Model 96

HVLP PAINT SPRAY SYSTEM

AirVerter

User's Manual

Model AV-096

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Compliance • Quality • Performance • Reliability

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Please Read This Owner's Manual *BEFORE* Using Your Model 96 Spray Gun

DO NOT OPERATE THIS EQUIPMENT WITHOUT USING PROPER PERSONAL SAFETY EQUIPMENT INCLUDING RESPIRATOR, GOGGLES AND SAFETY CLOTHING. OBSERVE ALL PRECAUTIONS RELATED TO SPRAYING.

WARNING

THIS EQUIPMENT IS OPERATED USING PRESSURIZED AIR. ALWAYS DISCONNECT SPRAY GUN FROM AIR AND FLUID HOSES AND DEPRESSURIZE SYSTEM PRIOR TO ANY MAINTENANCE OR DISASSEMBLY PROCEDURE.

WARRANTY

Smith Eastern Corporation warrants to the Purchaser that the Model 96 HVLP Spray Gun is free from defects in material or workmanship under normal use and service for a period of twelve (12) months from the date of receipt by the Purchaser. Should any failure appear during this period, Smith Eastern shall, if given prompt written notice by the Purchaser, correct such nonconformity by repair or replacement of the nonconforming part, F.O.B. Smith Eastern's repair facility. Repair parts are warranted for ninety (90) days from the date of shipment, but repairs or replacements to original equipment shall not renew or extend the warranty period of such equipment.

Smith Eastern reserves the right to limit this warranty in cases of misuse or abuse. Any modifications to spray guns or recommended procedures will void the warranty.

The foregoing warranty is exclusive and in lieu of other warranties of quality or performance, expressed, implied or statutory, including any warranties of merchantability or of fitness for a particular purpose.

Why AirVerter® Spray Gun Systems Work Better

To accomplish effective atomization of a liquid at low pressure (below 10 PSI) it is necessary to substantially increase the air volume (CFM). The AirVerter® Inductor, a patented system, converts high-pressure compressed air to low pressure air (10 PSI or below) and increases air volume substantially. The result is less overspray and greater transfer efficiency.

AirVerter® systems, by design, do not exceed 10 PSI at the spray head and prevent the operator from taking AirVerter® spray guns out of compliance with EPA and California's South Coast Air Quality Management District (SCAQMD) regulations.

EQUIPMENT REQUIREMENTS

Air Compressor

A. Air compressors used with AirVerter® Spray Guns must be able to HOLD a minimum of 40 PSI while spraying. ***Note***: Position a pressure gauge in the air hose nearest the spray gun to be assured of the PSI required to satisfactorily spray your coating.

B. The AirVerter® Inductor (AV-005) requires a minimum 5 HP compressor.

High Pressure Air Hose

A. Air hose lengths up to 50 feet **MUST** have an I.D. of 3/8" including fittings.

B. Air hose lengths greater than 50 feet **MUST** have an I.D. of 1/2" including fittings.

Paint Cup, Pressure Pot or Diaphragm Pump

Be certain to follow manufacturer's instructions.

OPERATING INSTRUCTIONS

A. The Model AV-096 Spray Gun operates with a constant flow of air through the gun. The trigger controls the fluid flow only. The Model 96 Spray Gun requires an AirVerter® Inductor Assembly between the gun and the compressed air supply.

B. **Consult the *Needle, Nozzle and Air Cap Selection Guide* to select the proper combination for the coating and finish quality desired. Too much pressure will create unnecessary overspray!**

Using a One-Quart Paint Cup

A. Attach the 1-Quart Paint Cup (AV-188) to the Fluid Tube Fitting (AV-9604) on the bottom of the gun and tighten. Attach the Air Pressure Tube on the cup lid to the Air Pressure Elbow (AV-176) on the gun.

B. The 1-Quart Paint Cup must be airtight, clean and free of obstructions.

- The seal between the paint cup lid gasket and the lip of the cup **MUST BE** airtight.
- The Air Pressure Tube supplying air to the paint cup **MUST BE** clean and free of obstructions.

C. **Never fill a 1-Quart Paint Cup more than ¾ full**. This allows sufficient air space in the cup for pressurization. Using a Cup Liner (AV-020) will reduce clean-up time and solvent usage.

