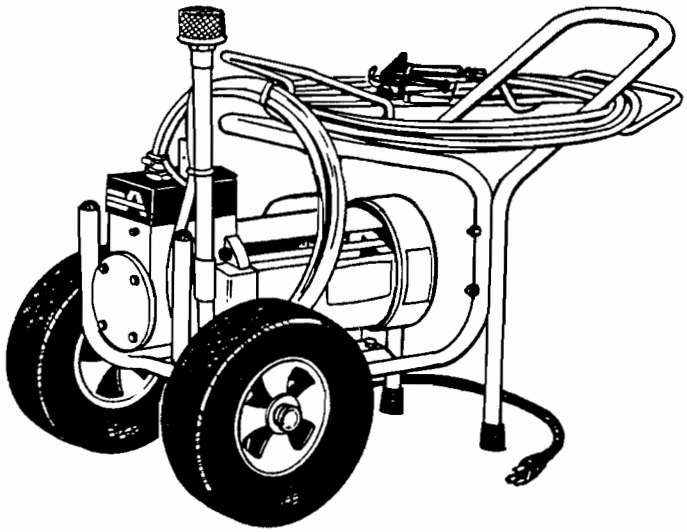
AIRLESSCO BY DUROTECH CO.®

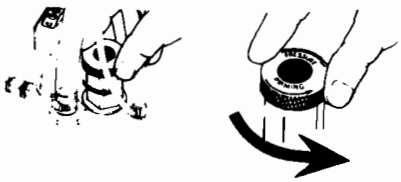
MODELS 3100, 3100GD
OPERATION MANUAL AND PARTS LIST



IMPORTANT

PRESSURE RELIEF PROCEDURE. Learn & follow this Pressure Relief procedure whenever sprayer is shut off, when checking or servicing it, when installing or changing tips and when ever you stop spraying, to avoid possible serious body injury including injection.

1. Turn machine off and disconnect the power cord.
2. Turn the Pressure Control Knob to Prime postion.



3. Trigger the gun.
4. Turn gun lock to LOCKED position.

Lock Gun Trigger

IF THE SPRAY TIP OR HOSE IS CLOGGED, follow Step 1 through 4 above. Expect paint splashing into the bucket while relieving pressure during Step 2. After following all 4 steps above it is safe to remove the tip from the gun to clean.

WARNING

Prior to starting sprayer, read, understand and observe all warnings and safety precautions on pages 3 and 4 of this manual and learn and follow the above PRESSURE RELIEF PROCEDURE.

Before doing any service or maintenance procedure, follow the above PRESSURE RELIEF PROCEDURE to reduce the risk of an injury, a fluid injection injury, an injury from moving parts or electric shock.

AIRLESSCO BY DUROTECH CO., 5397 Commerce Ave., PO Box 8006, Moorpark, CA. 93020 , Tel: 805-523-0211
Fax: 805-523-1063 Subject to change without notice. Form No. 001-005 Rev. D June 95

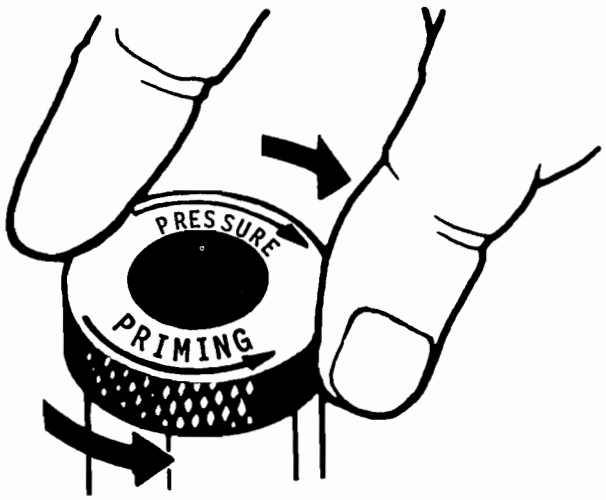
INTRODUCTION

HOW THE AIRLESSCO 3100 WORKS

The AIRLESSCO 3100 was developed to operate under high pressure with abrasive liquids such as paint. A major concern in design was to incorporate simplicity, reliability and ease of maintenance and service.

The AIRLESSCO 3100 consists of a mechanically driven diaphragm which is the heart of the machine. When the diaphragm is moved upwards by a cam, the paint in the pumping chamber is pushed through the discharge valve into the pressure hose attached to the spray gun. When the diaphragm is deflected downwards, the discharge valve closes; the paint is sucked into the pumping chamber through the suction valve.

The Pressure Control Knob controls pressure in the hose. When the knob is turned clockwise, pressure is increased. When it is turned completely counter-clockwise, the valve opens under very low pressure and allows the material to be sucked into the pumping chamber at the time of priming.



The AIRLESSCO 3100 will spray at high pressure latex enamels, vinyls, acrylics, etc., for indoor and outdoor applications. (Tip size .015 to .021.)

It can also be used for fine finishes, spraying lacquers, stain and varnish at lower pressures (400 to 1000 PSI), for applications such as kitchen cabinets, woodwork, etc. (Tip size .009 to .013.)

MAINTENANCE

Change oil (6 oz. of part no. 112-000) in the bearing housing every 3 months if sprayer operates daily. To change oil: Remove front plate (112-007)

NOTE:

Machine may spill oil due to overfill and/or temperature increase, this will not affect performance or operation.

WARNINGS

IMPORTANT: Learn & follow the ***Pressure Relief Procedure*** on front cover before operating.

- Equipment & chemicals when used improperly can be dangerous.
- Safety is the responsibility of those who operate this equipment.
- Read and understand all labels on your equipment. Keep the warning labels clean at all times. They must be on machine when resold & must be *readable.* Order new "warning" labels through a distributor or write to Durotech Co.

If injury does occur, seek the immediate care of a medical doctor.

NOTE TO PHYSICIAN: Injection into the skin is a serious traumatic injury. Contact the National Poison Center Network at (412) 681-6669 (24 hours a day, seven days a week) for treatment regimen.

The following safety precautions must be observed at all times.

NEVER

- **Never place hand or any other part of the body in front of gun.**
- **Never point gun at any individual.** Liquid is released at a pressure that can penetrate the skin & cause severe injury and possible amputation.
- **Never** treat any injury as a simple cut. **IF INJURY OCCURS CONTACT A DOCTOR IMMEDIATELY.** Be ready to tell the doctor what fluid was injected.

- **Never** use around children.
- **Never** allow another person to use the sprayer unless he is thoroughly instructed on its use & operation & has read all safety precautions in this manual & safety labels attached to equipment.
- **Never** inhale chemical vapors & mists.
- **Never** work on sprayer & gun or leave sprayer unattended with pressure in the system.

ALWAYS

FOLLOW THE PRESSURE RELIEF PROCEDURE ON THE COVER OF THIS MANUAL TO RELEASE PRESSURE IN THE SYSTEM.

- **Never** operate gun without tip guard attached.
- **Never** alter equipment in any manner.
- **Never** use unit in rain or never wash unit with water, to protect yourself against electric shock.
- **Never** spray in the vicinity of open flame or other sources of ignition.
- **Never** keep flammable materials in spraying area.
- **Never** smoke while in spraying area.
- **Never** spray highly flammable materials.
- **Never** spray in a closed area. The spraying area must be provided with ventilation adequate to safely remove vapors.
- **Never** use halogenated hydrocarbon (HHC) solvents in this system. (See halogenated hydrocarbon warning.)
- **Never** spray solvent under pressure through the tip.
- **Never** attempt to change the spray nozzle (tip) without first shutting off the unit & releasing the pressure.
- **Never** attempt to stop any leakage in the line or at fittings with your hand or any part of the body. Turn off the unit & release pressure in the system by turning control valve to "priming."
- **Never** exceed the maximum operating pressure of lowest rated accessory item within a spray system.
- **Never** use damaged, weakened or nonconductive paint hose. Do not allow kinking or crushing of paint hose or allow it to vibrate against rough or sharp surfaces or touch hot surfaces.

