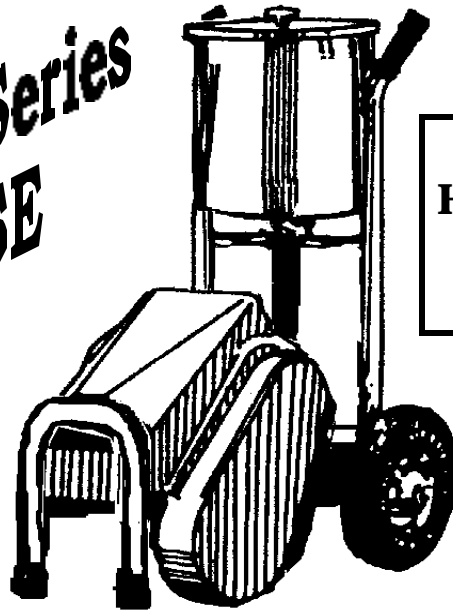


# **HOERD**

## AIRLESS SPRAY EQUIPMENT

# 1000MD

*with New "B" Series  
HYDRAPULSE*



**NEW For 1997.  
Hydrapulse "B" Version.  
Starting with serial**

## Safety, Operating And Maintenance Manual And Parts List

**DO NOT** attempt to operate this machine until you have read and understand ALL safety precautions and operating instructions.

## ***H.E.R.O. WARRANTY***

H.E.R.O. INDUSTRIES LTD., 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. The hydrapulse membrane (part# 4-04-22-4500) is warranted for LIFE. Installation costs for the hydrapulse membrane is provided for the first 12 months only. H.E. R.O. Industries Ltd. offers no warranty on the intake ball, outgo ball, drive belt, hoses, gun or accessories, plastic, rubber, other soft goods or motor used in or supplied with the H.E.R.O. sprayer.

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 or 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

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For greatest user satisfaction, please familiarize yourself with all maintenance and operational instructions

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## ***IMPORTANT***

***NOTE: AS WITH ALL MECHANICAL EQUIPMENT, PROPER OPERATING AND MAINTENANCE PROCEDURES ARE REQUIRED TO KEEP YOUR H.E.R.O. AIRLESS PUMP PERFORMING TO YOUR SATISFACTION. THE FOLLOWING SAFETY, OPERATING AND MAINTENANCE INSTRUCTIONS ARE IMPORTANT.***

Read and understand this manual completely, especially with regard to all safety precautions. Read and follow instructions on all warning labels on your equipment. Keep the warning labels clean and readable at all times. Order new labels from your local distributor or from H.E.R.O. Industries Ltd. if needed.

The manufacturer shall not be responsible for any loss, damages, or injury of any kind or nature whatsoever resulting from the use the 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.

This system is capable of producing 2400 psi. ( spray pressure ). To avoid rupture and injury DO NOT operate this pump with components rated less than 3000 psi. working pressure (including but not limited to spray guns, hose and connections).

Before servicing, cleaning or removing of any part, shut off power and relieve pressure.

# 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!**

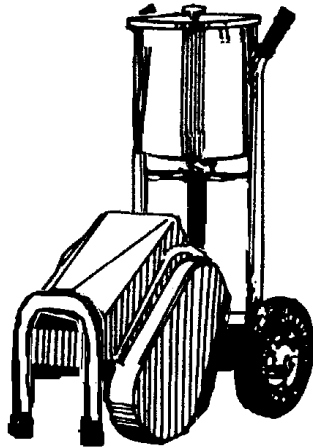
- ☒ **NEVER** place any part of the body in front of the spray tip or aim the gun toward any part of the body.
- ☒ **NEVER** point the gun toward any individual.
- ☒ **NEVER** treat any injury as a simple cut. If injury does occur, seek immediate medical attention. Be prepared to inform the doctor what 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 off the unit.
  2. Disconnecting the power cord from the outlet.
  3. Relieving all pressure in the pump by triggering the gun.
  4. Locking gun trigger in "LOCKED" position, with gun locked closed.
- ☒ **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** wash an electric motor, nor operate it in the rain or in wet or damp areas, to protect yourself from electric shock.
- ☒ **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** ensure that switch is in off position before plugging in the electric motor.
- ☑ **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 approved 3 prong grounded extension cord and approved grounded outlets of the voltage and frequency specified on the motor. The outlet must be at least 25 feet from the spraying area.
- ☑ **ALWAYS** use approved 3 prong grounded extension cord not less than # 12/3 gauge up to 50 feet, and not less than # 10/3 gauge up to 100 feet. **DO NOT** exceed 100 feet of extension cord.
- ☑ **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 Ltd., or specifically approved in writing by H.E.R.O. Industries Ltd. 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. Turn off the motor.
  2. Disconnect the power cord from the outlet.
  3. Relieve all pressure in the pump by triggering the gun.
  4. Lock gun trigger in "**LOCKED**" position, with gun locked closed 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.

# 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 1000MD. 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!



**NEW 1997  
"B" SERIES  
HYDRAPULSE  
INTAKE  
ASSEMBLY  
BEGINNING WITH  
SERIAL NUMBER  
170034**

**O P E R A T I N G**

## INSTRUCTIONS

### 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.

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

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

**CHECK** to ensure that the shipping seal has been removed from under the cap on the hydraulic tank. Hydraulic tank should be at least 3/4 full of H.E.R.O. LVO hydraulic fluid.

**CHECK** all fittings and connections in the pump system, hose, and gun to ensure that they are tight.

**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 11 , for proper tip selection.

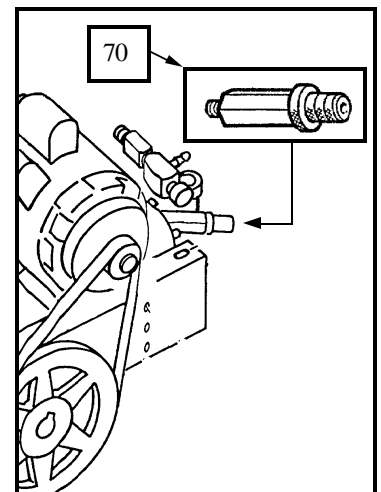
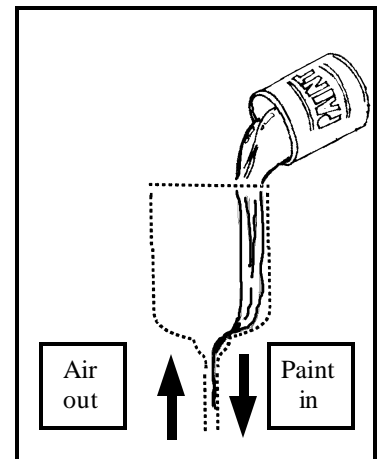
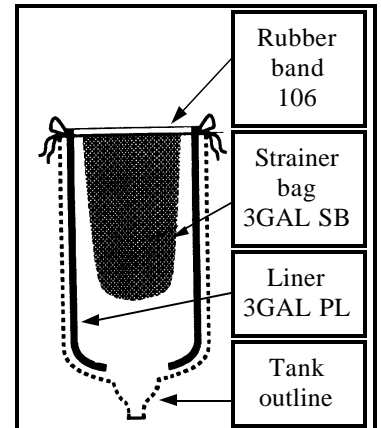
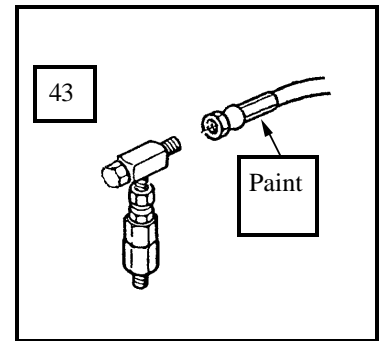
**CHECK** to ensure that you have H.E.R.O. strainer bags, H.E.R.O. Wonder Wash, appropriate thinner for the paint, a waste container, and any other accessories you may require for the job.

**CHECK** to ensure that you have adequate extension cord size and length if the machine cannot be situated immediately next to an electric outlet. Distances up to **50** feet require #12/3 wire grounded cord, up to **100** feet require #10/3 wire grounded cord. **DO NOT exceed 100 feet of extension cord.** If distance is greater, obtain and install extra length of H.E.R.O. airless spray hose.

**READ THIS MANUAL THOROUGHLY.**

## SETTING UP TO SPRAY

1. Remove unit from shipping carton.
2. Remove shipping seal under hydraulic tank cap.
3. Re-position paint tank lid knob from the shipping position, on the underside of lid, and place on the lid top.
4. Attach paint hose to outgo tee (ref# 43) and gun to paint hose.  
**NOTE;** *Spray tip and tip guard should be attached to gun prior to attaching to hose.*
5. To assist in clean up, use and install paint tank plastic liners ( accessory item 3 GAL PL ). Line the inner sides of tank, ensuring that the liner does not block the tank screen in the bottom of the tank. Fold excess over the outside of tank.
6. Install strainer bag (accessory item 3GAL SB) in tank and secure with large rubber band ( accessory item 106 ).  
**NOTE;** *Strainer bag must remain 4 inches from the bottom of tank.*
7. Trigger gun to release any pressure in the unit. Use extreme caution to ensure that the gun is not directed towards anyone or any object which may be damaged.  
**NOTE;** *Unit may contain storage solution.*
8. To remove storage solution, add one gallon of thinner, compatible with the type of paint to be used, to the paint tank.
9. Turn pressure control knob (ref# 71) to lowest pressure setting.
10. Be sure motor switch is in "OFF" position. Plug unit into 115V, 15 amp., grounded circuit.  
**NOTE;** *If using an extension cord, you **MUST** use a #12/3 wire grounded cord, up to 50 feet or #10/3 wire grounded cord, up to 100 feet. **DO NOT EXCEED 100 FEET OF EXTENSION CORD.** If distance is greater, purchase and install additional lengths of airless spray hose.*
11. Turn motor switch "on" and increase pressure slowly. Trigger gun into a waste container. Continue spraying until pump runs dry and all thinner and holding solution has been removed. Keep pressure low.
12. Pour paint through strainer bag into paint tank.  
**NOTE;** *Pour paint ( particularly thick paints ) slowly, to allow paint to enter the intake hose while at the same time allowing air the opportunity to escape up the intake tube. Pouring paint in quickly can trap air in the intake tube ( air lock ) and make priming difficult.*
13. Replace paint tank lid. Keep tank covered at all times to prevent contaminates from falling into the paint.
14. Increase the pressure, slowly at first, by turning the pressure control knob clockwise. Spray a test pattern.  
**NOTE;** *Begin by spraying a test pattern onto old newspaper or other scrap material. Continue increasing the pressure until the spray pattern is uniformed from top to bottom, with no heavy areas. Secure pressure control setting, by turning the silver lock ring (ref# 73) counter clockwise until snugly against the face of the pressure control knob. If heavy areas are still visible at maximum pressure setting, thin the paint with the correct thinner, according to the paint manufacturer's recommendations.*



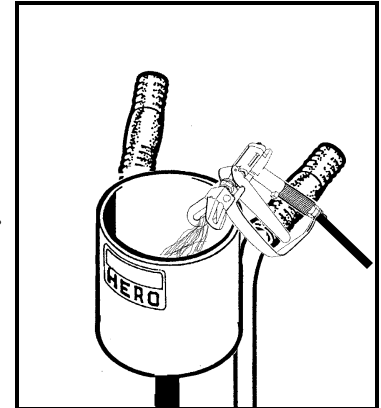
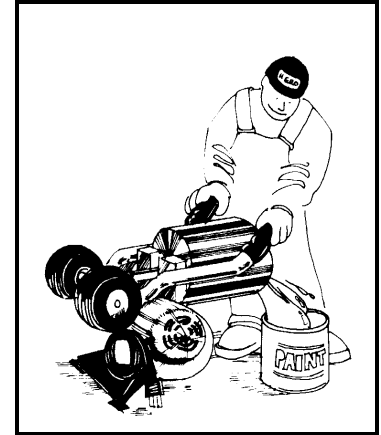
## FLUSHING THE UNIT AT SHUTDOWN

## OR COLOR CHANGE

*If shutting down for a short period of time, it is sufficient to trigger the gun to relieve pressure. Then set the safety lock on gun to "locked" position with the gun locked closed and immerse the gun in a container of the correct thinner for the paint you are spraying.*

If shutting down at job completion, for the night, or to change colors;

1. Turn pressure control knob counter clockwise to low pressure setting.
2. Switch unit "OFF". Remove spray tip from gun and trigger gun back into paint tank. Direct against side of tank.
3. Remove and discard strainer bag.
4. To remove any remaining paint from the paint tank, tip unit as shown and pour into original container. Allow plastic liner to fall into container. Remove and discard liner.
5. Upright unit and add one(1) gallon of the correct thinner, for the paint being used, to the paint tank.
6. Re-start unit and trigger gun back into the paint tank. Direct against the sides of the tank. Use the stream to clean the sides and bottom. Circulate the thinner for several minutes.
7. Remove dirty thinner, per step 4 and repeat steps 5 & 6 with fresh thinner. Trigger gun into waste container until tank runs dry.
8. Repeat procedure using a gallon of pre-mixed **H.E.R.O. Equipment Wonder Wash** solution. If **not** using Wonder Wash, unit **must not** be stored with water. Only store with a non corrosive material ( Paint thinner, solvent ).
9. Switch unit "off" and trigger gun to relieve remaining pressure.
10. Remove and rinse gun handle filter in correct thinner.



## SPECIAL STORAGE INSTRUCTIONS

In areas where the sprayer is **NOT** used 12 months of the year, special preparations must be used for winter or off season storage. Because solvents evaporate quickly, they should not be used for long term storage. A petroleum based solution ( solvent and oil ) should be used as an extended storage material. **DO NOT** allow storage solution to freeze in the sprayer.

*H.E.R.O. Equipment Wonder Wash, available from your H.E.R.O. distributor, will provide the added cleaning benefits of solvent at a much lower cost. Suitable as a short term ( 1-2 days ) storage solution only*

**H.E.R.O.** Industries Ltd.

### WONDER WASH

NET WEIGHT 1½ OUNCES 42 GRAMS	ADD CONTENTS TO 1 GALLON OF WATER
-------------------------------------	--

- Cleans, flushes and protects Paint Spray Equipment from corrosion
- Lubricates valves while cleaning
- Economically replaces solvent for many cleaning applications
- Cleaning compound for use with Pressure Washing Systems
- CAUTION: Read all directions on back panel before using.

2719 Lake City Way, Burnaby, B.C. V5H 2Z6

#### WONDER WASH

**DIRECTIONS**  
Mix contents of this package with 1 gallon of water. Use as a final flush for pumps and equipment. Oil base coatings must first be flushed with their recommended thinner. After flushing leave solution in the system. Inhibits rust and corrosion, lubricates valves, keeps paint particles suspended.  
Also suitable for use as a cleaning solution for pressure washing. Concentration can be increased for heavy degreasing using hot water.

**CAUTION**  
Strong alkaline solution. Can cause eye and skin burns. Avoid immersing hands.  
In case of contact, flush eyes immediately with water for at least 15 minutes.  
Call a physician.  
Wash thoroughly after handling.

If swallowed, do not induce vomiting. Give one ounce of vinegar and an equal volume of water. Call a physician.

**PLEASE NOTE:** This product is much more concentrated than comparable competitive products and should be handled with care to avoid skin burns.

