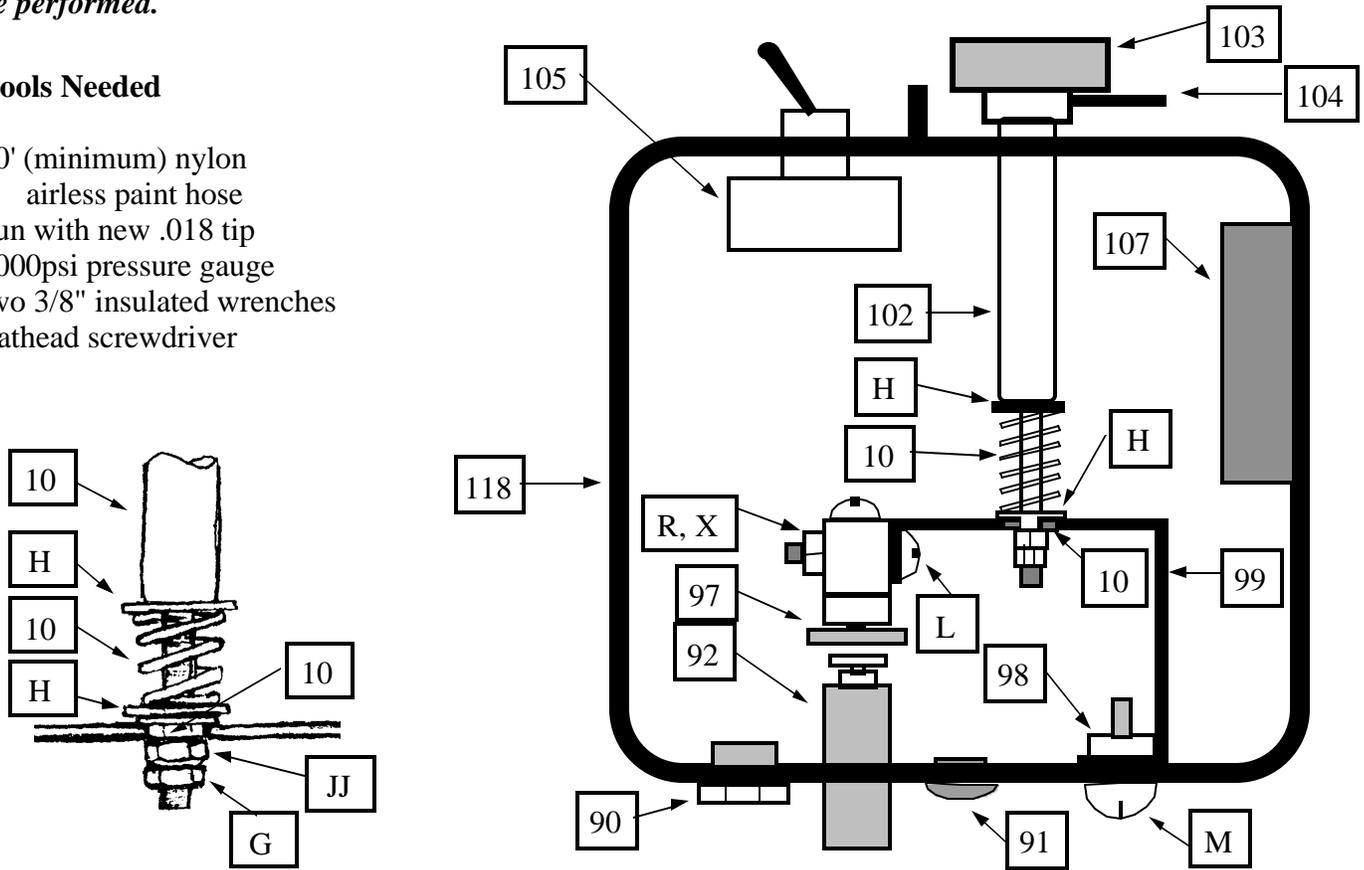


3.4 PRESSURE CONTROL CALIBRATION

If any component relating to pressure control is repaired or replaced, a pressure calibration should be performed.

Tools Needed

50' (minimum) nylon
airless paint hose
gun with new .018 tip
3000psi pressure gauge
two 3/8" insulated wrenches
flathead screwdriver