WARNINGS

ALWAYS

- **Always** FOLLOW THE Airlessco-Durotech recommendations on machine pressure and operating instructions.
- **Always** ensure switch is in "OFF" position before plugging unit in.
- **Always** set safety lock on the gun in "LOCKED" position when not in use.
- **Always** check operation of safety gun lock before each use.
- **Always** check connections before use.
- **Always** locate Airlessco 3100 a minimum of 25 ft. away from spraying area when spraying with flammable liquids. Ventilation must be sufficient to prevent accumulation of vapors.
- **Always** ground the Airlessco 3100, paint bucket, paint containers & object being sprayed to eliminate electrostatic discharge. The high velocity flow of fluids through the hose & tip can develop static electricity. Ensure all these objects remain grounded throughout the entire painting operation.
- **Always** use approved 3 pronged grounded & approved outlets of voltage & frequency shown on motor. The motor is equipped with a ground power cord. When spraying with flammable liquids the outlet must be 25 ft. away from spraying area.
- **Always** check ground continuity in hose & equipment before use.
- **Always** use high pressure airless hoses conductive-grounded and approved for 3000 PSI.
- **Always** use lowest possible spray pressure when flushing & cleaning and hold gun firmly against a metal waste container to reduce spark possibility.
- **Always** ensure fire extinguishing equipment is readily available & properly maintained.
- **Always** use cleaning solvents with flash points greater than 140° F (60° C).
- **Always** follow instructions provided with solvents & paints.
- **Always** use approved high pressure fittings & replacement parts.
- **Always** wear a face mask while spraying.
- **Always** observe good housekeeping & keep spraying area free from obstructions.
- **Always** use 3 wire-12 gauge minimum extension cord not longer than 25 feet.

WARNING

Do not use halogenated solvents in this system. It contains 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.

PAINT PREPARATION

Prepare the paint according to the manufacturer's recommendations and directions. Always follow paint & solvent manufacturer's safety precautions & warnings carefully.

Remove any skin on previously opened paint.

Stir paint thoroughly to dissolve hard pigments.

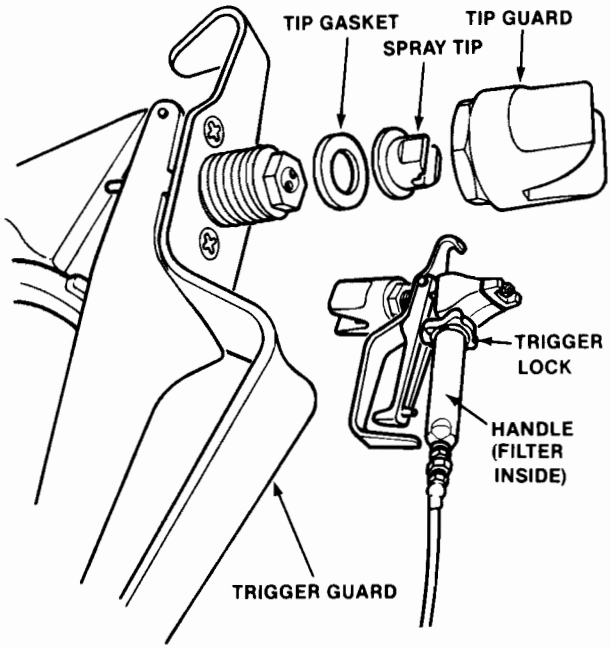
Strain the paint through a fine nylon mesh bag to avoid clogging of gun filter or spray tip.

Do not use abrasive, aggregate or fiber-fill paint.

Most paints do not have to be thinned in order to be sprayed. However, it is possible that you may use a paint that is too thick to be sprayed. If thinning is required, add water to latex-based paint; add solvent to oil-based paint. Check paint label for proper thinning information.

AIRLESSCO 007 SPRAY GUN

MAJOR COMPONENTS OF SPRAY GUN

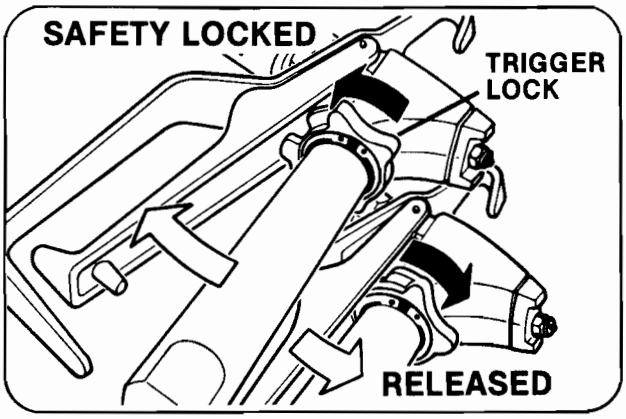


SPRAY GUN

Attach spray gun to whip hose and tighten fittings securely. By rotating clockwise, set the trigger lock.*

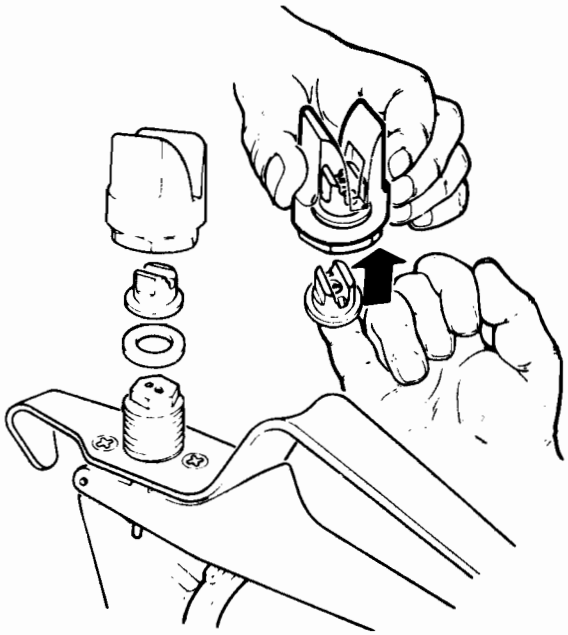
*The trigger lock should always be set when the gun is not being triggered.

Read all warnings and safety precautions supplied with the spray gun and in product manual.

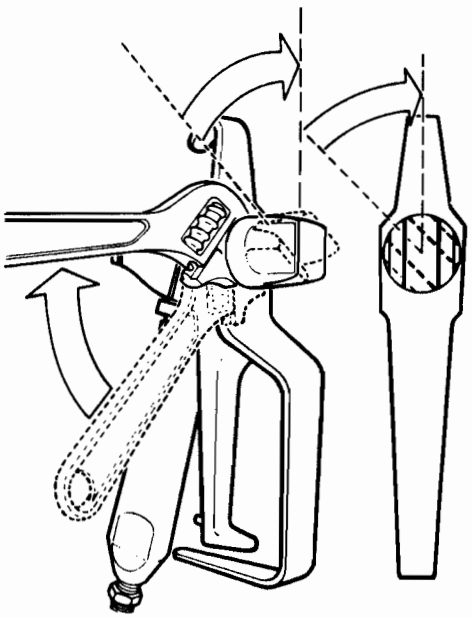


SPRAY TIP ASSEMBLY

Remove tip guard from spray gun. While holding tip guard upright, slide spray tip into tip guard. Make sure "flats" on spray tip are aligned with "ears" of tip guard. Spray tip is installed properly when "flats" recess into tip guard cavity.



Insert tip guard. Place tip gasket in tip guard behind spray tip. Thread tip guard "assembly" onto spray gun, finger tight with "ears" on a 45° angle to vertical (see figure). When the tip guard nut is wrenched tight, the tip guard "ears" and spray tip pattern will be aligned for vertical spray pattern. (Spray pattern may be adjusted to horizontal if preferred.)



SETTING UP AND STARTING

THE INFORMATION BELOW IS COMMON TO BOTH GASOLINE AND ELECTRIC PUMPS.

NEW UNIT

Note: Extension cord must not exceed 25 ft. of 12/3 or 50 Ft. of 10/3.

Read all warnings and safety information in this manual and all warnings attached to your equipment.

