



AIRLESS PAINT SPRAYER SERVICE/OPERATION MANUAL



**AIRLESSCO
SL6500**

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INTRODUCTION



The SL6500 sprayer is the choice of the high volume contractors that need a machine that can pump extremely heavy materials like wallboard mud and waterproofing coatings. It's most popular application is spraying a skim coat of wallboard mud to give a Level 5 finish using the supplied size 627 REV-TIP.

Utilizing the proven SL pump platform in conjunction with an oversized bottom mounted foot valve, it delivers unprecedented suction.

The SL6500 is powered by a Honda commercial gas engine. it is redefining the level of productivity possible on demanding jobs that simply cannot be handled by conventional airless equipment.

AIRLESSCO	SL6500
Max. Pressure	3000 psi
Output (FreeFlow)	1.7 gpm
Output (At Pressure)	1.6 gpm
Tip Size	1 gun to 0.041" 2 gun to 0.029"
Motor	Honda GX160
Weight	136 lbs

WARNING

**HANDLE THIS UNIT AS YOU WOULD A LOADED FIREARM!
High pressure spray can cause extremely serious injury.
OBSERVE ALL WARNINGS!**

Before operating this unit, read and follow all safety warnings and instructions related to the usage of this equipment on pages 2, 3 & 4. READ, LEARN, and FOLLOW the Pressure Relief Procedure on Page 10 of this manual.

All Service Procedures to be performed by an Authorized Airlessco Service Center ONLY.

NO MODIFICATIONS or alterations of any AIRLESSCO Equipment or part is allowed.

MANUAL NOTATIONS

WARNING - Alerts user to avoid or correct conditions that could cause bodily injury.

CAUTION - Alerts user to avoid or correct conditions that could cause damage to or destruction of equipment.

IMPORTANT - Alerts users to steps or procedures that are essential to proper equipment repair and maintenance.

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. Have him read*

***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.*

WARNING

HIGH PRESSURE SPRAY CAN CAUSE EXTREMELY SERIOUS INJURY. OBSERVE ALL WARNINGS. THIS SPRAYER FOR PROFESSIONAL USE ONLY.

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 8, 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** on pg. 6.

GENERAL PRECAUTION

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** before removing 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.**

WARNINGS CONTINUED ON NEXT PAGE.....

WARNINGS - Continued

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 engine, 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, and remove the ignition cable from the spark plug to prevent accidental starting of sprayer.

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 that has 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 in injection injury or other serious bodily injury or bodily 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.

LABELING

Keep all labels on the unit clean and readable. Replacement labels are available from manufacturer.

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.

GROUNDING

Ground the sprayer and 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.

Always ground all of these components:

1. Sprayer: Connect a ground wire and clamp (supplied) to a true earth ground.
2. Fluid Hose: use only grounded hoses.
3. Spray gun or dispensing valve: grounding is obtained through connection to a properly grounded fluid hose and pump.
4. Object being sprayed: according to your local code.
5. All solvent pails used when flushing should only be metal pails which are conductive.

Once each week, check electrical resistance of hose (when using multiple hose assemblies, check overall 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 CONTINUED ON NEXT PAGE.....

WARNINGS - Continued

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.

WARNING

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.

PREVENT STATIC SPARKED FIRE/ EXPLOSIONS

ALWAYS be sure all equipment and objects being sprayed are properly grounded. Always ground sprayer, paint bucket and object being sprayed. See "grounding" on page 8 for detailed 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 the 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 procedure on page 4 and 9.

ALWAYS follow the PRESSURE RELIEF PROCEDURE on page 8.

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, naphtha. Consult your supplier to be sure.

GAS ENGINE PRECAUTIONS

Locate unit 25 feet away from spray area in well ventilated area. NEVER operate in closed building unless exhaust is piped outside. NEVER allow hose to lay against engine mufflers or hot parts. NEVER refill fuel tank while engine is hot or is running.

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

WHEN SPRAYING & CLEANING WITH FLAMMABLE PAINTS OR 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 and spraying object. 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.

SETTING UP

1. Connect the hose and gun

- a. Remove the plastic cap plug from the outlet and screw a conductive or grounded 3000 psi spray hose onto fluid outlet.
- b. Connect an airless spray gun to the other end of the hose, but do not install the spray tip yet!

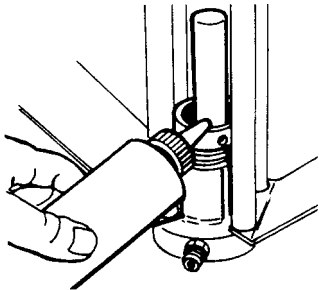
NOTE: Do not use thread sealer on swivel unions as they are made to self seal.

NOTE: The first 50' of hose should always be 3/8".

2. Fill the Packing Nut/Wet Cup

Fill the Packing Nut/Wet Cup 1/3 full with Airlessco Throat Seal Oil (TSO). Fig 1 below.

FIG. 1



3. Check the Engine Oil Level

- a. Unscrew the oil fill plug. The dipstick is attached to the plug.
- b. Without threading the plug into place, check to be sure the oil is up to the top mark on the dipstick.
- c. If oil is needed, refer to engine manual.

4. Fill the Fuel Tank

WARNING: Fuel spilled on a hot surface can cause a fire or explosion and cause serious bodily injury and property damage. Always shut off the engine and let it cool before filling the tank, and carefully follow steps a - c below being sure not to spill any fuel.

- a. Close the fuel shutoff valve.
- b. Use only clean, fresh, well-known brands of unleaded regular grade gasoline.
- c. Remove the fuel cap and fill tank. Be sure the air vent in the fill cap is not plugged so fuel can flow to the carburetor, then replace the cap.

FLUSHING - Read Prior to Using Your Sprayer

1. New sprayer

Your 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 paint

Flush with soapy water, then mineral spirits.

4. Changing from oil-base to water-base paint.

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 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. 2

REMOVE
SPRAY
TIP

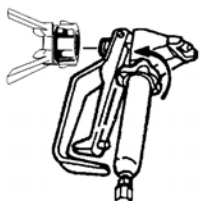


FIG. 3

PRESSURE CONTROL
KNOB



Low
Pressure

PRIME VALVE

Open
(Priming &
Pressure Relief)

Closed
(Pressure)



FIG. 4

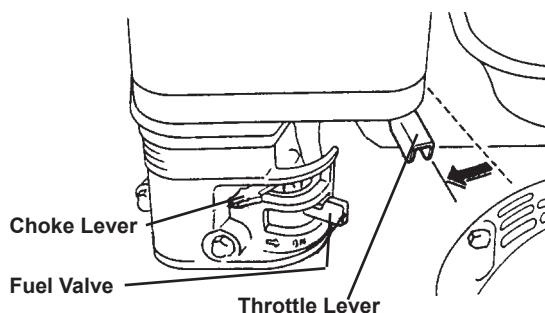


FIG. 5

MAINTAIN FIRM
METAL TO METAL
CONTACT BETWEEN
GUN AND CONTAINER



1. Be sure the gun safety latch is engaged and there is no spray tip in the gun. Refer to Fig. 2. Refer to your separate instruction manual provided with your gun on its safety features and how to engage safety latch.
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. 3.
5. Open the prime valve to the open - "Priming Position". This will allow an easy start. Refer to Fig. 3.
6. Turn the engine ON/OFF switch to ON.
7. Move the choke toward the closed position as per Fig.4.
8. Move the throttle lever slightly to the left as per Fig.4.
9. Turn the fuel valve ON as per Fig. 4. Pull the start rope. Pull the engine over against compression stroke and then let the rope rewind slowly into the starter. Pull firmly and rapidly to start the engine. Do NOT drop the rope. Hold on to the handle while rewinding, or the rope may rewind improperly and jam the assembly. If the engine does not start, open the choke a little more. If the engine floods, open the choke all the way and continue cranking.
10. After the engine is warm, gradually close the choke lever, increase the RPM of engine slightly by moving throttle to the left. Close the prime valve. Refer to Fig. 3
11. Point the gun into the metal pail and hold a metal part of the gun firmly against the pail Refer to fig.5

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 5.

12. Disengage the gun safety latch and squeeze the gun trigger. At the same time, slowly turn the pressure control knob clockwise just enough to move liquid at low pressure.
13. Allow the pump to operate until clean solvent comes from the gun.
14. Release the trigger and engage the gun safety latch.
15. If you are going to start spraying, place the pump or 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 (Fig. 5), forcing the solvent from the pump and hose. When paint starts coming from gun, turn pressure control knob to minimum pressure, place prime valve in prime (open) position and engage the gun safety latch.
16. If you are going to store the sprayer, remove the suction tube or pump from the solvent pail force the solvent from the pump and hose. Engage the gun safety latch and refer to the "Storage" Procedure on page 6. Step 5.
17. Whenever you shut off the sprayer follow the Pressure Relief Procedure warning on page 10.

STARTING UP

1. Learn the controls

Pressure Control Knob - used to adjust pressure only. Turn clockwise to increase pressure and counter-clockwise to decrease pressure. (See Fig. 6)

Prime & Pressure Relief Valve - Turn to OPEN position (see Fig. 7) to prime the pump. Turn to the CLOSED position to spray.

FOLLOW "PRESSURE RELIEF PROCEDURES" ON PAGE 6 WHENEVER YOU:

- are instructed to relieve pressure
- stop spraying
- checking or servicing any of the system equipment.
- or installing or cleaning the spray tip.

Handle spray system as you would a loaded firearm!

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

2. Prepare the Material

- Prepare the material according to the material manufacturer's recommendations.
- Place pump or suction tube into material container.

FIG. 6
PRESSURE CONTROL KNOB

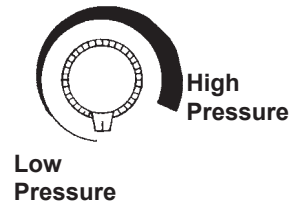


FIG. 7
PRIME VALVE



3. Starting the Sprayer (see Fig. 6 & 7 above)

- Prime Valve must be open - priming position.
- Pressure Control Knob must be in low pressure.
- Follow the procedure under "How to Flush", page 7 Steps 6 through 12.

