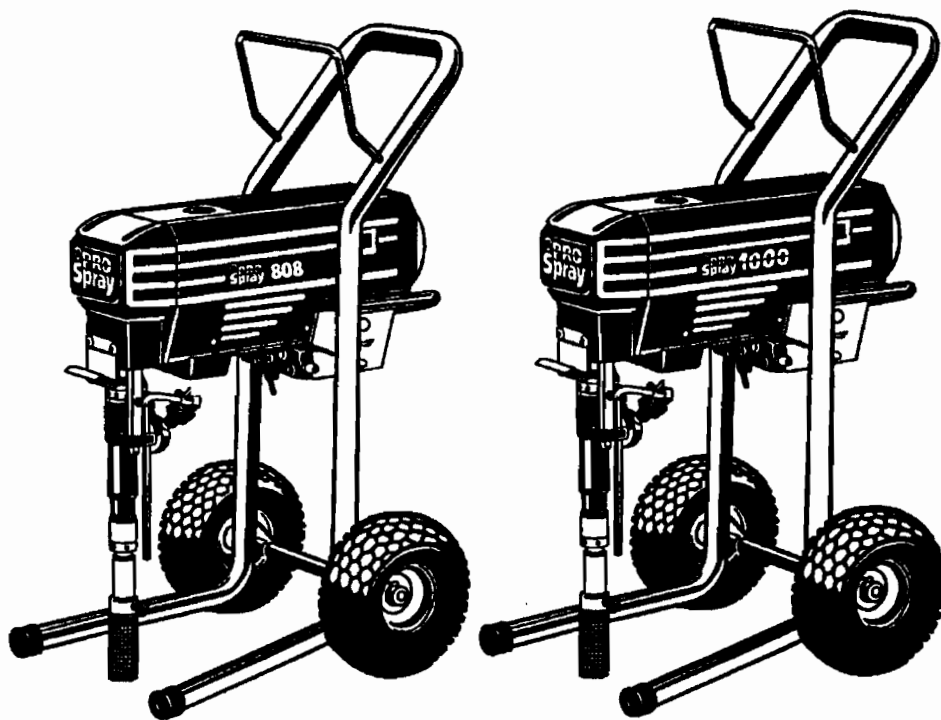




PRO Spray



OPERATION MANUAL AND PARTS LIST FOR ProSpray 808 and 1000 AIRLESS PAINT SPRAYERS

WARNING: Before operating, doing any service or maintenance procedure, learn & follow the pressure relief procedure on page 6. Read & understand all warnings on pages 4, 5, 6 and 7

**ALL SERVICE PROCEDURES MUST BE PERFORMED
BY AUTHORIZED SERVICE CENTER.**

TABLE OF CONTENTS

Introduction	1
Flushing Guidelines	1
How to Flush	2
Setting Up	3
Setting Up & Starting	3, 4
ProSpray Pressure System	4
Warnings	4, 5, 6, 7
PRESSURE RELIEF PROCEDURE	6
Spray Technique	8,9
Airless Gun Operations	10
Spray Tip Selection	11
Regular Maintenance	12
Lubrication	12
Motor Brushes	12
Troubleshooting	13
Troubleshooting- Machine does not start	14
Electrical Calibration	15, 16
Electrical System	16
LCD Replacement	17
Sensor Replacement	17
Potentiometer Replacement	18
Circuit Breaker Replacement	18
Board Replacement	18
Paint System	19
Servicing Fluid Pump	20
Servicing Upper & Lower Check Valves	21
V-Packing Replacement	22
Fluid Pump Parts List	23
Belt Adjustment	24
Maxi-filter	25
Complete Sprayer Parts List	26, 27

INTRODUCTION

ICI ProSpray 808 and 1000

The ProSpray Series of airless paint sprayers are a culmination of years of development work. Incorporated into the design is the proven slow stroking paint pump, a new low speed gear system that's extremely quiet and a DC Motor that stays cool even when you run long extension cords. The ProSpray 808 and 1000 are severe duty pumps, designed to meet the needs of today's professional painting contractor.

Specifications

	<u>808</u>	<u>1000</u>
Pressure	3000 PSI	3000 PSI
Output	.8 GPM	1 GPM
Tip Size	1 GUN UP TO .027 2 GUNS UP TO .017	1 GUN UP TO 0.031 2 GUNS UP TO 0.019

WARNING

Prior to starting, read, understand and observe all safety precautions & warnings on page 4, 5, 6 & 7 and all labels and tags on the machine.

FLUSHING - Read prior to using your sprayer

1. New Sprayer

Your new ProSpray unit was factory tested in an Anti-freeze solution, which was left in the pump.

Before using oil-base paint, flush with mineral spirits only.

Before using water-base paint, flush with mineral spirits, followed by soapy water, then a clean water flush.

2. Changing Colors

Flush with a compatible solvent such as mineral spirits or water.

3. Changing From Water-base to Oil-base

Flush with soapy water, then mineral spirits.

4. Changing From Oil-base to Water-base

Flush with mineral spirits, followed by soapy water, then a clean water flush.

5. Storage

Oil-base Paint: Flush with mineral spirits.

Water-base Paint: Flush with water, then mineral spirits and leave the pump, hose and gun filled with mineral spirits. For longer storage, use mixture of mineral spirits and motor oil (half & half). Shut off the sprayer, follow Pressure Relief Procedure on page 6 to relieve pressure and make sure prime/pressure relief valve is left open.

6. Start Up After Storage

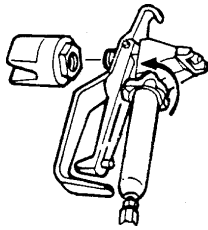
Before using **water-base paint**, flush with soapy water and then a clean water flush.

When using **oil-base paint**, flush out the mineral spirits with the material to be sprayed.

HOW TO FLUSH

FIG. 1

REMOVE
SPRAY
TIP



ENGAGE GUN
SAFETY LATCH
(LOCK GUN) as
per gun instruc-
tion manual.

FIG. 3

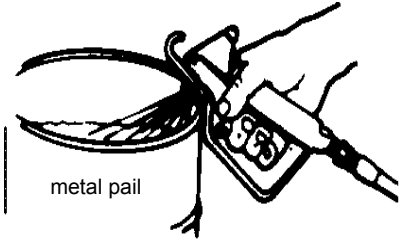
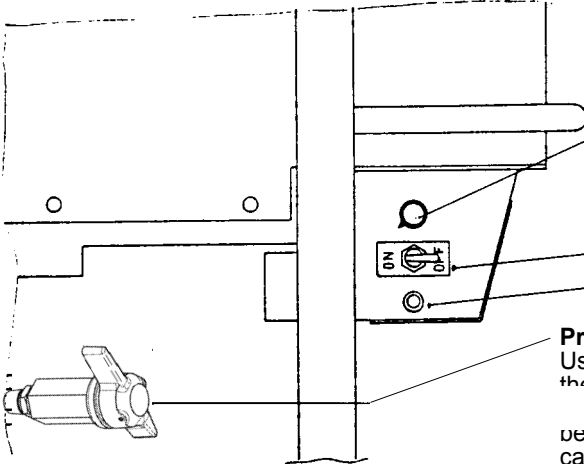


FIG. 2

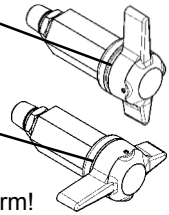


Pressure Control Knob: used to adjust pressure only. Turn clockwise to increase pressure and counterclockwise to decrease pressure.

**On/Off Switch
Thermal Overload Switch**

Prime/Pressure Relief Valve (Prime/PR Valve)
Used to relieve pressure from gun, hose & tip and to prime the unit when in OPEN position. (It is in open position with a wider gap between valve handle and cam body)

When in CLOSED position, there is only a very slight gap between handle & body. When closed the system is pressurized. Handle as a loaded firearm!



1. Be sure the gun safety latch is engaged and there is no spray tip in the gun. Refer to your separate instruction manual provided with your gun on its safety features and how to engage safety latch. Refer to Fig. 1
2. Pour enough clean, compatible solvent into a large, empty metal pail to fill the pump and hoses.
3. Place the suction tube into the pail or place the pail under the pump.
4. Turn the pressure control knob to low pressure. Refer to Fig. 2.
5. Open the prime valve to the open-priming position. This will allow an easy start. Refer to Fig. 2.
6. Turn the motor ON/OFF switch to ON.
7. Point the gun into the metal pail and hold a metal part of the gun firmly against the pail. Refer to Fig. 3.

WARNING: To reduce the risk of static sparking, which can cause fire or explosion, always hold a metal part of the gun firmly against the metal pail when flushing. This also reduces splashing. Refer to Fig. 3.

8. Disengage the gun safety latch and squeeze the gun trigger. At the same time, slowly turn the pressure control knob clockwise, just enough to start the pump. Refer to Fig. 2.
9. Allow the pump to operate until clean solvent comes from the gun.
10. Release the trigger and engage the gun safety latch.
11. If you are going to start spraying, place the suction tube into the supply container. Release the gun safety latch and trigger the gun into another empty, metal container, holding a metal part of the gun firmly against the metal pail, and force the solvent from the pump and hose. Engage the gun safety latch until you are ready to prime the pump.
12. If you are going to store the sprayer, remove the suction tube from the solvent pail, holding a metal part of the gun firmly against the metal pail, force the solvent from the pump and hose, Engage the gun safety latch. Refer to "Storage" procedure on page 1.
13. Whenever you shut off the sprayer follow the Pressure Relief Procedure Warning on Page 6.

SETTING UP

1. Connect the Hose and Gun

- Remove the plastic cap plug from the outlet connector and screw a conductive or grounded 3000 psi spray hose onto fluid outlet.
- Connect an airless spray gun to the other end of the hose.

2. Fill the Packing Nut/Wet Cup 1/3 full with Throat Seal Oil (TSO) supplied. (Fig. 4)

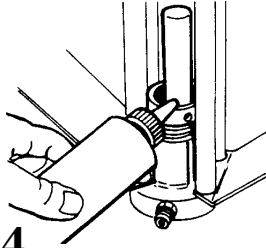


FIG. 4

3. Check the Electrical Service

Be sure the electrical service is 120 V, 60 HZ AC 15 amp minimum and that the outlet you use is properly grounded.

4. Grounding

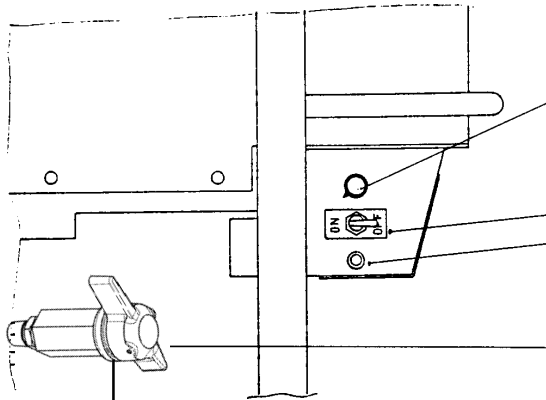
WARNING: To reduce the risk of static sparking, fire or explosion which can result in serious bodily injury and property damage, always ground the sprayer and system components and the object being sprayed as instructed on page 6.

5. Flush the sprayer as per "Flushing" - New Sprayer on page 1 and "How to Flush" on page 2.

SETTING UP AND STARTING Read Safety Warnings on page 4, 5, 6 and 7 before starting.