WARNING: LEARN & FOLLOW PRESSURE RELIEF PROCEDURE ON THE COVER OF THIS MANUAL

1. Connect suction and return hose. Firmly tighten suction clamp to prevent air being drawn in. An air leak may cause priming problems.
2. Attach high pressure *airless* hose (conductive-grounded) to the spray gun.
   NOTE: Do not use less than 50 feet or more than 250 feet of airless hose.
   (Optional whip hose and spray gun to provide additional flexibility which reduces operator fatigue.)
3. By rotating clockwise set the trigger lock on the gun.
   See instructions: Spray tip assembly.
4. Be sure the switch is in "OFF" position, then plug into an approved power supply that agrees with motor rating plate. If using an extension cord,* it must be 3 wire, 12 gauge minimum with safety ground plug and socket.

   *Not longer than 25 feet.
   USA . . . . . 115 VAC/15 amp
   EUROPE . . . . . 220 VAC/15 amp
   AUSTRALIA . . . . . 240 VAC/15 amp
5. Turn Pressure Control Knob located on the head of the pump counterclockwise (to prime).
6. Turn motor switch "ON."
7. Put suction filter and return hose into a bucket with thinner or water and wait until a steady stream of flushing material comes out of the return hose (small hose). This is merely to flush out your machine prior to use. (Every new machine was flushed in oil prior to shipping.)
8. Remove the filter and return hose from the flushing material and place them into your paint. (See instruction: "PAINT PREPARATION."
9. Now prime your unit by turning the Pressure Control Knob to "PRIMING" position (counterclockwise). Allow unit to prime until all air has been removed from the suction tube and pump head.
10. Turn presure control knob clockwise to increase pressure.
11. Machine is now ready to spray.

PREVIOUSLY USED UNIT

Since the unit is filled with flushing material for storage, it must be pushed out by paint or solvent only, before spraying. To do this adjust Pressure Control Knob to PRIME position, put the siphon tube into a bucket of thinner or paint and turn the unit on. Wait until steady stream of paint emerges from the return hose (smaller dia. plastic tubing) back into the bucket. Then increase the pressure by turning control knob clockwise. Prime pump and increase the pressure several times to release excess of air before final adjustment for spraying.

SPRAYING

See instructions: Spray gun operation
Spraying technique
Spray tip selection

SPRAYING OR CLEANING WITH FLAMMABLE PAINTS OR THINNERS

1. When spraying with flammable liquids, AIRLESSCO 3100 must be located minimum 25 feet away from spraying area, in well ventilated area. Ventilation sufficient enough to prevent the accumulation of vapors must be provided.
2. To eliminate electrostatic discharge, ground AIRLESSCO 3100 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 tip, in ventilated area, into the grounded steel bucket 25 feet away from AIRLESSCO 3100 — Do not spray with high pressure while cleaning.
4. Do not smoke in spraying area.

WHEN YOU STOP SPRAYING, even for a short period of time, release the pressure by turning pressure control knob counter-clockwise to PRIME and turn the motor OFF. Immerse the gun into a bucket filled with a suitable thinner to prevent drying of the paint in the gun's nozzle. If you stop spraying for a longer period of time, follow instructions for cleaning of AIRLESSCO 3100.

The most important rule:

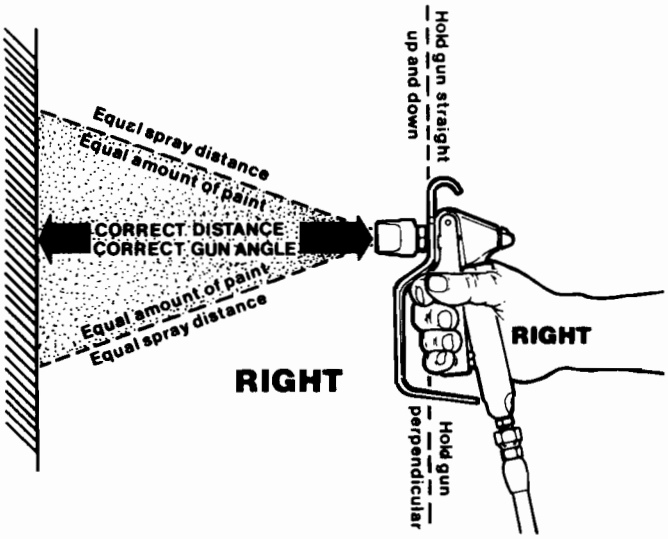
FLUSH YOUR AIRLESSCO 3100 IMMEDIATELY AFTER USE WITH MIXTURE OF OIL AND THINNER (1:1) OR CORO CHEK.

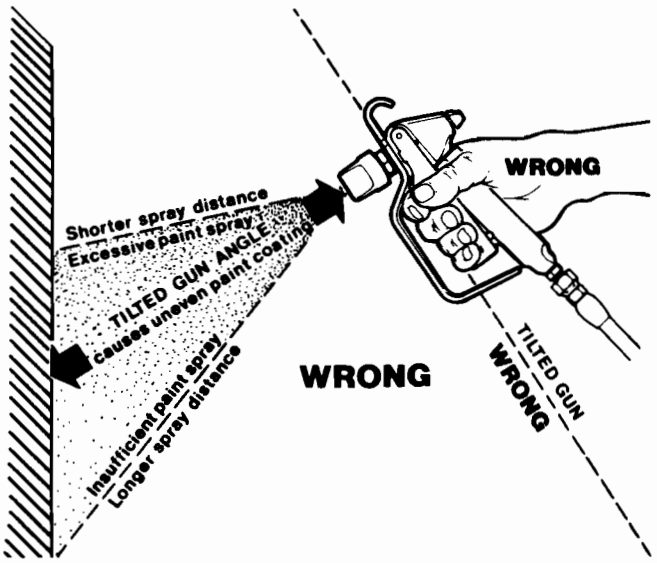
SPRAY TECHNIQUE

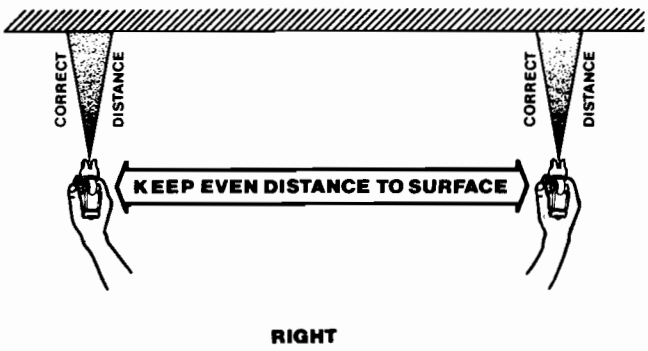
Good spray gun technique is at the core of any spray-paint operation. Operator skill and efficiency is as important as good equipment and good paint. Good spray technique is a skill that can be learned quickly by following these simple instructions.

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.

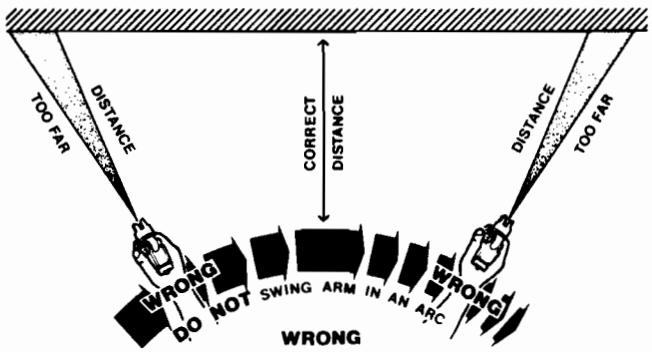
Hold the spray gun 12-15 inches away from the work surface and keep it perpendicular (straight) to the surface. Move the spray gun parallel to the work and at a right angle to the surface.