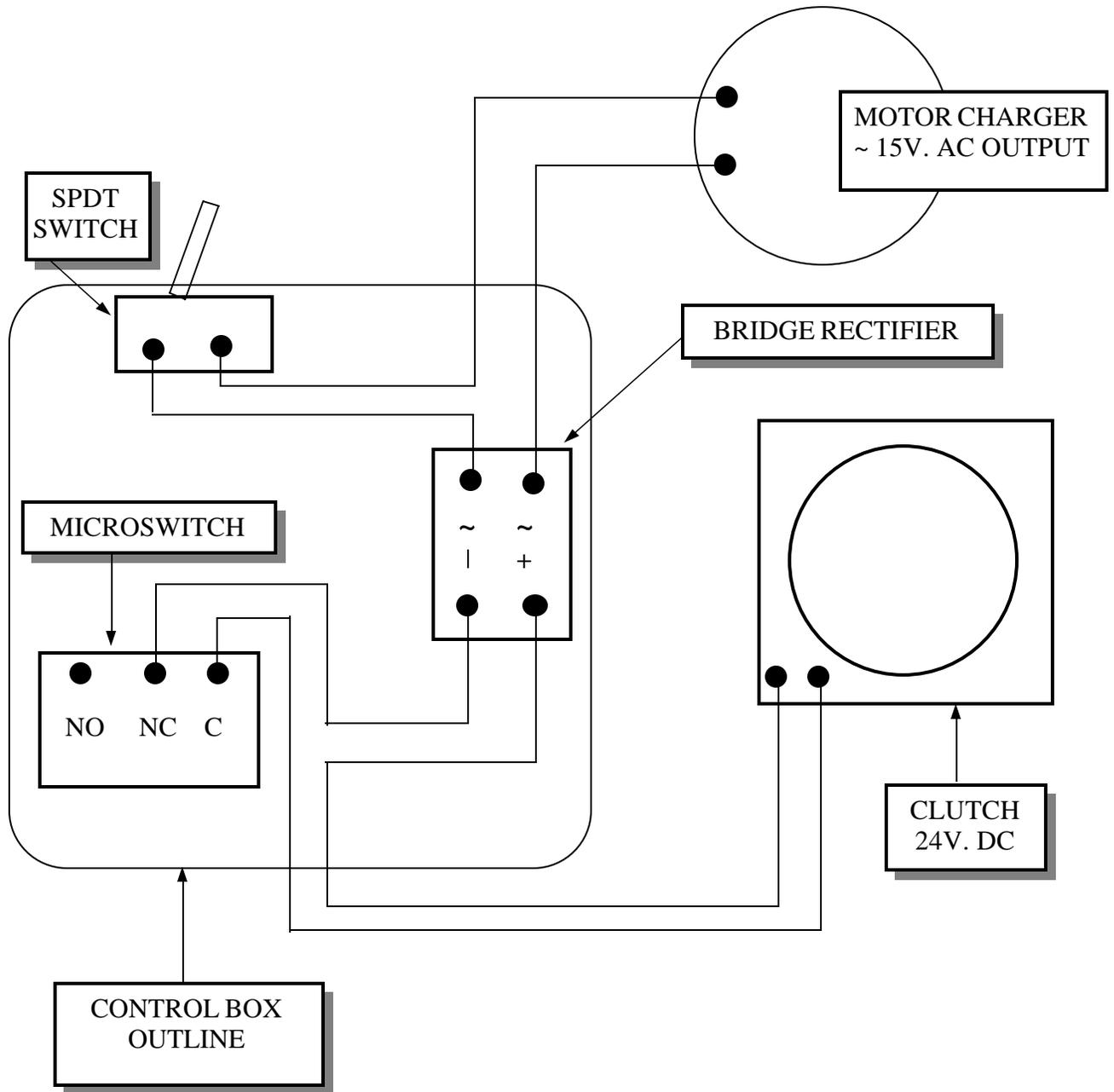


1. Attach a pressure gauge to the pump along with a minimum of 50' of nylon airless hose.
2. Remove the control box cover (ref# 120).
3. Using two 3/8" insulated wrenches, remove the locking nut (ref# GG) on the adjustment stem.
4. Loosen the nylock adjustment nut (ref# JJ) approximately two turns.
5. Turn the brass pressure control knob (ref# 103) to the minimum pressure.
6. Follow the procedure described in this manual to prime the pump (see page 8).
7. Turn the brass pressure control knob (ref# 103) clockwise to a maximum pressure of 2700psi. If the control knob reaches maximum position (fully clockwise to stop pin) prior to 2700psi pressure, use an insulated 3/8" wrench to tighten the nylock adjustment nut (ref# JJ).
If 2700psi pressure is obtained prior to the brass adjustment knob reaching maximum position, use a 3/8" insulated wrench, to loosen the nylock adjustment nut (ref# JJ).
8. Check that the maximum possible pressure setting is 2700psi (± 100psi).
NOTE: To get an accurate reading, release the pressure and allow the pump to rebuild pressure each time the pressure control knob is moved. Repeat step 7 until the 2700psi (± 100psi) maximum pressure setting is obtained.
9. Reinstall the locking nut (ref# GG) by tightening it against the nylock adjustment nut (ref# JJ).
10. Reinstall the control box cover (ref# 120).

3.5.1 Removal

1. Open prime valve (ref# 49) in order to release pressure from the material side of the pump.
2. Remove prime valve return hose (ref# 54) from prime valve return fitting (ref# 42).

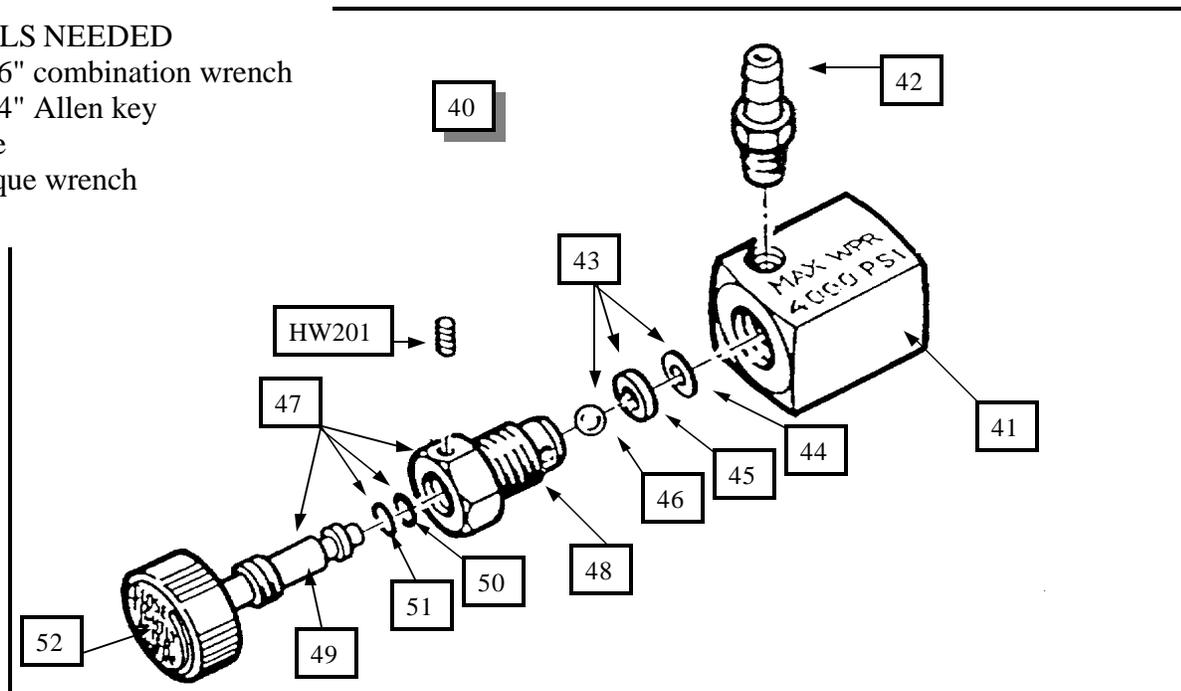
3.5 ELECTRICAL SCHEMATIC - 950GS



3.6 PRIME VALVE

TOOLS NEEDED

5/16" combination wrench
3/64" Allen key
vise
torque wrench



3. Remove entire prime valve (ref# 40) from filter elbow (ref# 39).
4. Secure prime valve in vise.
5. Remove prime valve packing nut (ref# 47) from body.
6. To install prime valve repair kit (ref# 43): Remove ball (ref# 46) from stem (ref# 49). Remove seat (ref# 45) and copper crush washer (ref# 44).