D. Attach an Inductor Assembly (AV-005) to the male quick-disconnect at the base of the gun handle.

Using a Two-Quart or Larger Remote Pressure Pot or Diaphragm Pump

A. Remove the Air Pressure Elbow (AV-176) and replace it with the Air Pressure Plug (AV-177) found in your parts kit.

B. Attach the fluid hose from your pressure pot to the Fluid Tube Fitting (AV-9604) on the gun and tighten.

C. Attach an Inductor Assembly (AV-005) to the Male Quick Disconnect (AV-172) at the base of the gun handle.

Before Spraying

A. Follow the *Air and Paint Management Guidelines* listed on the following page.

B. Before paint is poured into the cup or diaphragm pump, **make certain paint is properly mixed**. This is particularly true when mixing multi-component paints. Use a paint shaker, rotary mixer, or paint paddle to achieve a homogeneous mixture. (*Hint:* Split your paint into two parts; the top will be lighter and the bottom will be heavier. Completely stir the bottom half of the paint and slowly add small amounts of the top half into the heavier bottom.)

C. **Strain your paint to remove impurities**. Use a cone strainer or a 100-mesh nylon bag or equivalent strainer.

D. **Thin your paint** according to the manufacturer's specifications.

E. **Ensure needle packings are properly adjusted**. Needle packings are preset at the factory to proper tension. However, use and cleaning may alter this setting. To adjust needle packings to proper tension:

1. With gun disconnected from air and fluid sources, pull trigger to move the needle out of the nozzle.
2. Adjust packing nut until needle is held in the open position by tension from the needle packings.
3. Loosen packing nut approximately ¼ turn or until needle returns to closed position.

Spraying

A. Air pressure forces paint from the paint container into the fluid chamber of the gun and out through the nozzle where the flow of atomizing air breaks the paint stream into tiny particles, creating the spray.

1. Needle position controls the amount of paint flowing through the fluid nozzle.
2. Trigger action controls needle position.
3. The Fluid Control Knob at the rear of the spray gun controls trigger action. Turning the knob to the right will reduce the fluid flow, turning it to the left increases the flow.

B. Adjust the pattern by turning the Pattern Control Knob on top of the Spray Head. This knob has a 90-degree range (full fan to round).

1. Round Pattern - used to draw fine lines with the gun close to the work, for touch-up work, camouflage patterns and painting surfaces in difficult to reach places distant from the spray gun. This pattern is achieved by turning the Pattern Control Knob crosswise the gun.
2. Full Fan Pattern - used with the spray gun 6"-8" from the work. Overlap not more than 50% of the previous pass. Do not "fog" coat. This pattern is achieved by turning the Pattern Control Knob so that it points toward the handle.
3. The full fan pattern may be reduced in size by gradually turning the Pattern Control Knob crosswise the gun. ***Fluid flow*** must be ***reduced*** at the same time to maintain even paint distribution.

C. If you are having problems with the operation of your paint gun, check the Trouble Shooting Guide at the end of the manual for possible causes and solutions.

AIR AND PAINT MANAGEMENT GUIDELINES

Approximate PSI	Application
Thin Coatings ZAHN #2 Test: 16 to 22 seconds Minimum 40 PSI compressor pressure	Machines and implements, small parts, plant maintenance, controlled production work, work in enclosed areas with poor ventilation, priming.
Thin to Medium Coatings ZAHN #2 Test: 22 to 30 seconds 40 to 60 PSI compressor pressure	Dual gun work for all of the above listed applications - will support up to 50' of 3/8" ID hose for each gun. Also for higher production levels of all of the above.
High Solid Coatings ZAHN #3 Test: 37 + seconds 50 to 70 PSI compressor pressure	Marine epoxies, marine enamels, high production steelwork, high production with conveyer lines, large surfaces with thinner viscosity material, latex on wood or metal.
80% Solids Coatings 60 to 80 PSI compressor pressure	Ultra high production levels on extremely large surfaces; un-thinned epoxies, enamels, latex, urethane.

WARNING

Gun must be de-pressurized prior to any maintenance or disassembly procedure. Disconnect all air and fluid hoses prior to performing any maintenance operation.

CLEANING

Cleaning the Model 96 Spray Gun

Thorough removal of paint after each use is **ESSENTIAL** to the optimum operation of your gun.

1. Using small amounts of solvent, repeatedly flush the gun until all paint is removed and the solvent runs clear.
2. Clean the exterior of the gun and cup with a solvent-dampened cloth.
3. Remove the needle, nozzle and air cap and clean them with a brush and solvent.
4. Check to see that all paint residue is removed from inside the nozzle. Paint build-up here can reduce fluid flow and prevent the needle from seating properly causing leakage during subsequent use.
5. Check the air passages in the air cap. Paint build-up here reduces air flow and will result in a distorted pattern.
6. Clean the packings at the rear of the fluid block with a brush and solvent. Improperly cleaned packings can cause the needle to stick, resulting in poor performance of the gun.