WARNING: To stop the unit in an emergency or before performing any service or maintenance procedure follow the Pressure Relief Procedure on page 10 to relieve the fluid pressure.

STARTING UP - continued

4. Prime the Pump

- a. Allow pump to operate until paint comes from gun.
- b. Release the trigger and engage the gun safety latch.
- c. Turn Prime Valve OPEN to the prime position ensuring the pressure is released from the system.
- d. Turn Pressure Control Knob to minimum pressure.
- e. Install spray tip onto gun.
- f. Close the prime valve to the pressure position.
- g. Turn the pressure control knob to desired spray pressure.
- h. Disengage the gun safety lock and you are ready to start spraying.

WARNING: If you spray into the paint bucket, always use the lowest spray pressure and maintain firm metal to metal contact between gun and container. See page 7, Fig 5.

5. Adjusting the Pressure

- a. Turn the Pressure Control Knob clockwise to increase pressure and counterclockwise to decrease pressure.
- b. 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.

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

6. Reducing Clutch Wear

- a. The first 50 feet of airless spray hose should be 3/8", the larger diameter works as a pulsation damper and saves unnecessary cycling of the clutch. A minimum of 100 feet of hose should be used.
- b. Adjust the Engine Speed and Pump Pressure. First set the throttle lever to the maximum RPM setting (fully left). Trigger the gun onto a test paper to check the spray pattern and atomization. Adjust the Pressure Control Knob until you get a good pattern. Reduce RPM of engine to support pressure without laboring engines.

7. Cleaning a Clogged Tip

IMPORTANT WARNING

Always follow the Pressure Relief Procedure on page 8 before performing any service or maintenance procedure.

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

- a. Follow the Pressure Relief Procedure on page 10.
- b. Clean the front of the tip frequently (with toothbrush only) during the day to keep material from building up and clogging the tip.
- c. To clean and clear a tip if it clogs, refer to the separate instruction manual received with your gun and nozzle.

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

Every time you stop spraying, for even a minute, lock the gun and submerge the gun into a small bucket of thinner comparable with the material sprayed. Thinner will dissolve the build up of paint on the outside of tip, tip guard and gun much more effectively than if the paint dries out completely.

WARNING: Clogged standard flat tip - clean only after the tip is removed from the gun. Follow the Pressure Relief Procedure Warning on Page 10.

8. When Shutting Off the Sprayer

- a. Whenever stop spraying, even for a short break, follow the Pressure Relief Procedure Warning on page 10.
- b. Clean the tip and gun as recommended by your separate gun instruction manual.
- c. 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 6. Use a compatible solvent to flush, then fill the pump and hoses with an oil based solvent such as mineral spirits.
- d. For long term shutdown or storage, refer to page 6.

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

Pressure Relief Procedure

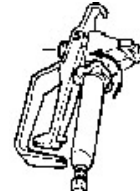
WARNING PRESSURE RELIEF PROCEDURE

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 or changing the tips, 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.



4. Re-engage gun safety latch



2. Turn engine off.

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



5. Turn Prime/Pressure Relief Valve as shown open (priming) to relieve fluid pressure.



Leave prime valve OPEN until you are ready to spray again.

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, engage gun safety latch and take your sprayer to an authorized Airlessco Service Center for service.

AIRLESS SPRAY GUN OPERATION

SPRAY

Attach spray gun to airless unit and tighten fittings securely. Set the gun safety latch. (Also may be called gun safety lock, or trigger lock)

* The gun safety latch should always be set when the gun is not being triggered.

FIG. 8

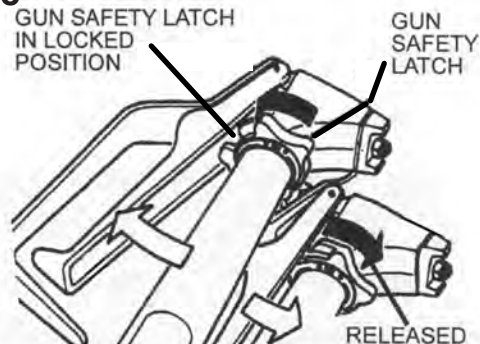
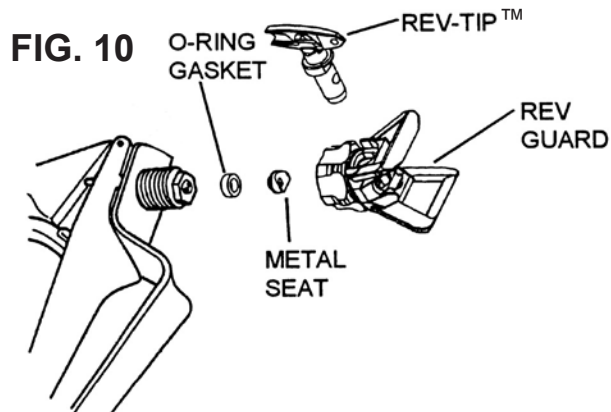
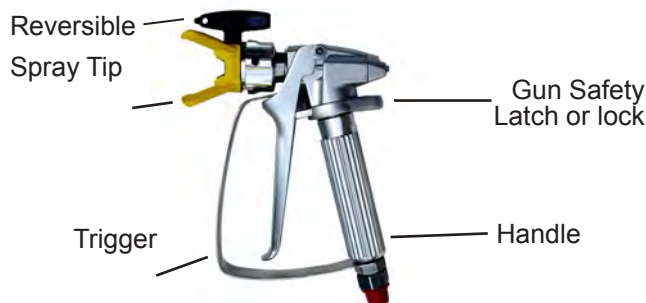


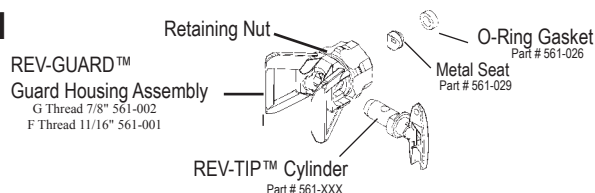
FIG. 9 MAJOR COMPONENTS OF SPRAY GUN AND REVERSIBLE SPRAY TIP



SPRAY TIP ASSEMBLY

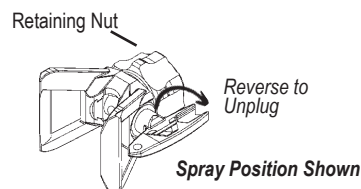
1. Be sure pressure relief procedure is followed before assembling tip and housing to the gun.
2. Lock gun safety latch.
3. Insert REV-TIP™ cylinder into the REV-GUARD™ (guard housing assembly).
4. Guide metal seat into REV-GUARD™ (guard housing assembly) through retaining nut & turn until it seats against the cylinder.
5. Insert O-Ring gasket on metal seat so it fits in the grooves.
6. Finger tighten REV-GUARD™ retaining nut onto the gun.
7. Turn guard in the desired position.
8. Completely tighten the retaining nut.

FIG. 11



TO REMOVE CLOGS FROM SPRAY TIP

1. Lock gun safety latch.
2. Turn REV-TIP™ handle 180 degrees.
3. Disengage trigger lock & trigger gun into pail.
4. If the REV-TIP™ handle appears locked (resists turning), loosen the retaining nut. The handle will now turn easily.
5. Engage gun safety latch & return handle to the spray position.



CLEANING SPRAY GUN

Immediately after the work is finished, flush the gun out with a solvent. Brush pins with solvent and oil them lightly so they will not collect dried paint.

CLEANING FILTER IN GUN HANDLE

To clean the filter, use a brush dipped in an appropriate solvent. Change or clean filters at least once a day. Some types of latex may require a filter change after four hours of operation.

CLOGGED FLAT TIP

Should the spray tip become clogged, relieve pressure from hose by following the "Pressure Relief Procedure." Secure gun with the safety latch, take off guard, take out the tip, soak in appropriate solvent & clean with a brush. (Do not use a needle or sharp pointed instrument to clean the tip. The tungsten carbide is brittle and can chip.)

AIRLESS SPRAY TROUBLESHOOTING

DEFECTS	CAUSE	CORRECTION
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 large Material too thin Pressure too high	Use next smaller nozzle. Reduce pressure.
Too little material	Nozzle too small	Use next larger nozzle Material too thick
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 smaller 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" solvents (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)	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 cover screen. Incompatible drop placed on top of paint mixes or flattens out on the paint mixture & thinners on the surface. If not, try different thinner in fresh batch of paint.

TEST THE PATTERN

Good, full



Spotty Pattern, Increase Pressure.



REV-TIP™ SIZE SELECTION CHART

Spray tip selection is based on paint viscosity, paint type, your pumps output capabilities, and job needs.

For light viscosities (thin paints), use a smaller tip; for heavier viscosities (thicker paints), use a larger tip size.

Going to larger spray tip sizes is dependent on how many gallons of paint per minute can be sprayed by your pump. 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 min. (GPM), or where appropriate, liters per min. (LPM).