1. Learn the Controls

FIG. 5



When you turn the valve handle and the gap between the valve handle and the cam body becomes wider - this means the valve is in the open position. It is in the closed position when the gap becomes very small.

2. Prepare the Material according to the material manufacturer's recommendations.

3. Place the suction tube into the material container.

4. Starting the Sprayer (See Fig. 5 above)

- Prime Valve must be open - priming position.
- Pressure control knob must be in Low Pressure position.
- Turn the motor ON/OFF switch to ON.

WARNING: To stop the unit in an emergency, turn motor off. Then relieve the fluid pressure in the pump and hose as instructed in the Pressure Relief Procedure on Page 6.

Pressure Control Knob

-used to adjust pressure only. Turn clockwise to increase pressure and counterclockwise to decrease pressure.

On/Off Switch

Thermal Overload Switch

Prime/Pressure Relief Valve- used to **relieve pressure** from gun, hose & tip AND to Prime machine when in open position (a wider gap shows between valve handle and cam body.) When in closed position (very slight gap) the system is pressurized and ready to spray. Learn and follow **Pressure Relief Procedure** on page 6 of this manual.

CAUTION: Do not turn motor on without fluid pump having enough fluid so that it can be primed. Running fluid pump dry will decrease life of pumps packings.

5. Prime the pump.

- Be sure gun safety latch is engaged.
- After the pump is primed, close the prime valve by turning it all the way to "closed" position.
- Turn the pressure control knob to desired spray pressure.
- Disengage the gun safety lock and you are ready to start spraying.

WARNING: If you spray into the paint bucket, always use lowest spray pressure and maintain firm metal to metal contact between gun and container. See Fig.3. page 2.

SETTING UP AND STARTING

6. Adjusting the Pressure

- Turn the pressure control knob clockwise to increase and counterclockwise to decrease pressure.
- Always use the lowest pressure necessary to completely atomize the material.

CAUTION: Operating the sprayer at higher pressure than needed wastes material, causes early tip wear and shortens sprayer life.

- If more coverage is needed use a larger tip rather than increasing the pressure.
- Check the spray pattern. The tip size and angle determines the pattern width and flow rate.

7. Cleaning a Clogged Tip

WARNING: To reduce the risk of injection, never hold your hand, body, fingers or hand in a rag, in front of the spray tip when cleaning or checking for cleared tip. Always point the gun toward the ground or into a waste container when checking to see if the tip is cleared or when using a self-cleaning tip.

- Follow the Pressure Relief Procedure on page 6.
- Clean the front of the tip frequently (with toothbrush only) during the day to keep material from building up and clogging the tip.
- To clean and clear a tip if it clogs, refer to the separate instruction manual received with your gun or nozzle.

There is an easy way to keep the outside of the tip clean from material build-up:

Everytime you stop spraying for even a minute, lock the gun and submerge the gun into a small bucket of thinner compatible with the material sprayed. Thinner will dissolve the build up of paint on the outside of tip, tip guard and gun much more effectively if the paint did not have time to dry out completely.

WARNING: Clogged standard (flat) tip - clean only after the tip is removed from the gun. Follow the Pressure Relief Procedure on Page 6.

8. When shutting off the sprayer

- Whenever you stop spraying, even for a short break, follow the Pressure Relief Procedure Warning on page 6.
- Clean the tip and gun as recommended by your separate gun instruction manual.
- Flush the sprayer at the end of each work day if the material you are spraying is waterbased, or if it could harden in the sprayer overnight. See "Flushing" page 1 & 2. Use a compatible solvent to flush, then fill the pump and hoses with an oil-based solvent such as mineral spirits.

WARNING: Be sure to relieve pressure in the pump after filling with mineral spirits.

- For long term shutdown or storage, refer to page 1.

ProSpray PRESSURE SYSTEM

Your ICI paint products have been tested with this ProSpray Unit. The recommended spraying pressure and tip size for each product has been determined, and is available from your local ICI paint store. Use the Liquid Crystal Display (LCD) to match the pump's pressure to the recommended pressure.

WARNINGS

DO NOT USE halogenated solvents in this system. The prime valve, 2 gun manifold and most airless guns have aluminum parts and may explode. Cleaning agents, coatings, paints or adhesives may contain halogenated hydrocarbon solvents. DON'T TAKE CHANCES! Consult your material suppliers to be sure. Some of the most common of these solvents are: Carbontetrachloride, Chlorobenzene, Dichloroethane, Dichloroethyl Ether, Ethylbromide, Ethylchloride, Tetrachloroethane. Alternate valves and guns are available if you need to use these solvents.

Important: United States Government safety standards have been adopted under the Occupational Safety & Health Act. These standards, particularly the General Standards, Part 1910 & and Construction Standards, Part 1926 should be consulted.

WARNINGS CONTINUED ON NEXT PAGE.....

WARNINGS

This sprayer is for professional use only.

HIGH PRESSURE SPRAY CAN CAUSE EXTREMELY SERIOUS INJURY. Handle as you would a loaded firearm. Follow PRESSURE RELIEF PROCEDURE ON PAGE 6. Observe all warnings.

MEDICAL ALERT - Airless Spray Wounds

If any fluid appears to penetrate your skin, get **EMERGENCY MEDICAL CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT.**
Tell the doctor exactly what fluid was injected.

NOTE TO PHYSICIAN: Injection in the skin is a traumatic injury. **It is important to treat the injury surgically as soon as possible. DO NOT DELAY treatment to research toxicity.** Toxicity is a concern with some exotic coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.

INJECTION HAZARD

Fluids under high pressure from spray or leaks can penetrate the skin and cause extremely serious injury, including the need for amputation.

NEVER point the spray gun at anyone or any part of the body.

NEVER put hand or fingers over the spray tip. Do not use rag or other materials over your fingers. Paint will penetrate through material and into the hand.

NEVER try to stop or deflect leaks with your hand or body.

ALWAYS have gun tip guard in place when spraying.

ALWAYS lock gun trigger when you stop spraying.

ALWAYS remove tip from the gun to clean it.

NEVER try to "blow back" paint, this is not an air spray sprayer.

ALWAYS follow the **PRESSURE RELIEF PROCEDURE**, as shown on page 6, before cleaning or removing the spray tip or servicing any system equipment.

Be sure equipment safety devices are operating properly before each use.

Tighten all fluid connections before each use.

MEDICAL TREATMENT

If any fluid appears to penetrate your skin, get **EMERGENCY CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT.**

* Go to an emergency room immediately.

* Tell the doctor you suspect an injection injury.

* Tell him what kind of material you were spraying with and have him read NOTE TO PHYSICIAN above.

GENERAL PRECAUTIONS

NEVER alter equipment in any manner.

NEVER smoke while in spraying area.

NEVER spray highly flammable materials.

NEVER use around children.

NEVER allow another person to use sprayer unless he is thoroughly instructed on its' safe use and given this operators manual to read.

ALWAYS wear a spray mask, gloves and protective eye wear while spraying.

ALWAYS ensure fire extinguishing equipment is readily available and properly maintained.

NEVER LEAVE SPRAYER UNATTENDED WITH PRESSURE IN THE SYSTEM. FOLLOW PRESSURE RELIEF PROCEDURES ON PAGE 6.

ALWAYS INSPECT SPRAYING AREA

Keep spraying area free from obstructions.

Make sure area has good ventilation to safely remove vapors and mists.

NEVER keep flammable material in spraying area.

NEVER spray in vicinity of open flame or other sources of ignition.

Spraying area must be at least 20 ft. away from spray unit.

SPRAY GUN SAFETY

ALWAYS set safety lock on the gun in "LOCKED" position when not in use and before servicing or cleaning.

DO NOT remove or modify any part of gun.

ALWAYS REMOVE SPRAY TIP when cleaning. Flush unit with **LOWEST POSSIBLE PRESSURE.**

CHECK operation of all gun safety devices before each use.

Be very careful when removing the spray tip or hose from gun. A plugged line contains fluid under pressure. If the tip or line is plugged, follow the **PRESSURE RELIEF PROCEDURE** as outlined on page 6.

TIP GUARD

ALWAYS have the tip guard in place on the spray gun while spraying. The tip guard alerts you to the injection hazard and helps prevent accidentally placing your fingers or any part of your body close to the spray tip.

SPRAY TIP SAFETY

Use extreme caution when cleaning or changing spray tips. If the spray tip clogs while spraying, engage the gun safety latch immediately. *ALWAYS* follow the **PRESSURE RELIEF PROCEDURE** and then remove the spray tip to clean it.

NEVER wipe off build up around the spray tip.

ALWAYS remove tip & tip guard to clean **AFTER** pump is turned off and the pressure is relieved by following the **PRESSURE RELIEF PROCEDURE.**

TOXIC FLUID HAZARD

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in eyes or on skin, inhaled or swallowed. Know the hazards of the fluid you are using. Store & dispose of hazardous fluids according to manufacturer, local, state & national guidelines. *ALWAYS* wear protective eyewear, gloves, clothing and respirator as recommended by fluid manufacturer.

WARNINGS

PRESSURE RELIEF PROCEDURE

To avoid possible serious bodily injury, including injection, always follow this procedure whenever the sprayer is shut off, when checking or servicing it, when installing, changing or cleaning tips and whenever you stop spraying or when you are instructed to relieve the pressure.

1. Engage gun safety latch. Refer to separate instruction manual provided with your gun on its safety features and how to engage safety latch.

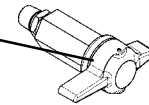
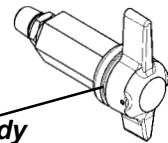
2. Turn unit off and unplug from electrical outlet.

3. Disengage safety latch and trigger gun to relieve residual fluid pressure. *Hold metal part of the gun in contact with grounded metal pail*



Use minimum pressure.

4. Turn Prime/pressure relief valve (PR Valve) to the open (priming) position to relieve residual fluid pressure. There will be a wider gap between valve handle and cam body when in open position. *Note: When in closed position there is only a very slight gap. Note: The valve handle can move both CCW & CW and can face different directions.*



5. Re-engage gun safety latch.

NOTE: Leave prime valve OPEN until you are ready to spray again & when machine is stored.

IF THE SPRAY TIP OR HOSE IS CLOGGED, follow Step 1 through 5 above. Expect paint splashing into the bucket while relieving pressure during Step 5. If you suspect that pressure hasn't been relieved due to damaged prime/pressure relief valve or other reason, VERY SLOWLY loosen the tip guard retaining nut or hose end couplings to relieve pressure gradually, then loosen completely. Now clear the tip, gun or hose obstruction.

HOSES

Tighten all fluid connections securely before each use. High pressure fluid can dislodge a loose coupling or allow high pressure spray to be emitted from the coupling and result in an injection injury or serious bodily injury.

Use only hose having a spring guard. The spring guard helps protect the hose from kinks or other damage which could result in hose rupture and cause an injection injury.

NEVER use a damaged hose, which can result in hose failure or rupture and cause an injection injury or other serious bodily injury or property damage. Before each use, check entire hose for cuts, leaks abrasion or bulging of cover, or damage or movement of couplings. If any of these conditions exist, replace the hose immediately. Never use tape or any device to try to mend the hose as it cannot contain the high pressure fluid. NEVER ATTEMPT TO RECOUPLE THE HOSE. High pressure hose is not recoupleable.

Help prevent damage to the hose by handling and routing carefully. Do not move the sprayer by pulling it with the hose.