MADE IN CANADA



## **SPECIAL NOTES AND GENERAL MAINTENANCE INSTRUCTIONS**

***NEVER LEAVE THE UNIT UNDER PRESSURE WHEN NOT SPRAYING (MOTOR TURNED OFF). RELIEVE PRESSURE BY TRIGGERING GUN. NEVER STORE THE UNIT WITH PAINT OR WATER IN THE PUMP SYSTEM, EVEN OVERNIGHT.***

- ☒ NEVER attempt to start the motor when the unit is under pressure. Relieve pressure and follow instructions in "Setting up to spray"
- ☒ NEVER attempt to run the motor on longer or lighter extension cord than specified.
- ☒ Avoid operating the unit while tilted. Keeping it level assures greater operating efficiency.
- ☑ If motor's thermal overload switch has opened, unplug unit and allow it to cool.
- ☒ **DO NOT** attempt to resume spraying before determining and correcting the cause of overheating.
- ☑ Always follow flushing and cleaning instructions exactly.
- ☑ In hot weather, locate unit in shade.
- ☑ Regularly check the level of H.E.R.O. LVO hydraulic fluid in the hydraulic tank. It should be kept near full, top up as needed with only genuine H.E.R.O. LVO hydraulic fluid.
- ☑ Crankshaft eccentric bearing should be greased at regular intervals consistent with hours of use. Use MO-2 grease (i.e. common auto grease) approximately every 10 hours of operation.
- ☑ Check drive belt ( part# 66/100 ) tension frequently. The belt will stretch with use, and should be adjusted after 20 hours of operation and again after 50 hours. Periodic checks after 50 hours should be made. A slipping belt will reduce sprayer performance and the tension should be checked frequently.
- ☑ Regularly check fittings, bolts, nuts and connections for damage. Tighten, adjust or replace as required.
- ☑ Check crankshaft alignment often. An out of alignment crankshaft will cause the damage to the eccentric bearing.
- ☑ If you wish to power your H.E.R.O. airless sprayer with a generator, it must be a minimum of a **5000** watt generator, in good operating condition.  
**NOTE;** An electric tool must be powered by a generator which has an output wattage of at least three times the maximum draw of the motor under full load.
- ☑ A minimum 50' and a maximum of 300' of airless spray hose may be used.  
**NOTE:** 50' x 3/8" paint hose ( part # 117 ) should be used for every 50' x 1/4" paint hose ( part # 114 ) over 100'.  
100' total length of paint hose = 2 of 50' x 1/4" paint hose.  
150' total length of paint hose = 2 of 50' x 1/4" paint hose and 1 of 50' x 3/8 paint hose.  
200' total length of paint hose = 2 of 50' x 1/4" paint hose and 2 of 50' x 3/8 paint hose.  
250' total length of paint hose = 3 of 50' x 1/4" paint hose and 2 of 50' x 3/8 paint hose.  
300' total length of paint hose = 3 of 50' x 1/4" paint hose and 3 of 50' x 3/8 paint hose.
- ☑ Product viscosity, altitude ( feet above sea level ) and vertical reach can effect pump performance and special accessories may be required. Product viscosity may have to be further reduced at higher elevations. The larger diameter 3/8" paint hose should also be used, to aid in the movement of spray materials.

# **AIRLESS SPRAY PAINTING SUGGESTIONS AND TECHNIQUE**

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

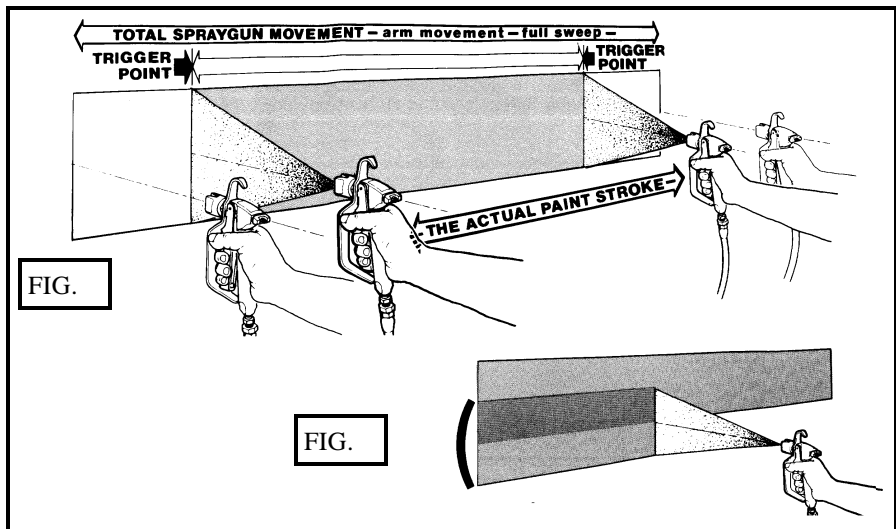
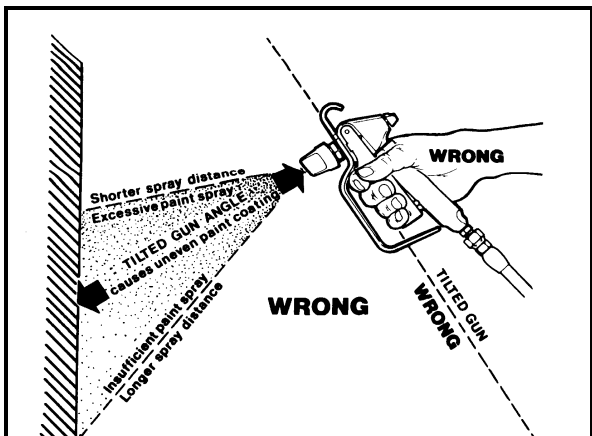
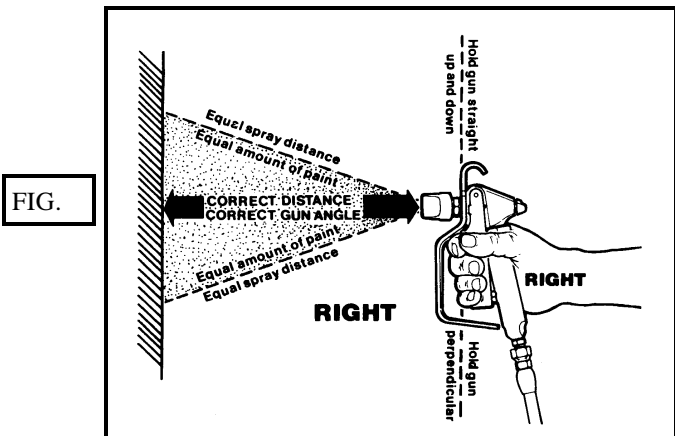
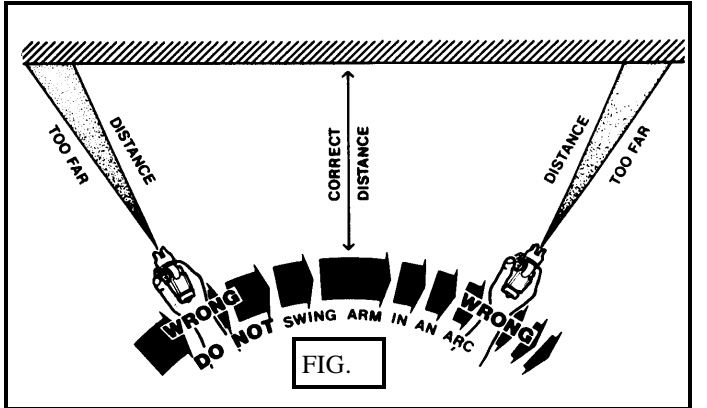
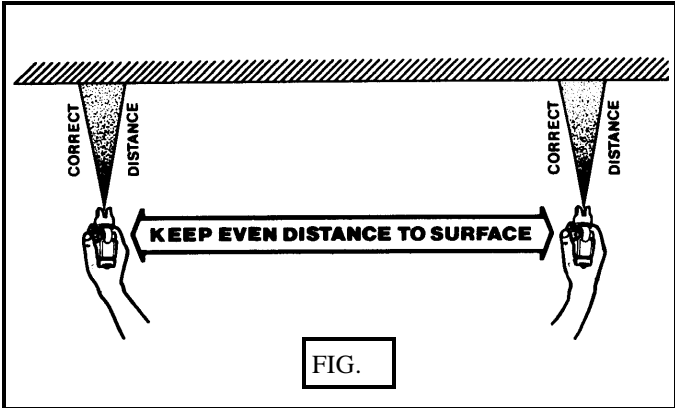
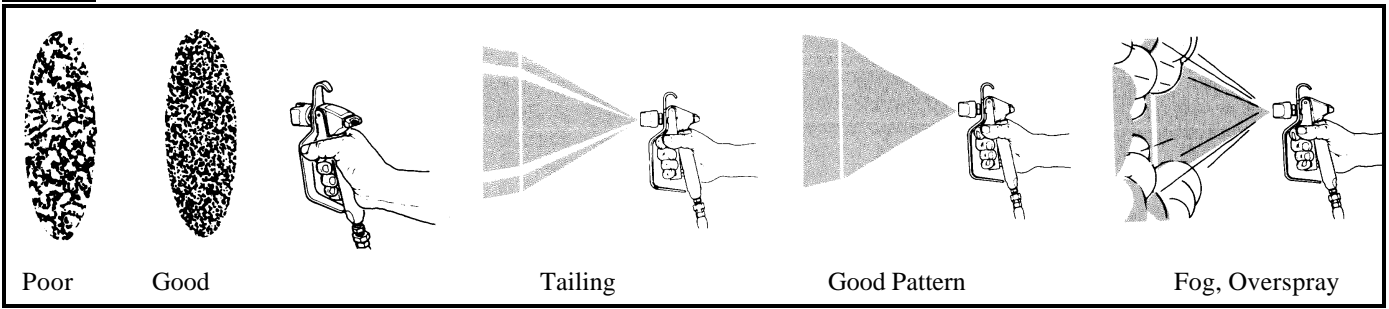
The key to all good applications is a good spray gun technique. The finished results are what the client will look at and base his opinion on. Your skill and abilities are as important as good equipment and good paint. Proper application techniques can easily be learned by using the following simple 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 EXCELLENT RESULTS, READ AND PRACTICE THESE TECHNIQUES**

1. Always strain all paint through a H.E.R.O. strainer bag.  
The most common reason for airless sprayers to malfunction is foreign matter jamming the valves or plugging the tip. Always strain the paint before putting through the pump.
2. Always spray at the lowest pressure setting which will provide a uniform spray fan. (fig. 1, page 10)  
Adjust pressure control knob so that paint is completely atomized . Insufficient pressure will result in "tailing". Too much pressure will result in excess fog and over spray, excess tip wear, and increased sprayer wear and tear. See setting up to spray, page 5.
3. Always spray at right angles to the surface being sprayed. (fig. 2, page 10)  
Angling or arcing the nozzle toward the surface will cause uneven coverage and excessive overspray.
4. Always hold spray gun 12-15 inches from spray surface. (fig. 3, page 10)  
Too close and the fan width will be reduced and material will be applied too heavily (runs).  
Too far from the surface and you will have excessive overspray and light coverage (transparent).
5. Always move the gun parallel to the surface being sprayed, at a consistent speed.  
This avoids uneven coverage (thick or thin areas).
6. Always start the spray stroke before triggering the gun and release the trigger before completing the stroke. (fig. 4, page 10)  
This avoids heavy build up of paint at either end of the spray stroke.
7. Always lap your spray pattern by one half. (fig. 5, page 10)  
This assures full coverage of the surface being painted.

# AIRLESS SPRAY PAINTING SUGGESTIONS AND TECHNIQUE

FIG.



## SPRAY TIP SELECTION

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

**NOTE:** The above volumes achieved with gun wide open for 1 minute and pump spraying at 2000psi. All volumes are approximate. To test worn tips, spray water through the tip at 2000 psi. for 1 minute. Spray into bucket and weigh amount (less weight of bucket). If it is substantially greater than what is listed above, then the tip should be discarded or reclassified. As a tip wears, the hole gets larger and the fan pattern becomes narrower.

### 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). A spray tip with a narrow pattern width makes it easy to spray in tight places. Use only good quality, high-pressure tungsten carbide spray tips.

### 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.

*An excessively worn tip can be the cause of apparent operating problems with the unit. If a tip is worn past the aperture size which the unit can support, pulsation will become evident in the spray fan/pattern. Added strain is placed on the Hydrapulse membrane as it attempts to keep the spray pressure consistent. When the tip wears beyond .023, its is releasing more material than the unit is bringing in. The natural reserve of product in the paint chamber is reduced and harm to the membrane begins. ALWAYS check your tips for wear when trouble shooting the equipment. The 1000MD can support up to a maximum of one .023 tip.*

# TROUBLESHOOTING

**Hydraulic Energy Regulated Output (H.E.R.O.)** is more than just our name, it is the bases for the operation of the pump. It is the regulation or control, of hydraulic energy, which allows the equipment to build and then deliver or have an output of pressure. Once you have a basic understanding of the operation of the equipment and the effect created in one area and how it will effect operation in another area, you will be better able to diagnose and make repairs.

All H.E.R.O. hydropulse membrane pumps are made up of two (2) distinct pumps. The first, and most important pump is the hydraulic pump. The hydraulic system is made up of two valves, the hydraulic intake valve (ref# 59) and the hydraulic outgo valve, known as the hydraulic pressure control valve (ref# 70). The second pump is known as the paint or material pump. The paint system is made up of two basic valves, the paint intake valve assembly (ref# 16-28), paint outgo valve, (ref# 32). For correct operation, all four valves must be in good working condition. For this manual we will refer to the two systems as "hydraulic" and "paint".

At the center of these two pumps is the hydropulse membrane. The hydropulse membrane is a flexible nylon disc which transfers the energy (pressure) created by the hydraulic pump, to create energy (pressure) in the paint pump. The function of the hydropulse membrane is to create a barrier between the hydraulic oil and the spray material and transfer the energy created.

To fully understand and trouble shoot a H.E.R.O. pump, always keep in mind that "for every action, there is an opposite or corresponding re-action". For every action of the hydraulic intake valve (ref# 59), there is an opposite re-action of the hydraulic outgo valve (ref# 70). At the same time there are corresponding re-actions taking place within the paint pump. This means that as the hydraulic intake valve is opening, so is the corresponding paint intake valve, and while the hydraulic outgo valve is closing, so is the corresponding paint outgo valve. The operation and function of each valve is discussed at the end of this section.

For correct operation to begin, the hydraulic system must be fully primed and all air must be removed ( see "**purging**" page 16 ). Operation begins with piston in the backward position (fig.# 2). At this point the hydraulic intake is open, while the hydraulic outgo valve is closed. The corresponding paint valves are in similar positions.

As the piston moves forward, it pushes hydraulic oil forward. This movement of oil causes the hydraulic intake valve to close and the hydropulse membrane to move forward (fig.# 1). The hydraulic outgo valve will remain closed until sufficient pressure is created to cause it to open. While the hydraulic valves are operating a corresponding re-action is taking place in the paint valves. The forward movement of the hydropulse membrane pushes the paint, causing the paint intake valve, (ref# 16-28) to close. The trapped paint requires a means of release, so it forces the outgo valve, (ref# 32), to open and paint flows to the gun.

Fig. 1

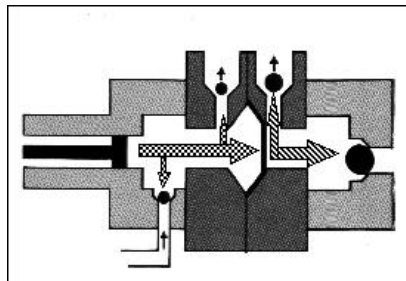
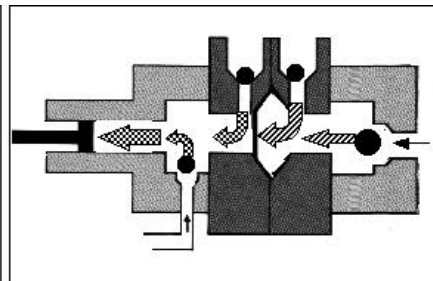


Fig. 2



The backward movement of the piston, creates a vacuum in the hydraulic system. This causes the hydraulic outgo valve to close and the hydraulic intake valve to open (fig# 1). Opening of the hydraulic intake valve allows a new supply of hydraulic oil to enter the system, replacing the oil which was used on the forward stroke. Once again a corresponding re-action is taking place in the paint pump. The hydropulse membrane

# TROUBLESHOOTING

is being pulled backward by the hydropulse membrane spring, (ref# 48). The backward hydropulse membrane movement causes a vacuum in the paint pump. This vacuum causes the intake valve to open, allowing a new supply of paint to enter. The corresponding paint outgo valve is drawn closed by the vacuum created by the hydropulse membrane.