REV-TIP™ for Painting		SPRAY PAINTING TIP - ORIFICE SIZE (Inches)															
Fan Width (12" from surface)		.007	.009	.011	.013	.015	.017	.019	.021	.023	.025	.027	.029	.031	.035	.039	.041
in.	(mm)																
4-6	102-152		209	211	213	215	217	219	221	223	225	227	229				
6-8	152-203	307	309	311	313	315	317	319	321	323	325	327		335			
8-10	203-254		409	411	413	415	417	419	421	423	425	427	431				
10-12	254-305			511	513	515	517	519	521	523	525	527	531	535			
12-14	305-356			611	613	615	617	619	621	623	625	627	631	635	639	641	
14-16	356-406					715	717		721						739	741	
16-18	406-457					815		819	821				831				
20-24	508-610								W21	W23	W25						
Gun Filter	C = Coarse F = Fine	F	F	F	F,C	C	C	C	C	C	REMOVE FILTER						
Wood Interior	Lacquer, Varnish Stain, Sealer Enamel	.	.	.	.	.						
Wood Exterior	Exterior Stain Vinyl, Acrylic, Latex				.	.	.	.					
Masonry	vinyl,oil-base alkyd Latex, Acrylic Block Filler Elastomer					.	.	.	.	.	.	.	.	.	.	.	.
Ceiling	Hi Build, Mil White								.	.							
Structural Steel	Heavy Coatings								.	.	.	.	.	.	.	.	.
Water Flow Rate	(gal./min.) (water @ 2000psi, 138 bar)		.12	.18	.24	.31	.38	.47	.57	.67	.77	1.03	1.31	1.63	1.80		
	(liters/min.)		.49	.69	.91	1.17	1.47	1.79	2.15	2.54	2.96	3.90	4.98	6.17	6.81		
Paint Flow Rate	(gal./min.) (latex paint @ 2000psi, 138 bar/1.36 spec. gr.)		.10	.15	.21	.27	.33	.40	.49	.58	.66	.88	1.12	1.39	1.54		
	(liters/min.)		.38	.57	.79	1.02	1.25	1.51	1.85	2.20	2.50	3.33	4.24	5.26	5.83		
Pump Minimum Output*	(gal./min.) (liters/min.)		.25	.25	.33	.40	.50	.60	.75	.88	1.0	1.25	1.5	2.0	2.2		
			1.0	1.0	1.25	1.5	1.9	2.3	2.8	3.3	3.8	4.7	5.7	7.5	8.2		

PATTERN WIDTH

Thickness of the paint coat per stroke is determined by spray tip "fan width", rate of the spray gun movement, and the distance to the surface being sprayed. Airlessco "Wide Pattern" spray tips offer fan patterns up to 18-24" wide for optimum coverage speed. Due to the fine atomization at the edge of the spray pattern on Wide Pattern tips, they may not be the best choice for exterior use when wind is present.

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.

SPRAY TIP REPLACEMENT

During use, especially with latex paint which is very abrasive, high pressure will cause the orifice to grow larger. This destroys the spray pattern. Replace tips before they become excessively worn.

Worn tips waste paint, cause overspray, make cutting-in difficult. They can effect sprayer performance too because the volume of paint going thru a "blown out" tip can be greater than the pumps maximum output capacity.

REGULAR MAINTENANCE

1. Always stop the pump at the bottom of its stroke when you take a break or at the end of the day. This helps keep material from drying on the rod, damaging the packings.
2. Keep the displacement pump packing nut/wet cup 1/3 full of Airlessco Throat Seal Oil at all times. The TSO helps protect the packings and rod.
3. Lubricate Connecting Rod Pin every 3 months.
4. **Inspect the packing nut daily.** Your paint pump has Airlessco's patented "Triple Life Packing System".

Packing life will be extended a minimum of 3 times if the proper packing tightening procedure is followed!

Packing Tightening Procedure:

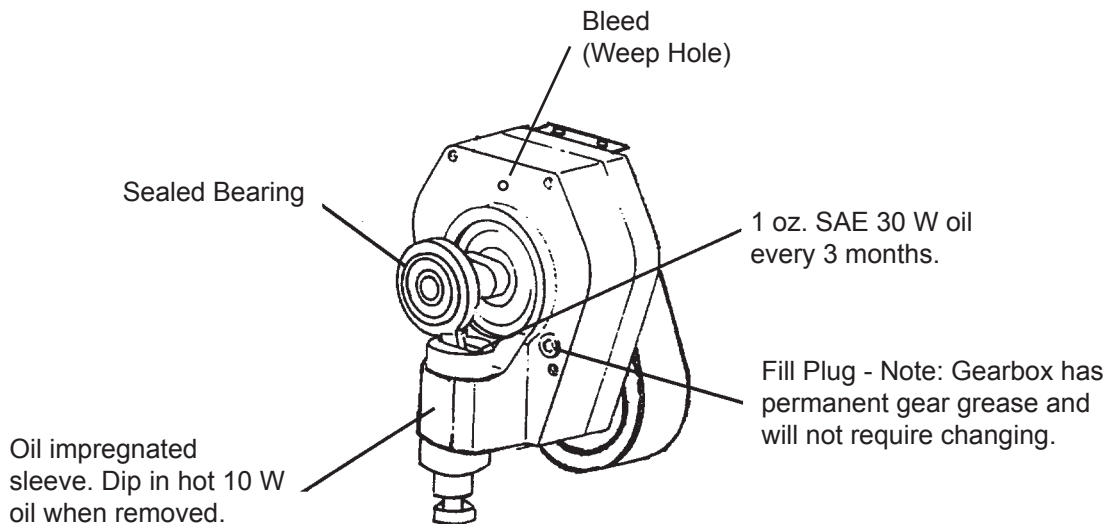
Inspect the packing nut daily!

If seepage of paint into the packing nut and/or movement of the piston upward is found (while not spraying), the packing nut should be tightened enough to stop leakage only, but not any tighter.

Overtightening Will Damage the Packings and reduce the packing life to the life of other piston pumps.

OIL AND LUBRICATION PROCEDURE

FIG. 12



FIELD TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
There is spitting from the gun.	The fluid supply is low or empty.	Refill the supply container.
	Air entrapped in the fluid pump or hose.	Check for loose connections on the siphon assembly, tighten, then reprime pump.
Paint leaks into the wet cup	The packing nut/wet cup is loose.	Tighten just enough to stop leakage.
	The upper packings are worn or damaged. Worn Piston Rod.	Replace the packings. See pages 18-20. Replace Piston Rod
The engine operates, but the paint pump doesn't cycle.	The pressure setting is too low. The clutch is not engaged. The displacement pump is seized.	Increase the pressure. See page 9. See Troubleshooting pg. 23. Service the pump. See page 16-20.
The engine and displacement pump operates, but paint pressure is too low or none	The pressure setting is too low.	Increase the pressure, see page 9.
	The tip or gun filter is clogged. The tip is worn. The fluid displacement pump filter is clogged. There is a large pressure drop in the fluid hose.	Remove the tip and/or filter and clean them. Replace Tip. Clean the filter. Use a larger diameter hose.
The displacement pump operates, but the output is too low on the downstroke or both strokes.	The inlet valve ball is not seating properly.	Service the inlet valve see page 16
The displacement pump operates, but the output is too low on the upstroke.	The outlet valve ball is not seating properly.	Service the outlet valve per page 16.
	The lower packings are worn or damaged.	Replace the packings. See page 18-20.
Clutch does not engage. Clutch slippage.		See Troubleshooting page 23. Call Authorized Service Center.
Engine stops		Refer to Engine Manual.

SERVICING FLUID PUMP

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

FLUID PUMP DISCONNECT

Refer to Fig. 30

1. Flush out the material you are spraying, if possible.
2. Follow the Pressure Relief Procedure on Page 10. Stop the pump in the middle of down stroke.
3. Remove the suction assembly, fluid hose and gun hose from the fluid pump.
4. Remove 2 retaining rings and slip the coupling assembly cover 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 down off the tie rods.

FLUID PUMP REINSTALL

Refer to Fig. 30

1. Loosen the packing nut and raise the piston to align and touch the rod end of the connecting rod. See Fig. 13
2. Insert one of the retaining rings through two holes of the packing nut. See Fig. 14
3. Lower the fluid pump and place the coupling assembly cover over the piston and resting on the retaining ring. See Fig. 15
4. Ensure that the spacer tubes are in place over the studs.
5. Raise up the fluid pump so it is aligned and touching the rod end again. Place the two coupling halves over the piston/rod end, slide up the coupling assembly cover over the coupling halves and insert the second retaining ring into the lower groove of the coupling halves. See Fig. 16
6. Remove the first retaining ring from the packing nut and place in the upper groove of the coupling halves. Fig. 17
7. Attach the two lock washers and nuts on the studs and tighten to 30 ft-lbs.
8. Reconnect the suction assembly, fluid hose and gun hose to the fluid pump.
9. Tighten the packing nut until there is resistance, then 1 full revolution tighter. Approximately 4 threads will show with new packings installed. Fill the wet cup of the packing nut 1/3 full with Throat Seal Oil (TSO).
10. Start the pump slowly to check for binding, then run at maximum pressure for several minutes.
11. Relieve pressure and repeat step 8.

FIG. 13

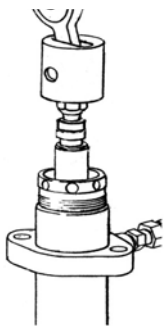


FIG. 14

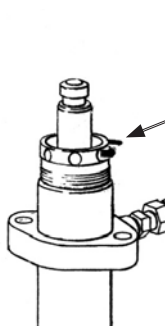


FIG. 15

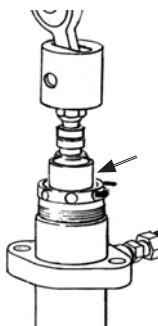


FIG. 16

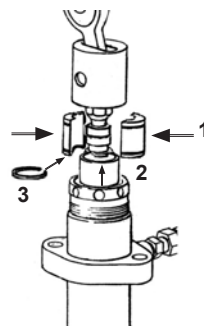
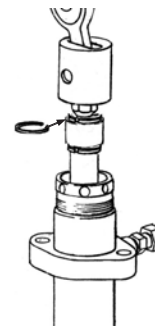


FIG. 17



SERVICING INLET & OUTLET VALVES

SERVICING INLET VALVE

Refer to Fig. 18 & 30

1. Using a lightweight hammer, loosen then screw the suction nut (187-084) off of the cylinder (187-095). See Fig. 21
2. Remove the inlet seat (187-036), O-ring (106-008), inlet ball (187-092) and inlet retainer (187-075) with O-ring (106-013). See Fig. 18
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: Inlet seat (187-036) is reversible.

4. Clean inside of cylinder (187-095).
5. Reassemble the valve and screw it onto the fluid body if no further service is needed.