GROUNDING

Ground the sprayer & other components in the system to reduce the risk of static sparking, fire or explosion which can result in serious bodily injury and property damage. For detailed instructions on how to ground, check your local electrical code.

ALWAYS ensure switch is in OFF position before plugging unit in.

Always ground all of these components.

1. Sprayer: plug the power supply cord, or extension cord, each equipped with an undamaged three-prong plug, into a properly grounded outlet. DO NOT USE AN ADAPTER.

Use only a 3 wire extension cord that has a 3 blade grounding plug, and a 3 slot receptacle that will accept the plug on the product. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. (Note: The table on the top of the next page shows the correct size to use depending on cord length and name plate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

2. Air Hoses; use only grounded hoses.

3. Fluid hose: use only grounded hoses.

4. Spray gun or dispensing valve; grounding is obtained through connection to a properly grounded fluid hose and pump.

5. Object being sprayed; according to your local code.

6. All solvent pails used when flushing.

Once each week, check electrical resistance of hose (when using multiple hose assemblies, check overall resistance.) Overall (end to end) resistance of unpressurized hose must not exceed 29 megohms (max.) for any coupled length or combination of hose lengths. If hose exceeds these limits, replace it immediately.

Never exceed 500 ft. (150 m) overall combined hose length to assure electrical continuity.

WARNINGS

UL RECOMMENDATION FOR MINIMUM GAUGE EXTENSION CORD

AMPERAGE RATING RANGE	VOLTAGE	LENGTH OF CORD IN FEET								
		25	50	100	150	200	250	300	400	500
5 - 6	120	18	16	12	12	10	10	8	8	6
6 - 8	120	18	16	12	10	10	8	6	6	6
8 - 10	120	18	14	12	10	8	8	6	6	4
10 - 12	120	16	14	10	8	8	6	6	4	4

Always follow recommended pressure and operating instructions.

KEEP CLEAR OF MOVING PARTS

Keep clear of moving parts when starting or operating the sprayer. Do not put your fingers into any openings to avoid amputation by moving parts or burns on hot parts. Precaution is the best insurance against an accident. When starting the motor, maintain a safe distance from moving parts of the equipment.

Before adjusting or servicing any mechanical part of the sprayer, follow the PRESSURE RELIEF PROCEDURE on page 6.

AVOID COMPONENT RUPTURE

This sprayer operates at 3000 psi (205 bar). Always be sure that all components and accessories have a maximum working pressure of at least 3000 psi to avoid rupture which can result in serious bodily injury including injection and property damage.

NEVER leave a pressurized sprayer unattended to avoid accidental operation of it which could result in serious bodily injury.

ALWAYS follow the PRESSURE RELIEF PROCEDURE whenever you stop spraying and before adjusting, removing or repairing any part of the sprayer.

NEVER alter or modify any part of the equipment to avoid possible component rupture which could result in serious bodily injury and property damage.

NEVER use weak or damaged or non-conductive paint hose. Do not allow kinking or crushing of hoses or allow it to vibrate against rough or sharp or hot surfaces. Before each use, check hoses for damage and wear and ensure all fluid connections are secure.

REPLACE any damaged hose. NEVER use tape or any device to mend the hose.

NEVER attempt to stop any leakage in the line or fittings with your hand or any part of the body. Turn off the unit and release pressure by following PRESSURE RELIEF PROCEDURE,

ALWAYS use approved high pressure fittings and replacement parts.

ALWAYS ensure fire extinguishing equipment is readily available and properly maintained.

PREVENT STATIC SPARKING FIRE/EXPLOSIONS

ALWAYS be sure all equipment & objects being sprayed are properly grounded. Always ground sprayer, paint bucket and object being sprayed. See grounding on page 6 for grounding information.

Vapors created when spraying can be ignited by sparks. To reduce the risk of fire, always locate the sprayer at least 20 feet (6 m.) away from spray area. Do not plug in or unplug any electrical cords in the spray area, which can create sparks, when there is any chance of igniting vapors still in the air. Follow the coating & solvent manufacturers safety warnings and precautions.

Use only conductive fluid hoses for airless applications. Be sure gun is grounded through hose connections. check ground continuity in hose & equipment. Overall (end to end) resistance of unpressurized hose must not exceed 29 megohms for any coupled length or combination of hose length. Use only high pressure airless hoses with static wire approved for 3000 psi.

FLUSHING

Reduce the risk of injection injury, static sparking or splashing by following the specific cleaning process. ALWAYS follow the PRESSURE RELIEF PROCEDURE on page 6.

ALWAYS remove the spray tip before flushing. Hold a metal part of the gun firmly to the side of a metal pail and use the lowest possible fluid pressure during flushing.

NEVER use cleaning solvents with flash points below 140 degrees F. Some of these are: acetone, benzene, ether, gasoline, naptha. Consult your supplier to be sure. NEVER SMOKE in the spraying/cleaning area.

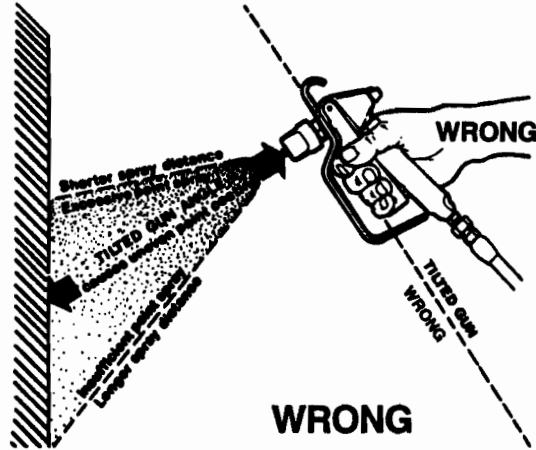
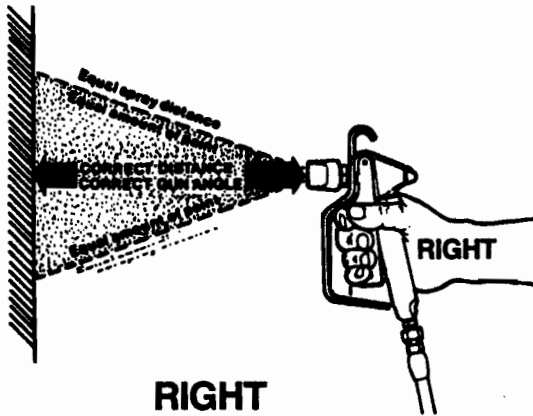
WHEN SPRAYING & CLEANING WITH FLAMMABLE PAINTS AND THINNERS

1. When spraying with flammable liquids, the unit must be located a minimum of 25 feet away from the spraying area in a well ventilated area. Ventilation must be sufficient enough to prevent the accumulation of vapors.
2. To eliminate electrostatic discharge, ground the spray unit, paint bucket & spraying object. See GROUNDING on pg. 6. Use only high pressure airless hoses approved for 3000 psi which is conductive.
3. Remove spray tip before cleaning gun and hose. Make contact of gun with bucket and spray without the tip in a well ventilated area, into the grounded steel bucket.
4. Never use high pressure in the cleaning process. USE MINIMUM PRESSURE.
5. Do not smoke in spraying/cleaning area.

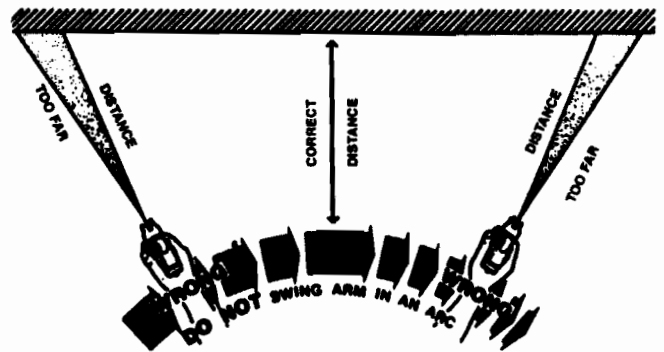
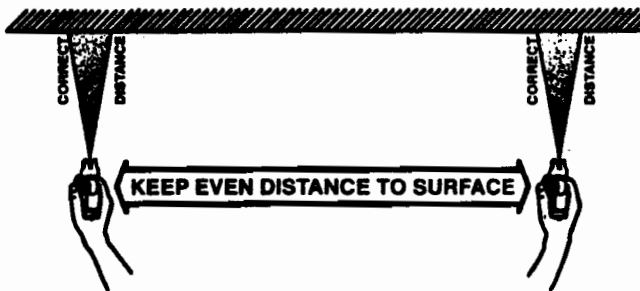
SPRAY TECHNIQUE

Good Spray Gun Technique is at the core of any spray-paint operation. Operator skill and efficiency is as important as good equipment and good paint. Good spray technique is a skill that can be quickly learned by following

these simple instructions. If you are not familiar with spraying techniques, we recommend that you study this section of your manual and practice the proper technique on pieces of cardboard or a suitable surface.



Hold the spray gun 12-15 inches away from the work surface and keep it perpendicular (straight) to the surface. Move the spray gun parallel to the work and at a right angle to the surface.

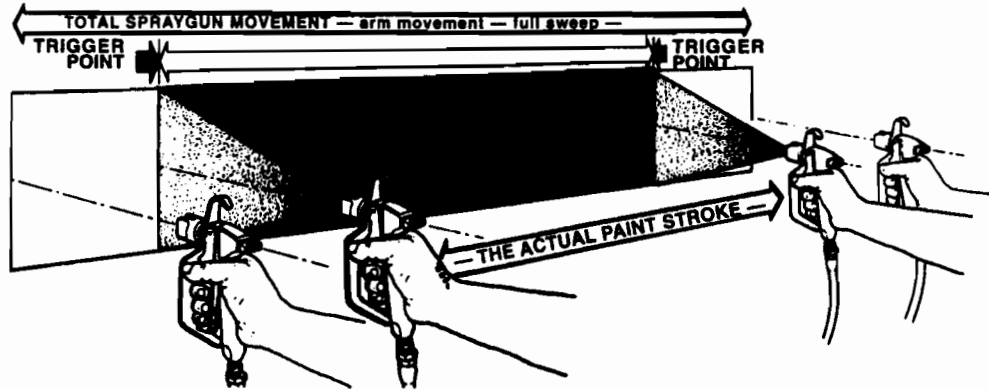


Move the gun at a steady rate in order to apply a good coverage. The wet coat should be just under the thickness at which a run or sag will occur. Slow gun movement or gun held too close will result in an overly wet or thick wet or thick coat coverage that is likely to run or sag.

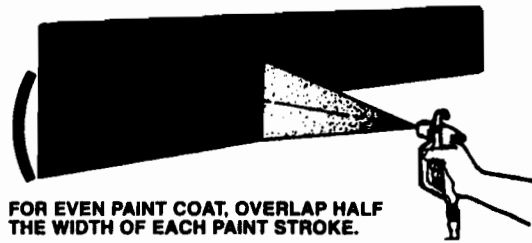
The closer the spray gun is held to the work, the thicker the paint is deposited and the faster the gun must be moved to prevent sags and runs. Holding the gun too far from the work will cause excessive fog, overspray, and a thin and grainy coat.

Do not wave the spray gun. This waving is called (arching). Instead, hold the spray gun at a 12- to 15-inch distance perpendicular from the work.