These operations are repeated at a rate of 750 times a minute. These continuously repeated actions draw paint into the pump, pressurize it, and then deliver it to the gun. The failure, of any one valve, to operate correctly will effect the overall equipment performance.

Each of the four valves mentioned earlier, have an important function and will effect the overall performance of the unit if not performing correctly.

## **HYDRAULIC INTAKE VALVE (REF# 59, PART # 4-30)**

The hydraulic intake valve, is a small vacuum valve which controls the hydraulic oil entering the hydraulic pump/cylinder area. Once the oil has past through the valve it is prevented from returning. The valve is commonly called a "one way check valve". Valve failure will result in the hydraulic pump being unable to build pressure, and the hydropulse membrane will stop moving. Spray pressure will cease.

## **HYDRAULIC OUTGO VALVE (REF# 70, PART# 4-27C)**

The hydraulic outgo valve, better known as the "pressure control valve", is used to control the units operating pressure. The valve is fully adjustable from 0 psi. to 3000 psi. By turning the pressure control valve knob (ref# 71) clockwise the pressure is increased. The hydraulic pump continues to build at all times and must have a means of releasing this pressure. Pressure applied to the P.C. ball, (ref# 84) will keep it lodged in the P.C. seat (ref# 83) until the internal hydraulic oil pressure is sufficient to cause it to open. The point at which the oil is released is equal to the level set by the control knob. As components within the pressure control valve wear, the valve loses its ability to maintain or reach the required pressures (see "low static pressure").

## **PAINT INTAKE VALVE ASSEMBLY (REF# 16-28)**

The paint intake valve is made up of nine items, endcap (ref# 16), washer (ref# 17), seat (ref# 18), (ref# 19 not used), intake ball (ref# 20), spring (ref# 21), o-ring (ref# 22), ball guide (ref# 23), ball stop (ref# 24), O-ring (ref# 25), material head (ref# 27) and cushion (ref# 28). The intake valve controls the incoming flow of spray materials and is responsible for keeping them from returning to the source. The ball must be able to create a complete seal on the seat, otherwise pressure will be lost. A worn intake valve will permit correct static pressure, but supply lower spray pressure. A worn intake ball will become smaller in diameter and lose its ability to seal at the seat. A worn seat will develop a large step in the area where contact with the ball is made. This can cause the intake ball to distort in shape making the ball egg shaped. If the valve assembly becomes warm to the touch, this may be a sign of a loose or worn seat caused by wear or improper compression caused by a worn intake washer (ref# 17). The intake washer (ref#17), acts as a compression washer insuring the seat (ref# 18) remains pressed into the endcap (ref# 16). The seat must remain firmly pressed into the endcap at all times through the correct assembly of parts listed and the correct bolt torque. Replace the intake washer (ref# 17) each time the endcap is removed. See page 21 for details.

## **PAINT OUTGO VALVE (REF# 32, PART# 4-11A)**

The paint outgo valve monitors and controls the flow of spray materials as it leaves the sprayer. It also works together with the paint intake valve, to build paint pressure as specified by the setting made by the hydraulic outgo valve (pressure control valve). A worn outgo valve will result in pulsation in the spray material and cause the paint hose to jump and vibrate vigorously.

## TROUBLESHOOTING

*The solution to almost all problems can usually be found in the paint side valves. However, before performing any repair or looking further, the following are things which can cause an apparent sprayer failure, without any mechanical problem. ALWAYS check these items before proceeding.*

1. Circuit breaker open or fuse blown
2. Motor not plugged in.
3. Motor not switched on.
4. Motor thermal reset popped.
5. Too light or too long of an extension cord.
6. Pressure control knob loose or missing.
7. Spray tip plugged.
8. Spray tip worn out.
9. Gun handle filter plugged.
10. Paint hose plugged.
11. Loose fitting or hole in siphon hose.
12. Intake siphon hose plugged.
13. Siphon screen missing or plugged.
14. Sprayer under pressure when restarting.
15. Strainer bag plugging siphon screen.

**UNLESS YOU ARE KNOWLEDGEABLE ABOUT THE REPAIR OF HIGH PRESSURE EQUIPMENT, DO NOT ATTEMPT TO REPAIR AN AIRLESS SPRAYER YOURSELF. ALWAYS FOLLOW ALL SAFETY PRECAUTIONS. THE H.E.R.O. SERVICE VIDEO TAPE (1-620-VHS OR 1-620-BETA) WILL PROVIDE COMPLETE SERVICE TRAINING. SEE YOUR H.E.R.O. DISTRIBUTOR TO PURCHASE A COPY.**

### PRESSURE TEST

To verify the operation of an airless sprayer, use of pressure gauge is required. A pressure gauge (min. 3000 psi) installed at the gun, using a new .021 tip, and not less than 50 feet of H.E.R.O. airless spray hose is needed. If you do not have access to these items, your local H.E.R.O. authorized service center will be able to perform this test. Your model 1000MD is manufactured to perform at;

- 2650 psi -- Static pressure, with lock ring (ref# 73) on pressure control valve (ref# 70).
- 1950 psi -- Pressure drop, when gun trigger is squeezed.
- 2250 psi -- Spraying pressure, after recovery time.

If your unit is unable to perform to the above pressure levels consult the troubleshooting guide for the required repair procedure.

# TROUBLESHOOTING

## HYDRAPULSE MEMBRANE TEST

If your unit is disabled and you are unable to perform a pressure test, use the following procedures for determining the area to repair. This test will divide the two halves of the equipment (hydraulic from paint) and make identification of your solution easier to obtain. This test is commonly referred to as the "Hydrapulse Membrane Test"

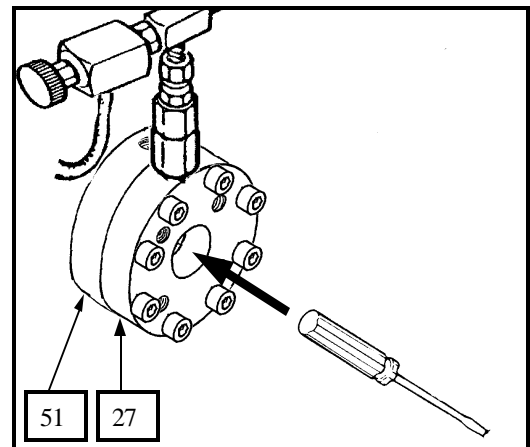
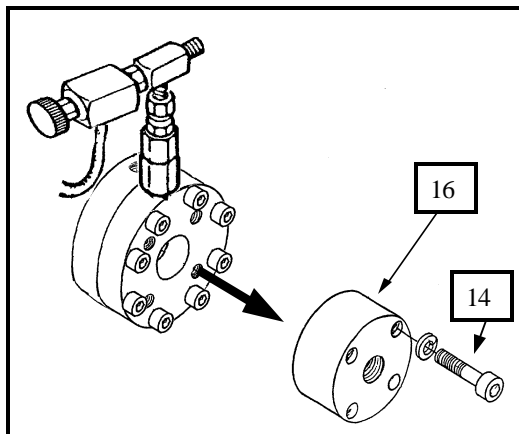
The solution to almost all problems can be found in the paint side valves, due to the increased wear from contact with the abrasive paint/spray materials. Intake valve (ref# 16-28) and Outgo valve (ref#32) make up the paint valves. Refer to pages where exploded views of these valves are shown.

To eliminate the hydraulic side of the pump (piston / oil side of hydrapulse membrane) as a source of problems;

1. Remove the intake valve end cap (ref# 16) by removing the four cap screws (ref# 14). The intake valve assembly, (ref# 16-24), will generally come off as an entire assembly, requiring no further dismantling. If the ball guide (ref# 23) and ball stop (ref# 24), remain in the paint head, they can be pried free with a screwdriver.
2. Start unit.
3. Increase the pressure by turning the pressure control knob (ref# 71) clockwise to full pressure.
4. Put pressure on the center of the exposed hydrapulse membrane with the handle of a screwdriver or other blunt object.

**NOTE:** The hydrapulse membrane is located between the paint head (ref# 27) and the hydraulic head (ref# 51)

5. If you are:
  - UNABLE** to stop or alter the hydrapulse membrane's movement, then the hydraulic side is operating properly. The problem is located in the "Paint" pump. See troubleshooting guide for additional information.
  - ABLE** to stop or alter the hydrapulse membrane's movement, then the hydraulic pump is not operating properly. The problem is located in the "Hydraulic" pump. See troubleshooting guide for additional information.





# TROUBLESHOOTING

## **SITUATION**

### **POSSIBLE CAUSE (REMEDY)**

#### ***ELECTRIC MOTOR WON'T START/RUN***

1. Unit unplugged or building circuit fuse is blown. (check, replace or reset fuse)
2. Pump under pressure. (reduce pressure setting by turning pressure control knob counter-clockwise, trigger gun to relieve pressure).
3. Too light or too long of extension cord. (replace with correct cord. If distance greater than 100 feet, obtain and install extra length of H.E.R.O. airless spray hose).
4. Unit's thermal overload switch has opened. (determine and correct cause of overheating).

#### ***ELECTRIC MOTOR STALLS/QUITS***

1. See "Electric Motor Won't Start/Run"
2. Drive belt is loose. (tighten drive belts by evenly turning belt tension bolts on either side of motor clockwise. Loose belts generally emit loud squealing noises).
3. Unit builds pressure, but pump "seizes" or "stops" when gun is triggered. ( loose belts, tighten).

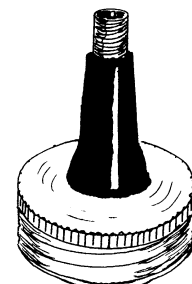
#### ***NO PRESSURE, BLUE HYDRAULIC FLUID IN PAINT***

1. Hydrapulse membrane broken. (replace hydrapulse membrane,(ref# 46). Closely follow detailed instructions on page 20. **NOTE;** If, and only if, paint has contaminated the hydraulic side of the pump, the entire hydraulic system must be cleaned and flushed. Make sure to remove and clean the hydraulic tank screen,(ref# 63), during this process. Refill only with genuine H.E.R.O. LVO hydraulic fluid. **NOTE;** If lacquer has contaminated the hydraulic system, the piston seal, (ref# 87), must be changed in addition to flushing the system. Closely follow detailed instructions on page 23-24).

#### ***HYDRAULIC SIDE OF PUMP HAS BEEN REPAIRED AND REASSEMBLED, HYDRAPULSE MEMBRANE NOT MOVING "PURGING"***

1. Air lock created on hydraulic side of pump. (when the hydraulic side of the pump is working there is no air in it. During repairs it is possible that air has been trapped in the hydraulic system. It must be removed or the pump will not work. To purge the air from the hydraulic system; remove the pressure control knob,(ref# 71), from the valve. Gently pull the P.C. stem,(ref# 74), out. It will pull out about 1/8". Remove the vented hydraulic cap,(ref# 65), from the hydraulic tank,(ref# 62), and install accessory pressure cap, item 4-45-3. With a bicycle pump, apply a few pounds of air pressure to the hydraulic tank. This will force the oil through the hydraulic system and push out any of the trapped air. Wait a few minutes. Remove pressure cap and replace with vented cap. Restart the unit and install pressure control knob. **NOTE:** Unit may be running during purging procedure to speed up the procedure. If a pressure cap is unavailable, simply running the equipment for approximately 5-10 minutes with the P.C. stem pulled out, will purge the system).

Accessory  
Item  
4-45-3



# TROUBLESHOOTING

## **SITUATION**

### **POSSIBLE CAUSE (REMEDY)**

#### **TOTAL LOSS OF PRESSURE, HYDRAPULSE MEMBRANE MOVEMENT CANNOT BE STOPPED OR ALTERED. (SEE "HYDRAPULSE MEMBRANE TEST")**

1. Paint too thick. (thin paint according to manufacturer's recommendations).
2. Intake ball (ref# 20) worn or jammed opened/closed. (remove intake endcap (ref# 16) and ball guide (ref# 23). Inspect intake ball,(ref# 20), to ensure it is free, round, and has no nicks or cuts. Inspect ball guide for excessive "bashing out" on the internal walls. Excessive wear causes the ball to become "lost" and unable to locate the seating surface. Inspect for foreign material jamming ball. Replace parts as needed).
3. Intake seat loose/bypassing. (remove intake endcap,(ref# 16) and ball guide, (ref# 23). remove seat (ref# 18) and inspect washer (ref# 17) for excessive compression. Inspect for any sign of material b y p a s s between intake seat and endcap cavity. **NOTE;** The proper alignment of intake parts, condition of intake washer, o-rings, combined with the correct bolt torque are critical to the correct function of the i n t a k e valve. Replace the intake washer (ref# 17), each time the endcap is removed.
4. Outgo valve ball (ref# 36) worn or jammed. (remove outgo valve,(ref# 32). Invert valve and unthread outgo valve upper,(ref# 39), from outgo lower,(ref# 33). Remove crush washer,(ref# 34), outgo seat, (ref# 35), outgo ball,(ref# 36), outgo cage,(ref# 37), outgo spring,(ref# 38), from outgo upper tunnel. Inspect outgo ball to ensure that it is round and free of nicks or cuts. Inspect for foreign material jamming ball. Inspect ball and cage for wear. Replace parts as needed).
5. Outgo valve (ref# 32) incorrectly assembled. (disassemble and reassemble outgo valve, closely following detailed instructions on page 22).

#### **TOTAL LOSS OF PRESSURE, HYDRAPULSE MEMBRANE HAS NO MOVEMENT OR MOVEMENT CAN BE STOPPED. (SEE "HYDRAPULSE MEMBRANE TEST")**

1. Hydraulic intake valve (ref# 59) defective. (remove hydraulic feed line,(ref# 60), from hydraulic intake valve. Plug hydraulic feed line so hydraulic fluid does not drain. Remove hydraulic intake valve from elbow,(ref# 147). Check hydraulic intake valve to ensure that it flows in one way only, into the cylinder. Replace if necessary. **NOTE;** Item cannot be repaired ).
2. Air lock created on hydraulic side of pump. (air entering hydraulic side due to loose hydraulic feed line fittings, (ref# 60), punctured hydraulic feed line, poor seal at hydraulic intake valve, (ref# 59), or elbow, (ref# 147). Tighten hydraulic feed line, test for leaks, or apply Teflon tape or pipe sealant on fittings. Purge air as per detailed instructions below).
3. Pressure control valve ball (ref# 84) worn out/jammed. (remove hydraulic return line, (ref# 69), from pressure control valve fitting,(ref# 78). Remove pressure control valve,(ref# 70), from elbow, (ref# 59). Disassemble pressure control valve, by removing valve seat,(ref# 83), from body, (ref# 79). Inspect for and remove foreign material. Inspect ball for wear. Install pressure control repair kit,(ref# 85), if necessary).
4. Piston rod (ref# 90) disconnected from piston (ref# 88). (reconnect piston rod following detailed instructions on page 23-24).

#### **SPRAYER DOES NOT PRIME WITH PAINT**

1. Heavy bodied paint, air lock. (refer to " Setting Up To Spray" and follow instructions.

# TROUBLESHOOTING

## ***SITUATION***

### **POSSIBLE CAUSE (REMEDY)**

#### ***PUDDLE OF OIL APPEARING UNDER SPRAYER DURING OPERATION***

1. Hydraulic fitting loose/cracked or hydraulic lines are punctured. (examine all hydraulic lines and fittings for cracks, breaks or looseness. Replace or tighten as required).
2. Piston seals (ref# 87) worn. (remove and replace piston seals, following closely the detailed instructions on page 23-34).

#### ***CORRECT STATIC PRESSURE, BUT REDUCED SPRAYING PRESSURE***

***(Check with pressure gauge, see page 15 for details).***

1. Spray tip worn out/too large. (replace with new, correct sized spray tip. Tip must not exceed a newer condition .023 tip ).
2. Paint hose incorrect. (replace hose with genuine H.E.R.O. airless spray hose (min. 50 feet). Steel braided hoses must not be used ).
3. Intake valve seat (ref# 18) worn. (replace intake seat closely following detailed instructions on page 21).
4. Intake ball (ref# 20) worn. (replace intake balls when signs of wear, deformation, nicks or cuts are evident. An out of round ball is the sign of a worn intake seat,(ref# 18), and both items should be replaced).
5. Outgo seat (ref# 35) worn. (replace seat).
6. Outgo ball (ref# 36) worn/damaged. (replace outgo ball).