NOTE: If the ball does not drop free from the stem remove with aid of a knife.

7. Install a new copper crush washer and seat, ensuring that the seat is correctly positioned. Position the seat so that the beveled (lapped) side of the hole contacts the valve ball. Place the new tungsten carbide ball onto the end of the stem.
8. To replace valve stem O-ring (ref# 50,51): Remove the set screw (part # HW2013) from the packing nut (ref# 48). Unthread and remove valve stem. Remove and replace worn and defective O-ring and back-up ring with new parts. Apply grease over O-ring and packing nut hole, and carefully assemble stem into packing nut, threading in fully. Insert and tighten, packing nut set screw, removed earlier. Back out set screw approximately 1/2 turn or until stem moves freely in packing nut.

NOTE: Valve stem should not be removed from packing nut if set screw is adjusted correctly.

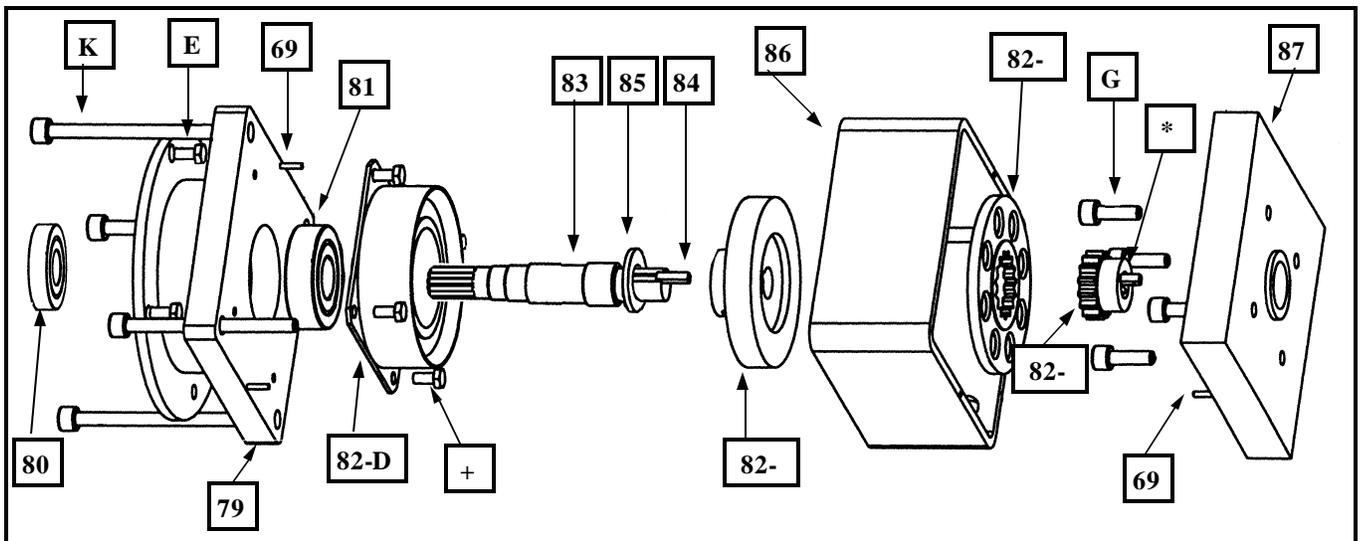
3.5.2 Re-Assembly

1. When stem (ref# 49) and packing nut (ref# 48) are assembled correctly (see Step 8 above). Rotate stem counter clockwise until fully open (stem pulled back into packing nut).
2. Place packing nut assembly (ref# 47) into body (ref# 41). Torque packing nut (ref# 48) to 18ft-lbs.
3. Complete steps 3 and 2 of removal in reverse.

NOTE: In order to test if a tip is worn, spray a small amount of suitable material on to a test surface and observe the spray pattern produced on the wall. Try to obtain an even elliptical spray pattern by first adjusting the pressure down, then gradually increasing pressure until full atomization. This should result in a crisp spray

3.7 CLUTCH ASSEMBLY

1. Bolt the clutch mount block, ref# 87 to the motor (with the pins for clutch housing alignment on either side and facing out), using Loctite 271 on the four capscrews (ref# G).
2. Align the armature hub, (ref# 82-A), so that it is about 1/16" back from the end of the motor shaft (not shown) and insert the 3/16 key (supplied with engine). Apply Loctite 271 to the two(2) set screws (not shown) and thus fix the hub to the shaft.
3. Set the armature, (ref# 82-B) on the armature hub with the gears meshing, and the friction surface facing out (away from motor). The armature slides freely along the hub upon engaging and disengaging the clutch.
4. Slide the 1/8" shim (ref# 85) on to the drive shaft (ref# 83). Using key stock (ref# 84), assemble the drive shaft to the rotor, (ref# 82-C). The drive shaft should sit between 0.04" deep (inside bore) to flush with the rotor surface, but should not extend beyond this surface. Fix in place with setscrews (use Loctite 271)
5. Apply Loctite 609 to bearing (ref# 81) and press into place with the open side facing out, into the "field" (square)-side of the mounting flange, (ref# 79). Again apply Loctite 609 to bearing (ref# 80) and press into the opposite side of the mounting flange. Open side of bearing exposed. Apply all-purpose grease to bearings.
6. Align the field, (ref# 82-D), with the mounting flange, keeping the field terminals on the underside. Apply Loctite 271 to the four bolts, (ref# +) and hand tighten in place.
7. Insert the drive shaft / rotor sub-assembly (ref# 82C-85) into the field and mounting flange. The rotor and field need to be aligned with concentricity.
NOTE: Ensure equal clearance all round when inserting the rotor into the field, by placing shims (0.004~0.005 thick) at 3 or 4 points between the rotor and field. During assembly apply pressure only to the end of the drive shaft and not on the rotor, to prevent any change in rotor position on the shaft.
8. Fully tighten the four bolts, (ref# +), on the field (which were previously only hand tight), and then remove shims.
9. Position the clutch housing, (ref# 86), on the clutch mount block, (ref# 87), aligning the pins and holes, and ensuring that the hole for the clutch wiring is underneath and on the field side.
10. Attach the wires (ref# 109) to the terminals of the clutch. Passing the wires from the clutch out through the hole in the clutch housing (ref# 86), align the mounting flange (ref# 79) assembly with the other side of the clutch housing. Secure with bolts (ref# K) and torque to 30ft-lbs.
11. The pump can now be secured to the mounting flange.