SERVICING OUTLET VALVE

Refer to Fig. 19 & 30

1. Complete all steps of the Fluid Pump Disconnect procedure on page 16.
2. Screw the suction nut (187-084) off the pump and remove inlet valve assembly.
3. Using the rod collar tool, loosen the packing nut and push the piston down and out of the fluid body.
4. Place piston holder (187-248) in a vise. Slide the piston into the holder and lock in place with a 1/4" pin (187-250).
5. 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.
6. Using a 3/8" allen wrench to unscrew the retainer (187-051) from the piston extension (187-314).
7. Remove the outlet seat (187-061), O-ring (106-021), outlet ball (115-022) and outlet retainer (187-062).
8. Inspect the outlet ball and seat for wear. Replace as required.

NOTE: Outlet seat (187-061) is reversible.

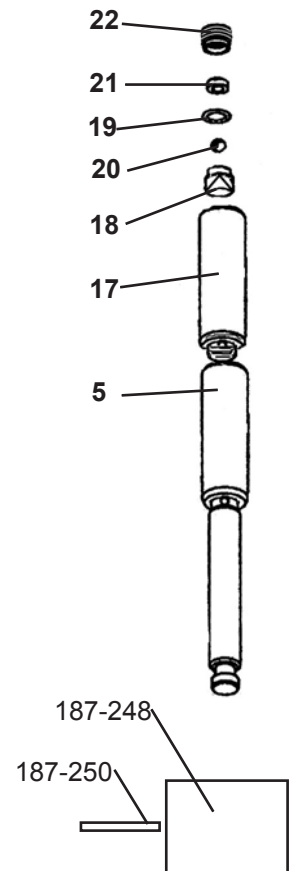
9. Install parts back into piston rod as per Fig. 19. Place two drops of loctite No. 242 (blue) on threads of the retainer before assembling and torque to 20 ft-lbs.

Part No. Table for Figures 18 thru 21 is located on page 20.

FIG. 18



FIG. 19



V-PACKING REPLACEMENT

FIG. 20 Part No. Table for Figures 18 thru 21 is located on page 20.

V-PACKING REPLACEMENT KIT (301-443)

Refer to Figures 20 & 21

Repack Kit contains all leather & plastic V-packings, O-Rings, balls and dual side adapter.

GLAND KIT (187-064)

Refer to Figures 20 & 21

Gland Kit contains four metal male glands.

MAJOR REPAIR KIT (301-444)

Refer to Figures 20 & 21

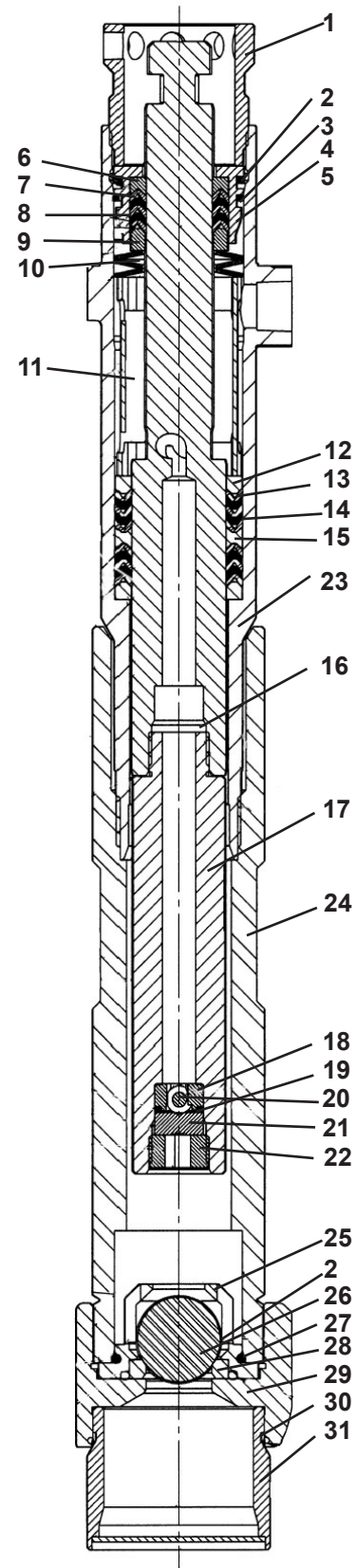
Major Repair Kit contains all components of the Repack Kit (301-443) plus the bare piston (187-330).

See the table on page 20 for a complete list of repack kit, gland kit and major repair kit components.

V-PACKING REPLACEMENT

Refer to Figures 18, 19, 20 & 21

1. Remove the fluid pump as per the "Fluid Pump Disconnect" instructions on page 16.
2. Remove and service the inlet valve as described in the "Servicing Inlet Valve" instructions on page 17.
3. Using the rod collar tool (189-211) unscrew and remove the packing nut (187-046). Push the piston rod down through the packings and out of the pump. Utilizing packing removal tool (187-249) the complete packing set can be removed quickly and easily. Another method is to 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 fluid body (187-313) and cylinder (187-095) empty.



V-PACKING REPLACEMENT (Continued)

V-PACKING REPLACEMENT (Continued)

4. Disassemble and discard old packings. Clean all parts that will be reused for reassembly. If the piston (187-330) is worn and needs to be replaced, hold it using the special block and pin in a vice. Then unscrew the piston extension using a wrench on the flats.

NOTE: The piston extension is a non-wear part and should be reused.

NOTE: Save all four metal glands for reuse and reassembly.

5. Remove and service the outlet valve as described in the "Servicing Outlet Valve" instructions on page 17.

REASSEMBLY

Refer to Figures 18, 19, 20 & 21

6. Lubricate leather packings in lightweight oil for 10 minutes prior to assembly.
7. Remove masking tape from piston. (if used)
8. Reassemble all parts onto piston in the following order:
 - a. Metal male gland (187-037). Flat side down and round side up.
 - b. Three plastic V-packings (187-029) alternated with two leather V-packings (187-059). Inverted "Λ".
 - c. Double female adapter (187-058).
 - d. Three plastic V-packings (187-029) alternated with two leather V-packings (187-059). "V" up.
 - e. Metal male gland (187-037). Flat side up and round side down.
 - f. Spacer Tube (187-315).
 - g. Three Belleville Springs (187-031) starting with the first spring facing down (⤵) and next facing up (⤴) and the third facing down (⤵).

- h. Metal male gland (187-025). Flat side down and round side up.
- i. Three plastic V-packings (187-030) alternated with two leather V-packings (187-060). Inverted "Λ".
- j. Metal male gland (187-026). Flat side up and round side down.
- k. Place new O-rings (106-012 & 106-013), white over black, on the packing holder (187-046)
- l. Slide the packing holder down over the upper packing set.

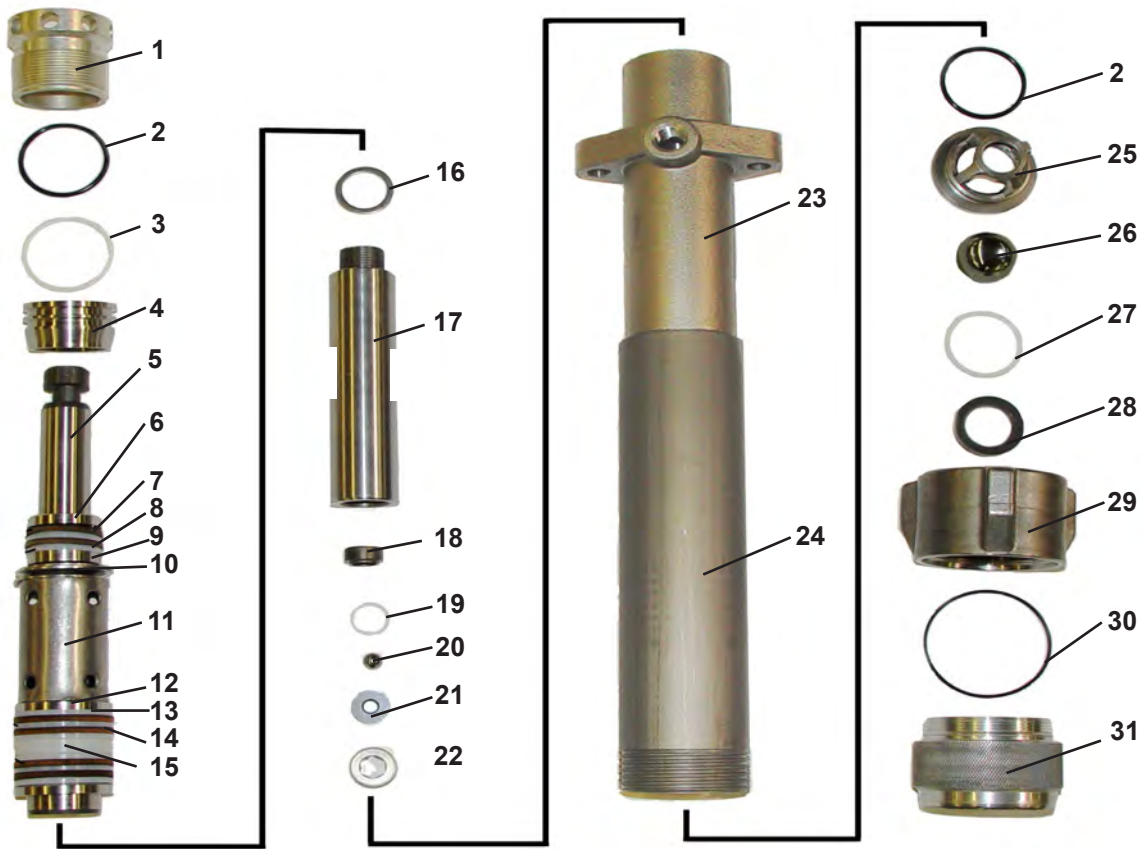
9. Lubricate inside of fluid body, outside of packings and O-rings, then slide complete assembly into the fluid body (187-313). Thread packing nut (187-046) into fluid body & tighten (handtight).