RIGHT



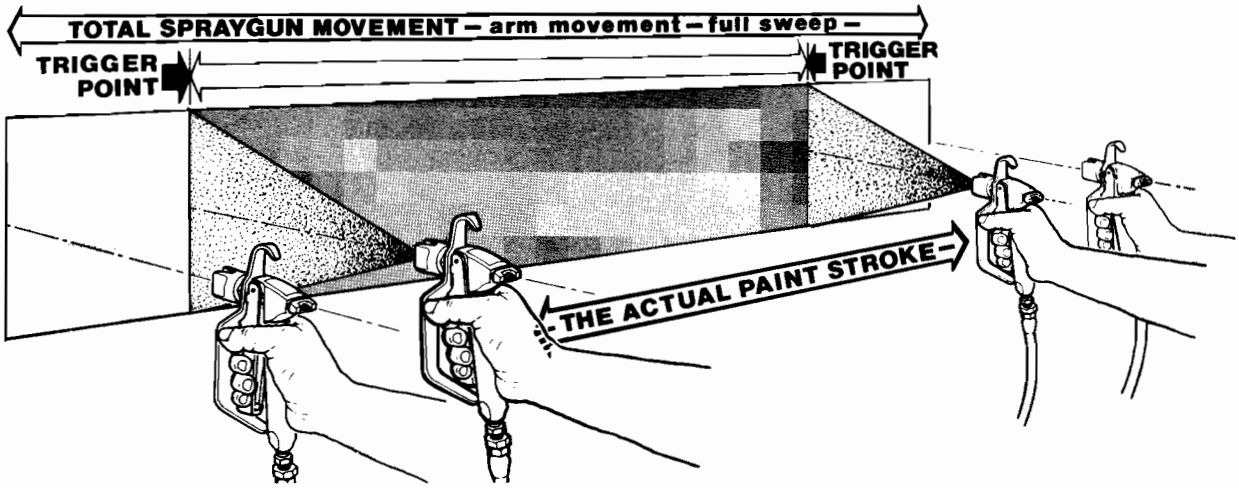
WRONG

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 coat coverage that is likely to run or sag.

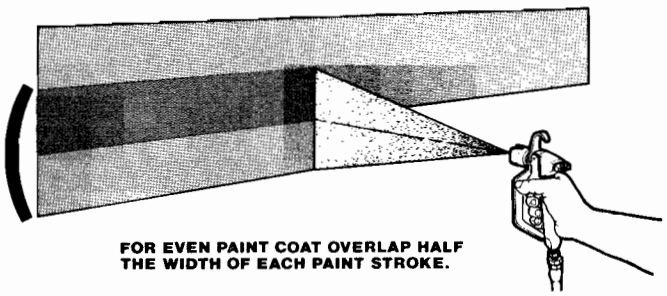
Do not wave the spray gun. This waving is called (arching.) Instead, hold the spray gun at a 12- to 15-inch distance perpendicular from the work.

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.

SPRAY TECHNIQUE

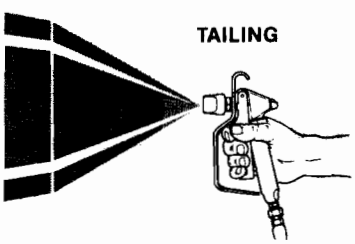


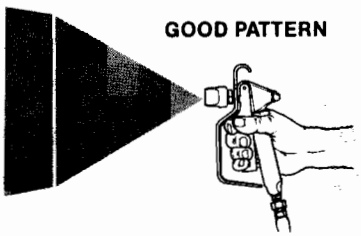
It is important to "trigger" the gun **after** gun movement (arm movement) has started and release trigger (shut gun off) **before** gun movement ends. Gun movement is always longer than actual paint (spray) stroke. In that manner, even blending and uniform paint coat thickness is achieved over the entire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

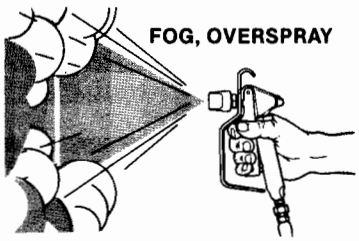


Overlap the previous pass by half the width of the spray pattern. Aim at the bottom of the previous pass.

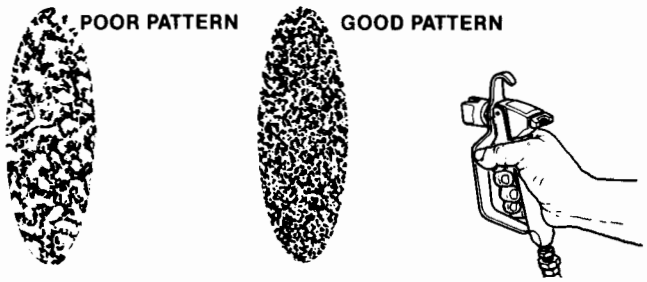
Spray with uniform strokes from left to right and from right to left, holding stroke speed, distance, lapping, and triggering as uniform as possible.

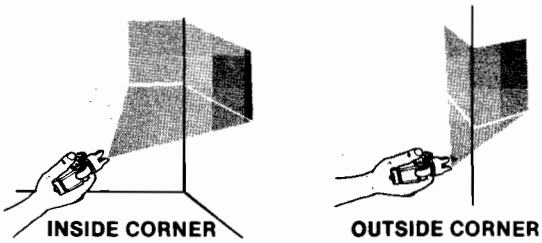






Adjust pressure control knob so that paint is completely atomized from the spray gun. Insufficient pressure will result in "tailing." Too much pressure will result in excess fog and overspray, excessive tip wear, and increased sprayer wear and tear.





Always use the lowest pressure possible to obtain desirable results.

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

"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 of the spray pattern on both walls are the same.

AIRLESS SPRAY GUN OPERATION

Defects	Cause	Correction
Coarse spray	Low pressure	Increase the pressure
Excessive fogging (Overspray)	High pressure	Reduce the pressure to satisfactory pattern distribution
	Material too thin	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 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 and 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	Clean screen
	Coarse pigments	Use coarse screen if orifice size allows
	Poorly milled pigments (paint pigments glocculate cover screen. Incompatible paint mixture and thinners	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			PAINT MUST BE STRAINED	USE FINE GUN FILTER 120-004F 120-090FX
311	.011	6-8"						X			
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						
418	.018	8-10"	X	X							
518	.018	10-12"	X	X							
618	.018	12-14"	X	X							
521	.021	10-12"		X							
621	.021	12-14"		X							
721	.021	14-16"		X							

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 overspray, make cutting-in difficult, and decrease sprayer performance.

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

SPRAYER CLEAN UP

Proper cleanup is extremely important in the maintenance of your new airless paint sprayer. At the day's end, or with the completion of the job, the sprayer and system (gun and hose) must be flushed and cleaned to prevent paint residue from hardening or clogging the system. Rust can also damage internal parts if water or latex paint is left in the sprayer, so a final flush with Coro-Chek or mixture (1 to 1) of mineral spirits and oil is recommended.

Clean the sprayer initially with water, if latex paint was used, followed by Coro-Chek. Flush with appropriate solvent if oil-based paint was used. (Refer to paint can label for manufacturer's recommendation.) NOTE: Always clean and flush the sprayer using LOW pressure.

Before any storage periods, the sprayer should be flushed and "loaded" with Coro-Chek or mixture of mineral spirits and oil to prevent rust and damage to internal parts. Do not leave water or paint in the sprayer, even for a few hours.

THE MOST IMPORTANT RULE: CLEAN YOUR AIRLESSCO 3100 IMMEDIATELY AFTER USE

1. Release the pressure by turning the pressure control knob counterclockwise to allow the excess paint to return to the bucket.
2. Remove the tip from your gun and place the tip in a thinner or water depending on the type of paint you are using.
3. Remove the filter and the return hose from the paint and hold it above the bucket.
4. Turn the unit on.
5. Wait until there is no more paint leaving the return hose.
6. Place the filter and the return hose in a bucket of water (when using a water base paint) or in a thinner suitable to the paint (when spraying with an oil base material).
7. Prime pump, after flushing the pump thoroughly, trigger the gun above the paint bucket and then adjust *very low pressure* while holding gun open. Flushing liquid will push the rest of the paint out of the spray hose into the paint bucket. When all paint is displaced return gun back to flushing liquid bucket. Continue to flush until pump, hose and gun are free of paint.

IMPORTANT: Pressure setting should be very low just to stop bypass through return hose.