If using a gun washer, place the Gun in the cleaner and cycle. Then follow instructions above making sure all parts are clean and dry before re-assembly.

SPRAY GUN PERFORMANCE IS DIRECTLY RELATED TO HOW WELL THE GUN IS CLEANED AFTER USE

Cleaning Ancillary Equipment

A. If using a 1-Quart Cup, be sure to clean the Air Pressure Tube of all paint residue.

B. Clean the anti-drip feature on the cup lid and be sure this air passage is open.

C. Clean all paint residue from the cup, with particular attention to the gasket and cup lip. (*Hint*: Periodically turning the gasket over prolongs gasket life.)

D. Clean or replace the filter on the Inductor to maintain proper airflow through the system.

Lubricate

A. Use Vaseline or a non-silicone grease to lubricate the gun.

B. Lubricate all threaded connections for ease of maintenance.

C. Lubricate the Needle only where it passes through the needle packings.

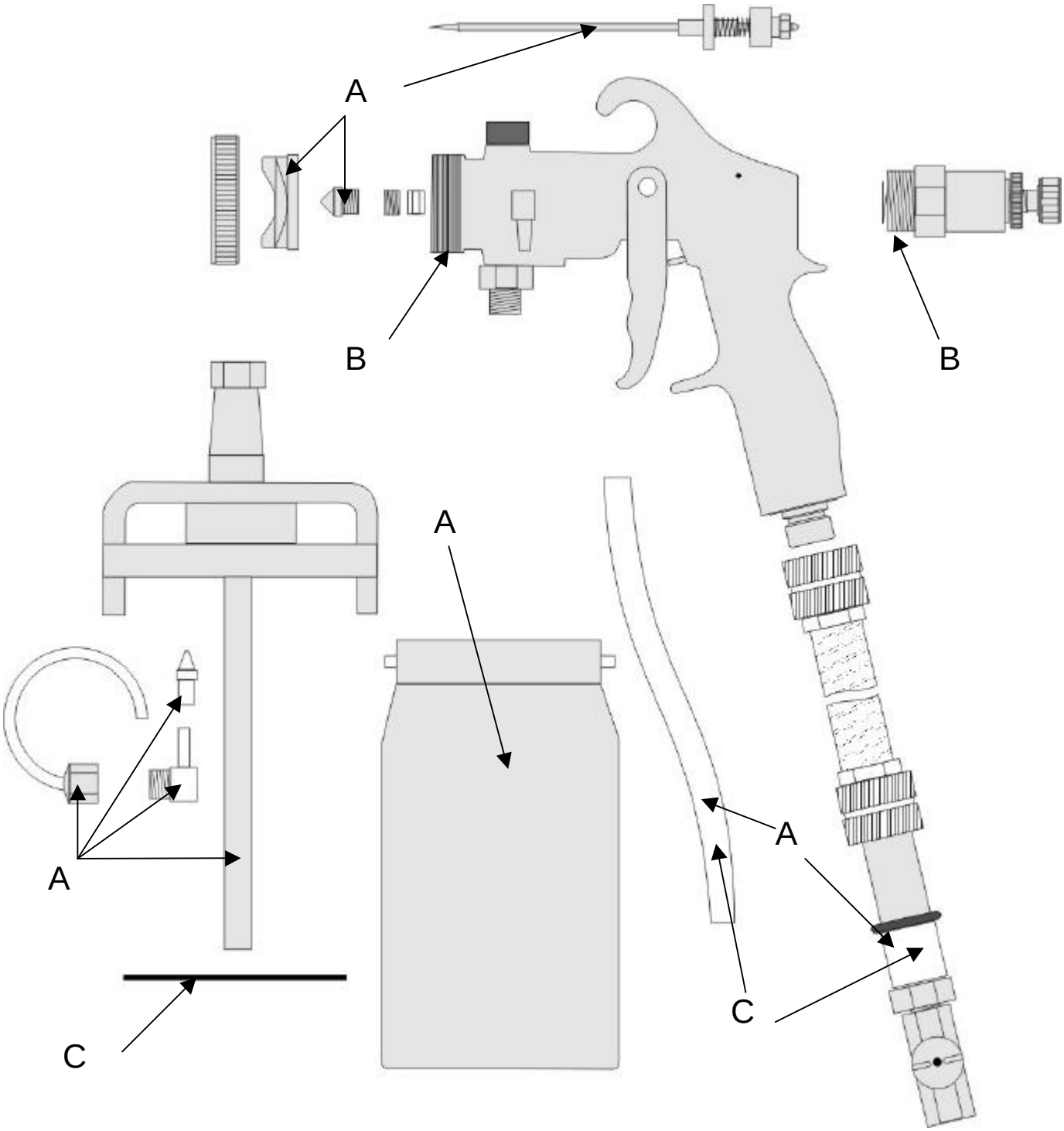
D. **DO NOT** allow lubricant to get into the Fluid Tube, Nozzle, Air Cap, or interior of the paint chamber (areas where paint may come in contact with lubricant).