NOTE: If the packing nut does not thread into the fluid body, confirm that the belleville springs are correctly installed above the spacer tube and not below it. Otherwise press down the packing holder with a tube to allow the packing nut to thread into the fluid body.

10. Install the inlet valve as described in the "Servicing Inlet Valve" instructions on page 17.
11. Attach the fluid pump and tighten the packing nut as per the "Fluid Pump Reinstall" instructions on page 16.

V-PACKING REPLACEMENT (Continued)

FIG. 21



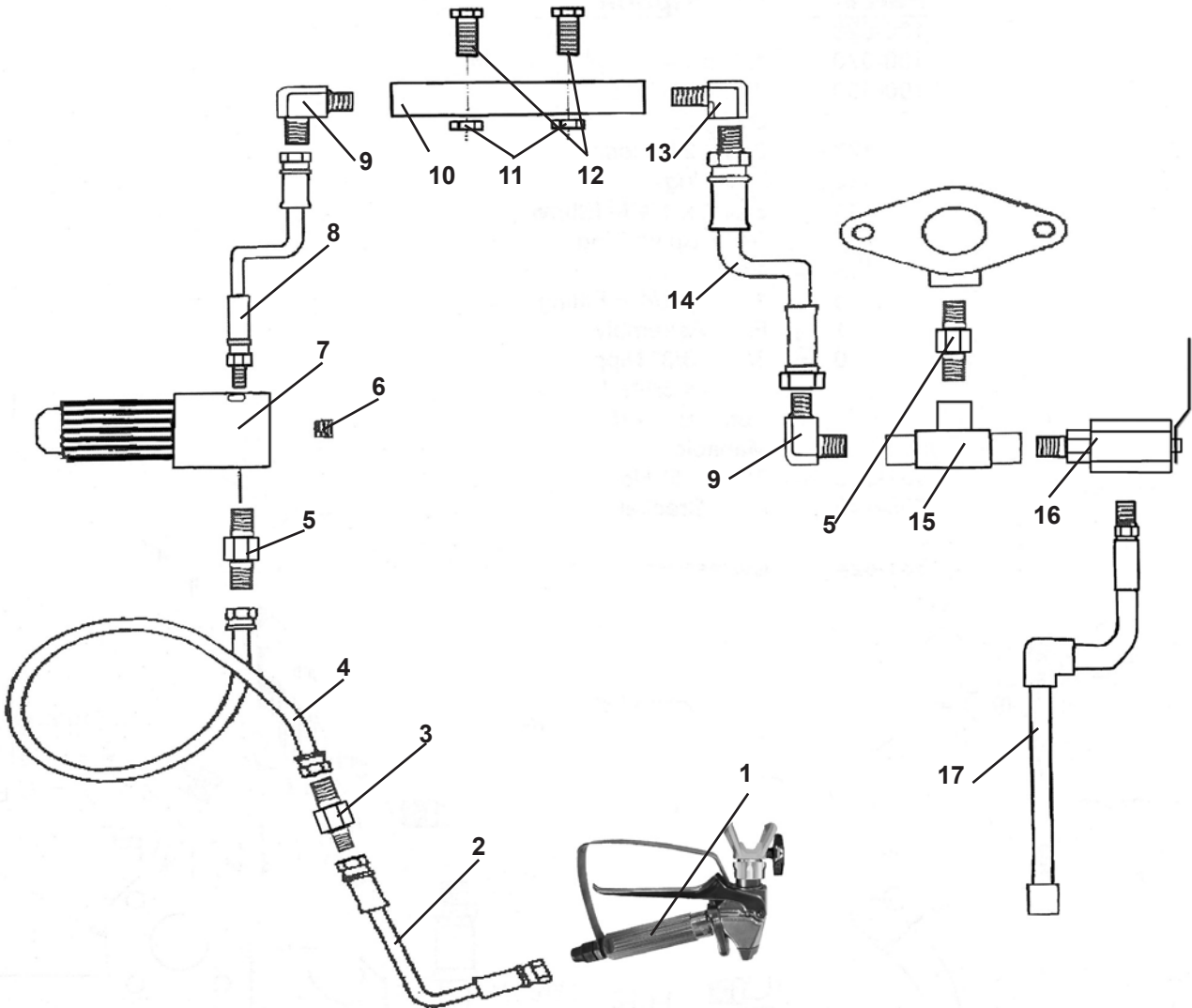
PARTS LIST FIGURES 18-21

ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	187-046	Packing Nut	17	187-314	Piston Extension
2	106-013*	O-Ring Black	18	187-062+	Outlet Retainer
3	106-012*	O-Ring White	19	106-021*+	O-Ring White
4	187-047	Packing Holder	20	115-022*+	Outlet Ball
5	187-330-99	Piston	21	187-061	Outlet Seat
6	187-026#	Gland Female	22	187-051+	Retainer
7	187-030*	V-Packing Polyethylene (3)	23	187-313	Fluid Body
8	187-060*	V-Packing Leather (2)	24	187-095	Cylinder
9	187-025#	Gland Male	25	187-075	Inlet Retainer
10	187-031	Belleville Springs (3)	26	187-092	Inlet Ball
11	187-315	Spacer Tube	27	106-008	O-Ring White
12	187-037#	Gland Male (2)	28	187-086	Inlet Seat
13	187-029*	V-Packing Polyethylene (6)	29	187-084	Suction Nut
14	187-059*	V-Packing Leather (4)	30	119-110	O-Ring
15	187-058*	Adapter Female	31	119-092	Inlet Filter
16	100-194	Washer			

* Included in the Repack Kit (301-443), # Included in the Gland Kit (187-064), + Included in Piston Assembly (187-330-99)

PAINT SYSTEM ASSEMBLY

FIG. 22

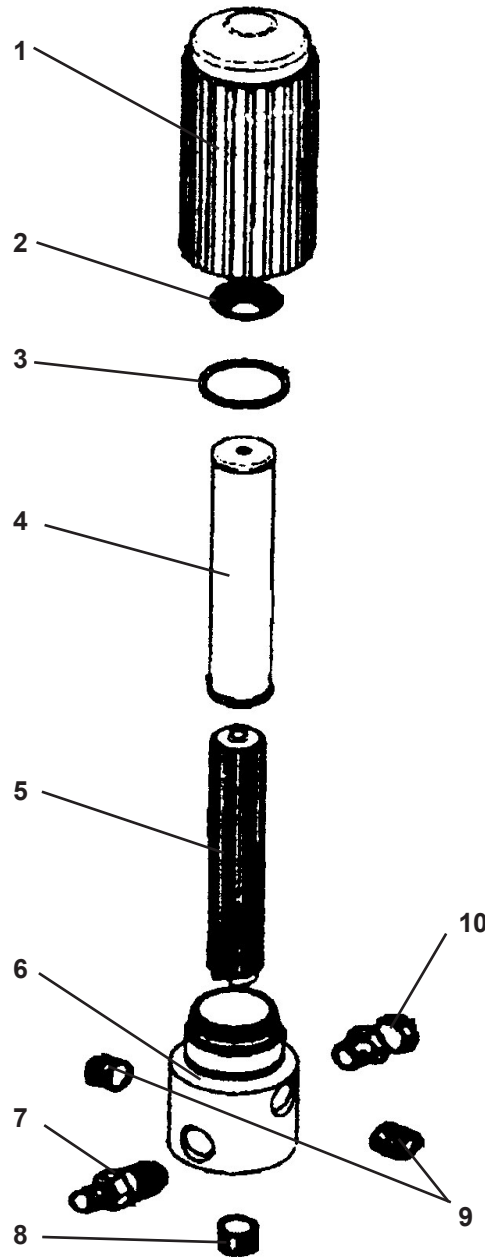


PARTS LIST FIGURE 22

ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	120-504	ProLight Gun (Optional)	10	301-253	Manifold
2	100-011	Hose 50' x 1/4" (Optional)	11	100-317	Nut 1/4"M (2)
3	100-109	Nipple 3/8"M x 1/4"M	12	100-345	Bolt 1/4" (2)
4	100-023	Hose 50' x 3/8"	13	169-013	Elbow 3/8"M x 3/8"F
5	169-010	Nipple 3/8"M	14	100-123	Hose 3/8"
6	100-028	Plug 1/4"	15	100-036	Tee 3/8"F
7	111-200-99	Manifold Filter Assembly	16	119-083	Prime Valve
8	301-309	Hose 3/8"	17	119-086	Bypass Hose Assembly
9	167-016	Elbow 3/8"M			

MANIFOLD FILTER - PN 111-200-99

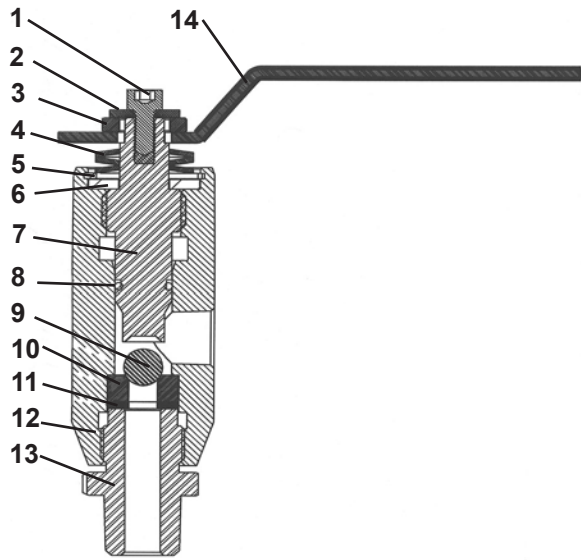
FIG. 23



PARTS LIST FIGURE 24		
ITEM NO.	PART NO.	DESCRIPTION
1	111-202	Base
2	301-356	Spring
3	106-007	O-Ring
4	111-204	Filter
5	111-203	Support
6	111-201	Base
7	100-109	Nipple 3/8M x 1/4M
8	100-129	Plug 3/8
9	100-028	Plug 1/4
10	100-159	Swivel

PRIME VALVE

FIG. 24



PARTS LIST FIGURE 24

ITEM NO.	PART NO.	DESCRIPTION
1	117-046	Screw
2	115-063	Washer
3	115-072	Spacer
4	115-064	Belleville Spring (3)
5	115-065	Retaining Ring
6	115-067	Washer
7	115-071	Valve Stem
8	115-068	O-Ring Black
9	115-069	Ball
10	115-029	Valve Seat
11	115-012	Washer
12	115-073	Valve Body
13	115-074	Inlet Fitting
14	115-303	Handle with Label

ELECTRICAL TROUBLESHOOTING-Clutch Does Not Engage

STEP 1: Ensure that the pressure control knob (POT) is in the maximum (CW) position.