EXTREME CAUTION:

Do not set high pressure! When spray tip has been removed, an airless gun becomes more dangerous, because of the greater volume of liquid that can be emitted from the outlet of the gun at high velocity.

8. Release the pressure.
9. Remove filter from filter housing and clean with thinner or water.
10. Reflush the system with Coro-Chek (see instructions) or mixture of thinner and oil (1 to 1).
11. Shut off the unit and store.
12. Do not disconnect the hose or gun from the AIRLESSCO 3100 when storing — this will prevent the valve and hose from drying out.
13. When storing, always leave the pressure control knob turned completely counterclockwise.

SPECIAL NOTE

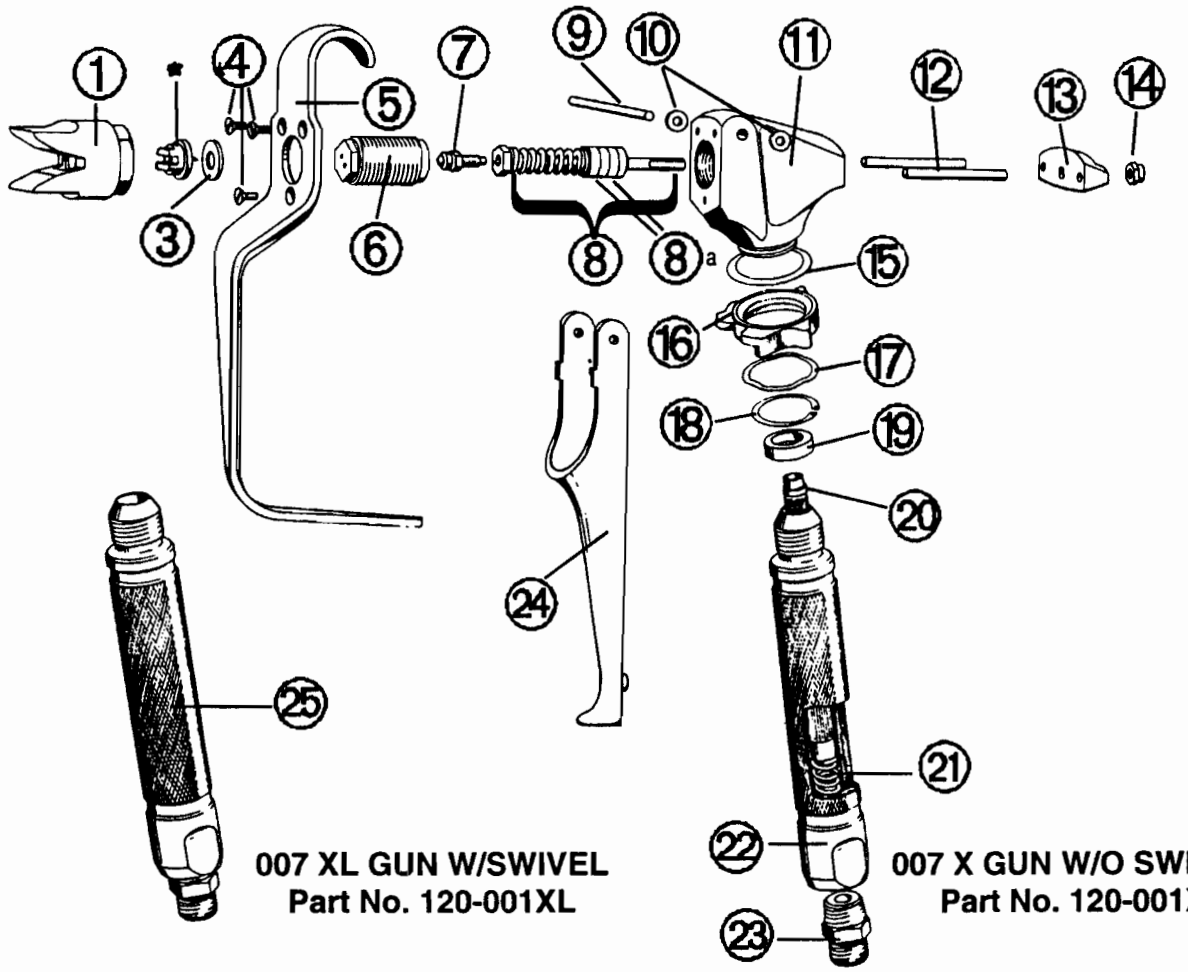
Never leave water or paint in the unit, not even for a few hours.

CLEANING 007 SPRAY GUN: Immediately after the work is finished, flush the gun out with a solvent. Brush pins (120-045) with solvent and oil them lightly so they will not collect dried paint.

CLEANING SPRAY TIP: Should the spray tip become clogged, **relieve pressure from system by following the pressure relief procedure in the machine manual, secure the gun with safety lock (120-048)** take off tip holder (120-036), take out the tip, soak in appropriate solvent and clean with a soft brush. (Do not use a needle or sharp pointed instrucment to clean the tip. The hard tungsten carbide is brittle and can chip.)

CLEANING THE FILTER: 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.

AIRLESSCO 007X & 007XL SPRAY GUNS



007 XL GUN W/SWIVEL
Part No. 120-001XL

007 X GUN W/O SWIVEL
Part No. 120-001X

Spray Guns PART LIST					
Item No.	Part No.	Description	Item No.	Part No.	Description
1	120–036	Tip Holder With Guard	14	120–021	Nut
2		Deliberately Omitted	15	120–056	Washer
3	120–008	Tip Washer	16	120–048	Lock
4	120–023	Screw (3)	17	120–055	Wave Washer
5	120–005	Guard	18	120–049	Retaining Ring
6	120–035	Valve Seat Complete	19	120–082	Seal
7	120–037	Valve Ball With Holder	20	120–090 CX	Filter-Complete—Coarse
8	120–011	Valve Spring Unit	20	120–090 FX	Filter-Complete—Fine
8a	120–033	Seals Teflon (2)	21	120-088	Spring
9	120–022	Trigger Pin	22	120–087	Handle Complete 007X
10	120–046	Washer (2)	23	115–019	Connector
11	120–002	Gun Head	24	120–044	Trigger
12	120–045	Retainer Pin (2)	25	120–085	Handle with Swivel 007XL
13	120-020	Retainer	*	TUNGSTEN CARBIDE SPRAY TIP (SEE SEPARATE LIST, Page 16)	

AIRLESSCO 007X & 007XL SPRAY GUNS

ADJUSTING SPRAY GUN

Hold gun with trigger locked (24) and push trigger against the lock (16). Then adjust nut (14) so that retainer (13) will move freely back and forth approximately 1/32" to allow valve spring unit (8) to seat the valve ball (7).

—IMPORTANT—

Readjust nut (14) periodically for wear of valve seat (6) and valve ball (7); otherwise, leakage will occur.

KIT #2-007

3 Tip Washers (3)	1 Valve Seat (6)
1 Valve Ball Holder (7)	2 Seals—Teflon (8a)

TO REPLACE THE VALVE BALL HOLDER (7)

DISMANTLING:

1. Unscrew tip holder (1) with a 7/8" open end wrench. Remove spray tip and washer (3).
2. Unscrew valve seat (16) with ½" socket wrench.

◆ CAUTION ◆

When removing and replacing valve seat (6), hold the trigger (24) in the open position so that the valve ball (7) is lifted off the valve seat. Failure to lift the ball off the seat will result in a scratched leaky valve.

3. Unscrew valve ball (7) together with the brass part of the assembly (8). Do not pull on the parts or the packing may get damaged.
4. Unscrew the valve ball (7) from the brass part of the assembly (8).

REASSEMBLING is done in reverse sequence. Screw the new valve ball with holder (7) into the brass part (8).

◆ CAUTION ◆

Tighten valve ball and brass part on threaded end of the shaft by hand until you feel a positive stop. Do not tighten with a wrench since this could result in breaking the shaft.

••• NOTE •••

It is recommended that you change the valve seat (6) and valve ball (7) at the same time.