4.0 SPRAY TIP SELECTION

It is advisable to obtain a spray tip recommendation from the supplier of the material to be sprayed.

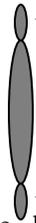
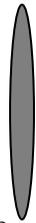
TIP SIZE	USED TYPICALLY FOR SPRAYING THESE MATERIALS	APPROX. GPM
.021	Exterior Latex on large unobstructed areas.(max. size allowed) (60 OZ.)	
.018	Interior Latex, Exterior Latex, Shake Paint, Exterior Flat Paints. (46 OZ.)	.28
.015	Alkyd Flat Enamel, Interior Latex, Semi -Gloss Enamel, Stains. (30 OZ.)	.22
.013	Fine ground Gloss Enamels, and good quality Stains. (23 OZ.)	.18
.011	Clear Varnishes and Lacquers. (15 OZ.)	.15
.009	Clear Varnishes and Lacquers. (10 OZ.)	.10

pattern with sharp edges and even concentration, see diagram below. If a satisfactory pattern is unattainable (look for edges to be rounded with heavier concentration), then the tip is worn and should be replaced. Other causes of poor spray fan are insufficient spray pressure and material viscosity(requiring thinning).

**GOOD TIP
PATTERN**

**WORN TIP
PATTERN**

UNEVEN FAN



NOTE: Use of *excessively worn tip can result in apparent poor performance of pump.*

ORIFICE SIZE

All tips are rated by the size of the orifice or bore size. The bore size is measured in thousandths of an inch (.018 = 18 thousandths of an inch). The size of tip required is based on the consistency of the material to be sprayed. The thicker the paint, the larger the tip size required. Always consult the product label or ask the paint retailer for the manufacturer's recommendations with regard to proper tip sizes.

FAN WIDTH

Fan width or pattern width is determined by the spray tip's "fan width" classification. This size is measured in inches, and is determined when spraying 12 inches from the spray surface. Various methods of noting the fan widths are used by tip manufacturers. Ask your distributor for assistance.

NOTE: *Two tips having the same tip size, but different fan widths will deliver the same amount of paint over a different area (wider or narrower strip).*

SPRAY TIP REPLACEMENT

During use, especially with Latex paint, high pressure and material abrasion will cause the orifice to grow larger. As the orifice grows larger, the fan width grows smaller. Replace tips before they become excessively worn. Worn tips waste paint, cause overspray, make cutting in difficult, and decrease sprayer performance.

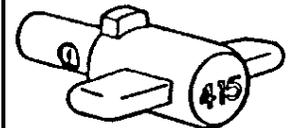
NOTE: *When using Latex paint, a spray tip will wear at the rate of one size for approximately every 100 gallons of material sprayed.*

5.0 ACCESSORIES

1/4x1/4	CONNECTOR, 1/4 PAINT HOSE TO 1/4 PAINT HOSE
106	RUBBER BAN
114	HOSE, AIRLESS PAINT 50' X 1/4"
115	HOSE, AIRLESS PAINT 25' X 1/4"
117	HOSE, AIRLESS PAINT 50' X 3/8"
3-WHIPEND	WHIPEND, 3' X 3/8"
10-55-011-2	AIRLESS SPRAY GUN, ASM, 2 FINGER TRIGGER
10-55-011-4	AIRLESS SPRAY GUN, ASM, 4 FINGER TRIGGER
5GAL SB	STRAINER BAG, 5 GALLON
4-649	WONDER WASH (48 PCS X 1.5 OZ. PKG)
4-650	WONDER WASH 5 OZ. PKG.
4-655	WONDER WASH (25 PCS X 5 OZ. PKG)
4-660	WONDER WASH BULK, 5 LBS.
4-662	WONDER COAT, 1 LITRE
4-664	WONDER COAT (12 PCS X 1 LITRE)
661	SPRAY TRIGGER, FOR USE WITH 4-662
4-666	WONDER COAT, 4 LITRE
4-668	WONDER COAT (4 PCS X 4 LITRE)
4-67/19	PRESSURE GAUGE C/W FITTINGS
4-02-40-3PL1	PISTON PUMP PACKING LUBRICANT, 250ML

A.S.M. ZIP TIPS

Zip tips are coded with three(3) numbers. To determine the fan size, double the first number (ie. $2 \times 4 = 8$ " - 10" width). The last two(2) numbers indicate the equivalent orifice size. The 415 tip shown has a 8"-10" fan width and a .015 orifice.



0906	1104	1304	1504	1704		1904	2104	2310	3104
	1106	1306	1506	1706		1906	2106	2312	3110
	1108	1308	1508	1708		1908	2108	2510	3112
	1110	1310	1510	1710	1810	1910	2110	2712	
		1312	1512	1712	1812	1912	2112	2910	
						1916	2116		
							2118		