SPRAY TECHNIQUE

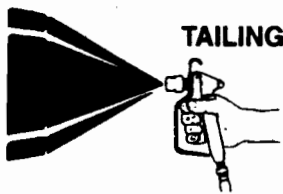


It is important to “trigger” the gun **after** gun movement (arm movement) has started and release trigger (shut gun off) **before** gun movement ends. Gun movement is always longer than actual paint (spray) stroke. In that manner, even blending and uniform paint coat thickness is achieved over the entire surface. When the gun is in motion as the trigger is pulled, it deposits an even amount of paint.



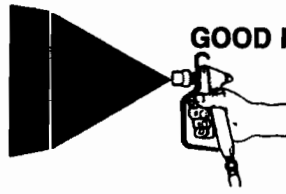
Spray with uniform strokes from left to right and from right to left, holding stroke speed, distance, lapping, and triggering as uniform as possible.

Overlap the previous pass by half the width of the spray pattern. Aim at the bottom of the previous pass.

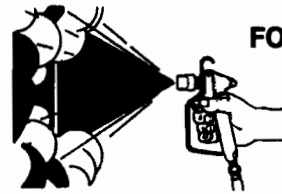


TAILING

Adjust pressure control knob so that paint is atomized from the spray gun. Insufficient pressure will result in “tailing.”



GOOD PATTERN



FOG, OVERSPRAY

Too much pressure will result in excess fog and overspray, excessive tip wear, and increased sprayer wear and tear.

POOR PATTERN GOOD PATTERN

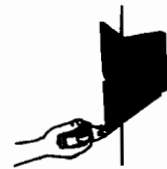


Always use the lowest possible pressure to obtain desirable results.

Test the pattern on a piece of cardboard or other surface.



INSIDE CORNER



OUTSIDE CORNER

“Inside” and “outside” corners can be sprayed. Aim the spray gun toward the center of the corner. The spray pattern is divided in half, and the edges on the spray pattern on both walls are the same.

AIRLESS SPRAY GUN OPERATION

<u>DEFECTS</u>	<u>CAUSE</u>	<u>CORRECTION</u>
Coarse spray	Low pressure	Increase the pressure.
Excessive fogging (overspray)	High pressure Material too thin	Reduce the pressure to satisfactory pattern distribution. Use less thinner.
Pattern too wide	Spray angle too large	Use smaller spray angle tip.
Pattern too narrow	Spray angle too small	Use larger spray angle tip (if coverage is OK, try tip in same nozzle group)
Too much material	Nozzle too small Material too thin Pressure too high	Use next smaller nozzle. Reduce pressure
Too little material	Nozzle too small Material too thick	Use next larger nozzle
Thin distribution in center of pattern "horns".	Worn tip Wrong tip	Change for new tip. Use nozzle with a narrow spray angle.
Thick skin on work	Material too viscous Application too heavy	Thin cautiously. Reduce pressure and/or use tip in next larger nozzle group.
Coating fails to close & smooth over	Material too viscous	Thin cautiously.
Spray pattern irregular, deflected	Orifice clogged. Tip damaged	Clean carefully. Replace with new tip.
Craters or pock marks, bubbles on work	Solvent balance	Use 1 to 3% "short" solvents remainder "long" sol (this is most likely to happen with material of low viscosity, lacquers etc.)
Clogged screens	Extraneous material in paint. Coarse pigments Poorly milled pigments (paint pigments glocculate cover screen. Incompatible paint mixture & thinners.	Clean screen Use coarse screen if orifice size allows. Use coarser screen, larger orifice tips. Obtain ball milled paint. If thinner has been added, test to see if a drop placed on top of paint mixes or flattens out on the surface. If not, try different thinner in fresh batch of paint.

TEST THE PATTERN

Good, full pattern.



Spotty pattern
Increase Pressure.



SPRAY TIP SELECTION

Spray tip selection is based on paint viscosity, paint type, and job needs. For light viscosities (thin paints), use a smaller tip; for heavier viscosities (thicker paints), use a larger tip size.

Spray tip size is based on how many gallons

of paint per minute can be sprayed through the tip.

Do not use a tip larger than the maximum pump flow rate or capacity the sprayer can accommodate. Pump flow rate is measured in gallons per minute (GPM).

TIP NUMBER	ORIFICE SIZE	FAN WIDTH	LATEX			OIL BASE		FINE LACQUER & STAINS	STAINS LARGE AREAS	
			FLAT AREAS	LARGE FLAT	TRIMS	SMALL AREAS	LARGE AREAS			
311	.011	6-8"						X		PAINT MUST BE STRAINED USE FINE GUN FILTER 120-004F 120-090FX
411	.011	8-10"						X		
511	.011	10-12"						X		
413	.013	8-10"				X			X	
513	.013	10-12"				X			X	
613	.013	12-14"				X			X	
415	.015	8-10"					X			
515	.015	10-12"	X				X			
615	.015	12-14"	X				X			
317	.017	6-8"			X					FOR BETTER RESULTS, STRAIN PAINT USE COARSE GUN FILTER 120-004C 120-090CX
417	.017	8-10"	X							
517	.017	10-12"	X	X						
617	.017	12-14"	X	X						
318	.018	6-8"	X		X					
418	.018	8-10"	X	X						
518	.018	10-12"	X	X						
618	.018	12-14"		X						
521	.021	10-12"		X						
621	.021	12-14"		X						
721	.021	14-16"		X						

Note: For materials requiring larger than a .021 tip refer to ICI label specifications.

PATTERN WIDTH

Thickness of the paint coat per stroke is determined by spray tip "fan width," rate of the spray gun movement, and distance to surface.

SPRAY TIP SELECTION

Two tips having the same tip size, but different pattern 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.

LARGER SIZES AVAILABLE

SPRAY TIP REPLACEMENT

During use, especially with latex paint, high pressure will cause the orifice to grow larger. This destroys the pattern.

Replace tips before they become excessively worn. Worn tips waste paint, cause over-spray, make cutting-in difficult, and decrease sprayer performance. The average life of a spray tip is 100 gallons of paint before tip replacement is required.

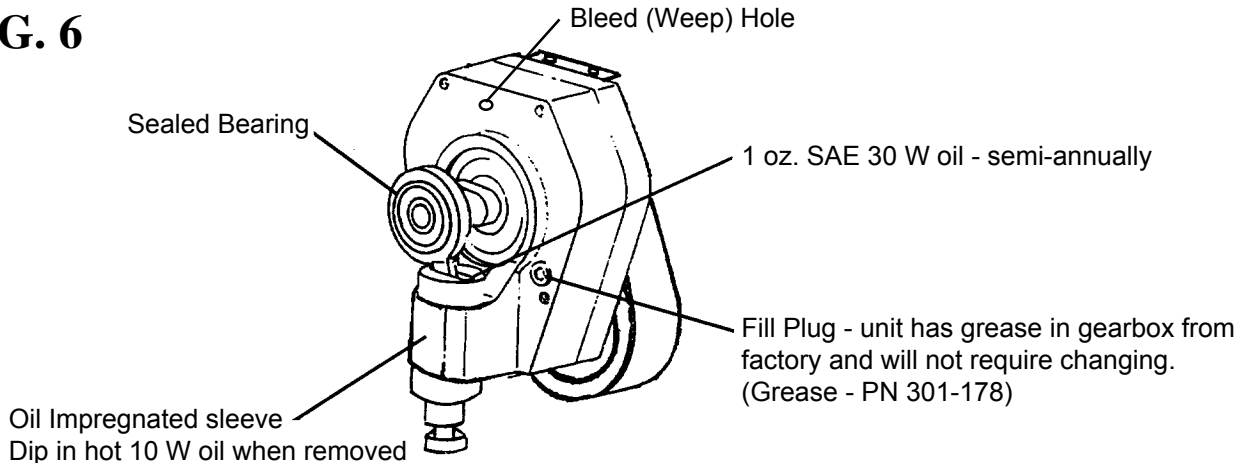
Use the chart above for selecting proper spray tips to meet your job needs.

REGULAR MAINTENANCE

1. Always stop the pump at the bottom of its' stroke when you take a break at the end of the day. This helps keep material from drying on the rod and damaging the packings.
2. Keep the displacement pump packing nut/wet cup 1/3 full of TSO at all times. The TSO helps protect the packings and rod.
3. Inspect the packing nut daily. It should be tight enough to stop leakage, but no tighter. Overtightening will damage the packings.

OIL AND LUBRICATION INSTRUCTIONS

FIG. 6



ELECTRIC MOTOR MAINTENANCE

1. **LUBRICATION** - This motor is supplied with pre-lubricated ball bearings, lubricated for the life of the bearing.
2. **MOTOR BRUSHES** need periodic inspection and replacement as wear indicates. Brush wear is greatly influenced by individual application. It is recommended that brush wear be checked at early intervals of operation in order to determine future required inspection. Standard Leeson brushes have an initial length of 1 and 1/4". When the brushes are worn to a length of 5/8" they should be replaced.

TO CHANGE THE BRUSHES:

1. Unplug the machine.
2. Disconnect LCD
3. Remove the cover over the motor.
4. Open the two covers at the rear of the motor.
5. Loosen the screw under the brush.
6. Pull out the wire.
7. Push the brush retainer clip in and withdraw.
8. Remove the worn brushes.
9. Install new brushes in the reverse order.

For long life, new brushes (Part No. 301-146 for 110V service, Part No. 301-147 for 220 - 240 V service) need to have a run in period. After changing brushes, set the machine for spraying. With a bucket of Coro-Chek and water, a 50' 1/4" airless hose, airless gun and tip on unit, open the prime valve and switch on. The pump will now prime. With pump running in the prime mode, turn the pressure control knob to high pressure. (The pump has to cycle fast with no pressure in the pump). Now run the pump for 20 minutes. **After 20 minutes, the brushes will be run in.**

TROUBLESHOOTING

<u>PROBLEM</u>	<u>CAUSE</u>	<u>SOLUTION</u>
There is spitting from the gun.	The fluid supply is low or empty.	Refill the supply container.
	Air entrapped in the fluid pump of hose.	Check for loose connections on the siphon assembly, tighten, then re-prime pump.
Paint leaks into the wet cup.	The wet cup is loose.	Tighten just enough to stop leakage.
	The throat packings are worn or damaged.	Replace the packings. See page 22.
	Piston Rod Worn.	Replace piston rod.
The motor operates, but the paint pump doesn't	The pressure setting is too low.	Increase the pressure . See page 4.
	The displacement is seized by dried paint.	Service the pump. See pages 21,22,23
The motor and displacement pump operates, but paint pressure is too low, or none.	The pressure setting is too low.	Increase the pressure. See page 4.
	The tip or gun filter is clogged.	Remove the tip and/or filter and clean them.
	Tip is worn.	Replace Tip.
	The fluid displacement pump filter (if used) is clogged.	Clean the filter.
	There is a large pressure drop in the fluid hose.	Use a larger diameter hose.
	The lower check valve ball check is not seating properly.	Service the lower check valve ball check. See page 21.
The displacement pump operates, but the output is too low on the downstroke or both strokes.	The upper check valve ball is not seating properly.	Service the upper check ball valve per page 21.
	The lower packings are worn or damaged.	Replace the packings. See page 22.
The displacement pump operates but the pressure is too low.	Tip too large.	Use smaller tip.
	Long Extension cord causes power drop.	Use less extension cord.
Motor stops.		Reset overload switch.

TROUBLESHOOTING - Machine does not Start

CAUSE

SOLUTION

Pressure Setting

STEP 1: Ensure ON/OFF switch is in the "ON" position and the Pressure Control Knob is fully CW (maximum pressure) and that the unit is plugged in.