STEP 2: Remove the upper and lower clutch and electrical covers.

STEP 3: Check all electrical connections between the engine magneto, sensor, control board and clutch for loose connections or damaged leads. See Fig.25.

STEP 4: Disconnect the two leads from the control board (blue) and the clutch assembly (black). Using a multimeter, with the engine at maximum RPM, pressure control knob in the maximum position and the prime valve open (priming) position, test the DC voltage across the boards leads (blue). This voltage must be 13-14 VDC. If the readings are correct, the board, sensor and magneto are okay and the problem is the clutch assembly. If this is the case, proceed to Step 5. If the voltage is outside this range go to Step 7.

STEP 5: Measure resistance between the clutch leads (black). This value must be 10-16 ohms. If this reading is out of specifications the clutch is defective and must be replaced, otherwise continue troubleshooting.

STEP 6: If the clutch resistance readings of Step 5 are correct, check the spacing between the clutch field and plate. The gap should be .012" to .024". If the gap is greater than .028 the gap is too wide. If this gap is too wide, remove the spacer (Fig. 27, Item 4) from the clutch assembly. Should the clutch still not engage, replace the clutch assembly. See page 25.

STEP 7: When the DC voltage from the board is not 13-14 VDC, disconnect the control board lead (black) from the engine magneto lead (pink), located on the side of the engine. With the engine at maximum RPM, pressure control knob in maximum (CW) position and prime valve open (priming), read the AC voltage from the magneto lead to the sprayer frame. This reading should be 19-24 VAC. If outside this range, contact your local Honda repair facility for magneto replacement. If the magneto is producing the proper AC voltage, continue to Step 8.

STEP 8: Test the sensor by reading the resistance between the red and black wires. The resistance runs between 1.5-3 kohms. A defective sensor usually shows no resistance (open). If the reading is outside standards, replace the sensor. An alternative method to test the sensor, is to plug a new sensor into the board and see if the clutch will engage. Caution! When using this method, ensure prime/pressure valve is in the prime position. This is important because the sensor plugged into the board is not measuring pressure in the fluid section.

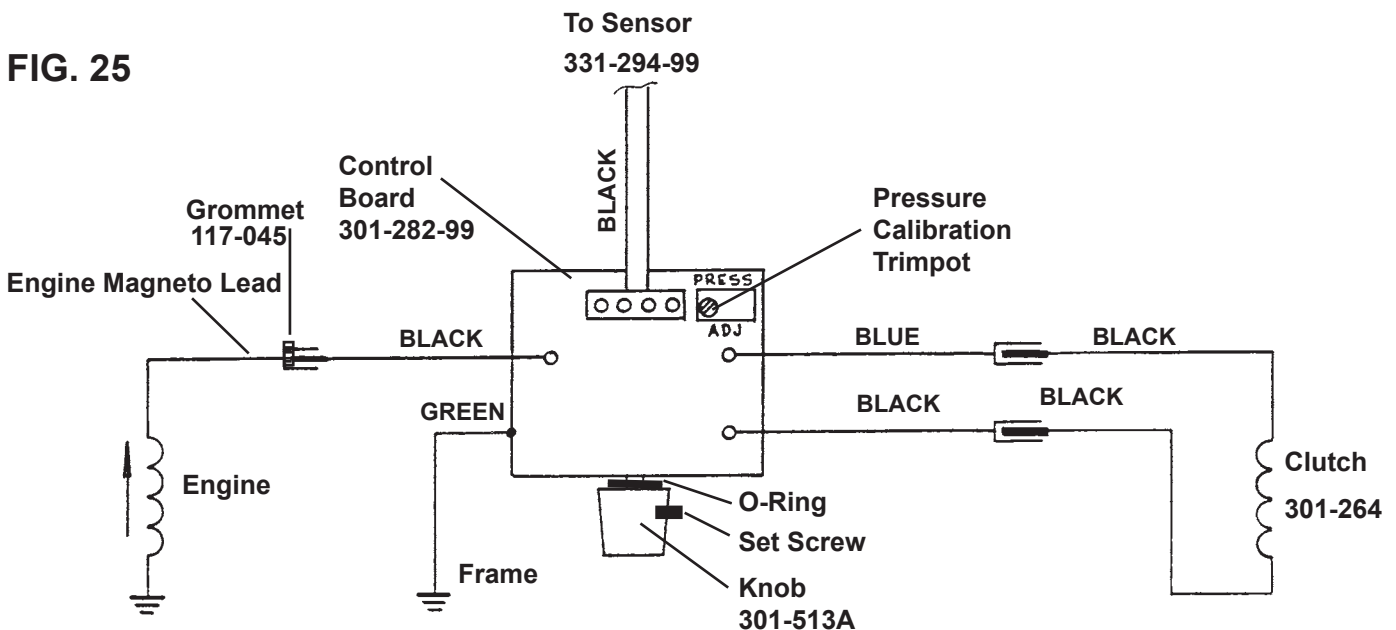
STEP 9: When Steps 7 & 8 have been completed and the magneto and sensor check good, the electrical control board is the only item left, replace the board. See page 24 in manual.

REPLACEMENT OF ELECTRICAL CONTROL BOARD

1. Remove electrical cover.
2. Disconnect sensor lead from Electrical Board.
3. Disconnect two clutch leads on Electrical Board from leads on clutch.
4. Using a 1/16" allen, loosen set screw in Pressure Control Knob and remove knob.
5. Using a 1/2" nutdriver or 1/2" deep socket, remove nut from pressure control shaft. This will allow removal of electrical control board from frame.
6. Replace Electrical Board Assembly in reverse order. Adjust pressure as per procedure below, "Pressure Calibration on the Electrical Control Board".

PRESSURE CALIBRATION ON THE ELECTRICAL CONTROL BOARD

1. Turn "Pressure Calibration" Trimpot adjustment on electrical control board in the counter clockwise direction at least 15 revolutions.
2. Connect 5000 psi glycerine pressure guage on outlet of pump between fluid pump & airless hose to monitor Fluid Pump Pressure.
3. Start engine and run at maximum RPM. Turn Prime Valve to the open (Prime) position. Turn Pressure Control Knob to maximum position (fully clockwise).
4. Using an insulated screwdriver, adjust "Pressure Calibration" Trimpot by turning clockwise until the clutch engages. When the clutch engages the pump will commence Priming. When pump is primed, turn the Prime Valve to the Closed (Pressure) Position
5. Trigger gun. The pressure should drop approximately 350-400 psi (when using a 3/8" hose), the clutch will engage and build pressure to 3000 psi and disengage. Trigger gun several times to ensure proper pressure setting.
6. Turn Pressure Control Knob to minimum position. The clutch should disengage and pump stop moving.
7. Secure leads with tie strap.
8. Replace cover on unit. Ensure the leads are not pinched or damaged in the process of replacing covers.



CLUTCH REPLACEMENT

REMOVING CLUTCH

Refer to Figures 25-31

1. Remove the gear box cover (Fig 30, item 1) by disconnecting the fluid hose to the manifold filter and by unscrewing the four allen head bolts (Fig 30, item 35).
2. Disconnect the fluid pump as described on page 16.
3. Pull off the spacer tubes (Fig 30, item 29) and drop the sleeve bearing down and off. Slide the connecting rod off the gear box.
4. Remove the top cover (Fig 30, item 2) by unscrewing the 6 mounting screws. be careful not to lose the 6 matching grommets.
5. Remove the bottom cover (Fig 30, item 14) by unscrewing the 2 bolts and nuts.
6. Remove the splash cover (Fig 30, item 39) from the clutch brackets and spacer tubes.
7. Disconnect the two clutch leads from the electrical control board leads and the clutch spring (Fig 27, item 9) from the spacer tube.
8. Loosen (do not remove completely) the block tensioner's set screws (Fig 26, item 6) to detension the belt.
9. Loosen (do not remove yet) the four plate bolts.
10. Pull the cog belt loose from the engine shaft cog pulley and let hang loose on the clutch cog pulley.
11. Remove the two vertical bracket screws (Fig 30, item 19 & 20).
12. Remove the four horizontal screws through the gearbox plate (Fig 26, item 5) and lift the gear box off the machine.
13. Place gearbox in vice by gripping the flat part of the drive crank allowing the clutch assembly to face up. Use caution and not allow gearbox to swing and damage casting against vice.
14. Hold coupling screw, with 13/16" wrench, then with 5/16" allen wrench, screw differential screw out of coupling screw and gearbox shaft.
15. Remove the coupling screw from the clutch bore.

NOTE: After extended use the coupling screw can hang up inside of the clutch bore. Tapping on the side of the coupling screw and/or the use of a light-weight oil or break free product can ease the removal process. In extreme cases, screw the differential screw large thread size in, then place a washer and nut on the small thread side. This allows the pulling or prying on the coupling screw in order to remove it.