WEAR ITEMS

A. Replace Fluid Needle and Nozzle when the Needle extends 3/32″ beyond the Nozzle. Unscrew the Fluid Regulating Assembly being careful not to lose the Needle Tension Spring. Remove Needle and replace.

B. Replace the inductor filter on the AirVerter® Inductor when it becomes clogged and can no longer be cleaned. A filter must be used to prevent dust and dirt from being blown onto the finish.

MODEL 96 SPRAY GUN AV-096
MAINTENANCE INSTRUCTIONS



A – Must Clean
B – Must Lubricate
C – High Wear

NEEDLE, NOZZLE AND AIR CAP SELECTION GUIDE

Select the proper fluid nozzle and needle for the material to be sprayed. Needle and nozzle are a matched set - machined to act as a valve. Replace the Needle and Nozzle when the Needle protrudes approximately 3/32″ beyond the Nozzle.

Finish	Needle Nozzle	Air Cap	Uses or Coating Type	Compressor Air Pressure*
Ultra Fine Finish	0.7	5	Ultra Fine Finish With Thin Coatings on Small Parts Ultra Fine Touch Up Specialty Applications/Wood Working Water-Based Lacquers, Urethanes	45- 50
Excellent Finish Good Production	1.0	5	Automotive Base or Clear Coat Top Coats For Automotive, Aviation and Marine Use Wood: Lacquers, Stains, Polyurethanes, Varnishes Thin Specialty Coatings With Low Mil Build and Fine Finish Requirements Water-Based Coatings	45-55
Good Finish Higher Production	1.2	10	Higher Production For The Same Applications As Above Fine Finish With Gloss Alkyd Enamel Primers and Sealers For Automotive, Aviation and Marine Water-Based Coatings	55-65
Excellent Finish Good Production	1.4	12	General Industrial Finishing Zinc-Rich Primers, Water-Based Primers, Flat & Semi-Gloss Alkyd Enamels & Polyurethanes Industrial, Marine, Top Coats, Chlorinated Alkyd Enamels, Acrylic Enamels, and Latex Best with Heavy Primers CARC	65-75
Best Finish High Production	1.7	17	High Production Industrial Marine Primers, High Build Primers, Steel Structures Latex	75-85
Good Finish Higher Production	2.0	20	CARC Industrial Finish Coatings Latex, Stripper, Oil	85-90

*Measured at the gun handle

Nozzle Size Expressed as a millimeter = 1 millimeter = .040 (approximately)					
0.7 = .028	1.0 = .040	1.2 = .048	1.4 = .056	1.7 = .067	2.0 = .080

Air Cap sizes do not have a direct relationship to Nozzle measurements listed above.