STEP 2: Loosen the pressure control unit on the back of the machine. Check if the green power light on the board is lit. If the light is "OFF", proceed to step 3. If the light is "ON", go to step 7.

Power Source

STEP 3: Use a multimeter to check for 110 volts across the L1 and L2 terminals on the board. If there is no voltage at these leads. There is no power to the unit. Check power source (outlet, breakers, extension cord and power cord.)

Thermal Circuit Breaker

STEP 4: if the machine has power and the green light is "OFF", check to see if the breaker has tripped (button protruding from breaker). Push to reset. If it doesn't reset allow more time and push button in again. Replace thermal circuit breaker if it won't reset.

Thermal Overload

STEP 5: If the thermal circuit breaker is okay, disconnect the two red motor leads (S1 & S2) and test for continuity between the two leads. Continuity shows that the motor's thermal coupler has not tripped. No continuity means that the thermal coupler has opened due to excessive motor heat. If the motor is still hot to touch, allow to cool and retest. If the motor is cool and there is not continuity on the red leads, contact your local Leesen repair facility to repair/replace the thermal coupler.

Pressure Control Unit

STEP 6: If all checks out fine in steps 1 through 5 and the green light is still out, the pressure control unit (board) is defective and must be replaced.

Sensor

STEP 7: If the green light is "ON", the power source, circuit breaker and thermal coupler are okay. Use a multimeter to test the resistance between the red and black wires on the sensor. This must be about 15-28 Kohms, Note: A bad sensor will usually show no resistance (open). A second option is to substitute the sensor with another one.

Potentiometer

STEP 8: With the machine still "OFF", remove the potentiometer lead from the pressure control unit of the board and read the resistance between the red and black wires. This must be 8 - 12 kohms. If outside this range, replace the potentiometer. Note: A bad pot will usually show no resistance (open). A second option is to substitute the POT with another one.

Motor

STEP 9: Remove the two black leads (A1 & A2) and test for continuity between them. Continuity is an indication that the motor is sound. The lack of continuity, points to a problem in the motor. If there is not continuity on these two leads, check the motor brushes. Ensure that the brushes are evenly worn and make solid contact with motor commutator. Replace the brushes if they are less than 5/8" long. If the brushes are okay, replace the motor.

Pressure Calibration

STEP 10: Complete the calibration procedures as shown on page 15-16.

Pressure Control Unit

STEP 11: If the unit fails to start while turning the pressure trimpot clockwise and all other components test okay in Steps 1 - 10, install a new pressure control unit.

PRESSURE CONTROL UNIT

Note: Anytime a sensor, pressure control unit or both are replaced, the first three calibrations must be performed.

1. ZERO CALIBRATION

1. Place prime/pressure relief valve in the prime (open) position.
2. Set the pressure control knob to the minimum setting (CCW).
3. Detach the pressure control unit.
4. Place the jumper (PN 117-207) on both prongs of the "P-ZR" terminal. Note: This jumper comes with a new Pressure Control Unit and is installed on the "P-ZR" terminal. If you are "Zero Calibrating" a Pressure Control Unit presently in the unit, remove the jumper from one prong of the "P-ZR" terminal and place on both prongs of the "P-ZR".
5. Turn machine "ON" and ensure it is not cycling.
6. If the yellow light on the electrical board is on, use an insulated screwdriver to turn the "LCD ZERO" trimpot (P501) counter-clockwise until the light goes out. Then turn it clockwise until the light just comes back on. At this point, the "Zero" Calibration is complete.
7. If the yellow light is OFF, turn the "Zero" trimpot clockwise, just until the light comes on and stop. At this point "Zero" Calibration is complete.
NOTE: As a double check to confirm that the pump is at true zero the LCD should read "0000" when the yellow light just comes on.
NOTE: If the yellow light remains constantly "ON", or "OFF" during this calibration, the sensor is defective and should be replaced.
8. When calibration is complete, move jumper from both prongs of the "P-ZR" terminal to single prong of the "P-ZR" Terminal.

2. PRESSURE CALIBRATION

1. Attach a 50', 1/4" airless hose, airless gun with 0.017 tip and a 5000 psi pressure guage to the pump.
2. Place the suction tube into a bucket of Coro-chek and water.
3. Turn Prime/pressure relief valve to the prime (open) position.
4. Complete the ZERO calibration, as per "ZERO CALIBRATION".
5. Turn pressure control knob clockwise until machine starts to prime.
6. Place the prime/pressure relief valve in the pressure (closed) position.
7. While watching pressure glycerine guage (not the LCD) , slowly adjust the Pressure Trimpot (P502) (clock wise to increase and counter clockwise to decrease) until the maximum static pressure is 3000 psi, with the pressure control knob fully clockwise. Trigger the gun several times to ensure pressure returns to 3000 psi .

3. LIQUID CRYSTAL DISPLAY (LCD) CALIBRATION

1. Complete the "ZERO CALIBRATION" and "PRESSURE CALIBRATION" procedures prior to commencing this calibration.
2. Turn pressure control knob up until system pressure is above 2500 psi (as indicated on glycerin filled pressure gauge) and the machine is not cycling.
3. Use an insulated screwdriver to adjust the LCD Set trimpot (P503). Turn Trimpot CCW until it clicks. Then adjust to match pressure against pressure gauge reading.
4. Move the pressure control knob to different settings and trigger the gun several times to ensure that the LCD continues to match the pressure gauge reading.
5. Reattach pressure control unit.

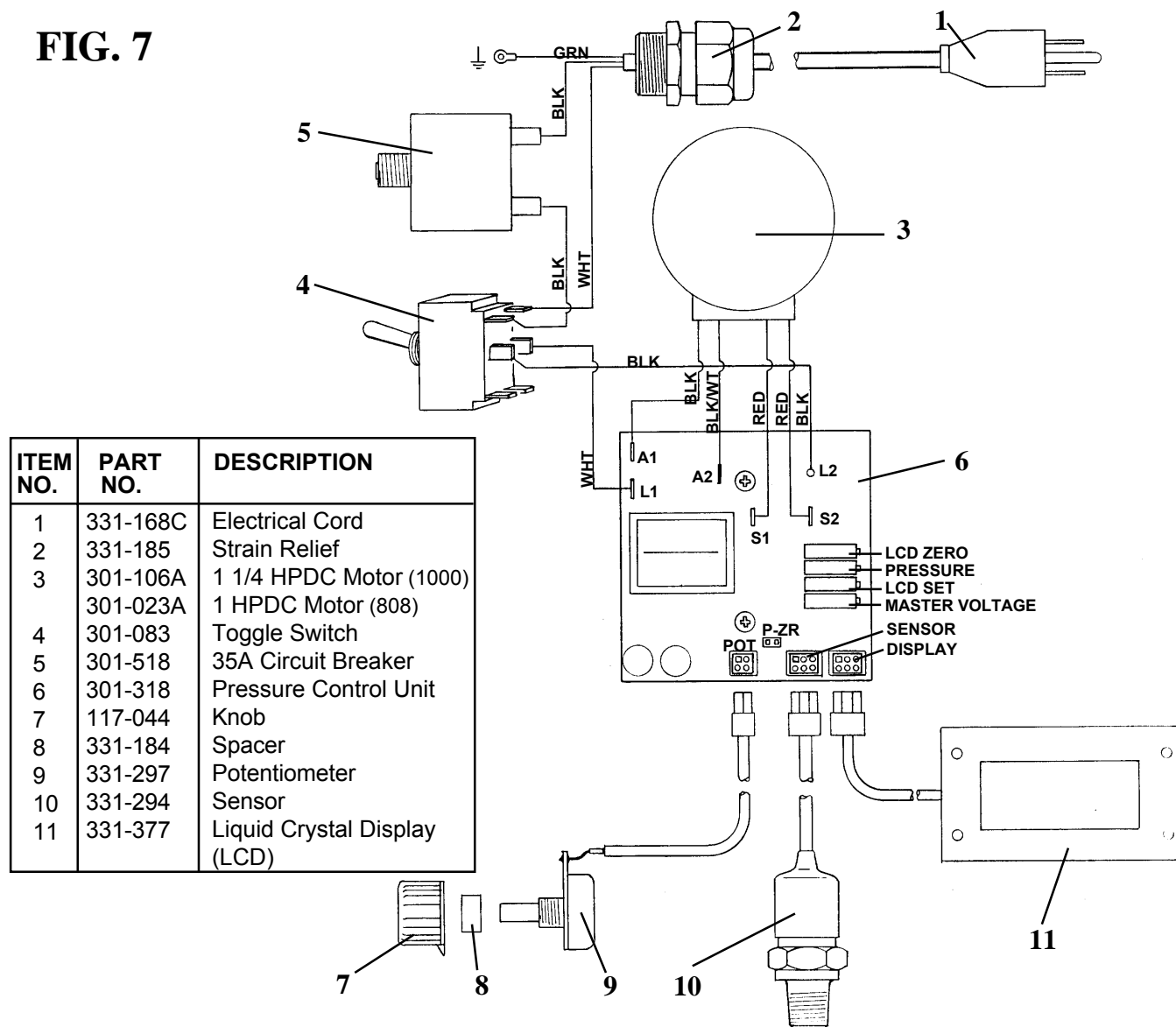
PRESSURE CONTROL UNIT continued

4. MASTER VOLTAGE CALIBRATION

1. Attach a 50', 1/4" airless hose, airless gun with .017 tip and a 5000 psi glycerine filled pressure gauge to the pump.
2. Place the suction tube into a bucket of anti-freeze (or Coro-Chek) and water.
3. Turn pump on and turn up pressure control until the machine starts to prime.
4. Place the prime/pressure relief valve in the pressure (closed) position.
5. Pressurize pump to 600 psi.
6. Trigger the gun several times noting the deadband (the amount of pressure drop before the pump rebuilds to set pressure).
7. If deadband is greater than 150 psi, adjust the master voltage trimpot so that the deadband is less than 150 psi and the pressure increase after the gun trigger is released is less than 250 psi. These pressure are guidelines and may vary slightly from pump to pump.
8. Reattach pressure control assembly to unit.

ELECTRICAL SYSTEM

FIG. 7



REPLACEMENT OF LCD - PN 301-349

1. Ensure that the power switch is OFF and that the machine is unplugged.
2. Detach the pressure control unit (Fig. 18 Item 34) from the frame by unscrewing the eight screws (Fig. 18 Item 35).
3. Disconnect the LCD lead from the the pressure control unit.
4. Push the rubber grommet (Fig. 8 Item 10) up and out of the hole in the frame.
5. CAREFULLY pull LCD lead up and out of the frame.
6. Unscrew the six retaining screws (Fig. 18 Items 16 & 65) on the motor cover and take off the cover.
7. Separate the LCD assembly from the motor cover by undoing the two screws (Fig. 18 Item 67)
8. Disassemble Items 1-10 (Fig)
9. Remove the replace LCD Display (Fig. 8 Item 3).
- 10 Reassemble in reverse order.
11. Perform "LCD Calibration Procedure". See page 15.