KIT #3-007

3 Tip Washers (3)	1 Valve Seat (6)
1 Valve Ball Holder (7)	1 Valve Spring Unit (8)

REPLACING THE VALVE SPRING UNIT (8)

1. Repeat dismantling procedure as outlined above under Steps 1 through 3.
2. Unscrew nut (14) remove retainer (13) with retainer pins (12) and push shaft of the valve spring unit (8) out of the gun head (11).
3. Clean gun head (11) bore with solvent and small brush. Do not use any sharp objects to scrape away dried paint, as they would cause leakage around the seal.

REASSEMBLING is done in reverse sequence.

—IMPORTANT—

When reassembling, install valve spring unit (8) with spring loose.

Push firmly into gun head by hand. Install retainer pins (12) retainer (13) and nut (14) loosely onto valve spring unit (8). Place a 3/16" nut driver on front of valve spring unit and turn clockwise, tightening the valve spring unit until you feel a positive stop. At that point, continue tightening the valve spring another 1/8 turn expanding the Teflon seals against body of gun.

◆ CAUTION ◆

Do not tighten beyond 1/8 turn as this can result in breaking the valve spring unit shaft. Continue reassembly and adjustment as described above.

CLEANING 007 SPRAY GUN:

Immediately after the work is finished, flush the gun out with a solvent. Brush pins (12) with solvent and oil them lightly so they will not collect dried paint.

CLEANING SPRAY TIP:

Should the spray tip become clogged, relieve pressure from hoses by following the ***"Pressure Relief"*** Procedure on Page 8 of Operation Manual), secure the gun with safety lock (16), take off tip holder (1), take out the tip, soak in appropriate solvent and clean with brush. (Do not use a needle or sharp-pointed instrument to clean the tip. The hard tungsten carbide is brittle and can chip.)

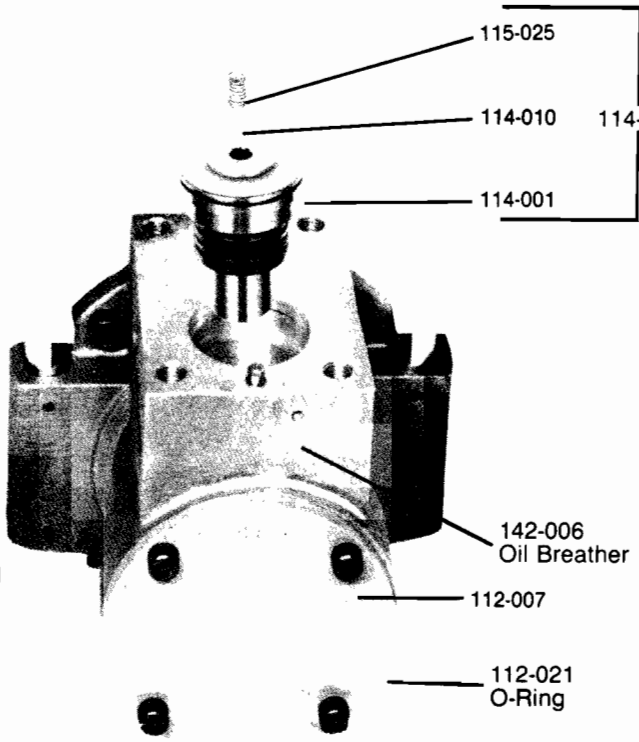
CLEANING FILTER:

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.

PAINT PUMP - PARTS LIST

TOOLS & TESTING EQUIPMENT

Open End Wrench 1 - 1/8"
Allen Wrench 7/16", Part No. 100-074
Allen Wrench 3/8", Part No. 100-073
Allen Wrench 3/16", 5/16 & 1/4"
Socket 3/8", Part No. 100-071
Socket 7/16", Part No. 100-072
Socket 1 1/8" deep
Pressure Gauge Part No. 111-045
glycerine filled with snubbers, min.3000 psi
Torque Wrench - min. 125 lbs.
Spray Pack (gun,tip & hose) Part No. 002-001
Screwdriver



OIL REQUIREMENTS

Change oil (6 oz) of Part No. 112-000) in the bearing housing every 6 months if sprayer operates daily. Note: If Airlessco oil is unavailable, use SAE 30 Non Detergent. To change oil, remove front plate (112-007) and drain the oil. Refill and replace front plate. Note: Machine may spill oil due to overfill and/or temperature increases. This will not affect performance or operation.

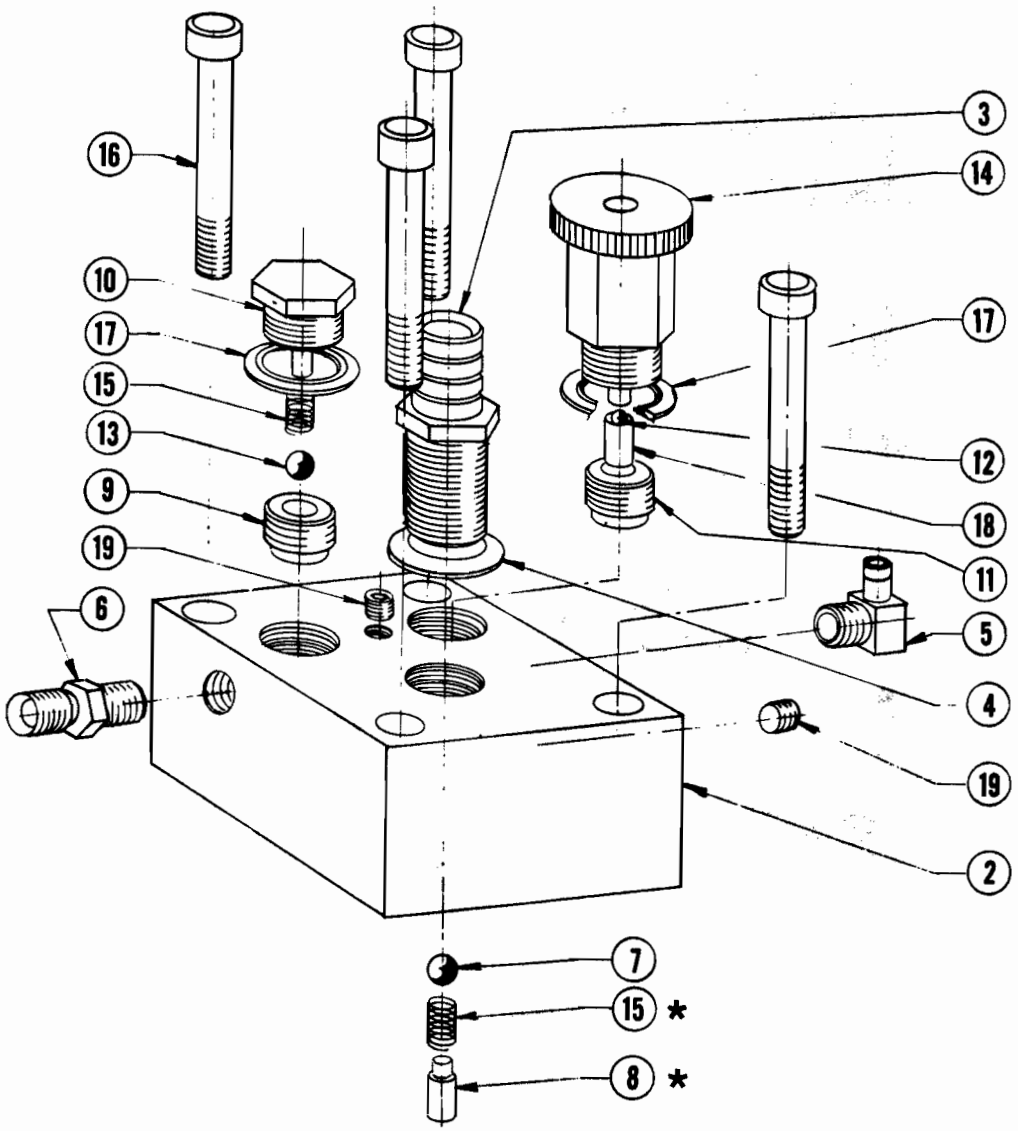
SERVICE CENTER RECOMMENDATIONS FOR PARTS TO KEEP IN STOCK FOR SERVICING 10 COMPLETE UNITS