INSPECTING CLUTCH AND BELT

1. Inspect clutch and belt, replace as necessary.

INSTALLING CLUTCH

Refer to Figures 26-30

1. With gearbox held in a vice vertically as previously described, place first spacer, and bearing, onto gearbox shaft. See Fig. 27
2. Insert snap rings (2), into recesses of cog pulley portion of clutch. Place cog pulley portion of clutch with cog belt attached onto shaft.
3. Place second spacer, into cog pulley portion of clutch. This spacer will rest on the first bearing, installed.
4. Insert second bearing, on top of upper snap ring,
5. Lay removable spacer on top of last bearing. If the clutch air gap is larger than .028", do not use removable spacer. Put spacer over removable spacer, if used, and top bearing.
6. Place coil portion of clutch down onto cog pulley portion of clutch and center on gearbox shaft.
7. Screw differential screw, into coupling screw and nut until 1/16" is showing. See Fig. 28
8. Push coupling nut assembly, into clutch assembly until it comes to a positive stop. (Differential screw comes into contact with the threaded gearbox shaft.)
9. With 13/16" wrench on coupling screw and 5/16" allen wrench in differential screw, simultaneously with both wrenches screw coupling nut assembly into gearbox shaft by turning clockwise until a positive stop is reached.
10. Hold coupling nut ass'y and tighten differential screw to 30 ft.-lbs. This will expand the coupling assembly, thereby holding the clutch assembly to gearbox shaft. Turn clutch observing clutch gap. The pulley should turn freely with a gap of .012 to .024" between the two clutch faces. If the gap is greater than .028, remove the removable spacer. Reassemble and check gap for proper clearance.
11. Place cog belt over cog pulley portion of clutch. Set gearbox and clutch assembly on the support brackets (Fig 30, items 24 & 25), screw in the two vertical bracket screws (Fig 30, item 19) and start the four horizontal screws through the gearbox plate (Fig 30, item 8) and into the back of the gearbox.

CLUTCH REPLACEMENT (Continued)

12. Slide cog belt over engine pulley.

BELT TENSIONING

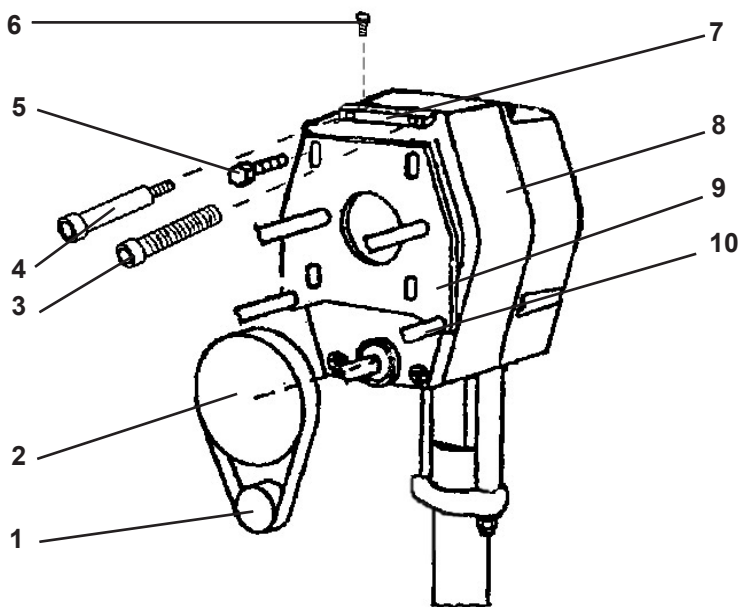
13. Slightly loosen the two horizontal screws (Fig 30, items 19-22) that connect the top and bottom supports (Fig 30, items 24 & 25).

14. Evenly tighten set screws (Fig 26, item 6) until flush with tip of block tensioner (Fig 26, item 7) . Check tension on cog belt by pressing hard with thumb. Proper tensioning should allow for approximately 1/8". If belt is too loose, tighten set screws further.

15. Once belt tension is correct tighten down the four horizontal screws that go through the gearbox plate (Fig 30, item 8) and into the back of the gearbox. Also tighten the two horizontal screws (Fig 30, items 19-20) that connect the top and bottom supports (Fig 30, items 24 & 25). Reconfirm that the belt deflection is still 1/8".

15. Reassembly connections, covers and fluid pump in reverse order as described in steps 1-7 of the "Removing Clutch" instructions.

FIG. 26



PARTS LIST FIGURE 26

ITEM NO.	PART NO.	DESCRIPTION
1	301-231	Cog Belt
2	301-264	Clutch Replacement
3	305-088	Screw
4	100-175	Shoulder Screw
5	100-173	Screw Flanged (4)
6	100-174	Set Screw (2)
7	301-534	Block Tensioner
8	301-208	New Gearbox
9	305-045	Plate
10	305-046	Spacer Tube (4)

CLUTCH ASSEMBLY

FIG. 27

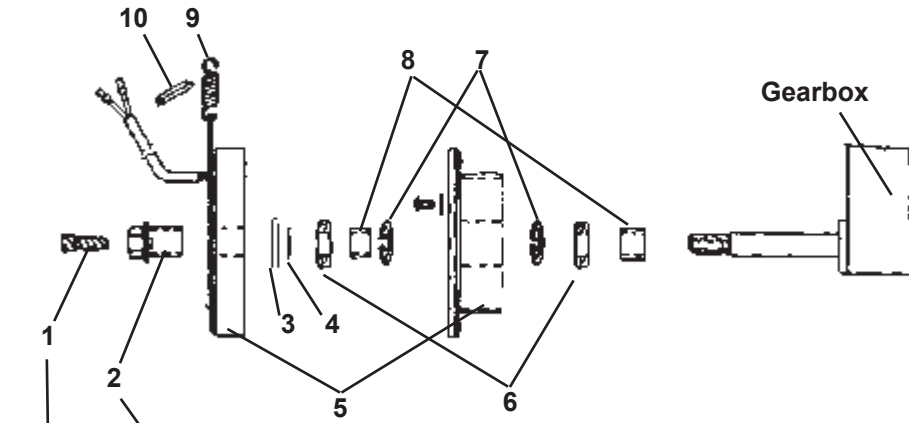


FIG. 28

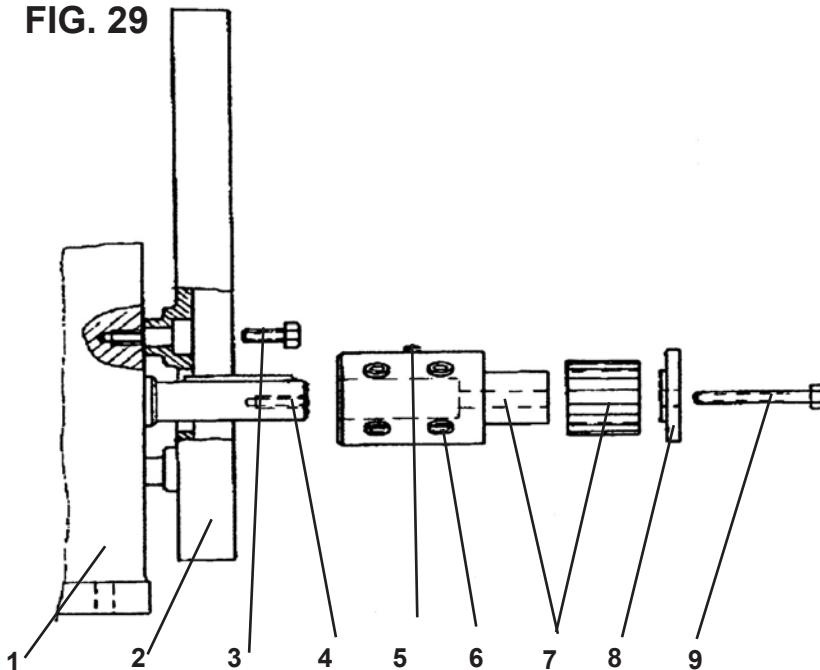


PARTS LIST FIGURES 27 & 28

ITEM NO.	PART NO.	DESCRIPTION
1	112-041	Screw-Differential
2	112-054	Coupling Nut Assy
3	301-412	Spacer
4	301-413	Spacer-Removable
5	301-264	Clutch-Replacement
6	301-037	Bearing (2)
7	100-333	Retaining Ring (2)
8	301-274	Spacer (2)
9	136-068	Spring
10	301-316	Rubber Edge