FIG. 8

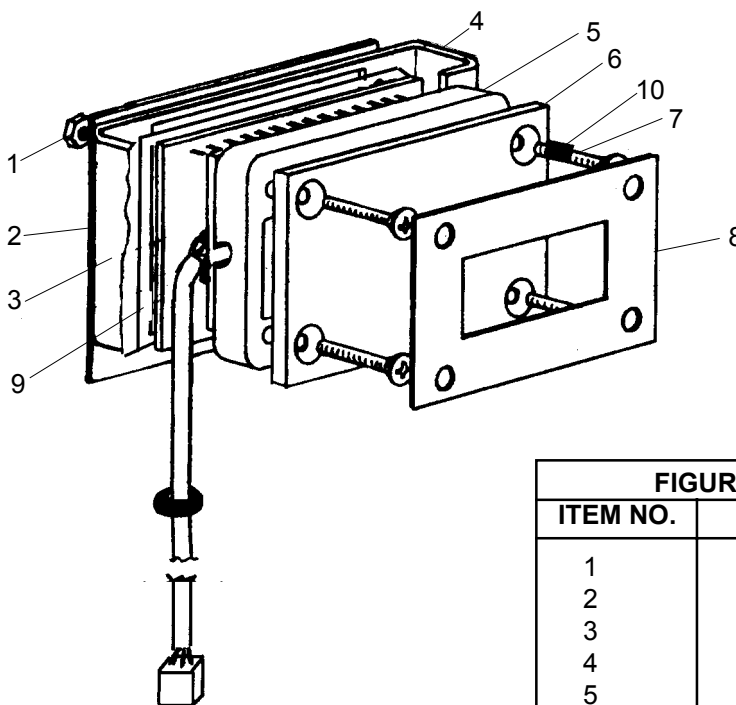


FIGURE 10 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION
1	117-126	Nut (4)
2	301-345	Plate
3	331-377	Display Board Ass'y
4	301-332	Bracket
5	301-088	Seal
6	301-328	Window
7	100-362	Screw (4)
8	301-243	Gasket
9	301-358	Insulator Display
10	117-281	Spacer
11	301-334	Grommet

REPLACEMENT OF SENSOR

1. Place prime/pressure relief valve in the prime (open) position.
2. Unplug electrical cord.
3. Detach pressure control unit (Fig. 18 Item 34) from the frame by unscrewing the eight screws (Fig.18 Item 35).
4. Unplug sensor lead from the pressure control unit.
5. Use a 7/8" wrench to unscrew the sensor from the pressure control unit.
6. Place PTFE tape on the threads of the new sensor and screw it snugly into the pressure control unit.
7. Plug sensor lead into pressure control unit.
8. Complete the calibration procedures on pages 15 & 16.
9. Attach the pressure control unit frame.

REPLACEMENT OF POTENTIOMETER

1. Ensure that the machine is OFF and unplugged.
2. Detach the pressure control unit from the frame by unscrewing the eight screws.
3. Unplug potentiometer lead from the pressure control unit.
4. Use 1/16" allen wrench to loosen the set screw on the potentiometer knob and remove knob and spacer.
5. Use 1/2" socket or wrench to remove the retaining nut from the potentiometer stem and remove potentiometer from the frame.
6. Reassemble in reverse order.

REPLACEMENT OF THERMAL CIRCUIT BREAKER

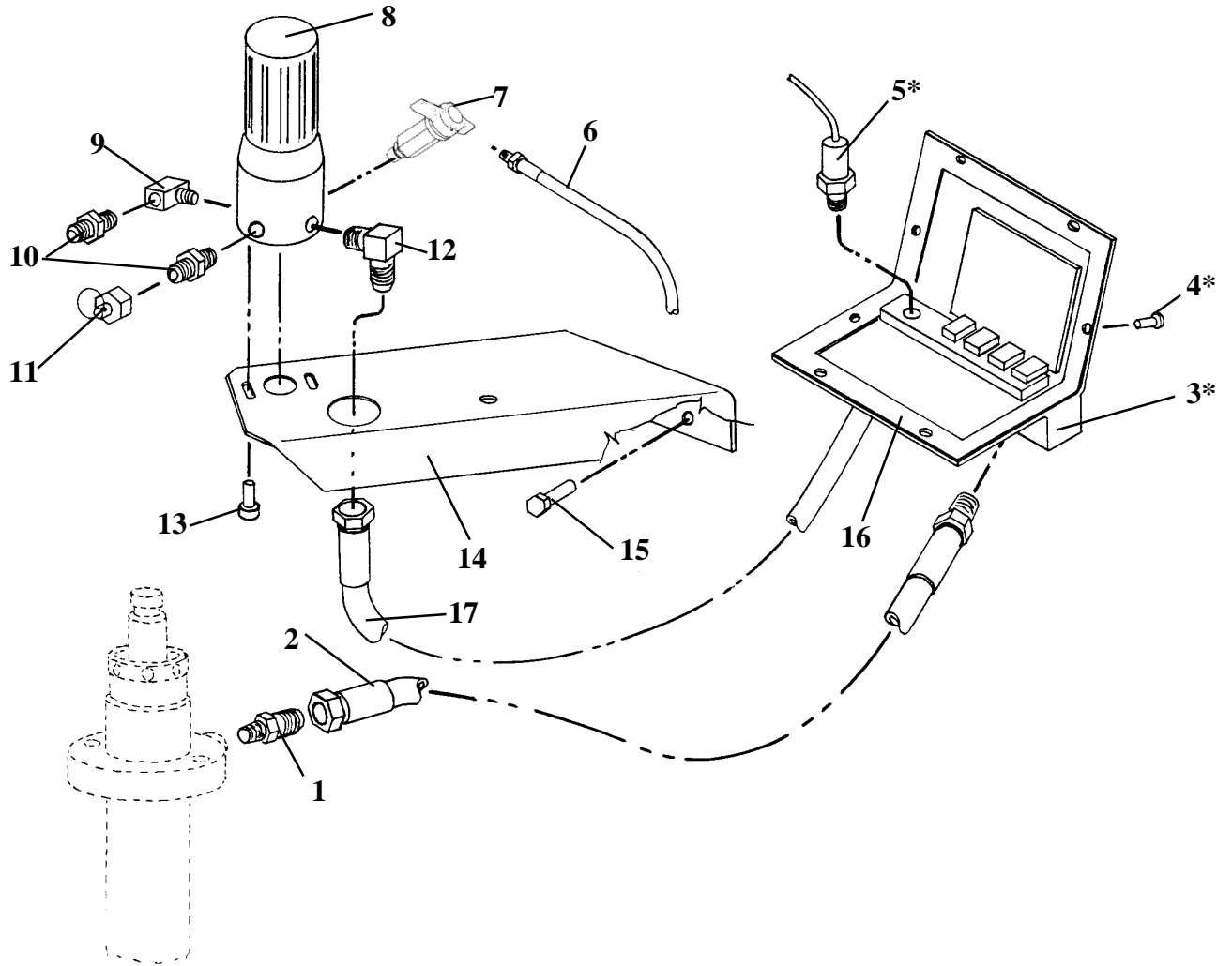
1. Ensure that the machine is OFF and unplugged.
2. Detach the pressure control unit from the frame by unscrewing the eight screws.
3. Unplug the two black wires from the circuit breaker.
4. Unscrew the clear rubber boot and retaining nut on the circuit breaker stem and remove circuit breaker from the frame. This can be done by hand.
5. Reassemble in reverse order. Note: the black wires are interchangeable.

REPLACEMENT OF PRESSURE CONTROL UNIT (ELECTRICAL BOARD)

1. Ensure that the machine is OFF and unplugged.
2. Detach the pressure control unit from the frame by unscrewing the eight screws.
3. Disconnect all wires, leads and hoses from the pressure control unit.
4. Remove the pressure control unit.
5. Reassemble in reverse order. See Fig. 7, page 16 for wiring diagram.

PAINT SYSTEM - PN 301-309

FIGURE 10



ITEM NO	PART NO	DESCRIPTION	ITEM NO	PART NO	DESCRIPTION
1	100-109	Nipple 1/4 - 3/8	9	100-004	Elbow
2	301-308	Hose	10	115-019	Hose Connector 1/4 NPT
3*	301-318	Pressure Control Ass'y	11	100-160	Plug
4*	111-037	Screw (8)	12	167-016	Elbow
5*	331-294	Sensor	13	100-312	Screw (2)
6	301-314	Bypass Hose Ass'y	14	301-359	Bracket
7	100-180	Prime/Pres. Relief Valve	15	111-044	Screw (2)
8	301-360	Maxi Filter	16	301-252	Gasket
			17	301-257	Hose

* NOT PART OF PAINT SYSTEM

SERVICING FLUID PUMP

Note: Check everything in the Troubleshooting Chart before disassembling the sprayer.

FLUID PUMP DISCONNECT

1. Flush out the material you are spraying, if possible.
2. Follow the Pressure Relief Procedure on Page 6. Stop the pump in the middle of down stroke.
3. Remove the suction tube and fluid hose (if so equipped) from the fluid pump.
4. Remove 2 retaining rings and slip the sleeve of the coupling down and remove both coupling halves. This will disconnect fluid pump from the connecting rod.
5. Unscrew the two tie rod locknuts.
6. Pull the pump off the tie rods.

FLUID PUMP REINSTALL

1. Loosen the packing nut and extend piston rod to fully up position. Slip sleeve (189-047) over the piston rod.
2. Make sure that spacer tubes (301-048) are in place.
3. Connect connecting rod with fluid pump by installing coupling halves (189-046). Slide sleeve over coupling halves. Secure with retaining ring (189-048).
4. Secure the fluid pump housing to the tie rods (100-328) and screw locknuts with washers on loosely.
5. Tighten the tie rod locknuts evenly to 30 ft. lb.

NOTE: After all the rod locknuts are tight, the alignment of both rods should allow easy assembly and disassembly of the coupling. If any binding, loosen and retighten all the rod locknuts to improve the alignment. Misalignment causes premature wear of seal and packings.

6. Tighten the packing nut, just tight enough to stop leakage, but no tighter. Fill the wet cup of the packing nut 1/3 full with TSO.
7. Start the pump and operate it slowly (at low engine speed) to check the piston rod for binding. Adjust tie rod lock nuts if necessary to eliminate binding.

SERVICING UPPER & LOWER CHECK VALVES

LOWER CHECK VALVE (SEE FIG. 11&13)

1. Screw the lower check valve nut (187-018) out of the pump housing (187-313) containing intake seat support (187-017).
2. Remove the intake seat (187-065), O-ring (187-034), intake ball (187-020) and retainer (187-016).
3. Clean all parts and inspect them for wear or damage, replacing parts as needed. Old "O" rings should be replaced with new ones.

Note: "O"ring PN 187-028 is available in the following materials:
 Viton for waterbase paint - letter "V" after part no.
 PTFE for other fluids - letter "T" after part no.

4. Clean inside of pump housing (187-313).
5. Reassemble the valve and screw it onto the pump housing if no further pump service is needed.

PISTON-ROD, UPPER CHECK VALVE (SEE FIG. 11 & 13)

1. Stop piston rod in middle of it's stroke. Remove retaining rings (189-048).
2. Slip the sleeve (189-047) off the coupling halves (189-046) and remove both coupling halves. This will disconnect piston rod from pump drive.
3. Screw the lower check valve nut (187-018) off the pump and remove lower check valve.
4. Loosen the packing nut and push the piston rod down and out of the housing.
5. Place rod holder Part No. 187-248 in a vise. Slide the rod into the holder and lock in place with a 1/4" pin. Push the pin through the holder and the rod. Screw the seat support (187-021) out of rod, remove "O"ring (187-033T), seat (187-044) and ball (115-022) out of the piston rod (187-311).