#### ***LOW STATIC PRESSURE, LOW SPRAY PRESSURE***

***(Check with pressure gauge, see page 15 for details).***

1. Pressure control valve stem screw (ref# 76) loose. (remove pressure control knob,(ref# 71), and inspect screw for looseness. Screw should be secured to stem, (ref# 75), with Loc-Tite. If the screw turns independent of the stem than it must be re-secured. Secure unit so it will not move. Install pressure gauge and .021 spray tip. Obtain a piece of wood, to use as a pusher or purchase a pressure control adjustment tool, 27C-15. Remove pressure control screw and put some Loc-Tite 609 on threads. Turn the screw into the stem a few turns and push it in to its maximum and read pressure. Turn the screw in or out until 3000 psi static pressure is obtained. If you obtain a pressure which higher than 3000 psi, trigger gun to release some pressure and continue adjusting screw until correct pressure is obtained. Let Loc-Tite set up.
2. Pressure control ball (ref# 84) and/or seat (ref# 83) worn. (remove entire pressure control valve, (ref# 70), from sprayer. Remove valve seat, ball, retainer,(ref# 82), and spring,(ref# 81), from valve. Replace with pressure control repair kit,(ref# 85). Hold valve body vertical while placing in spring, followed by retainer. Retainer should be below the valve body (approx. 3/8") when positioned correctly. Center ball on retainer, turn valve seat into body until finger tight, using pipe dope or Teflon tape to seal. Fully tighten using wrench.

#### ***SPRAY PATTERN LEAVES LINES OR FINGERS***

1. Pressure too low. (increase pressure slowly until problem is corrected).
2. Worn tip. (replace tip).
3. Tip too small for spray material. (change to larger tip or increase pressure. See material manufacturers recommendations).

# TROUBLESHOOTING

## **SITUATION**

### **POSSIBLE CAUSE (REMEDY)**

#### ***FLUID BEING SPRAYED OUT OF TIP PULSATES, SPRAY HOSE LIES QUIET WHEN GUN TRIGGER CLOSED***

1. Spray tip worn out or too large. (replace with new tip of correct size. Tip must not exceed a good condition .023 tip ).
2. Paint hose incorrect type. (replace with genuine top quality H.E.R.O. airless spray hose. Steel braided hose is not recommended ).
3. Too short a length of hose. (minimum 50' of airless spray hose is required. Replace or add hose until a minimum of 50' is being used).

#### ***FLUID BEING SPRAYED OUT OF TIP PULSATES, SPRAY HOSE CONTINUES TO MOVE VIGOROUSLY WHEN GUN TRIGGER CLOSED***

1. Outgo valve (ref# 32) assembled incorrectly. (remove the outgo valve and reassemble closely following the instructions on page 22).
2. Outgo valve ball (ref# 36) worn out or jammed. (inspect outgo ball to ensure that it is round and free of nicks or cuts. Inspect for foreign material jamming ball. Inspect seat and cage for wear. Replace parts as required).

#### ***PUMP SPRAYS WATER OR SOLVENT AT CORRECT PRESSURES, BUT WILL NOT SPRAY PAINT (Check with pressure gauge, see page 15)***

1. Air leak in paint intake assembly. (check all fittings and hose clamps in intake assembly for tightness).
2. Air leak in paint intake. (check for cracked or broken intake fittings. Swivel connector, (ref# 11), or elbow,(ref# 13), may be damaged due to over tightening. Look for small black hairline fractures. Replace damaged parts).
3. Partial blockage in paint intake hose, (ref# 7). (clean and remove any blockages from intake hose. Check to insure strainer bag is not clogging intake hose).

#### ***SPRAY PATTERN IS SPOTTY OR UNEVEN***

1. Pressure is too low. (increase pressure slowly until problem is corrected ).
2. Spray material too thick. (thin as recommended by material manufacturer).
3. Plugged: tank screen, intake tube, gun filter or a combination. (inspect and clean or replace as required).
4. Plugged tip. (remove and clean tip).
5. Pump malfunctioning or unsuitable for the material. (refer to other areas of troubleshooting guide and check material requirements vs 1000MD output abilities).

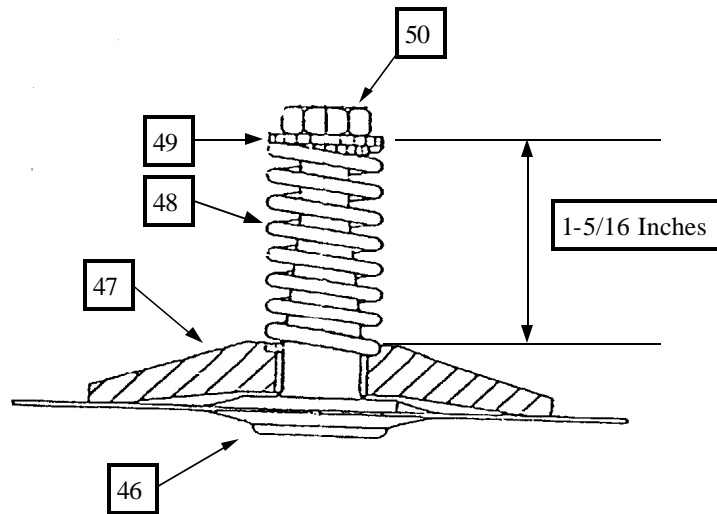
#### ***EXCESSIVE OVERSPRAY OR FOGGING***

1. Pressure too high. (reduce pressure as required).
2. Material too thin. (follow material manufacturers recommendations re-thinning).
3. Tip too large. (reduce tip size).
4. Improper application technique. (refer to proper application techniques on page 9-11).
5. Too windy. (wait for wind to let up).

# HYDRAPULSE MEMBRANE REPLACEMENT ( REF# 46 - KIT )

## TOOLS REQUIRED

- 1/4" Allen wrench
- 1/2" Open end wrench (2)
- 4-45-3 (accessory item)
- Torque wrench



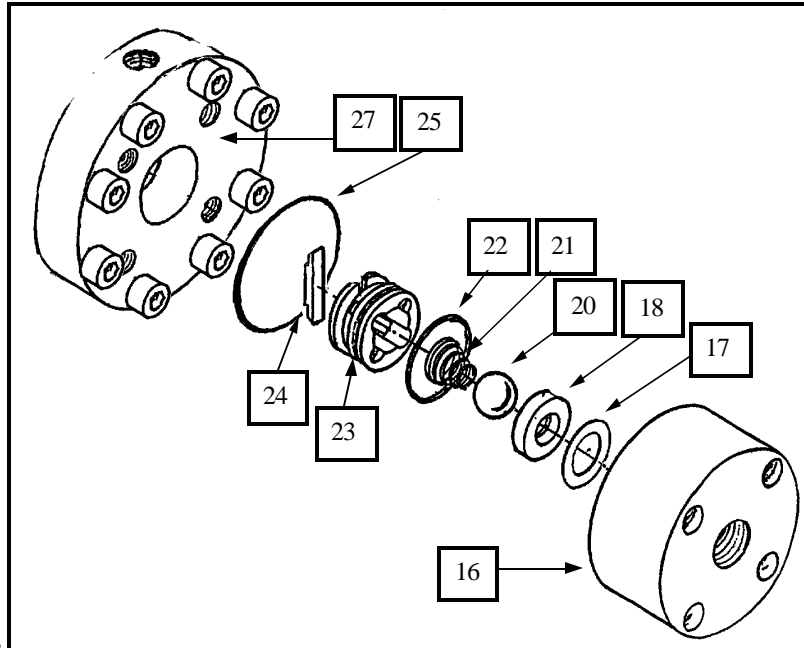
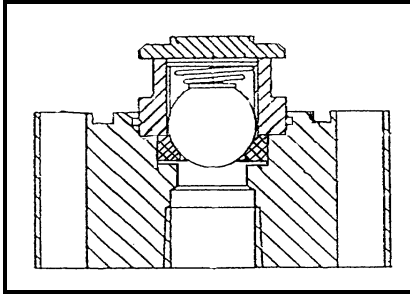
## Removal

1. Remove the eight bolts securing the material head (ref# 27) to the hydraulic head (ref# 51).
2. Remove the material head cushion (ref# 28) and replace with the new one supplied.
3. Place a container under pump to catch hydraulic oil.
4. Gently pull hydrapulse membrane to separate it from the hydraulic head.
5. Remove the nut (ref# 50) on the hydrapulse membrane stem in order to separate the hydrapulse membrane from the hydraulic plastic horn (ref# 47), hydrapulse membrane spring (ref# 48), and spring locator (ref# 49).
6. Clean all parts.

## Assembly

1. Place hydraulic plastic horn over the new hydrapulse membrane.
2. Position the spring in the bore of the plastic horn.
3. Install the spring locator over the hydrapulse membrane stem and into the spring. Thread the jam nut (ref# 50 - new one provided) onto the stem.
4. Tighten the jam nut until a measurement of 1-5/16" is obtained. The measurement is taken from the top of the hydraulic horn (ref# 47) to the top of the spring locator (ref# 49). See diagram above.
5. Check the assembly. The spring must be positioned in the bore of the plastic horn on one end and over the shoulder of the spring locator on the other end. Any stem material protruding past the nut may be ground off ( stem should be just past flush with nut )
6. Place the hydrapulse membrane assembly back into the hydraulic head.
7. Re-install the material head with the eight bolts. Torque to 30 ft. lbs.
8. Refill hydraulic oil tank and "**PURGE**" system following instructions on page 16.
9. Prime the pump with solvent or water and bring the pump up to full pressure (approximately 2500 psi.). Run the pump on standby ( not triggering gun ) for about 20 minutes, to "break-in" new membrane.
10. Installation is now complete and the pump is ready for use.

## REPLACEMENT OF INTAKE SEAT (REF # 18)



### TOOLS REQUIRED

- 5/16" Allen wrench
- vise
- torque wrench
- screwdriver

1. Remove the four bolts (ref# 14) and pull intake endcap (ref# 16), from the pump. The endcap should separate from the material head (ref# 27), with the ball guide (ref# 23) attached. If the ball guide remains in the material head, pry out with a screw driver.
2. Clamp endcap in vise with the ball guide facing up.
3. Pry off the ball guide and remove intake ball (ref# 20) and spring (ref# 21).
4. Remove seat from endcap. **NOTE; The seat is not secured with any Loc-Tite, however dried paint may cause difficulty in removing seat.**
5. Remove the crush washer (ref# 17).
6. Thoroughly clean and inspect all parts. Replace any worn or damaged parts.
7. Place clean endcap in vise with o-ring (ref# 25) groove facing up.
8. Assembly of parts is the reverse of removal; washer (ref# 17), seat (ref# 18), and ball (ref# 20).
9. If the ball guide (ref# 23) and ball stop (ref# 24) were separated during removal, re-assemble the two. **NOTE; The step on the ball stop must face outwards ( Towards hydrapulse membrane ).**
10. Place the spring (ref# 21) into the ball guide so the smaller end of the spring will contact the ball.
11. Assemble the ball guide, with spring, onto the endcap over the already installed ball and seat. Push down on the ball guide so that the ball guide o-ring (ref# 22) locks the assembly together.
12. Place o-ring (ref# 25) in the groove on the face of the endcap.
13. Install the entire endcap assembly onto the material head with the four bolts (ref# 14). Torque bolts, using a crisscross pattern, to 20 ft. lbs. Repeat torquing procedure using 30 ft. lbs.

**NOTE: Effective March 1997, and beginning with serial number 170034, a new style Hydrapulse "Intake" assembly is used. The changes effect the Endcap (ref# 16), Crush Washer (ref # 17), Ball Guide (ref# 23), Ball Stop (ref# 24), and the Material Head (ref# 27). The most significant change is to the endcap. Gone is the o-ring, formerly located under the intake seat. The endcap is machined flush and a new crush washer is now placed in before the seat ( crush washer is placed under the seat ). The seat will be held in place through the compression of parts during assembly.**

# OUTGO VALVE (REF# 34)

## TOOLS REQUIRED

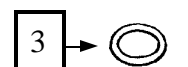
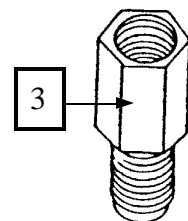
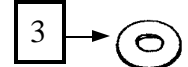
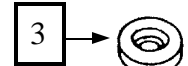
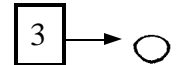
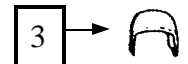
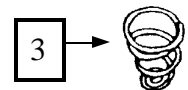
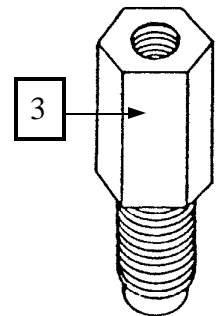
- 1" wrench
- vise
- Teflon tape

1. Remove pressure control knob, (ref# 71) and pull P.C. stem, (ref# 74) out to internal stop, thereby releasing hydraulic pressure.
2. Trigger gun to release pressure from the material side of pump.
3. Disconnect outgo tee assembly, (ref# 43) from outgo swivel, (ref# 40) on the outgo valve.
4. Remove outgo valve from machine by turning counter clockwise.
5. Invert valve and secure upper part of valve, (ref# 39) in vise.
6. Remove lower half of valve, (ref# 33).
7. Remove crush washer, (ref# 34), seat, (ref# 35), ball, (ref# 36), cage, (ref# 37) and spring, (ref# 38). Clean and inspect all parts for wear. Replace any worn parts.
8. Apply Teflon tape to threads of outgo upper body.
9. Place spring, large end first, into outgo body. Spring should fit into slot machined into tunnel.
10. Place cage onto spring, with open end up.  
**NOTE:** Cage should be open so that it drags down the sides of the tunnel during installation. If closed too much it will trap the ball and cause pulsation in spray pattern.
11. Place ball into cage.
12. Install seat, beveled side down to ball. Seat should fit snugly into outgo body. Press on seat to ensure it will compress until it is flush with outgo body. Release slowly to ensure the parts do not dislodge themselves.
13. Place crush washer on seat. Replace crush washer if badly crushed.
14. Thread outgo lower onto outgo upper until finger tight. Tighten 1/2 turn with wrench. **NOTE:** Teflon tape or pipe sealant should be used.
15. Attach repaired valve to machine, installing a new crush washer, (ref# 31) following steps 3-4 in reverse order.

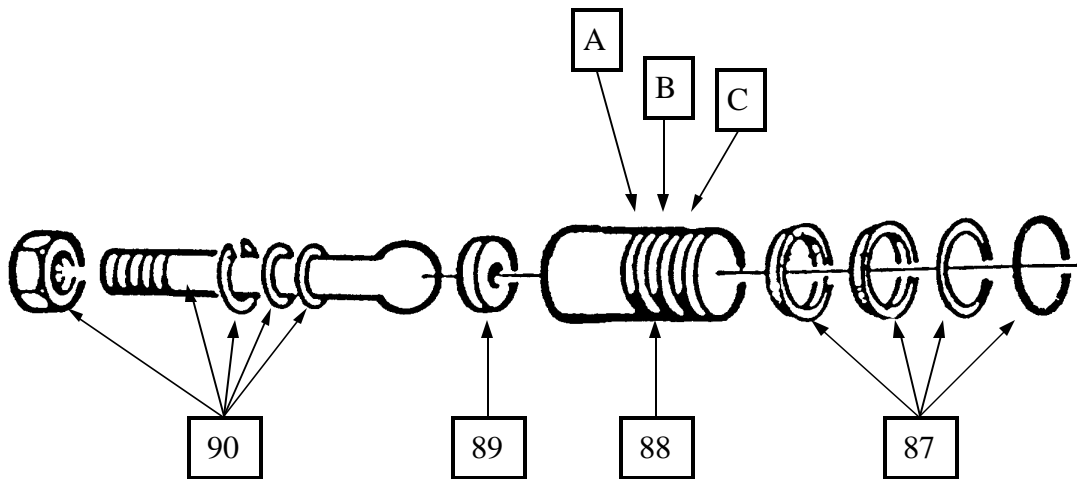
## SPECIAL NOTES:

- \* To check the ball for wear, place against a new seat and check sealing edge against a bright light.
- \* A used seat may be checked in a similar manner using a new ball. Replace used part if light pass at sealing edge.