		Stock
		2
		1
115-101	**3100** Control Head **	2
115-004	Discharge Valve Seat	3
115-007	Discharge Valve Ball Stop	3
115-016	Control Valve Seat	5
115-017	Control Valve Ball 7/32 Dia.	5
115-022	Suction Valve Ball 5/16 Dia.	1
115-025	Discharge Valve Spring	3
115-028	Ring Seal	5
115-050	Discharge Valve Ball 11/32 Dia.	3
115-105	Suction Seat	1
111-012	Hose - 1/2" I.D.	1
111-013	Hose - 1/4" I.D.	1
141-008	Filter	3
114-001	Piston Diaphragm Assembly **	3
145-006	Seal - Copper	4
112-000	Oil	3

** ON EXCHANGE PROGRAM

PUMP HEAD ASSEMBLY

#115-101 - Models 3100 & 3100GD

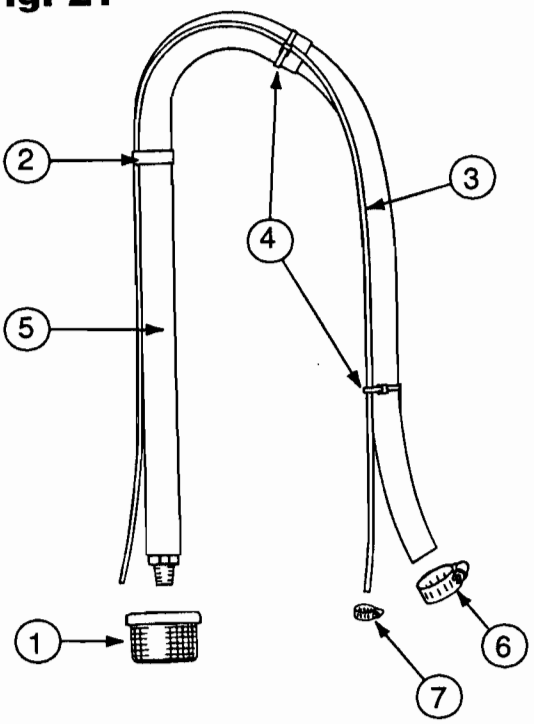


REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	115-101	PUMP HEAD — ASS'Y	10	115-007	DISCHARGE VALVE
2	115-102	PUMP HEAD			BALL STOP
3	115-105	SUCTION SEAT ASS'Y	11	115-016	CONTROL VALVE SEAT
4	145-006	SEAL WASHER	12	115-017	CONTROL BALL 7/32" DIA.
5	115-107	ELBOW	13	115-050	DISCHARGE BALL
6	115-019	FITTING			11/32" DIA.
7	115-022	SUCTION VALVE BALL	14	115-024	PRESSURE CONTROL VALVE
		5/16 DIA.	15	115-025	SPRING *
8	114-010	SUCTION VALVE *	16	115-027	SCREW
		BALL STOP	17	115-028	RING SEAL
9	115-004	DISCHARGE VALVE SEAT	18	115-031	T.C. GUIDE
			19	115-034	PLUG

* NOT PART OF PUMP HEAD ASSEMBLY

SUCTION FILTER ASSEMBLY

Fig. 21



PART NUMBER 331-227

Figure 21 Parts List

Item No.	Part No.	Description
1	331-217	Filter 16 Mesh
2	331-135	Spring Clamp
3	331-137	Prime Hose (38")
4	111-016	Nylon Strap (2)
5	331-226	Suction Hose Ass'y.
6	111-015M	Hose Clamp
7	141-015	Hose Clamp

TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
Motor not running	1. Pressure adjustment too high.	1. Reduce pressure by turning PRESSURE CONTROL KNOB (115-024) counterclockwise.
	2.Motor too hot.	2. a. Use larger size wire in extension cord to reduce current loss. b. Pressure adjustment too high — reduce pressure by turning PRESSURE CONTROL KNOB counterclockwise. To restart motor wait until motor cools down and then press THERMAL OVERLOAD SWITCH.
Unit does not draw up paint.	1. Air in the system.	1. Turn PRESSURE CONTROL KNOB counterclockwise to "Prime" and wait until system is free of air.
	2. Paint too heavy.	2. Thin paint.
	3. Filter dirty or plugged.	3. Clean or replace FILTER.
	4. Paint dried out and ball stuck in valve seat.	4. a. Unscrew DISCHARGE VALVE BALL STOP (115-007) and clean BALL (115-050) and SEAT (115-004) b. Unscrew PRESSURE CONTROL VALVE (115-024) and clean BALL (115-017) and SEAT (115-016). Grease RING SEAL (115-028) with multi-purpose grease before tightening DISCHARGE VALVE BALL STOP (115-007) and/or PRESSURE CONTROL VALVE (115-024). c. Unscrew SUCTION HOSE CLAMP and remove SUCTION HOSE. Using small screw driver press slightly on a ball to separate it from the seat.
Unit draws up paint, but pressure does not build up when spraying (Important: check with pressure gauge)	1. PRESSURE CONTROL VALVE open.	1. Turn PRESSURE CONTROL KNOB (115-024) clockwise.
	2. Air in system.	2. Turn PRESSURE CONTROL KNOB counterclockwise to "Prime" and wait until system is free of air.
	3. Excessive wear of or dirt in PRESSURE CONTROL VALVE SEAT (115-016)and BALL(115-017).	3. Clean or see instructions for "Replacement of Control Valve Seat."
	4. Misadjusted CONTROL VALVE ASSEMBLY.	4. See instructions for "Adjusting Control Valve Assembly (115-024)."
Unit draws up paint, pressure builds up, but drops immediately when gun is opened. (Important: check with pressure gauge)	1. Too large tip size.	1. Exchange TIPS for smaller size. Tips wear out after some time, enlarging orifice.
	2. Inlet filter plugged.	2. Clean, or replace FILTER.
	3. Paint too heavy.	3. Thin or filter paint.
	4. Suction hose clamps not tight, pump sucking air.	4. Tighten clamps.
	5. Suction hose defective.	5. Replace suction hose.
	6. Control seat and ball worn.	6. See instructions for replacement of CONTROL VALVE SEAT (115-016).
	7. Paint leaks through bleeding hole in casting.	7. Replace diaphragm assembly.
	8. If none of above improved spraying.	8. Install old CONTROL VALVE SEAT (115-016) and BALL (115-017) back into clean PUMP CONTROL HEAD (115-102) and ship above complete to Durotech Co. Please clean parts before shipping.

SERVICE CENTER REPAIRS

The following service procedures should be performed only by an authorized AIRLESSCO Service Center. Unauthorized personnel repair will void warranty. Warranty repairs can be performed only by an authorized AIRLESSCO Service Center.

REPAIR TEST — LOW SPRAY PRESSURE

STEP 1 CHECK CONTROL VALVE Using 50' flexible hose and pressure gauge
PRIME PUMP
ADJUST MAXIMUM PRESSURE
TURN MOTOR SWITCH OFF

PRESSURE DROPS IMMEDIATELY TO "0" PRESSURE

↓

CONTROL BALL AND SEAT HAVE EXCESSIVE WEAR

↓

EXCHANGE CONTROL SEAT AND BALL PER INSTRUCTIONS

PRESSURE DROPS 1000-1500 and STOPS DROPPING OR SLOWS DOWN AND CONTINUES TO DROP TO "0" PRESSURE

↓

CONTROL SEAT & BALL O.K.

STEP 2 CHECK DISCHARGE VALVE SEAT (follow this step after step #1)

Check visually the DISCHARGE VALVE SEAT. Remove the DISCHARGE VALVE BALL STOP (#115-007). Check for rings on the ball due to corrosion and or excessive wear of BALL and SEAT. Exchange parts if required.