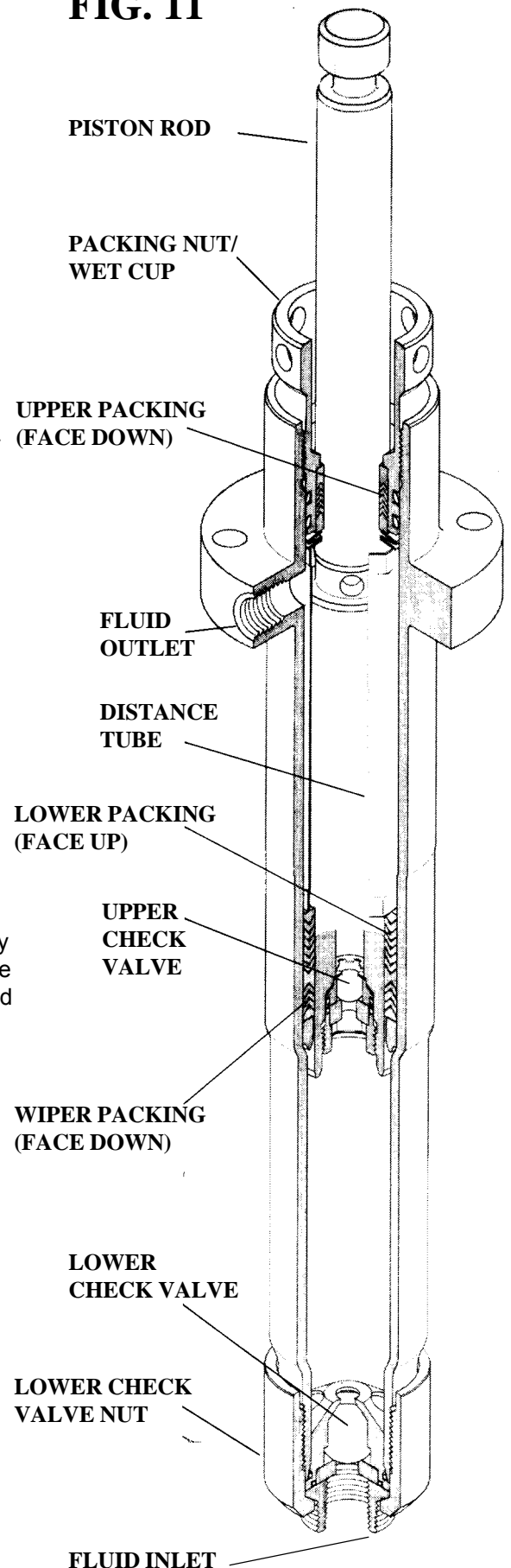
NOTE: Retainer (187-032) with "O"ring (187-033V) and ball stop (187-022) may remain in the piston rod. Clean and check visually the ball stop (187-022) for excessive wear. If ball stop needs to be replaced, install any screw with thread 1/2-13NC into the threaded hole of retainer (187-032) and pull straight out.

6. Clean all parts and inspect them carefully for wear or damage. Inspect the outside of the piston rod for scoring or wear. Replace these parts if needed. A worn piston rod will cause premature wear of packings.
7. Install parts back into piston rod as per Fig. 13, pg. 23 VIEW A as shown.

Note: Before installing discharge seat support (187-021), place two drops of loctite No. 242 (blue) on threads before assembling.

8. After installation and tightening of discharge seat support, check to ensure ball stop (PN 187-022) is properly installed in piston rod and has not fallen into piston bore. Check by pushing on the ball and feeling a positive stop against the ball stop.

FIG. 11



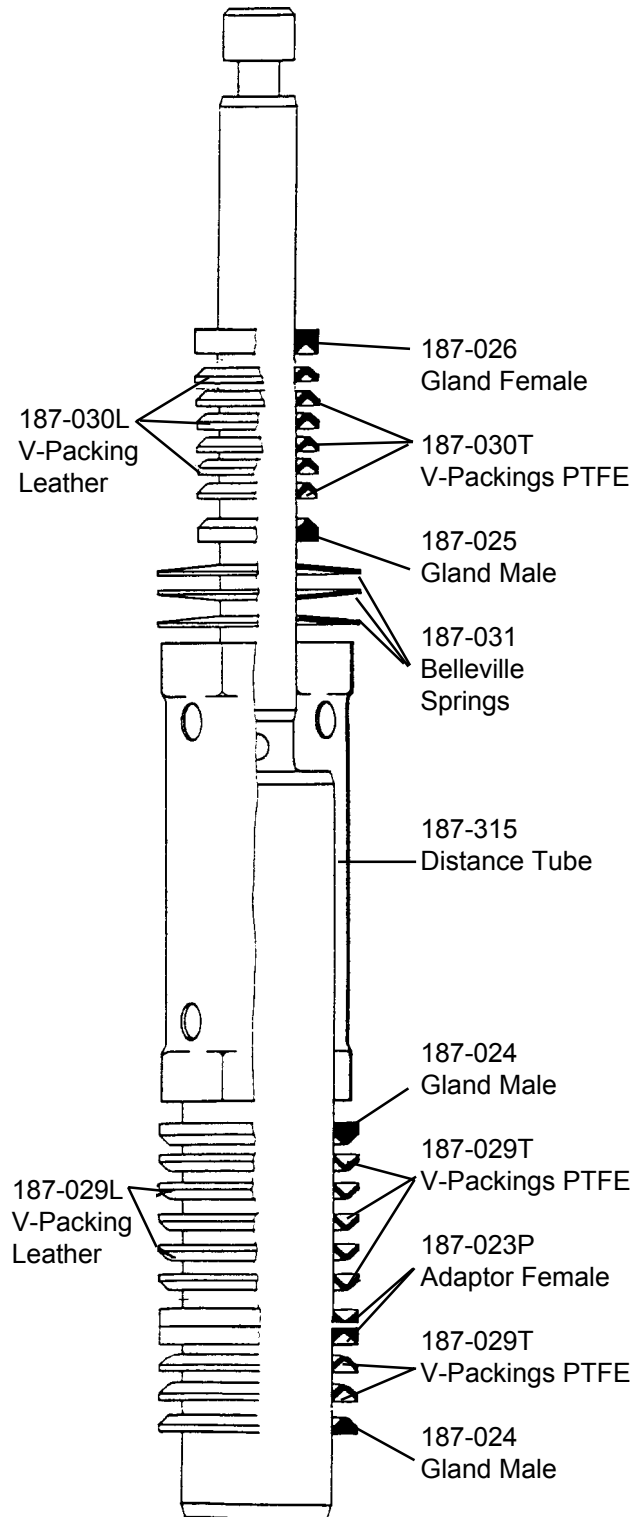
V - PACKING REPLACEMENT

1. Remove the fluid pump as per the "Fluid Pump Disconnect" instructions on page 20.
2. Unscrew and remove the lower check valve per instructions on page 21.
3. Unscrew & remove the packing nut (187-046). Push the piston rod down through the packings and out of the pump. Wrap some masking tape around the bottom of the piston. Now push the piston back through the pump and remove through the top. The packings and glands will be removed with the piston rod, leaving the pump casing (187-313) empty. Utilizing tool (PN 187-249) the complete packing set & piston can be removed quickly and easily.
4. Disassemble and clean all parts for reassembly. Discard old packings, but retain old metal glands for reuse.

REASSEMBLY

5. Lubricate leather packings in lightweight oil for 10 min. prior to assembly.
6. Remove masking tape from piston. (if used)
7. Reassemble all parts onto piston as per drawing Fig. 12 in the following order:
 - a. Start with lower male gland (187-024)
 - b. Two new V-packings face down (187-029T)
 - c. Female adaptors (187-023P)
 - d. Five V-Packings face up. (alternating PTFE & Leather)
 - e. Upper male gland (184-024)
 - f. Slide on distance tube (187-315).
 - g. Three Belleville Spring (187-031) starting with the first spring facing down and next facing up and the third facing down.
 - h. Slide on upper male gland (187-025) with bevel facing up.
 - i. Six V-Packings faced down (alternating PTFE & Leather)
 - j. Female Gland (187-026)
 - k. Slide on the V-Packing holder (187-047) over upper packings.
8. Lubricate inside of cylinder & outside of packings then slide complete assembly into the pump casing (187-313). Thread packing nut (187-046) into cylinder and tighten (hand tight only).
9. Install the lower check valve and tighten the lower check valve nut (187-018).
10. Connect the pump to the machine as per fluid pump reinstall procedure (page 20).
11. Tighten the packing nut clockwise until resistance against the belleville springs is felt. Now turn it 1/2 turn clockwise. Approximately four threads will show on the packing nut

FIG. 12

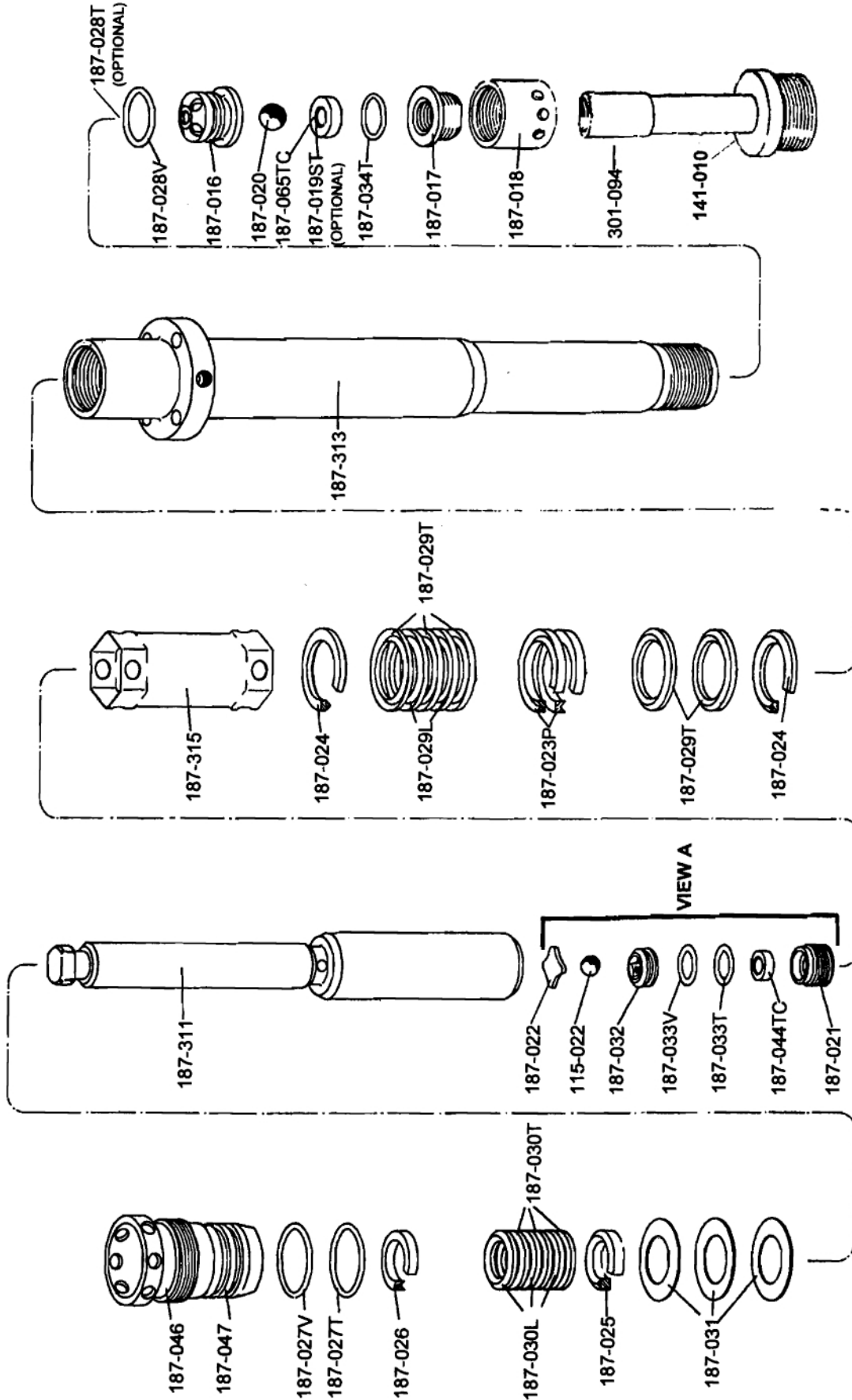


V-PACKING KIT - PTFE AND LEATHER (187-040)

Note: O-ring (187-028) on lower ball cage is supplied in PTFE and Viton. Use Viton when spraying latex or oil based paints and PTFE when spraying paints with high solvents.