Outgo  
swivel  
ref# 40



## PISTON REPAIRS (REF# 86)



### TOOLS REQUIRED

- 1/2" wrench
- 11/16" wrench
- circlip pliers
- torque wrench
- grease
- vise grips

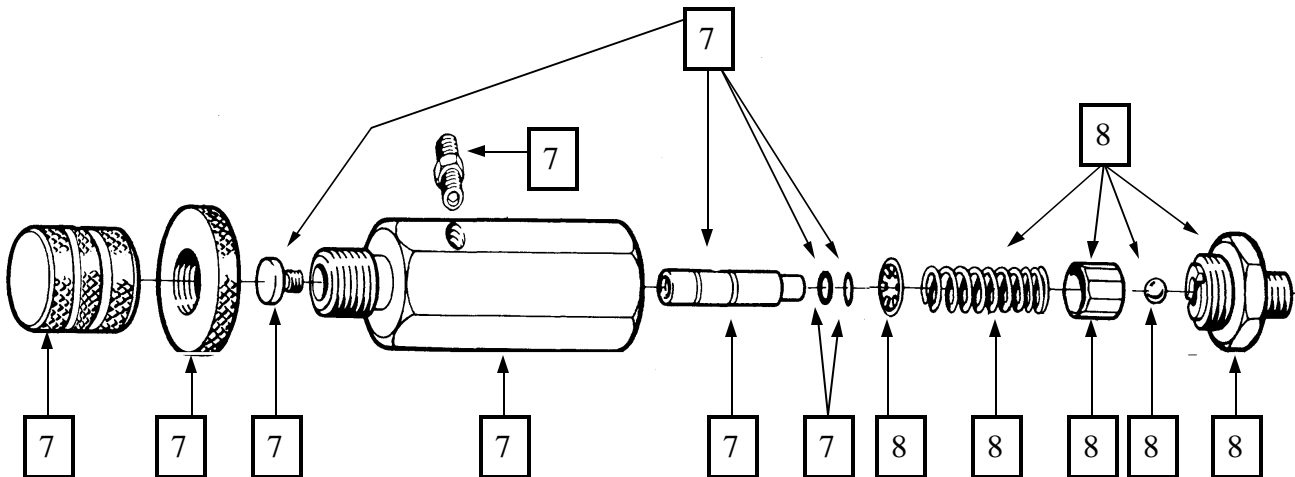
1. Remove hydraulic feed line, (ref# 60) from hydraulic intake valve, (ref# 59) and also remove hydraulic return line, (ref# 69) from the pressure control valve, (ref# 70). Plug lines to minimize oil loss. (Hint; golf tees work well for this)
2. Remove the bolts, (ref# 57) passing through the side frames, (ref# 106, 107), into the crossblock, (ref# 56).
3. Place a drain tray under cylinder area.
4. Grasp the pump assembly, and pull away from the piston. Stop when piston pulls free, to allow the hydraulic oil to drain into pan. Completely remove pump assembly from between side frames.
5. If only replacing piston seals, (ref# 87) continue at step 15.
6. Remove the piston, (ref# 86) from eccentric bearing, (ref# 95). Move to clean work bench for repairs.
7. Remove piston circlip, using circlip pliers. Remove piston from rod.  
**NOTE:** Use extreme caution not to damage circlip or the internal circlip groove of piston.  
**NOTE:** Piston rod circlip, washer, o-ring, and nut are not available individually. Parts are available with the purchase of piston rod, (ref# 90) only.  
**NOTE:** The circlip will have one sharp edge and one smooth edge. The smooth edge should be towards the washer. If reversed, the rod will continually pull out of the piston.
8. Remove bronze piston rod seat, (ref# 89) from piston, (ref# 88).
9. Examine all parts for wear or damage. Replace as required.
10. Fill the center cavity of piston rod seat until flush with grease. Slide seat into piston with concave side (filled with grease) facing out.
11. Lightly grease the ball end of piston rod. Push piston rod into piston until ball end of rod contacts seat.



## PISTON REPAIRS

12. Slide o-ring and steel washer down rod and into piston. Slide circlip down into piston and snap into the internal circlip groove of piston using circlip pliers.  
**NOTE:** Circlip must fully expand into groove of piston. Circlip has fully expanded when there is 13/64" space between circlip eyelets.  
**NOTE:** If you experience difficulty installing circlip, remove a small quantity of grease. When installed correctly, rod should move slowly and without any free play.
13. If piston seals, (ref# 87) are required, they may be installed now or after piston has been re-attached.
14. Thread rod into eccentric bearing holder, (ref# 95) until nut is flush with eccentric bearing. Tighten snugly.  
**NOTE:** Piston rod nut must remain fully threaded onto rod, if during installation, the nut begins to loosen from rod, re-tighten to rod. Place vise grips on rod to assist in tightening piston rod into eccentric.
15. Remove and discard old piston seals.
16. Piston seal kits, (ref# 87) contain a total of four pieces (1 o-ring, 1 flat washer, 2 cup washers). Take note of their installation sequence by referring to drawing. The piston has three machined grooves, which have been marked on the drawing as A, B, & C.
17. Place flat washer (one side has a contoured face) into groove "C", then place o-ring in front of flat washer, so that it fits into the contoured face of the flat washer.
18. Place one cup washer into groove "B", with open face of cup washer facing the end of piston. (towards hydraulic oil when installed)
19. Place second cup washer into groove "A".  
**NOTE:** Always work from the front of the piston back so that you are always moving the cup washers over filled grooves. This avoids damage that can occur to the cup washers if they have to be dug out of one groove and moved to another. Avoid over stretching.  
**NOTE:** A small, dental like tool, may be used to assist in moving cup washers.
20. Apply grease to seals before installing in cylinder, (ref# 53).
21. Slide pump assembly into side frames and guide piston into cylinder.  
**NOTE:** Use care not to push the piston too far into cylinder. If piston rings slide in too far they will pass through cylinder into the hydraulic cavity. Complete dismantling of piston will be required to remove. The piston can not be pulled back if the seals have gone through cylinder.
22. Reattach crossblock bolts, as removed in step 2. Torque bolts to 30 foot pounds.
23. Reconnect hydraulic lines, as removed in step 1.
24. Add new hydraulic oil to hydraulic tank, using only genuine H.E.R.O. LVO hydraulic oil.
25. Once the repairs have been completed, the hydraulic oil will require purging to remove the trapped air. See "**PURGING**" instructions on page 16.

# PRESSURE CONTROL VALVE (REF# 70)



## TOOLS REQUIRED

- 1" wrench
- 11/16" wrench

1. Remove pressure control knob, (ref# 71) and pull P.C. stem, (ref# 74) out to the internal stop (1/16" to 1/8") thereby releasing hydraulic pressure.
2. Remove hydraulic return line, (ref# 69) from P.C. fitting, (ref# 78).
3. Place 11/16" wrench on P.C. seat, (ref# 83). Turn counter-clockwise to remove complete valve.
4. Place complete valve in vise and remove seat from body, (ref# 79).
5. Remove ball, (ref# 84), retainer, (ref# 82), and spring, (ref# 80) from body. Inspect ball for nicks or cuts and replace if damaged. Inspect seat at sealing edge, for signs of wear. A good condition seat will have a very small bevel at the sealing edge. The larger the bevel the more wear has taken place. Inspect retainer for wear. The retainer has a small locating hole in it. The hole should be flush or slightly beveled. The greater the wear on the ball, seat, and retainer the poorer the static pressure will be. Replace parts individually, or use repair kit, (ref# 85).
6. Hold P.C. body vertical. Place spring into body, place retainer onto spring. Ensure retainer fits completely over spring. Retainer should rest below end of body by approximately 1/4" to 3/8". Place ball onto retainer, ensuring ball is located on center hole.
7. Thread on seat, using care not to dislodge the ball from its position on the retainer. Tighten firmly.
8. Apply pipe dope or Teflon tape to exterior threads of seat. Install into elbow. Tighten to prevent leaks and return to original position.
9. Reattach hydraulic line.
10. See "**PURGING**" instructions on page 16.

## ACCESSORIES PARTS LIST

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"
620-VHS	SERVICE VIDEO TAPE, VHS FORMAT
620-H2O	HOW TO OPERATE VIDEO TAPE, VHS FORMAT
67/18B	HEX KEY SET, 5/16",1/4",5/32",1/8"
10-55-011-2	AIRLESS SPRAY GUN, ASM, 2 FINGER TRIGGER
10-55-011-4	AIRLESS SPRAY GUN, ASM, 4 FINGER TRIGGER
3GAL SB	STRAINER BAG, 3 GALLON
3GAL PL	PLASTIC LINER, 3 GALLON
10-55-____	ZIP TIP INSERT, AVAILABLE IN THE FOLLOWING SIZES;
	0904    1104    1304    1504    1704    1904    2110
	0906    1106    1306    1506    1706    1906    2116
	1108    1308    1508    1708    1908    2104    2118
	1110    1310    1510    1710    1910    2106    2310
	1312    1512    1712    1912    2108    2312
	OTHER FAN SIZES ALSO AVAILABLE, BUT NOT ALWAYS STOCKED

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 )	
4-6658B	INTAKE REPAIR KIT	<i>NEW, after serial # 170034</i>
4-6659B	INTAKE OVERHAUL KIT ( Repair Kit + Seat )	<i>NEW, after serial # 170034</i>
4-6654	OUTGO REPAIR KIT	
4-6655	OUTGO OVERHAUL KIT ( Repair Kit + Seat )	
4-LVO-1	HYDRAULIC OIL, 1 LITRE	
4-LV0-4	HYDRAULIC OIL, 4 LITRE	
4-67/19	PRESSURE GAUGE C/W FITTINGS	
4-45-3	PRESSURE CAP, HYDRAULIC TANK	
10-QRP-3	QUICK REACH POLE, 3 FOOT GUN EXTENSION	
10-QRP-5	QUICK REACH POLE, 5 FOOT GUN EXTENSION	
10-QRP-8	QUICK REACH POLE, 8 FOOT GUN EXTENSION	

## PARTS LIST

Please order parts by the appropriate part number and not by reference number.  
The quantity required, per unit, is shown for each part number. Part numbers in **bold** text indicate whole assemblies or kits. These parts may also be purchased individually

### INTAKE PARTS

REF	PART #	DESCRIPTION	QTY
<b>1</b>	<b>4-1/100-10A</b>	<b>LID, Paint Tank, C/W Knob, 10 3/4" I.D., Ref# 1-3</b>	<b>1</b>
2	4-1/75-6	KNOB, c/w Screw	1
3	HW3018P	SCREW, 8-32 x 3/8, RD HD, Slot	1
4	1/75-4	TANK, 3 Gallon Paint	1
5	1/100-12	SCREEN, Paint Tank	1
<b>6</b>	<b>4-1/75-14</b>	<b>TUBE ASSEMBLY, Intake Hose, Ref# 7-12</b>	<b>ASSY</b>
7	4-1/75-2A	HOSE, Lacquer Resistant, ( Sold by the foot, cut as required )	1
8	633C	QUICK CONNECT, Upper	1
9	2/77	GASKET, Lacquer Resistant	1
10	633E	QUICK CONNECT, Lower	1
11	1/75-1	SWIVEL, Connector	1
12	1/75-3	CLAMP	4
13	2/75	ELBOW, 90°	1
14	HW1087	CAPSCREW, SKT HD, 3/8 NC x 2", Gr. 8	4
15	3-2	WASHER, 3/8" Hi Collar Lock	4
16	4-02-22-2502B	ENDCAP, Hydrapulse, Gold <i>NEW, after serial # 190031</i>	1
17	02-22-2009B	WASHER, Crush <i>NEW, after serial # 190031</i>	1
18	6	SEAT, 3/4" Tungsten Carbide	1
19		NOT USED	
20	17S	BALL, 3/4", Corrosion Resistant	1
21	02-22-2005	SPRING	1
22	02-22-2006	O-RING, Urethane	1
23	02-22-2002	BALL GUIDE <i>NEW, after serial # 170034</i>	1
24	02-22-2001	BALL STOP <i>NEW, after serial # 170034</i>	1
25	5V	O-RING, Viton	1
26	3	CAPSCREW, SKT HD, 5/16 x 1-3/4"	8
27	4-02-22-2501	HEAD, Material, Hydrapulse, Gold <i>NEW, after serial # 170034</i>	1
28	02-22-2004	CUSHION, Material Head	1
<b>29</b>	<b>4-6658B</b>	<b>REPAIR KIT ( Ref# 17, 20-21, 25 ) <i>NEW, after serial # 170034</i></b>	<b>KIT</b>
<b>30</b>	<b>4-6659B</b>	<b>OVERHAUL KIT ( Ref# 17-25 ) <i>NEW, after serial # 170034</i></b>	<b>KIT</b>

## PARTS LIST

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### OUTGO PARTS

31	7C	WASHER, Copper Crush	1
<b>32</b>	<b>4-11A</b>	<b>OUTGO VALVE ASSEMBLY, ( Ref# 33-40 )</b>	<b>ASSY</b>
33	11A-1	VALVE BODY, Lower	1
34	11A-3CP	WASHER, Copper Crush	1
35	11A-4	SEAT, 3/8", Tungsten Carbide	1
36	11A-5	BALL, 3/8", Nylon	1
37	11A-6	CAGE	1
38	11A-7	SPRING	1
39	11A-2	VALVE BODY, Upper	1
40	20	SWIVEL	1
<b>41</b>	<b>4-6654</b>	<b>REPAIR KIT ( Ref# 31, 34, 36-38 )</b>	<b>KIT</b>
<b>42</b>	<b>4-6655</b>	<b>OVERHAUL KIT ( Ref# 31, 34-38 )</b>	<b>KIT</b>
<b>43</b>	<b>4-13-1</b>	<b>TEE ASSEMBLY, ( Ref# 44-45 )</b>	<b>ASSY</b>
44	13-1	TEE, Female x Male x Male	1
45	13A	Plug	1

### HYDRAULIC PARTS

<b>46</b>	<b>4-04-22-4500</b>	<b>HYDRAPULSE MEMBRANE ( Includes Ref# 28, 50 )</b>	<b>KIT</b>
47	04-22-4001	HORN, Plastic	1
48	04-22-4005	SPRING	1
49	04-22-4004	LOCATOR	1
50	HW4032	NUT, 5/15NC Hex Ny-Lock	1
51	4-04-22-4501	HEAD, Hydrapulse, Gold	1
52	5	O-RING	1
53	24/75	CYLINDER, 3/4"	1
54	HW5050P	WASHER, 5/16" SAE, Plated	6
55	36	CAPSCREW, SKT. HD., 5/16NC x 2-3/4"	6
56	35A	CROSSBLOCK, Aluminum	1
57	HW1060P	CAPSCREW, HX. HD., 5/16NC x 3/4", Gr. 5	6
58	HW5050P	WASHER, 5/16" SAE	6
147	25-2	ELBOW	3
59	4-30	VACUUM VALVE	1
<b>60</b>	<b>4-31</b>	<b>FEED LINE ( Includes Ref# 61 ) Complete With Ferrules &amp; Nuts</b>	<b>ASSY</b>
61	31-1	ORIFICE, Metering	1