OTHER FAN SIZES ALSO AVAILABLE, BUT NOT ALWAYS STOCKED

6.0 PARTS LIST & DESCRIPTIONS

REF #	PART NUMBER	WHERE USED	DESCRIPTION	QTY
1	187A	Intake-	Siphon screen	1
2	02-700-2100	Intake-	Tube	1
3	4-02-950-2600	Intake-	Fluid Section Assembly, ref# 4-21	assy.
4	02-700-2101	Intake-	Valve Housing w/Seat	1
5	02-700-2103	Intake-	O-Ring, Teflon	1
6	17S	Intake-	Ball, 3/4" Corrosion Resistant	1
7	02-700-2105	Intake-	Pin, Ball Stop	1
8	02-700-2106	Intake-	Guide, Valve Ball	1
9	02-700-2108	Intake-	Piston Valve w/Seat	1
10	4-02-950-2609	Intake-	Packing Set, Lower	set
11	02-700-2117	Intake-	Nut, Piston Valve	1
12	02-700-2118	Intake-	Ball, Piston Valve, 1 1/32"	1
13	02-700-2119	Intake-	Rod, Piston	1
14	4-02-950-2606	Intake-	Cylinder Assembly, ref# 15-17	assy.
15	02-950-2120	Intake-	Sleeve, Cylinder	1
16	02-700-2134	Intake-	Washer, Crush, Cylinder / Sleeve	1
17	02-700-2121	Intake-	Cylinder, without Sleeve	1
18	02-700-2122	Intake-	Nut, Cylinder	1
19	4-02-950-2603	Intake-	Packing Set, Upper	set
20	02-700-2127	Intake-	Nut, Cylinder Packing	1
21	02-700-2128	Intake-	Plug, Throat	1
22	4-02-700-2610B	Intake-	Cylinder & Piston Repair Kit, ref# 5,6,10,12,19	kit
23	20	Outgo-	Connector, Swivel	2
24	03-40-3000	Outgo-	Hose	1
25	03-40-3010	Outgo-	Elbow, 45°	1
26	03-40-3001	Outgo-	Tee, Pressure Sensor	1
27	4-03-600-150	Outgo-	Nipple, Steel, 3" x 1/4" NPT	1
28	4-03-40-3500	Outgo-	Filter Housing Assembly, ref# 28-36	assy.
29	03-40-3002	Outgo-	Manifold, Filter	1
30	03-40-3003	Outgo-	O-Ring, Filter	1
31	4-03-40-3501	Outgo-	Filter Screen Assembly, ref# 32-34	assy.
32	03-40-3005	Outgo-	Spring, Filter	1
33	03-40-3006	Outgo-	Screen, Filter	1
34	03-40-3011	Outgo-	Insert, Filter Screen	1
35	03-40-3008	Outgo-	Spring, Filter Housing	1
36	03-40-3009	Outgo-	Housing, Filter	1
37	13A	Outgo-	Plug	4
38	14A	Outgo-	Connector, 1/4" x 1/4"	1

6.0 PARTS LIST & DESCRIPTIONS

REF #	PART NUMBER	WHERE USED	DESCRIPTION	QTY
39	03-600-101	Outgo-	Elbow, 90°	1
40	4-605	Outgo-	Prime Valve Assembly, ref# 41-52	assy.
41	603-1	Outgo-	Housing, Prime Valve	1
42	603-6	Outgo-	Barb, Prime Valve	1
43	4-603RK	Outgo-	Repair Kit, Prime Valve, ref# 44-46	kit
44	603-3	Outgo-	Washer, Copper, Prime Valve	1
45	603-4	Outgo-	Seat, Prime Valve	1
46	603-13	Outgo-	Ball, Prime Valve	1
47	4-603-11	Outgo-	Stem & Packing Nut Assy., ref# 48-52	assy.
48	603-2	Outgo-	Nut, Packing, Prime Valve	1
49	4-603-10	Outgo-	Stem Assembly, Prime Valve, includes ref# 49,50	1
50	603-8	Outgo-	O-Ring, Prime Valve	1
51	603-15	Outgo-	Washer, Back-Up, Prime Valve	1
52	603-12	Outgo-	Decal, "Close Tightly After Prime"	1
53	196	Outgo-	Clamp	1
54	4-03-850-3501	Outgo-	Hose, Prime, 42"	1
55	188	Outgo-	Ties, Prime Hose	2
56	05-700-5103	Drive-	Pin, Crosshead	1
57	05-700-5100	Drive-	Spring, Retainer	1
58	4-05-850-5614	Drive-	Conn-Rod & Crosshead Coupler Assy., ref# 59-64	assy.
59	4-05-850-5605	Drive-	Crosshead Coupler Assy., Includes ref# 60	assy.
60	05-850-5103	Drive-	Bearing, Crosshead Coupler	1
61	05-850-5104	Drive-	Ring, Inner, Crosshead / Conn-Rod Assy.	1
62	05-850-5101	Drive-	Pin, Conn-Rod	1
63	4-05-850-5600	Drive-	Conn-Rod Assembly, Includes ref# 64	1
64	05-700-5106	Drive-	Bearing, Conn-Rod	1
65	4-05-700-5601	Drive-	Housing Assembly, Front, Includes ref# 66-68	1
66	05-700-5172	Drive-	Oil Seal, Crankshaft	1
67	05-700-5110	Drive-	Bushing, Coupler Guide	1
68	05-700-5111	Drive-	Bearing, Crankshaft, Front	1
69	05-40-5020	Drive-	Pin, Housing Locator (Not Shown)	2
70	4-05-700-5625	Drive-	Breather	1
71	05-700-5112	Drive-	Washer, Thrush, Front	1
72	05-850-5113	Drive-	Crankshaft	1
73	4-05-950-5623	Drive-	Gear, Crankshaft, 136 Tooth	1
74			*** NOT USED ***	
75	05-700-5115	Drive-	Washer, Thrush, Rear	1
76	4-05-850-5602	Drive-	Housing Assembly, Rear, Includes ref# 77-78	1

6.0 PARTS LIST & DESCRIPTIONS

REF #	PART NUMBER	WHERE USED	DESCRIPTION	QTY
77	05-700-5171	Drive-	Oil Seal, Motor Shaft	1
78	05-40-5016	Drive-	Bearing	1
79	4-05-850-5629	Drive-	Mounting Flange, c/w bearings, ref# 80,81	assy.
80	05-850-5125	Drive-	Bearing, Small	1
81	05-850-5126	Drive-	Bearing, Large	1
82	05-850-5120	Drive-	Clutch Assembly (4 piece set)	1
83	4-05-950-5621	Drive-	Shaft	1
84	4-05-850-5630	Drive-	Keystock	1
85	05-850-5112	Drive-	Shim	1
86	05-850-5124	Drive-	Housing, Clutch	1
87	05-850-5123	Drive-	Block, Clutch Mount	1
88	4-05-850-5650	Drive-	Engine, 5.5 HP	1
89	4-05-850-5631	Drive-	Control Box Assembly, ref# 23,26,90-109,118	assy.
90	65/111	Drive-	Connector, 1/2", 2 Screw	1
91	05-99-0001	Drive-	Hole Plug, 7/8"	1
92	4-05-40-5534	Drive-	Pressure Sensor Assembly	1
93	05-40-5059	Drive-	Housing, Pressure Sensor, ref# 93-96	assy
94	4-05-40-5535	Drive-	Stem, Pressure Sensor, c/w ref# 95, 96	assy.
95	05-40-5060	Drive-	O-Ring, Pressure Sensor, Thiokol	1
96	05-40-5058	Drive-	Back-Up Washer, Split Teflon	1
97	05-40-5047	Drive-	Microswitch, Adjustable	1
98	05-40-5033	Drive-	Mount, Microswitch Bracket	1
99	05-40-5050	Drive-	Mount, Adjustable Microswitch	1
100	05-40-5030	Drive-	Bushing, Adjustment Post	1
101	05-40-5029	Drive-	Spring, Adjustment Post	1
102	05-40-5028	Drive-	Post, Adjustment	1
103	05-40-5027	Drive-	Knob, Pressure Control	1
104	05-40-5026	Drive-	Pin, Pressure Control Knob	1
105	65/102	Drive-	Switch, On/Off	1
106	65/110	Drive-	Plate, On/Off, Switch	1
107	05-850-5135	Drive-	Rectifier, Control Box	1
108	4-05-850-5616	Drive-	Assembly, Rectifier / Electric Start Cable	1
109	4-05-850-5613	Drive-	Electrical Cable, Clutch / Control Box	1
110	4-05-850-5627	Drive-	Insulator, Rubber Wire	2
111	4-05-850-5612	Drive-	Jumper, Control Box, Fuse to Line In	1