ENGINE ASSEMBLY

FIG. 29

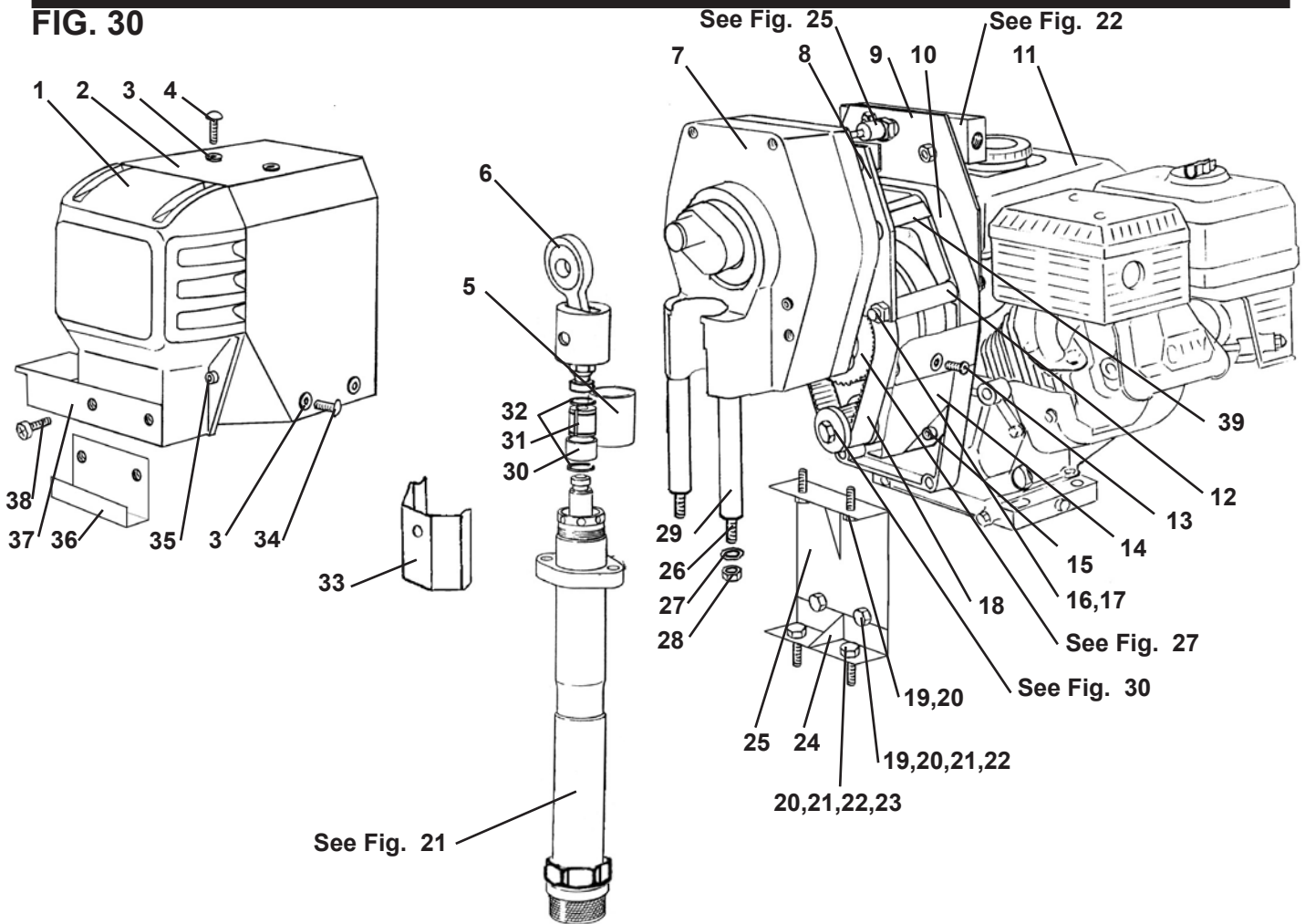


PARTS LIST FIGURE 29

ITEM NO.	PART NO.	DESCRIPTION
1	301-160	Honda GX160 Engine
2	305-012	Adaptor
3	136-091	Screw (4)
4	112-029	Key
5	100-357	Screw (set)
6	100-383	Screw (4)
7	301-222A	Sheave Assly.
8	301-229	Thrust Plate
9	301-230	Screw

POWER UNIT ASSEMBLY

FIG. 30

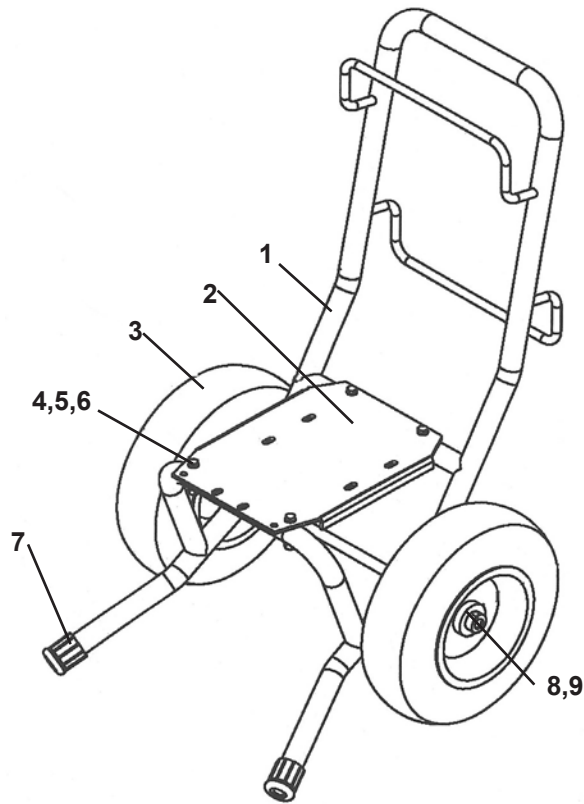


PARTS LIST FIGURE 30

ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	301-320	Cover-Gearbox	20	140-029	Washer (10)
2	301-531	Cover-Top	21	113-023	Washer (4)
3	301-135	Grommet (6)	22	100-317	Nut (4)
4	301-337	Screw(2)	23	169-050	Screw (2)
5	301-047	Sleeve Bearing	24	301-299	Support-Bottom
6	301-333	Connecting Rod	25	301-232	Support-Top
7	301-208	Gearbox	26	100-328	Stud (2)
8	305-045	Plate-Gearbox Mount	27	140-035	Washer (2)
9	305-064	Holder-Manifold	28	140-051	Nut (2)
10	305-012	Adapter	29	301-059	Spacer (2)
11	301-160	Engine-Honda GX160	30	189-047	Cover-Coupling Set
12	305-046	Spacer Tube (4)	31	189-046	Coupling Set
13	136-091	Screw (4)	32	189-048	Retaining Rings (2)
14	305-067	Cover-Bottom	33	301-467	Shield
15	100-345	Screw (2)	34	111-037	Screw (4)
16	305-047	Stud (4)	35	100-312	Screw (4)
17	140-044	Nut (8)	36	301-105	Pail Hook
18	301-231	Cog Belt	37	305-140	Bracket-Manifold Filter
19	111-044	Screw (4)	38	100-360	Screw (2)
*	188-160	Grounding Assembly	39	301-529	Splash Cover

FRAME ASSEMBLY

FIG. 31

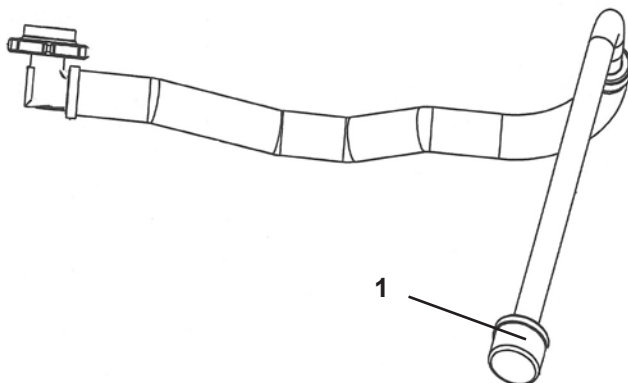


PARTS LIST FIGURE 31

ITEM NO.	PART NO.	DESCRIPTION
1	301-201	Frame
2	301-202	Bracket-Motor
3	301-165	Wheel (2)
4	136-126	Screw (4)
5	140-029	Washer (12)
6	100-317	Nut (4)
7	331-048	Rubber Boot (2)
8	113-030	Spacer (2)
9	143-029	Set Collar (2)

SUCTION ASSEMBLIES (Optional)

FIG. 32



PARTS LIST FIGURE 32

ITEM NO.	PART NO.	DESCRIPTION
1	141-008	Inlet Filter
*	119-108	Suction Assy- 5 Gallons
*	119-087	Suction Assy- 55 Gallons

For Bypass Assembly See Fig. 22

AIRLESS ATOMIZER KIT (120-117)

WARNING

Do not exceed 950psi of pump pressure when using the atomizer

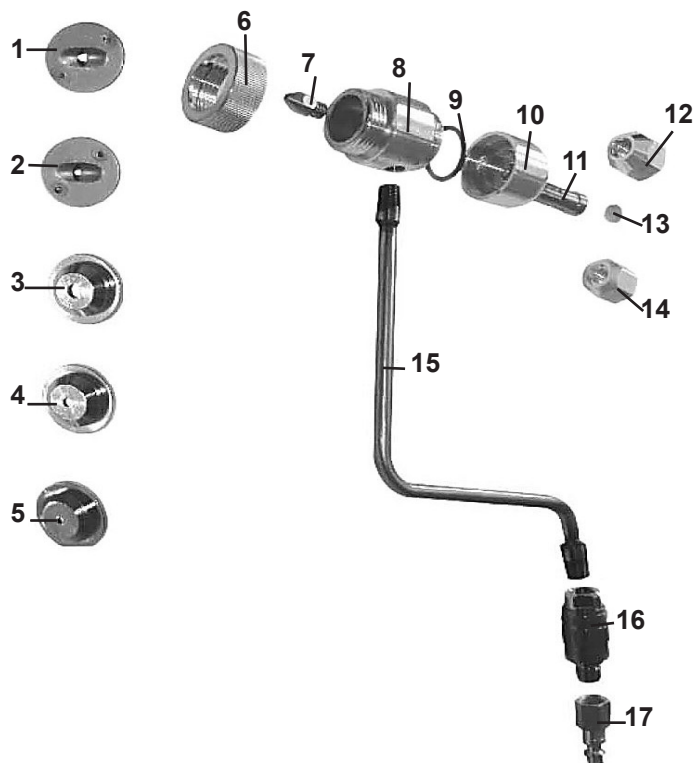
CAUTION

Operator must thoroughly clean the atomizer and component parts after each use. Leftover debris will cause poor spray performance

Operating Instructions

- Always turn on air pressure on first, preventing backflow of material into the air system
- For best performance use with 1 gallon per minute or greater airless paint sprayer
- For fog finish and fine orangepeel, use tip #13 or 16 and apply maximum air flow
- For medium orangepeel and splatter coat, use tip # 14 or 17 and apply medium air flow
- For heavy splatter coat and knockdown finish use tip # 15 or 17 and apply less air flow

FIG. 33



PARTS LIST FIGURE 33

ITEM NO.	DESCRIPTION
1	Tip, 1/4" Medium-Flat Fan
2	Tip, 3/16" Fine-Flat Fan
3	Tip, 1/4" Large-Round Fan
4	Tip, 3/16" Medium-Round Fan
5	Tip, 1/8" Fine-Round Fan
6	Tip Retainer
7	Air Nozzle
8	Front Housing
9	O-Ring
10	Back Housing
11	Stem
12	Nut 7/8"-14 (G Thread)
13	Fluid Seal
14	Nut 11/16-16 (F Thread)
15	Air Tube
16	Air Flow Valve
17	Air Fitting

HOPPER ASSEMBLY (331-441)

FIG. 34



PARTS LIST FIGURE 34

ITEM NO.	PART NO.	DESCRIPTION
1	301-442	Hopper Assy (32 Gal)
2	119-107	Swivel Assy