## PARTS LIST

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### HYDRAULIC PARTS

<b>62</b>	<b>4-45A</b>	<b>TANK, Complete. ( Includes Ref# 63-65 )</b>	<b>ASSY</b>
63	4-45-1	SCREEN, Tank	1
64	45-4	ELBOW, Return	1
65	4-45-2	LID, Vented, Hydraulic Tank	1
66	45B	BRACKET, Tank	1
67	HW1010P	CAPSCREW, HX. HD., 1/4NC x 1/2"	2
68	45C	STRAP	2
69	4-28	RETURN LINE, Complete With Ferrules & Nuts	1
<b>70</b>	<b>4-27C</b>	<b>PRESSURE CONTROL VALVE, Complete ( Ref# 71-84 )</b>	<b>ASSY</b>
<b>71</b>	<b>4-27C-7</b>	<b>KNOB, P.C., Includes Ref# 72</b>	<b>ASSY</b>
72	HW2010	SETSCREW, SKT. HD. 5/16 NC x 5/16"	1
73	27C-6	LOCK NUT, Aluminum, P.C.	1
<b>74</b>	<b>4-27C-10</b>	<b>STEM ASSEMBLY ( Ref# 75-77 )</b>	<b>ASSY</b>
75	27C-10A	STEM, P.C.	1
76	27C-10B	SCREW, Stem, P.C.	1
77	27C-12	O-RING, P.C.	2
78	4-27C-11	FITTING, Oil Return, P.C.	1
79	27C-8	BODY, P.C.	1
80	27C-9	CIRCLIP, P.C.	1
81	27C-5	SPRING, P.C.	1
82	27C-4	RETAINER, P.C.	1
83	27C-3	SEAT, 38-40RC, P.C.	1
84	27C-2	BALL, Steel	1
<b>85</b>	<b>4-27CRK</b>	<b>REPAIR KIT, Ref# 81-84</b>	<b>KIT</b>
<b>86</b>	<b>4-38A/75</b>	<b>PISTON &amp; ROD ASSEMBLY, 7/8" (Ref# 87-90 )</b>	<b>ASSY</b>
87	4-37A/75	SEAL SET, Piston, 7/8"	1
88	4-38A/75-1	PISTON, Only, W/O Seals, 7/8"	1
89	38A-3	SEAT, Piston, Bronze	1
90	4-38A-2	ROD, Piston, C/W Nut, Washer, O-Ring, Circlip	1

## PARTS LIST

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### DRIVE PARTS

91	05-80-5000	BEARING, Crankshaft Side	2
92	HW1055	LT. CARRIAGE, 5/16NC x 5/8"	4
93	HW5060P	WASHER, Lock, 5/16	4
94	HW4030P	NUT, HX. HD, 5/16	4
<b>95</b>	<b>4-39</b>	<b>ECCENTRIC BEARING &amp; HOLDER, C/W Zerk, (Ref# 96,97)</b>	<b>ASSY</b>
96	39-2	BEARING, Eccentric, Outer	1
97	4-39-3	Holder, Eccentric, C/W Zerk	1
<b>98</b>	<b>4-41</b>	<b>CRANKSHAFT, Includes Ref# 99</b>	<b>ASSY</b>
99	39-1	RACE, Eccentric, Inner	1
100	4-49	KEYSTOCK, 3/16 SQ x 1.5"	2
101	4-65/100	SHEAVE, Pump, C/W Set Screws (2)	1
102	HW2020	SET SCREW, SKT. HD., 5/16 NC x 7/16	2
103	66/100	BELT	1
104	4-48/100	SHEAVE, Motor, C/W Set Screws ( See Ref# 96 )	1
105	4-61/74	MOTOR, 1.0 H.P., Marathon Motor, Includes Switch, Cord.	1
	65/101M	SWITCH, On/Off, Marathon Motors	
	61/105M	FAN, Marathon Motors	
	61/106M	CLIP, Fan, Marathon Motors	
	61/107M	COVER, Fan, Marathon Motors	
	65/122-COV-M	COVER, Capacitor, State Size, Marathon Motors	
	65/117	CORD, AC Power, Marathon Motors	

### CHASSIS PARTS

106	4-53	FRAME, Left Side	1
107	4-52	FRAME, Right Side	1
108	58	BRACKET, Motor Cord Wrap	2
109	HW1050P	CAPSCREW, HX. HD., 5/16NC x 1/2"	1
110	4-51	ROD, C/W Clips ( Includes Ref# 110 )	1
111	59	E-CLIP	2
112	4-50	BRACKET, Motor Mounting, Includes Ref# 112-113	1
113	HW1070F	CAPSCREW, HX. HD., 5/16NC x 1-1/4", Gr. 5, Full Thread	2
114	HW4040	NUT, Hex Jam, 5/16"	2
115	4-06-140-453	LEG ASSEMBLY, Includes Ref# 116-117	1

## PARTS LIST

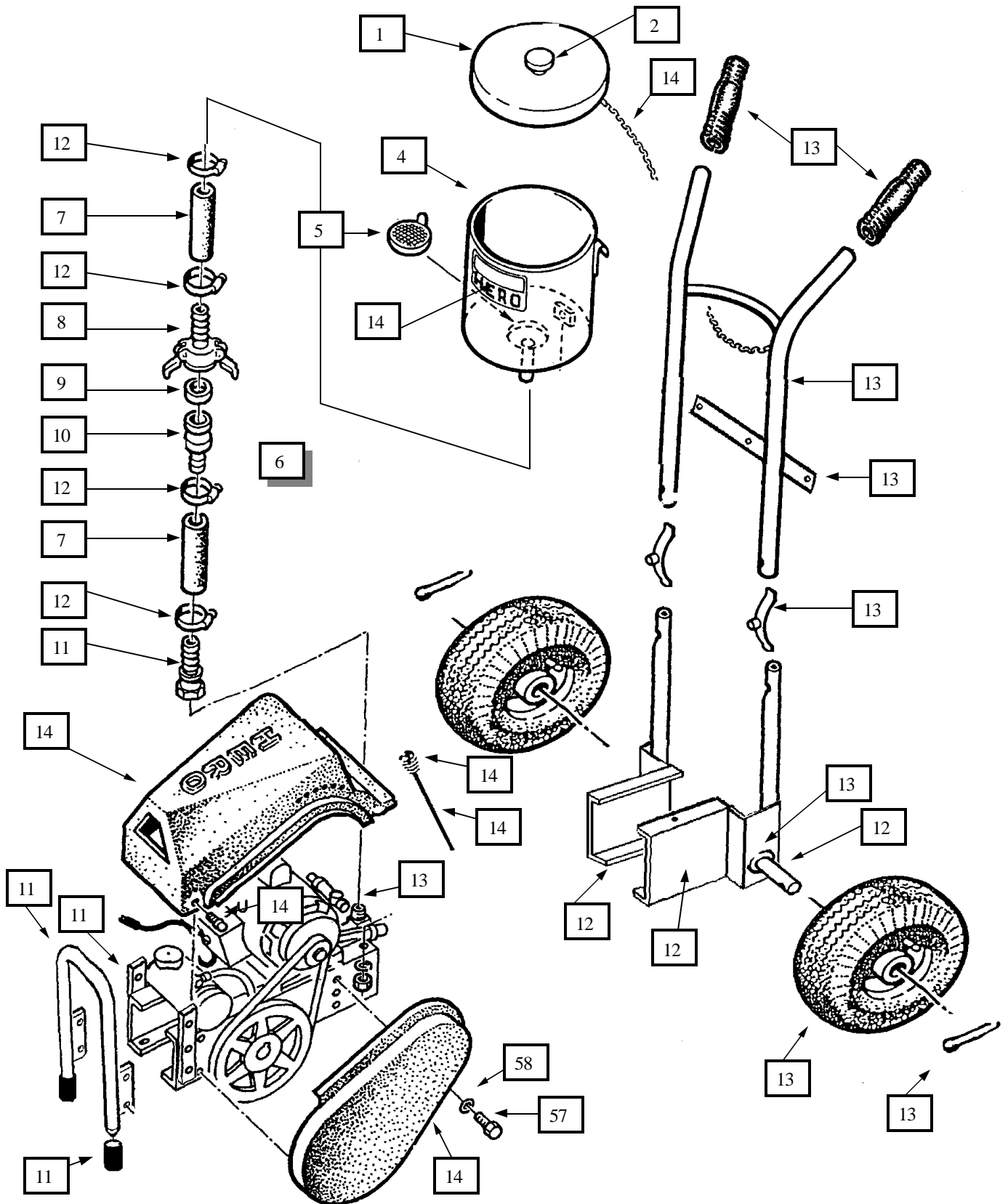
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### CHASSIS PARTS

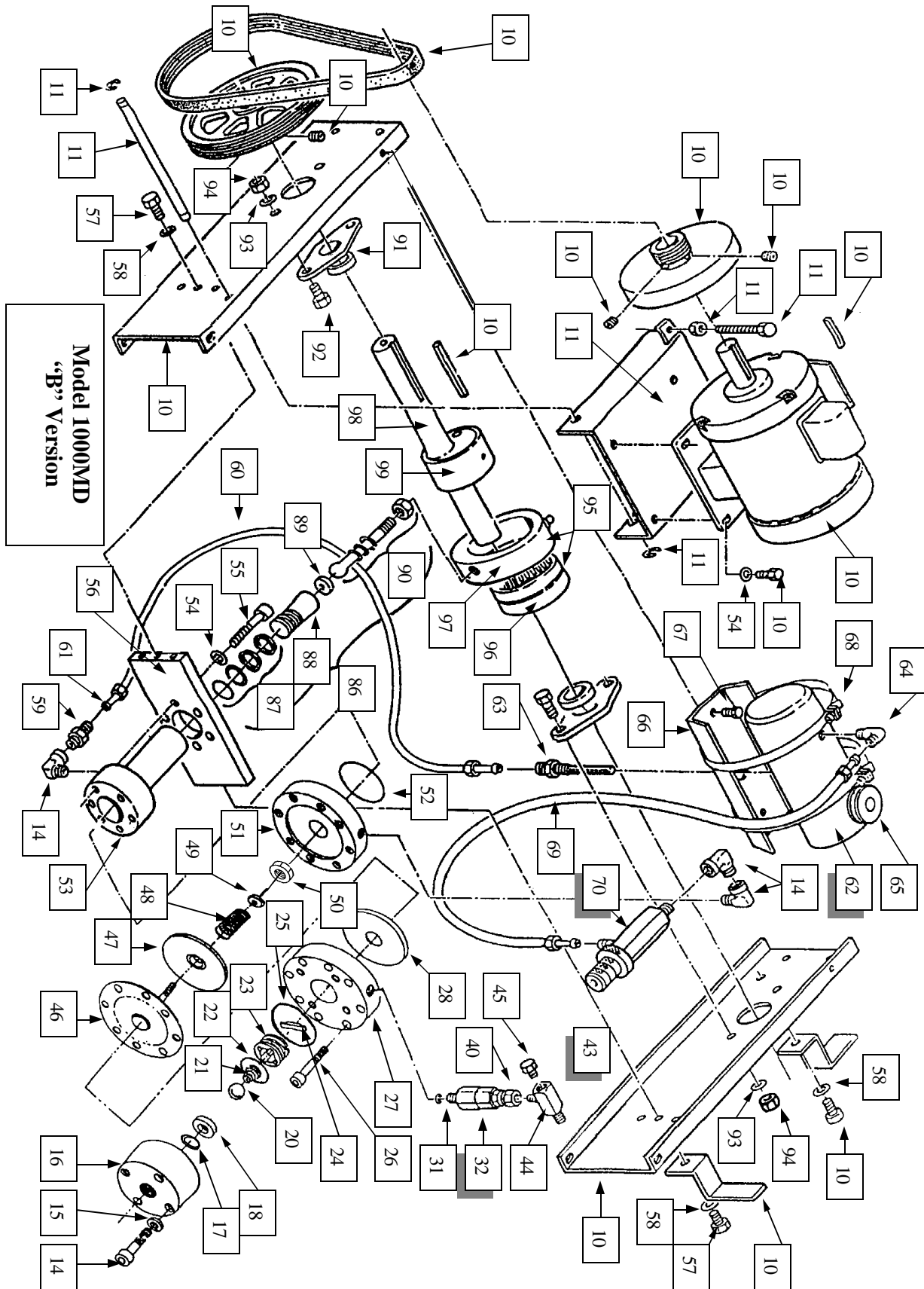
<b>116</b>	<b>PW-4080</b>	<b>FOOT PAD, Includes Ref# 117</b>	<b>2</b>
117	HW5090P	WASHER, 1/2" SAE	2
118	4-67/39	BRACKET, Shroud Mounting	2
119	HW1022P	CAPSCREW, HX. HD., 1/4NC x 1"	4
120	HW5030P	WASHER, 1/4 SAE	4
121	HW5040P	WASHER, 1/4 Lock	4
122	HW4020P	NUT, Hex, 1/4NC	4
123	67/33	HANDLE, Lower, Left	1
124	67/34	HANDLE, Lower, Right	1
125	HW1020P	CAPSCREW, HX. HD., 1/4NC x 3/4"	4
126	HW5030P	WASHER, 1/4" SAE	4
127	HW5040P	WASHER, 1/4" Regular Lock	4
128	HW4020P	NUT, 1/4" Hex	4
129	67/36	AXLE, 5/16" Diameter	1
130	4-67/39	SPACER	2
131	67/16A	WHEEL, 10" Pneumatic	2
132	67/17	COTTER PIN	2
133	633F	CLIP, Spring	2
134	67/31	HANDLE, Upper	1
135	67/32	BAR, Cross, For Tank Mounting	1
136	HW30652P	SCREW, Machine, 1/4-20 x 1-1/4, RD. HD., Slot	4
137	HW5040P	WASHER, 1/4" Regular Lock	4
138	HW4020P	NUT, 1/4" Hex	4
139	67/12	GRIP	2
140	4-1/100-13	CHAIN, 9"	1
141	66/100-1	BELTGUARD, Black	1
142	HW1020P	CAPSCREW, HX. HD., 1/4 NC x 3/4"	2
143	66/11-2	SHROUD, Black, 1.5 HP. Marathon Motors ONLY	1
144	66/10A	SCREW, Thumb	2
145	4-196	SHOCK CORD, Includes 141	1
146	195	SPRING	1



# PARTS SCHEMATICS - 1000MD



# PARTS SCHEMATICS



# AUTHORIZED SALES AND SERVICE CENTERS- U.S.A.



Call H.E.R.O.'s Toll Free Helpline 1-800-464-HERO (4376) or take your unit to your nearest authorized H.E.R.O. dealer. Help is available to answer all your sales and service questions, weekdays from; 7:00 AM-4:30 PM ( Pacific Time ). After hours calls are recorded and returned the next business day.