6.0 PARTS LIST & DESCRIPTIONS

REF #	PART NUMBER	WHERE USED	DESCRIPTION	QTY
112	4-06-850-6600	Chassis-	Cart, c/w Handle	1
113	06-40-6004	Chassis-	Glide	2
114	06-99-0002	Chassis-	Wheels, 12" Pneumatic	2
115	67/17	Chassis-	Pin, Cotter	2
116	4-06-40-6509	Chassis-	Assembly, Filter Manifold Mounting	1
117	667-22	Chassis-	U-Clamp	1
118	06-40-6016	Chassis-	Housing, Control Box	1
119	06-40-6020	Chassis-	Gasket, Control Box	1
120	4-06-40-6514	Chassis-	Cover, Control Box	1
121	4-06-850-6608	Chassis-	Plate, Control Box, Control Panel	1
122	06-850-6127	Chassis-	Shroud	1
123	4-06-700-6607	Chassis-	Pail Hook, Not Shown	1
124	4-06-850-6609	Chassis-	Key Chain. Not Shown	1
125	91	Decal-	H.E.R.O. - Small	1
126	92	Decal-	Release Pressure	1
127	DEC-MAXPRE	Decal-	Maximum Pressure, Round	1
128	DEC-PPWARN	Decal-	Piston Pump Warning	1
129	DEC-950GS	Decal-	Label Set, 850GS Only	1

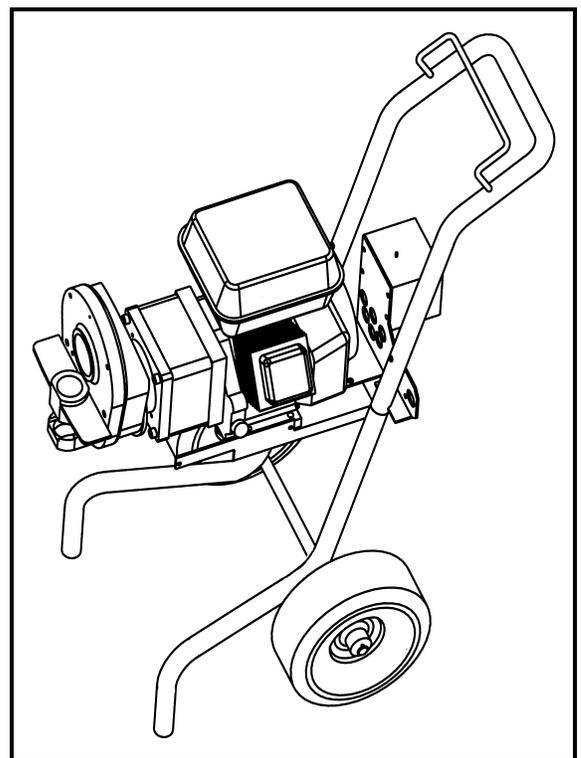
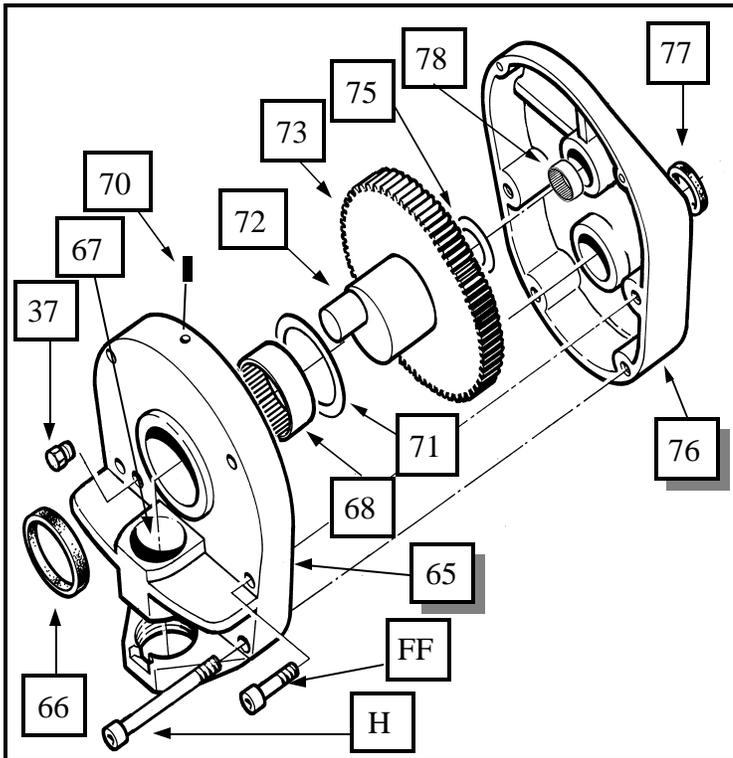
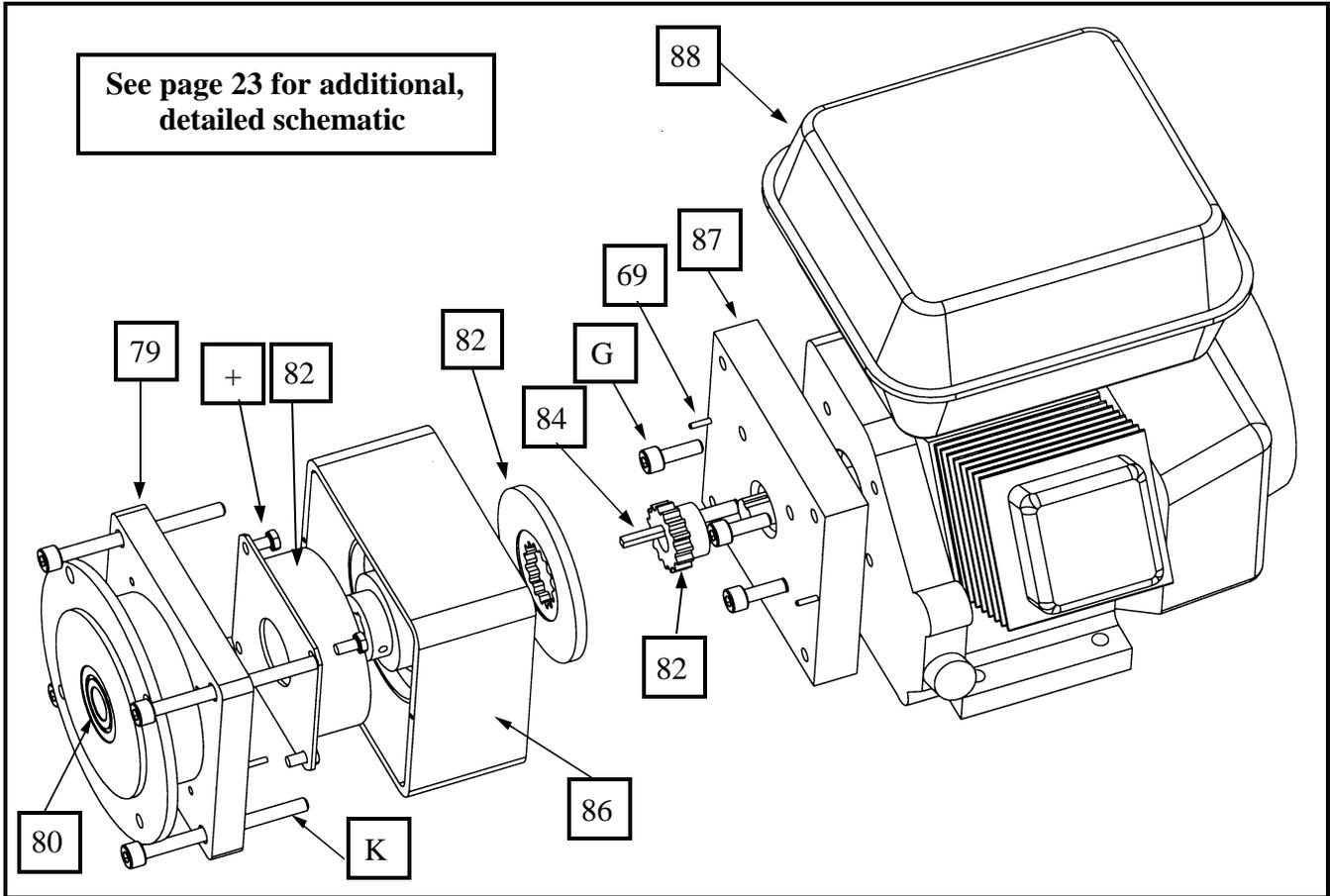
HARDWARE