STEP 3 CHECK DISCHARGE BALL STOP
(go to step 3 only when spray pressure is still low after completing steps 1 & 2)

PRIME PUMP
ADJUST MAXIMUM PRESSURE
SPRAY WITH .018 TIP

RECORD SPRAYING PRESSURE

TURN CONTROL KNOB TO PRIME
TURN MOTOR SWITCH OFF
REPLACE DISCHARGE BALL STOP
PART (115-007) FOR NEW ONE
PRIME PUMP
ADJUST MAXIMUM PRESSURE
SPRAY WITH .018 TIP

SPRAYING PRESSURE DIDN'T IMPROVE — STILL LOW

↓

SEND COMPLETE CONTROL HEAD
(115-101) WITH ALL USED PARTS
TO DUROTECH FOR EXCHANGE

↓

INSTALL DUROTECH'S
REBUILT CONTROL HEAD
PER INSTRUCTIONS

SPRAYING PRESSURE IMPROVED

↓

LEAVE NEW DISCHARGE
BALL STOP IN PLACE

The following service procedures should be performed only by an authorized AIRLESSCO Service Center. Unauthorized Personnel repair will void warranty. Warranty repairs can be performed only by an AIRLESSCO Service Center.

SERVICE CENTER REPAIRS CONTINUED

AIRLESSCO PARTS EXCHANGE PROGRAM OF Control Head (115-101), Diaphragm Ass'y (114-001) and Control Valve (115-024). We offer the Parts Exchange Program for distributors to minimize the down-time on the units by having available a rebuilt Control Head Assy (115-101) and Diaphragm Assy (114-001) to exchange with the used parts.

TO REPLACE CONTROL HEAD (115-101)

1. Disconnect pick up and return hoses.
2. Remove bolts (115-027) and control head.
3. Remove old suction ball (115-022) from diaphragm.
4. Check spring (115-025) to make sure the top is 5/16 above the screw which holds the diaphragm parts in place.
5. Set new suction ball (115-022) on spring.
6. Place 2 head bolts in opposite corners of new block. Use these to center head as it is installed.
7. Tighten all 4 head bolts to 45 foot pounds.
8. Re-install pick up and return hoses.

DIAPHRAGM (114-001) SHOULD BE CHANGED WHEN:

1. Anytime the paint head is removed for any reason, a new diaphragm assy should be installed.
2. Paint leaks from the weep hole in front. Note: During normal operation oil may drip out of the weep hole. This is a common occurrence and does not interfere with machine operation.
3. If paint is leaking around the head.

TO EXCHANGE A DIAPHRAGM:

1. Remove the 4 head bolts (115-027) which holds the block in place.
2. Remove the head. (115-101)
3. Put your thumb on the diaphragm and turn the fan with a screwdriver until you feel the diaphragm is at the top of the stroke.
4. Pry old diaphragm (114-001) assy out by inserting a screwdriver under diaphragm washers. Do not pry against the casting.
5. Check to make sure the shoulder inside the diaphragm is clean.
6. Insert rebuilt diaphragm with hole in guide (114-004) to the rear (away from the weep hole in the casting).
7. Press diaphragm down. Hold thumb on diaphragm, turn fan until diaphragm is at its lowest point. Check diaphragm spring. It should be 5/6" of an inch above the top of the screw.
8. Place suction ball (115-022) on diaphragm spring.
9. Clean and dry out the bottom of control head (115-101). Insert two bolts on opposite corners of the head and use these to center the head as it is reinstalled on the machine.
10. After all bolts are installed, torque them to 45 foot pounds.

TO REPLACE THE DISCHARGE SEAT (115-004) - Use # KIT-1-3100

Note: If discharge valve ball stop shows wear (If ball stop is cupped instead of flat) order KIT-2-3100.

1. Unscrew the discharge valve ball stop (115-007).
2. Remove ball (115-050)
3. Using 7/16 Allen Wrench remove the seat.
4. Clean the bottom of the hole in the pump head and grease with a multipurpose grease.
5. Install new seat and torque to 85 ft. lb. (hold under the torque for several seconds.
6. Put new 11/32 ball (115-050) into the seat.
7. Clean & grease the ring seal (115-028). Clean top of the pump control head & shoulder of the ball stop before tightening.
8. Reinstall discharge valve ball stop (115-007). Tighten firmly to about 15 ft. lb.

TO REPLACE CONTROL VALVE SEAT (115-016) AND BALL (115-017) - Use # KIT-3-3100

1. Unscrew the control valve assy. (115-024)
2. Remove ball (115-017) and guide (115-031).
3. Using a 7/16 Allen wrench remove the seat.
4. Clean the bottom of the hole in the pump head and grease with a multipurpose grease.
5. Install new seat and torque to 85 ft. lb.
6. Put in new ball 7/32 (115-017) and original guide (115-031) (Be sure the notch on the guide is on the top.)
7. Clean and grease the ring seal. Clean top of the pump control head and shoulder of the control valve before tightening.
8. Reinstall control valve and tighten to 15 ft. lb.

CONTINUED NEXT PAGE...

TO RESET THE PRESSURE after a new control seat and ball have been installed IMPORTANT: DO NOT READJUST PRESSURE WITH OLD SEAT AND BALL

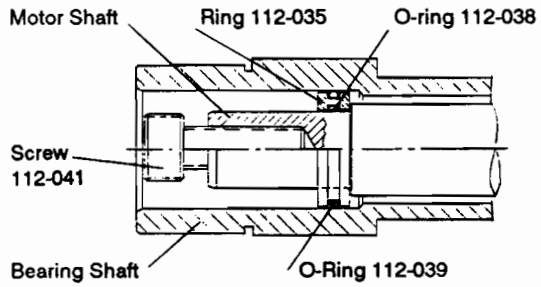
1. YOU MUST HAVE A GAUGE glycerine filled to 3000 PSI.
2. A 50' flexible hose.
3. Install gauge in line between the pump head and the spray gun.
4. Remove the plastic cap from the center of the pressure control knob.
5. Prime unit with water or light oil.
6. Turn the pressure control knob clockwise against the stop.
7. Read the gauge — when using water it should read 2400 PSI — if you are using oil it should read 2500 PSI.
8. If pressure is low use a 3/16 Allen wrench and turn the set screw in the center of the pressure control knob clockwise watching the gauge until it is at a proper setting.
9. If the pressure is too high turn the set screw counterclockwise to the proper setting.
10. Replace the plastic cap.
11. Do not set the control valve above the recommended pressure (i.e. 2400 PSI with water or 2500 PSI with oil).

COUPLING INSTALLATION - Model 3100 Electric only

1. Slide ring (112-035) with 2 O-rings onto the motors' shaft . GREASE it first. (Refer to Fig. 1)

2. Install screw 112-041, all the way into end of the motors' shaft. (Fig. 1)

Fig. 1



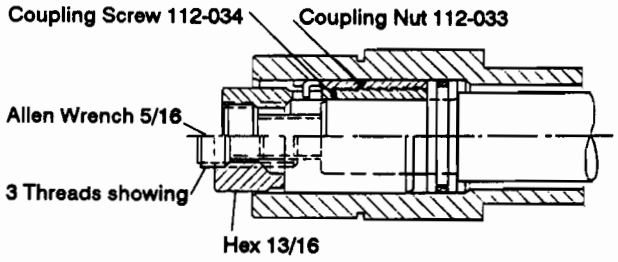
3. Push the coupling onto motors' shaft until it stops against the screw 112-041.(Refer to Fig.2)

4. Hold coupling with 13/16 wrench. Turn screw counterclockwise with Allen Wrench 5/16, until three threads are showing. (Fig. 2)

5. Hold coupling (13/16 wrench) and screw with Allen wrench 5/16 . Neither should move. Turn motor fan clockwise. Coupling will tighten onto shaft until it stops. Do not force. (Fig. 2)

6. Hold coupling (13/16 wrench) and tighten screw with Allen Wrench 5/16 until very tight.(Fig.2)

Fig. 2



MAINTENANCE NOTE RE: ENGINE IDLE SPEED

After a number of uses, engine idle speed may change from its factory set speed. If engine idles too fast, the clutch will not disengage and the unit will pump paint through the return tube while at idle. This condition will not damage the unit, but may result in increased wear on the pump. Reset idle according to the engine manual for this unit, so the clutch disengages at idle.