Full Parts and Service

Parts Only Sales

### North West:

Bentley Co. Inc.  
4109 Airport Way, South  
Seattle, WA 98108  
Phone: (206) 622-8262  
Fax: (206) 622-1736

### North Central:

M & E Equipment,  
271 Neil Avenue,  
Columbus, OH 43215  
Phone: (614) 224-5858  
Toll Free: 800-643-2615  
Fax: (614) 224-4029

### North East:

Essex-Silver-Line Corp.  
1118 Lakeview Avenue  
Dracut, MA 01826  
Phone: (617) 957-2116  
Toll Free: 800-451-5560  
Fax: (617) 957-6989

### West Central:

Janco Airless Center  
1235 5th Street,  
Berkeley, CA 94710  
Phone: (510) 527-2842  
Fax: (510) 527-5166

### Central:

Wieburg Enterprises Inc  
Rte. 2, Box 310  
Camdenton, MO 65020  
Phone: (314) 346-3129  
Toll Free: 800-93-SPRAY  
Fax: (314) 346-4622

### East Central:

American Airless  
7986 Suite C, Highway 85 South  
Riverdale, GA 30274  
Phone: (404) 477-1337

### South West:

Master Airless  
10235 Sepulveda Blvd  
Mission Hills, CA 91345  
Phone: (818) 894-8085

### South Central:

Bob Taylor Spray  
5700 James Avenue  
Fort Worth, TX 76134  
Phone: (817) 551-1525

### South East:

Atomizers Inc.  
6166 - 15th St. E, at Old Hwy 31  
Bradenton, FL  
Phone: (941) 751-5455  
Fax: (941) 751-5741  
Toll Free: 800-523-5042

**ALABAMA**  
Triplett Paint & Decorating,  
1800 Wilmer Ave.,  
Anniston, AL 36201  
205-236-5601

Northpole Building Sup-  
plies,  
3501 Lathrop Street,  
Fairbanks, AK 99701  
907-451-8939

Spray Technology,  
1730 W. 10th. Place, Ste. 8,  
Tempe, AZ 85281  
602-820-3572

Paint Mart,  
1431 Mangrove Avenue,  
Chico, CA 95926  
916-891-0400

Redding Paint Mart,  
2330 Larkspur,  
Redding, CA 96001  
916-221-7688

Airless Repair Center,  
814 Starburst Court,  
Windsor, CA 95492  
707-838-4580

Alabama Airless Supply,  
939 Jackson Blvd.,  
Birmingham, AL 35217  
205-849-9100

Columbia Paint,  
35551 Spur Highway,  
Soldotna, AK 99669  
907-262-4674

Piston Power,  
107-3600 S. Palo Verde,  
Tucson, AZ 85713  
602-792-2101

Chris' Fuller Paint,  
638 G Street,  
Davis, CA 95616  
916-756-4187

Power Rentals & Sales,  
210 W. Market,  
Salinas, CA 93901  
408-424-2966

All Season Paint,  
1041 Main Street,  
Woodland, CA 95695  
916-662-3244

Mobile Paints  
1002 Putman Drive, N.W.,  
Huntsville, AL 35805  
205-837-4930

### **ARKANSAS** ( See Missouri )

### **ARIZONA**

JP's Color Center,  
415 S. Main Street,  
Cottonwood, AZ 86326  
602-634-3880

Heath's Paint Center,  
2905 N. Fourth Street,  
Flagstaff, AZ 86001  
602-779-0355

**ALASKA**  
D.J.'s Alaska Rental,  
405 Boniface Parkway,  
Anchorage, AK 99504  
907-337-2552

Phoenix Spray,   
16601 N. 25th. Avenue,  
Phoenix, AZ 85023  
602-548-9848

Polar Supply,  
5001 Eagle Street,  
Anchorage, AK 99504  
907-563-5000

Spraco   
2218 N. 27th Ave.,  
Phoenix, AZ 85009  
602-269-1868

### **NORTHERN CALIFORNIA**

Redding Paint Mart,  
3101 East Street,  
Anderson, CA 96007  
916-365-2116

Warehouse Paint,  
431 Grass Valley Hwy,  
Auburn, CA 95603  
916-885-7914

**Janco Airless,**  
**1235 5th Street,**  
**Berkeley, CA 94710**  
**510-527-2842**

Valley Airless,   
4021-I California Ave.,  
Carmichael, CA 95608  
916-944-2153

Elk Grove Paint,  
9097 Elk Grove Blvd.,  
Elk Grove, CA 95624  
916-686-8536

Ponderosa Paint,  
3663 N. Clovis Ave.,  
Fresno, CA 93727  
209-291-0664

Modesto Color Center,  
607 Tully Road,  
Modesto, CA 95355  
209-521-5693

A-Arrow Rentals Sales,  
6132 Foothill Blvd.,  
Oakland, CA 94605  
510-569-0681

Paint Mart,  
4435 Antelope Blvd.,  
Red Bluff, CA. 96080  
916-527-5636

B & T Spray Equipment,   
45 Elmira Street,  
San Francisco, CA 94124  
510-467-0170

Empire Paint,  
1003 - 3rd. Street,  
San Rafael, CA 94901  
415-457-0102

Sonoma Paint Center,   
815 W. Napa,  
Sonoma, CA 95476  
707-996-6756

Contract Coatings Corp.,  
706 E. Main Street,  
Stocton, CA 95202  
209-465-2634

Tracy Color Center,  
84 W. 11th,  
Tracy, CA 95376  
209-835-9720

North Valley Paint,  
741 Plumas Street,  
Yuba City, CA 95991  
916-674-1770

### **SOUTHERN CALIFORNIA**

Decratrend Paint,  
1620 East Ball Road,  
Anaheim, CA 90805  
714-535-8810

Golden State Paint Corp.,  
111 South 1st. Avenue,  
Arcadia, CA 91006  
213-681-9241

San Luis Paint,   
8120 El Camino Real,  
Atascadero, CA 93422  
805-466-2226

# AUTHORIZED SALES AND SERVICE CENTERS- U.S.A.

<b>SOUTHERN CALIFORNIA</b>	17401 Nichols, Unit F, Huntington Beach, CA 92647 714-847-2392	Pasadena, CA 91107 818-793-5155	San Luis Paint, 2424 E Main Street, Ventura, CA 90091 805-641-1375	1320 N.W. 23rd Avenue, Fort Lauderdale, FL 33311 305-581-6060	<b>Tampa, FL 33614</b> <b>813-873-2866</b>
Bakersfield Paint, 401 Sumner Street, Bakersfield, CA 93305 805-327-8431	Lancaster Paint, 43639 10th Street W., Lancaster, CA 93534 805-942-6612	Tim's Airless Equipment, 2304 E. Colorado Blvd., Pasadena, CA 91107 818-793-7087	Altura Paint, 1850 Hacienda Drive, Vista, CA 92083 619-724-3600	Paint Store Plus, ☒ 11485 S. Cleveland Avenue, Fort Myers, FL 33907 813-939-0541	<b>GEORGIA</b> Mercury Spray Equipment, 5241 G New Peachtree Road, Chamblee, GA 30341 404-451-4856
Diefel's Paint, 1030 Alta Vista, Bakersfield, CA 93305 805-325-7201	San Luis Paint, 407 Ocean, Lompoc, CA 93436 805-736-3838	San Luis Paint, 611 Creston Road, Paso Robles, CA 93446 805-238-5467	West Whittier Paint, 11408 E. Whittier Blvd., Whittier, CA 90601 213-692-7214	The Paint House, 1218 Orange Avenue, Fort Pierce, FL 34950 407-465-5862	United Tool Rental, 3509 Highway 120, Duluth, GA 30136 404-476-8665
Sequoia Paint Company, 700 Baker, Bakersfield, CA 93305 805-323-7948	A. Shelbourne Co., 1200 Oregon Blvd., Long Beach, CA 90806 310-436-7755	Redlands Paint, 1390 Industrial Avenue, Redlands, CA 92374 714-798-0750	<b>COLORADO</b> All Seasons Rent All, 2157 S. Haven, Aurora, CO 90014 303-755-3566	Pintexs Chemical Co m- pany, 642 - 660 W. 84th Street, Hialeah, FL 33014 305-558-5731	Gainesville Paint, 528 Bradford Street, Gainesville, GA 30501 770-532-3146
State Paint Comp any Inc., ☒ 3920 W. Magnolia, Burbank, CA 91505 818-845-3745	Painters Warehouse, 11941 Exposition Blvd., Los Angeles, CA 900604 310-820-3336 / 310-826- 4576	Redlands Paint, 555 W. Redlands Blvd., Redlands, CA 92373 714-793-2488	Don's Airless Repair, 819 Hoorne Avenue, Colorado Springs, CO 80907 719-635-0632	Briton's Paint, 200 Park Street, Jacksonville, FL 32211 904-354-7707	Acme Paint, 1979 Riverside Drive, Macon, GA 31201 912-743-9336
Decratrend Paint, 68 - 845 Perez Road, Cathedral City, CA 92234 619-324-4615	Sprayco Service Center, 1198 S. La Brea Avenue, Los Angeles, CA 90019 213-934-5669	A. Shelbourne Company, 1440 - 3rd Street, Unit 9, Riverside, CA 92501 714-784-9410	Vern's Airless, 3730 Paris Street, Denver, CO 80239 303-373-1636	Devoe & Reynolds, 1406 Hendricks Avenue, Jacksonville, FL 32207 904-398-0511	<b>American Airless,</b> <b>7986 Highway 85 S.,</b> <b>Riverdale, GA 30279</b> <b>770-477-1337</b>
A-1 Equipment Sales, 19034 E. Arrow Highway, Covina, CA 91722 818-967-4388	San Luis Paint, 950 Los Osos Valley Road, Los Osos, CA 93402 805-528-5006	Frazee Paint 6625 Miramar Road, San Diego, CA 92121 619-276-9500	Mayer Paint Service, 4410 Yates, Denver, CO 80212 303-433-9393	Classic Paints Inc., 1610 Cypress Drive, Jupiter, FL 33469 407-746-6569	J & S Sales and Service, 1070 - 6 Windy Hill Road, Smyrna, GA 30081 - 2595 770-435-3464
Covina Paints, 924 Citrus Avenue, Covina, CA 91722 818-331-0069	<b>Master Airless,</b> <b>10235 Sepulveda Blvd.,</b> <b>Mission Hills, CA 91345</b> <b>818-894-8085</b>	San Luis Paint, 3490 Broad Street, San Luis Obispo, CA 93401 805-543-1206	<b>CONNECTICUT</b> Ray Roth Paint, 16 Beaver Brook Road, Danbury, CT 06810 203-792-6662	Color Wheel Paint, 284 N. Wickman Road, Melbourne, FL 32935 305-262-3222	Devoe & Reynolds, 1841 Mountain Indust. Blvd., Tucker, GA 30084 404-938-2006
Center Paint, ☒ 11153 W. Washington, Culver City, CA 90230 213-870-6977	San Luis Paint, 3230 Mian Street, Morrow Bay, CA 93442 805-772-1209	Decratrend Paint, 516 State Street, Santa Barbara, CA 93101 805-962-3140	Brandman & Sons, 173 Main Street, Norwalk, CT 06851 203-847-3885	Color Wheel Paint, All Pro, 2714 Silver Star Road, Orlando, FL 32808 407-293-6810	<b>HAWAII</b> Pacific Rent - All, ☒ 1080 Kilauea Avenue, Hilo, HI 96720 - 4296 808-935-2974
Decratrend Paint, 5171 Lincoln Avenue, Cypress, CA 90630 714-995-1711	Scotch Paint, 26871 Hobie Circle, Ste. A5, Murrieta, CA 92362 714-677-9498	San Luis Paint, 407 S. Blosser, Santa Maria, CA 93454 805-928-7995	<b>DELEWARE</b> <b>( See New Jersey, Rhode</b> <b>Island, Pennsylvania )</b>	Devoe & Reynolds, 1121 N. Mills Avenue, Orlando, FL 32803 904-253-8107	Decratrend Paints, 220 Puuhale Road, Honolulu, HI 96819 808-842-3802
Spectra-Tone, 9635 - 43 Klingerman Street, S. El Monte, CA 91733 818-442-7269	All Color Paint, 1424 Holt, Ontario, CA 91762 714-391-1435	Lehne & Sons, 1625 - 17th Street, #2, Santa Monica, CA 90404 213394-6463	<b>FLORIDA</b> <b>Atomizers Inc.</b> <b>6166 - 15th St. E,</b> <b>Bradenton, FL</b> <b>Phone: 941-751-5455</b> <b>Fax: 941-751-5741</b> <b>Toll Free: 800-523-5042</b>	Panhandle Paint Supply, 327 E. 15th Street, Panama City, FL 32401 904-265-8373	Hawaiian Rent All, ☒ 1946 S. Beretania Street, Honolulu, HI 96826 808-949-3961
Richard A. Cole Enter- prises, 10551 Bolsa Avenue, Garden Grove, CA 92643 714-554-9582	Paint Bucket, 1051 W. Holt Blvd., Ontario, CA 91761 714-983-2664	Decor Paint Center, 2844 Thousand Oaks Blvd., Thousand Oaks, CA 91362 805-495-7097	Clewiston Paint Center, ☒ 307 E. Sugarland Highway, Clewiston, FL 33440 813-983-9496	Air Tool Company Inc., 4112 N. Davis, Pensecola, FL 32401 904-438-3225	Pacific Paint, 2865 Ualena Street, Honolulu, HI 96819 808-836-3142
Scotch Paint, ☒ 555 West 189th Street, Gardena, CA 90248 213-329-1259	Decratrend Paint, 817 Ventura Blvd., Oxnard, CA 93030 805-485-9556	Golden State Paint, 23134 Normandie, Torrance, CA 90502 310-530-9000	Southern Paint & Supply, 239 South Segrave, Dayton Beach, FL 32014 904-253-8107	Color Wheel Paint, A6 - 3866 Prospect Ave- nue, Riviera Beach, FL 33404 407-844-1232	Kapaa Paint Supply, 4516 Kukui Street, Kauai, HI 96746 808-822-1788
San Luis Paint, 592 Grand Avenue, Grover City, CA 93433 805-489-5606	Palm Spring Paint, ☒ 410 S. Indian Ave., Palm Springs, CA 92262 619-325-7466	Spectra Paint Center, 7615 Balboa Blvd., Van Nuys, CA 91406 818-786-5610	Destin Paint Center, 343 Highway 98 East, Destin, FL 32541 904-837-4141	Scott Paint, All Pro, 7839 Fruitville Road, Sarasota, FL 34240 813-371-0002	A - 1 Hawaiian Rentals, ☒ 325 Hanakai Street, Kahului, HI 96732 - -2406 808-877-7684
Universal Paint Center, 101 E. Florida Avenue, Hemet, CA 92343 714-658-5130	Decratrend Paint, 2180 E. Walnut, Pasadena, CA 91107 818-793-5807	Tim's Airless Equipment, 7353 Van Nuys Blvd., Van Nuys, CA 91405 818-785-9423	Devoe & Reynolds, 3300 N.W. 9th Avenue, Fort Lauderdale, FL 32503 305-563-5934	Devoe & Reynolds Paint, 3102 W. Kennedy Blvd., Tampa, FL 33609 813-877-5841	Toolmaster Hawaii, 3061 Aukele Street, Lihue, Kauai, HI 96766 808-245-8885
Mr. Paint, 7391 Warner, Huntington Beach, CA 92647 714-847-4332	Spectra Paint Center,		<b>Atomizers Inc.,</b>	<b>IDAHO</b> Ponderosa Paint, All Pro,	

# AUTHORIZED SALES AND SERVICE CENTERS- U.S.A.

Boise, ID 83705  
208-336-7210

Ponderosa Paint, All Pro,  
4631 Aeronca Street,  
Boise, ID 83705  
208-376-4431

Broadway Paint & Glass,  
1305 Broadway,  
Boise, ID 83706  
208-345-1581

State Paint & Glass,  
4774 W. State Street,  
Boise, ID 83703  
208-336-7210

Caldwell Paint & Glass,  
916 Cleveland Blvd.,  
Caldwell, ID 83605  
208-459-0838

Nampa Paint & Glass,  
816 - 3rd. Street S.,  
Nampa, ID 83651  
208-466-3547

## ILLINOIS

Spray Systems Specialists,  
172 W. Devon,  
Bensenville, IL 60106  
708-860-2722

Twin Cities Paint,  
1202 E. Port Drive,  
Bloomington, IL 61704  
309-663-9148

Calumet Paint,  
12120 S. Western Avenue,  
Blue Island, IL 60406  
708-371-2240

Brown's Paint & Glass,  
119 N. Walnut,  
Champaign, IL 61820  
217-352-4149

Neer's Paint,  
620 - 6th. Street,  
Charleston, IL 61920  
217-345-2320

A. Allin & Son, ☒  
4839 N. western Avenue,  
Chicago, IL 60625  
312-561-9800

Ambassador Paint, ☒  
5101 N. Lincoln Avenue,  
Chicago, IL 60625  
312-561-6276

Decorator's Supply House,  
4019 W. 63rd. Street,  
Chicago, IL 60629  
312-735-9700

Paulson's Paint,  
5514 N. Milwaukee Ave.,  
Chicago, IL 60630  
312-763-7337

WM Thybony Co.,  
5440 N. Clark Street,  
Chicago, IL 60640  
312-561-2275

Frank's House of Color,  
219 W. Main Street,  
Danville, IL 61832  
217-442-0381

Diamond Paint,  
1795 Oakton,  
Des Plaines, IL 60018  
708-824-8084

Premier Coatings,  
2250 Arthur Avenue,  
Elk Grove, IL 60007  
708-439-4200

Barron's Paint,  
207 Barron Blvd.,  
Grays Lake, IL 60030  
708-223-3020

G.L. Supply - Rental Dist.  
20 N. 9th. Avenue,  
Melrose Park, IL 60160  
708-338-9717