FLUID PUMP - 187-310

FIG. 13



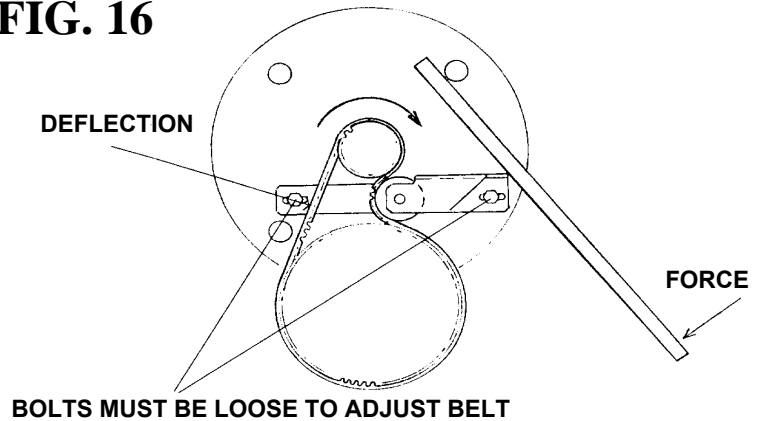
NOTE: Letter following the part numbers describes the material used for V-packings and O-rings.

- L- Leather
- V- Viton
- P- Plastic
- T- PTFE

REPLACEMENT OF BELT/BELT ADJUSTMENT

FIG. 16

NOTE: The Cog Belt System does not require alignment. When upper sheave is placed on motor shaft it is pushed on until a positive stop is reached. The set screws (Fig. 18, Item 30) are then loctited. The lower pulley is placed on gearbox and held in place with keyway and snap ring (Fig. 18, Items 18 & 19). The flange on upper sheave holds the belt in alignment and the belt self aligns on lower pulley eliminating having to align.



REPLACEMENT OF BELT:

1. Remove Pressure Control Unit (Fig. 18, Item 34) and unplug LCD Display from Pressure Control Unit. Remove LCD Electrical Connector from grommet in frame.
2. Remove cover (Fig. 18, Item 32) from unit, being careful not to damage LCD Display which is mounted to inside of cover.
3. Remove Tensioner Assembly (Fig 16). Then loosen screws (Fig. 18, Item 27). Move gearbox forward to allow removal and replacement of belt.
4. Retighten screws into gearbox until they bottom out. (Fig. 18, Item 27) This will align gearbox correctly
5. Replace tensioner with bolts and leave loose to allow adjusting belt tension.
6. Tighten belt as shown in Figure 16. When properly tightened the deflection play should be 1/4 inch when pushing hard with thumb. (20 ft/lbs)

NOTE: When placing belt on pulleys and inserting the tensioner against belt, ensure cogs on belt are engaged into cogs on pulleys before tightening belts. Rotating upper pulley while holding the tensioner against the belt will allow proper engagement of cogs prior to tightening.

MAXI FILTER ASSEMBLY - PN 301-360

FIG. 17

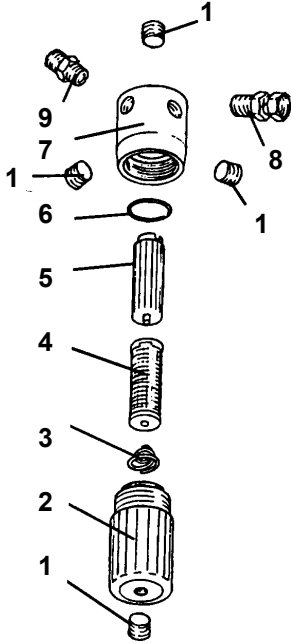


FIGURE 18 PARTS LIST		
ITEM	PART NO.	DESCRIPTION
1	301-357	Plug, 1/4" NPT (4)
2	301-361	Bowl
3	301-356	Spring
4	301-363	Screen
5	301-362	Support
6	301-355	O-ring
7	301-352	Head
8	100-159	Swivel 3/8 NPS(M) X 1/4 NPT(F)
9	115-019	Connector 1/4 NPS(M) X 1/4 NPT(M)

COMPLETE SPRAYER

FIG. 18

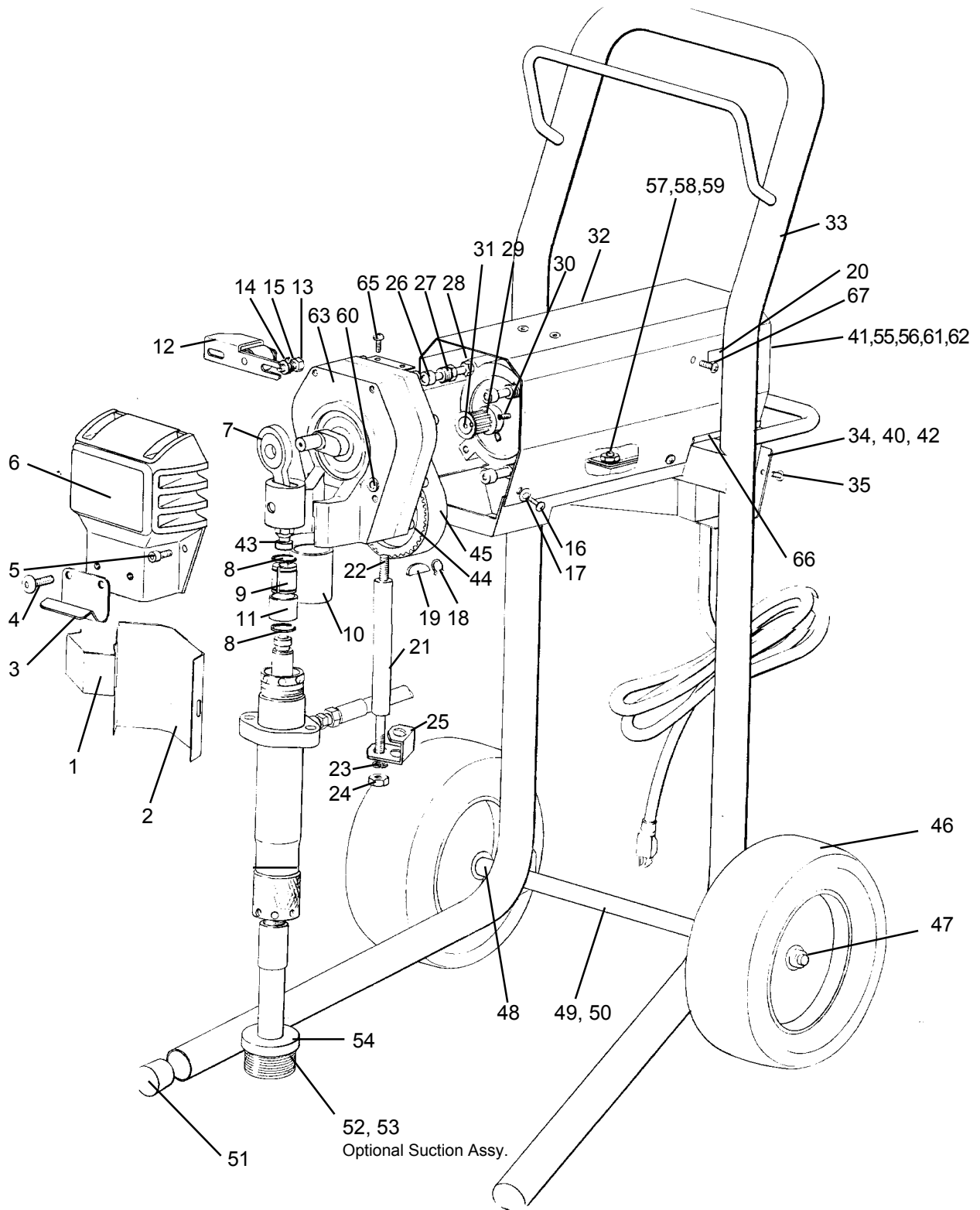


FIGURE 18 PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	301-189	Shield- Front	35	111-037	Screw (8)
2	301-092	Shield- Rear	40	101-005	Warning Label
3	301-105	Hook	41	117-052	Screws (3)
4	100-360	Screw (2)	42	101-060	Label High Voltage
5	100-312	Screw (4)	43	301-046	Rod End
6	301-320	Cover	44	301-237	Pulley, Cog
7	301-333	Connecting Rod Ass'y	45	301-231	Cog Belt
8	189-048	Retaining Ring (2)	46	301-073	Air Wheel (2)
9	189-046	Coupling Set	47	143-029	Set Collar (2)
10	301-047	Sleeve Bearing	48	167-014	Spacer (2)
11	189-047	Coupling Cover	49	301-149	Spacer
12	301-193	Tensioner Ass'y	50	301-123	Axle
13	111-044	Screw (2)	51	301-134	Stopper (2)
14	140-029	Washer (2)	52	301-517	Suction Ass'y 16" (5 gal)
15	113-023	Washer, (2)	53	301-543	Suction Ass'y 36" (55 gal)
16	111-037	Screw (4)	54	141-010	Inlet Strainer
17	301-135	Grommet (6)	55	301-106A	1 1/4 HPDC Motor (1000)
18	100-332	Retaining Ring		301-023A	1 HPDC Motor (808)
19	301-139	Woodruff Key	56	301-089	Fan Cover
20	101-140	Label LCD	57	113-022	Nut (4)
21	301-048	Spacer - Tube (2)	58	113-023	Washer, Lock (4)
22	100-328	Stud (2)	59	140-029	Washer (4)
23	140-035	Washer, Lock (2)	60	100-028	Plug 1/4 NPT
24	140-051	Nut (2)	61	301-190	Fan
25	301-173	Bracket - Return Tube	62	130-191	Retaining Clip, Fan
26	136-033A	Screw (3)	63	301-336	Gearbox 1" (1000)
27	301-099	Screw (3)		301-060A	Gearbox 3/4" (808)
28	140-051	Nut (3)	64	101-114	Pressure Labels
29	301-233	Sheave	65	301-337	Screw (2)
30	115-041	Set Screw (4)	66	301-316	Rubber Edge (1.17')
31	112-029	Key			(makes two)
32	301-321	Cover	67	331-138	Screw (2)
33	301-240	Frame			
34	301-318	Pressure Control Ass'y			