REF	PART NUMBER	DESCRIPTION
A	HW1005	Capscrew
B	HW1010P	Capscrew
C	HW1020P	Capscrew
D	HW1038	Capscrew
E	HW1060P	Capscrew
F	HW1075P	Capscrew
G	HW1076P	Capscrew
H	HW1089	Capscrew
K	HW10891	Capscrew
L	HW3011P	Screw, Machine
M	HW3014P	Screw, Machine
N	HW3016P	Screw, Machine
O	HW3065P	Screw, Machine
P	HW3041P	Screw, Machine
Q	HW3059P	Screw, Buttonhead
R	HW4008P	Nut

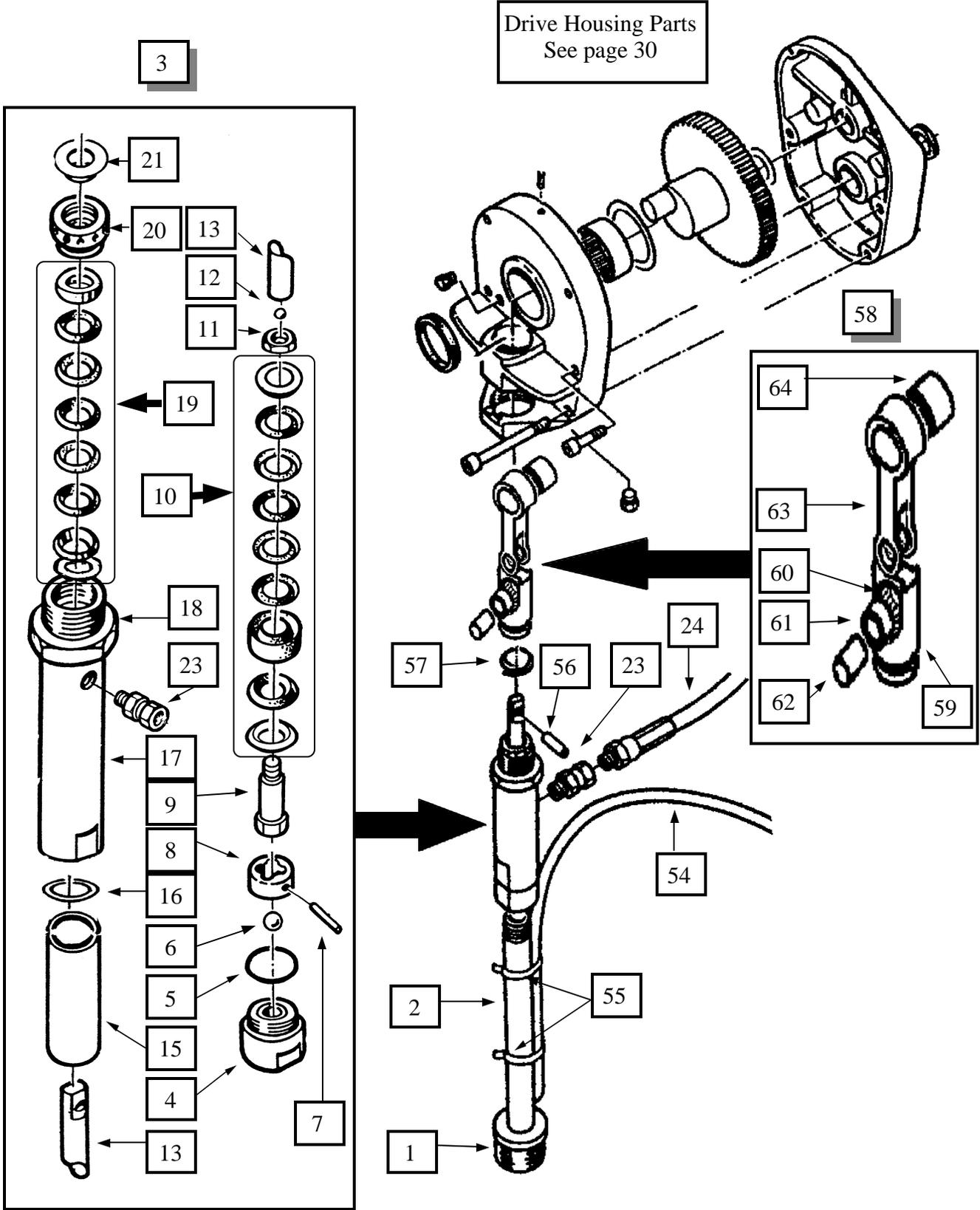
REF	PART NUMBER	DESCRIPTION
S	HW4010P	Nut, Hex
T	HW4020P	Nut, Hex
V	HW4030P	Nut, Hex
W	HW4061P	Nut, Hex
X	HW5005P	Washer
Y	HW5030B	Washer, Flat
Z	HW5040P	Washer, Lock
AA	HW5050P	Washer, Flat
BB	HW5060P	Washer, Lock
CC	HW5063P	Washer, Lock
DD	5996	Washer, Nylon
EE	HW5091P	Washer
FF	3B	Capscrew
GG	A7-120-21	Nut, Nylock
HH	HW5020	Washer, Flat
JJ	HW4009-IP	Nut