Danny's "The One Stop",  
4975 Route 71  
Oswego, IL 60543  
708-554-3155

Kiem's Paint Center, ☒  
4002 Blackhawk Road,  
Rock Island, IL 61201  
309-786-0066

Friedman's Paint, ☒  
1105 S. Grand Avenue,  
Springfield, IL 62703  
217-544-3461

## INDIANA

Behren's Paint Spot,  
219 E. 14th. Street,  
Anderson, IN 46018  
317-642-0246

J.H. Coble,  
1621 S. Jefferson Street,  
Huntington, IN 46750  
219-356-5028

Quality Paint Center,  
815 N. Deleware Street,  
Indianapolis, IN 46204  
317-632-8219

Bartholomew's Inc., ☒  
1331 S. Michigan Avenue,  
South Bend, IN 46618  
219-289-5509

## IOWA

Klinger Paint,  
333 - 5th Avenue S.E.,  
Cedar Rapids, IO 52406  
319-366-4996

Paint Pump Pro,  
3410 S.W. 9th St.,  
Des Moines, IA 50315  
515-244-3611

Diamond Vogel Paint,  
Industrial Air Park,  
Orange City, IO 51041  
712-737-4993

## KANSAS

Allied Paints,  
2818 Cage Blvd.,  
Topeka, KS 66614  
913-272-5644

## KENTUCKY

Hikes Point Paint,  
3041 Breckenbridge Lane,  
Luisville, KY 40220  
502-451-2226

## LOUISIANA

Joseph Paint & Wallpaper,  
95 Bolton Avenue,  
Alexandria, LA 71301  
318-443-8443

## MAINE (See Massachusetts)

## MARYLAND

Jim's Airless,  
5815 Arbor Street,  
Tuxedo, MD 20781  
410-792-2643

MASSACHUSETTS  
Essex Silver Line Corp.,  
(Rental Distributor)  
1118 Lakeview Avenue,  
Dracut, MA 01826  
617-957-2116

Natick Airless Inc.,  
19 Willow Street,  
Natick, MA 01760  
508-653-0808

Town Paint, ☒  
41 Meetinghouse Lane,  
Sagamore, MA 02563  
617-888-8237

Paint Project,  
584 Waverly Street,  
Framingham, MA 01701  
508-879-4578

## MICHIGAN

Central Paint Supply,  
G4424 Corunna Road,  
Flint, MI 48504  
313-732-4464

O'Leary Paint, All Pro,  
415 Baker Street,  
Lansing, MI 48910

Starr Paint & Decorating,  
735 Brookside Drive,  
Lansing, MI 48917  
517-323-7152

The Paint Center,  
2038 Harbor Petosky Road,  
Petoskey, MI 49770  
616-348-5969

Michigan Industrial Paint,  
29740 Parkway,  
Roseville, MI 48066  
313-774-4700

Westside Decorating,

3505 State Street,  
Saginaw, MI 48602  
517-793-6182

Paint Can,  
2674 Orchard Lake Road,  
Sylvan Lake, MI 48503  
313-682-2820

Lincoln Distributing,  
26060 Northline,  
Taylor, MI 48180  
313-946-4010

Paint Pro,  
4686 Dixie Highway,  
Waterford, MI 48329  
810-673-3707

## MINNESOTA

Lathrop Paint,  
4360 Lyndale Avenue N.,  
Minneapolis, MN 55412  
612-521-7127

Hamernich Glass & Paint,  
1381 Rice Street,  
St. Paul, MN 55117  
612-487-3211

## MISSISSIPPI (See Alabama)

## MISSOURI

Wieburg Enterprises,  
Rte. 2, Box 310,  
Camdenton, MO 65020  
800-93-SPRAY (7779)

Johnston Paint & Decorat-  
ing ☒  
613 E. Ash Street,  
Columbia, MO 65201  
314-443-8755

Darco Equipment Service,  
6519 Stadium Drive,  
Kansas City, MO 64129  
816-924-1245

Zeke's - Kasey Paint, ☒  
1224 Swift N.,  
Kansas City, MO 64116  
816-842-4540

Strothkamp Bros., ☒  
14390 Manchester Road,  
Manchester, MO 63011  
314-227-5225

Hydraflow Equipment,  
8125 Brentwood Industrial  
Dr.,  
St. Louis, MO 63144  
314-644-6677

## MONTANA

Columbia Paint,  
2019 Grand Avenue,  
Billings, MT 59102  
406-252-0048

Columbia Paint,  
2020 West Babcock,  
Bozeman, MT 59715  
406-586-1356

Columbia Paint,  
2045 Harrison,

Butte, MT 59701  
406-723-3200

Columbia Paint,  
435 First Street,  
Havre, MT 59501  
406-265-2702

Columbia Paint,  
East 925 Lyndale,  
Helena, MT 59601  
406-443-2086

Columbia Paint,  
3316 - 10th Avenue South,  
Great Falls, MT 59405  
406-761-6174

Columbia Paint,  
865 West Idaho,  
Kalispell, MT 59901  
406-785-7815

Columbia Paint,  
1509 Russell,  
Missoula, MT 59801  
406-549-6111

## NEBRASKA

Ron's Paints Inc., ☒  
13315 B Street,  
Omaha, NE 68144  
402-334-1715

## NEVADA

Painters Warehouse,  
1022 S. Main Street,  
Las Vegas, NV 89101  
702-384-3820

Paint Sprayers Unlimited,  
3129 S. Highland,  
Las Vegas, NV 89109  
702-731-5688

Wright's Paint & Paper,  
959 W. 5th Street,  
Reno, NV 89503  
702-322-2320

Dr. Bob's Airless Systems,  
5390 A. Riggins Court,  
Reno, NV 89502  
702-826-5900

Nevada Air & Indust.  
Equip.,  
1001 Greg Street,  
Sparks, NV 89431  
702-355-1600

## NEW HAMPSHIRE (See Massachusetts)

## NEW JERSEY (Also see Pennsylvania)

Painten Place Inc.,  
Rte. 53 & a. & P. Shop  
Ctr,  
Denville, NJ 07834  
201-627-4050

Cougar Electronics &  
Repair,  
622 Broadway,  
Long Branch, NJ 07740  
908-870-3302

## NEW MEXICO

Wellborn Paints,  
215 Rossmoor Road S.W.,  
Albuquerque, NM 87105  
505-877-5050

## NEW YORK

Buffalo Airless,  
4216 Clinton Street,  
Buffalo, NY 14224  
716-675-7979

R.H. Miller Paint, All Pro,  
1681 Route 9,  
Clifton Park, NY 12065  
518-465-1526

Aboff's Inc.,  
410 New York Avenue,  
Huntington, NY 11743  
516-427-2000

Zelf Tool,  
44 Greene Street,  
Manhattan, NY 10013  
212-925-8586

Empire Paint,  
5 State Street,  
Pittsford, NY 14534  
716-385-5510

The Paint Bucket,  
3970 Merrick Raod,  
Seaford, NY 11710  
516-785-0332

Lewis & Tanner,  
430 E. Washington Street,  
Syracuse, NY 13202  
315-476-8351

## NORTH CAROLINA

Myers Service & Dist. Inc.,  
1204 Commercial Avenue,  
Charlotte, NC 28205  
704-334-3333

Johnson's Repair Center,  
3120 Cleveland Road,  
Clayton, NC 27520  
919-934-4726

## OHIO

Midwest Spray Inc.,  
4515 Reading Road,  
Cincinnati, OH 45229  
513-242-4500

M & E Equipment Ser-  
vice,  
271 Neil Avenue,  
Columbus, OH 43215  
614-224-5858

## OKLAHOMA

(See Texas, Kansas or  
Missouri)

## OREGON

Ashland Paints,  
1618 Ashland,  
Ashland, OR 97530  
503-482-4002

Miller Paint Company,  
8703 S.W. Beaverton  
Hillside Highway,  
Beaverton, OR 97005  
503-292-4444

# AUTHORIZED SALES AND SERVICE CENTERS- U.S.A.

Denfeld Paint, 1851 N.E. 2nd Street, Bend, OR 97701 503-382-4171	SprayFix, 120 S. Easton Road, Glenside, PA 19038 610-886-1571	Monarch Paint, All Pro, 600 Benbrook Parkway, Fort Worth, TX 76126 817-249-6888	1619 Spring Cypress, Spring, TX 77373 713-353-3020	Redmond, WA 98052 206-885-7858
Miller Paint Company, 2811 N.W. Grant, Corvallis, OR 97330 503-758-4458	Airdraulics, 555 W. Ansbury Street, Philadelphia, PA 19140 610-457-1940	<b>Bob Taylor Spray, 5700 James Avenue, Fort Worth, TX 76134 817-551-1525</b>	Monarch Paint, All Pro, 2611 N. Beltline, Sunnyvale, TX 75218 214-226-9200	KM Spray Equipment, All Pro, 6349 - 6th Avenue S., Seattle, WA 98108 206-762-8060
J's Color Center, 1986 W. 6th Avenue, Eugene, OR 97402 503-345-2397	<b>RHODE ISLAND</b> New England Paint, ☒ 51 Higginson Avenue, Central Falls, RI 02863 401-722-4672	E.A.H. Spray Equipment, 901 Ashland, Houston, TX 77008 713-869-6594	Bartek's Paint & Decorat- ing, 2602 W. Avenue North, Temple, TX 76501 817-771-0010	<b>Bentley Co. Inc., ☒ 4126 Airport Way South, Seattle, WA 98108 206-622-8262</b>
Tommy's Paint Pot, 1745 W. 11th Avenue, Eugene, OR 97402 503-683-5851	<b>SOUTH CAROLINA</b> Rainbow Paint & Paper, 118 Greenacre Road, Greenville, SC 29607 803-232-1463	Monarch Paint, All Pro, 10125 Epsom, Houston, TX 77093 713-695-6624	<b>UTAH</b> Jones Paint & Glass, 170 N. 100 West, Provo, UT 84641 801-373-3131	CZS Enterprises, 5221 Ballard Avenue N. W., Seattle, WA 98107 206-783-8835
Jon's Airless Spray, 8225 N. Applegate Road, Grants Pass, OR 97527 503-862-2680	Hilton Head Paint, 6 Southwood Park, Hilton Head, SC 29925 803-681-6357	Monarch Paint, All Pro, 9911 Honeywell, Houston, TX 77036 713-772-2925 or 772-3551	Robert Taylor & Sons, 381 Ironwood Drive, Salt Lake City, UT 74115 801-486-1335	Miller Paint Co., 1500 N.W. Leary Way, Seattle, WA 98107 206-784-7878
Miller paint Company, 1831 W. Powell Blvd., Gresham, OR 97080 503-666-9018	Pelican Paint, 69 Matthews Drive, Hilton Head, SC 29928 803-681-9600	Monarch Paint, All Pro, 3530 Lang Road, Houston, TX 77092 713-462-5373	Jim's Airless Repair, 5032 Shooting Star Ave- nue, West Jordan, UT 84084 801-967-1224	Parker Paint, 2924 - 4th Avenue S., Seattle, WA 98108 206-467-8981
Medford Paint Center 1160 Hilton, Medford, OR 97501 503-773-8295	<b>SOUTH DAKOTA</b> Direct Paint, 1/2 mile W. on Highway 34 Madison, SD 57042 605-256-4114	Painter's Hardware Corp., 2001 Karback, Suite Q., Houston, TX 77092 713-956-2073	<b>VERMONT</b> ( See Massachusetts or New York )	Universal Repair Shop, 1611 Boylston Avenue, Seattle, WA 98122 206-322-2726
Helfrich Equipment Co., 435 N.E. Tillamook, Portland, OR 97212 503-288-6761	<b>TENNESSE</b> Parrish Equipment Service, 3828 Clarksville Highway, Nashville, TN 37218 615-242-7525	Painter's Repair Shop, 14919 Steubner-Airline Road, Houston, TX 77069 713-537-2468	<b>WEST VIRGINIA</b> ( See Ohio or Pennsylvania )	Parker Paint, ☒ 10600 Silverdale Way N., Silverdale, WA 98383 206-692-7766
Miller Paint Company, 317 S.E. Grand Avenue, Portland, OR 97214 503-233-4491	<b>TEXAS</b> Monarch Paint, All Pro, 801D Secretary Drive, Arlington, TX 76015 817-795-1000	Advanced SprayTech, 2150 Wren, Lewisville, TX 75067 214-446-2222	<b>VIRGINIA</b> ( See Pennsylvania or North Carolina )	Columbia Paint Co, All Pro, North 112 Haven Street, Spokane, WA 99202 509-327-3323 In WA. 800-826-1715 Out WA. 800-231-0372
Salem Paint, 702 High Street, Salem, OR 97301 503-364-5631	E.A.H. Spray Equipment, 2125 F. Goodrich, Austin, TX 78704 512-447-0165	Monarch Paint, All Pro, 5848 - 49th Street, Lubbock, TX 79424 806-797-1200	<b>WASHINGTON</b> Parker Paint, ☒ 29 - D Street S.E., Auburn, WA 98002 206-833-2656	Spokane Pump, 3626 E. Trent, Spokane, WA 99202 509-535-9771
Miller Paint Company, 548 High Street N.E., Salem , OR 97301 503-364-2264	Monarch Paint, All Pro, 9230 Neils-Thompson, Austin, TX 78758 512-837-0267	Monarch Paint, All Pro, 1791 Millard Drive, Plano, TX 75074 214-881-0402	Parker Paint, ☒ 156th & 8th N.E., Bellevue, WA 98008 206-746-1559	Parker Paint, 3326 South Junette, Tacoma, WA 98411 206-473-1122 Miller Paint Co., 2607 N.E. Andresen, Vancouver, WA 98661 206-854-3434
Pacific Paint & Decorating, 11852 S.E. Pacific Hwy, Tigard, OR 97223 503-620-7522	Monarch Paint, All Pro, 3905 Warehouse Row, Austin, TX 78704 512-443-4877	Monarch Paint, All Pro, 7445 Tower Street, Richland Hills, TX 76118 817-595-1000	Hardware Sales Inc., 2034 James Street, Bellingham, WA 98225 360-734-6140 Parker Paint, ☒ 18004 Bothell Way N.E., Bothell, WA 98011 206-486-9116	Parker Paint, 3326 South Junette, Tacoma, WA 98411 206-473-1122 Miller Paint Co., 2607 N.E. Andresen, Vancouver, WA 98661 206-854-3434
Miller Paint Company, 19355 S.W. Mohave Court, Tualatin, OR 97062 503-691-1200	Paint Warehouse, 2907 Vila Maria, Bryan, TX 77803 409-822-5599	E.A.H. Spray Equipment, 1318 BAsse Road, San Antonio, TX 78212 512-734-3105	Parker Paint, ☒ 5930 Evergreen Way, Everett, WA 98203 206-353-0220	Pacific Power Tool Repair, 12814 N.E. Hwy 99, Vancouver, WA 98686 800-444-6605
Oregon Spray Equipment, 19360 S. W. 90th Court, Tualatin, OR 97062 503-692-7266	Monarch Paint, All Pro, 1225 Crosby Road, Carrollton, TX 75006 214-245-0666	Monarch Paint, All Pro, 6816 Alamo Down, # 4, San Antonio, TX 78238 512-647-8831	Parker Paint, ☒ 32900 Pacific Hwy South, Federal Way, WA 98003 206-838-8090	<b>WISCONSIN</b> Parker Coatings, 2451 W. Mason, Green Bay, WI 54307 414-494-9676
<b>PENNSYLVANIA</b> Hydraulic Industrial Supply Holly & Madison Avenue, Clifton Heights ( Philly ), PA 19108 610-284-2100	Metroplex Spray Equipmt, 123-2332 Joeefield Road, Dallas, TX 75229	Monarch Paint, All Pro, 145 - 12200 Crown Road, San Antonio, TX 78233 512-656-5541	Parker Paint, ☒ 19500-D Highway 99 S. W., Lynnwood, WA 98036 206-778-6622	Hallman-Lindsay Paint, 7326 W. North Avenue, Wauwatosa, WI 53213 414-453-1972
			Parker Paint, ☒	<b>WYOMING</b> ( See Montana, Idaho )

1000MD

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BURNABY, B.C.  
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