7.0 950GS SCHEMATIC

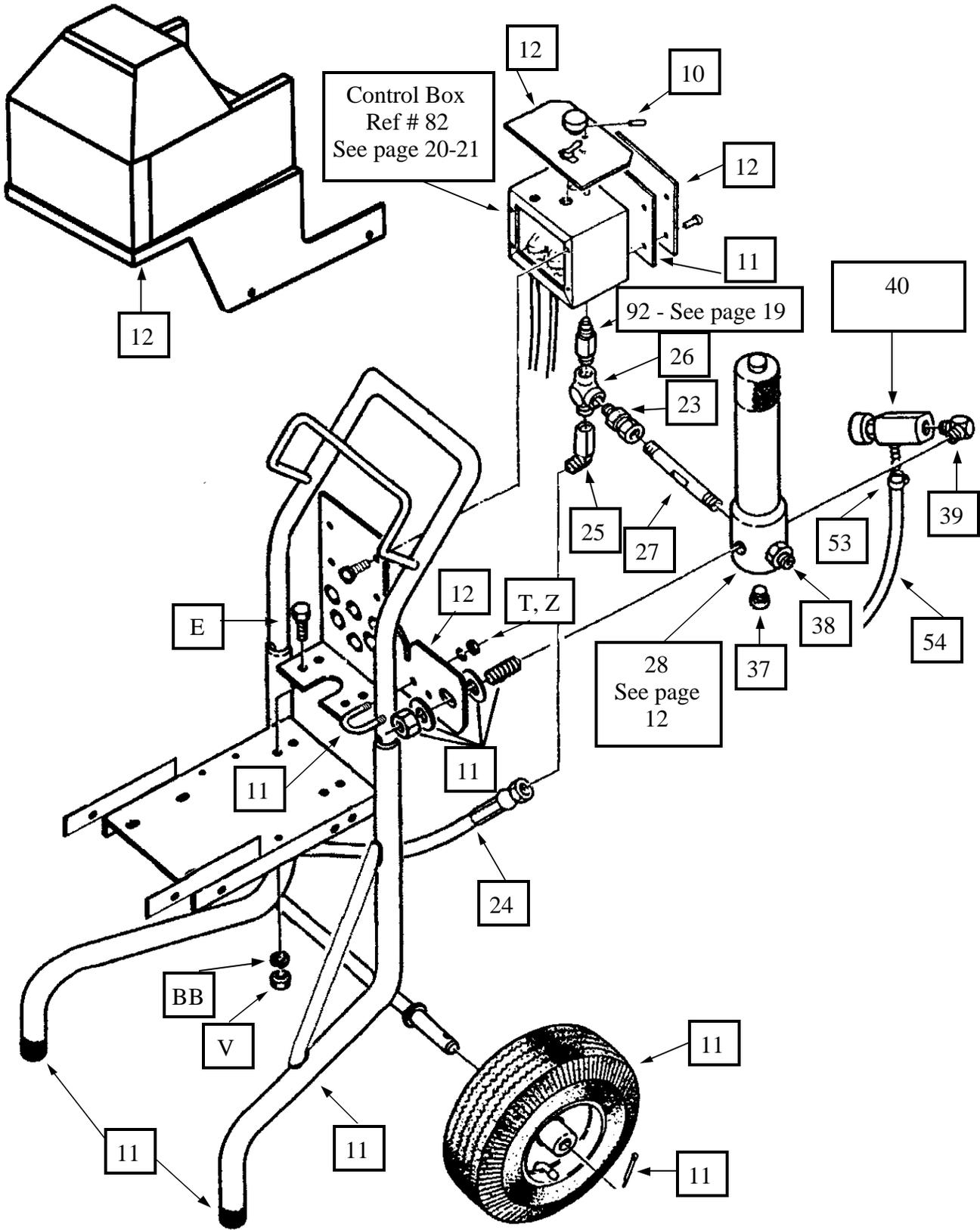
See page 23 for additional, detailed schematic



7.0 950GS SCHEMATIC



7.0 950GS SCHEMATIC



950GS

MODEL: 6-950GS-LA

SERIAL NUMBER: _____

DATE OF PURCHASE: _____

PURCHASED FROM:

NAME: _____

ADDRESS: _____

CITY: _____ **STATE/PROV.:** _____

PHONE: _____ - _____ - _____

FAX: _____ - _____ - _____

SALESMAN: _____

SPECIFICATIONS

Engine:

5.5 H.P. Honda
GX160

Max. Pressure:

3000PSI

Max. Tip Sizes:

1 Gun: .031
2 Gun: .021

Output:

(@ 1500 PSI)
Approx. 1.2 GPM

Weight:

160 Lbs.