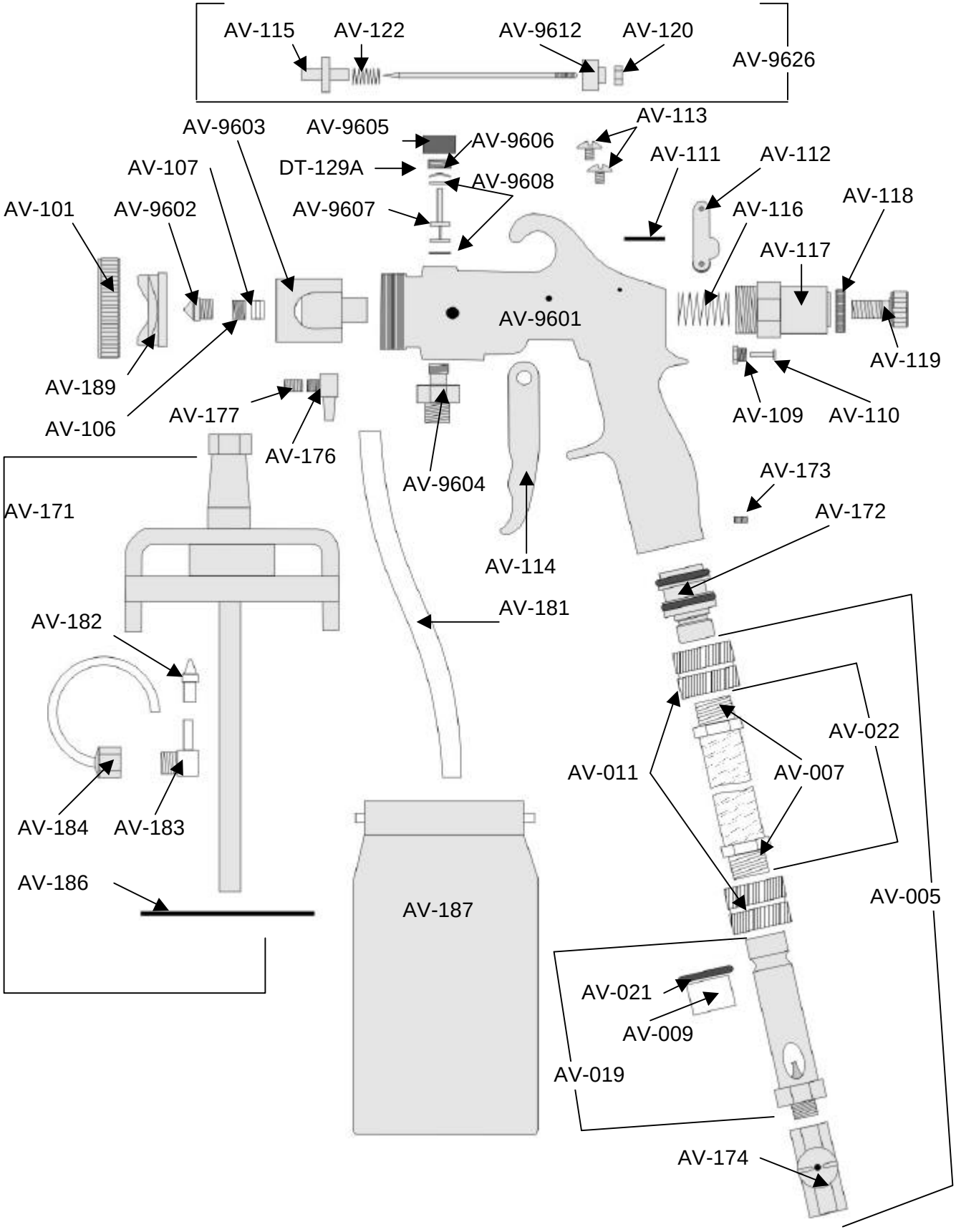
MODEL 96 SPRAY GUN AV-096 PARTS LIST

Part #	NSN	Description
AV-005	4940-01-391-9274	AirVerter® Inductor Assembly
AV-007	4940-01-440-1125	Nylon Inserts
AV-009	4310-01-395-7387	Inductor Filter
AV-011	4730-01-430-9738	Female QD
AV-019	4940-01-395-8179	Inductor
AV-021	5365-01-395-1464	Filter Retainer
AV-022	4720-01-439-9258	Atomizing Air Hose
AV-101	4940-01-353-8802	Pattern Control Ring
AV-106	5306-01-352-8274	Packing Nut
AV-107	5306-01-352-7527	Needle Packings (set)
AV-109	-	Trigger Axle Guide
AV-110	-	Trigger Axle
AV-111	4940-01-440-1074	Actuator Pin
AV-112	4940-01-440-1073	Needle Actuator
AV-113	-	Trigger Screws (pair)
AV-114	-	Trigger
AV-115	4940-01-440-1064	Driving Ring
AV-116	5360-01-352-6629	Needle Return Spring
AV-117	-	Fluid Regulating Cap
AV-118	-	Locking Nut
AV-119	-	Fluid Regulating Knob
AV-120	4940-01-440-1066	Needle Sizing Nut
AV-122	4940-01-440-1070	Needle Sizing Drum
AV-171	4940-01-440-1060	Cup Lid Assembly – 1-Quart
AV-172	4730-01-352-2303	QD Male
AV-173	4940-01-440-1059	Set Screw Quick Disconnect

Part #	NSN	Description
AV-174	4940-01-395-8178	High Pressure Air Valve
AV-176	-	Air Pressure Elbow
AV-177	-	Air Pressure Plug
AV-181	4710-01-395-7389	10” Air Pressure Tube (upper)
AV-182	4940-01-440-3042	Pressure Hose Stem
AV-183	4730-01-439-9015	Air Pressure Elbow (lower)
AV-184	4710-01-352-2458	Anti-Drip Tube – Aluminum
AV-186	5330-01-352-7511	Cup Gasket 1-Quart
AV-187	4940-01-439-7076	Cup Only 1-Quart
AV-189	See Note 1	Air Cap
AV-9601	4940-01-439-8328	Model 96 Gun Body
AV-9602	See Note 1	Fluid Nozzle
AV-9603	4940-01-439-9990	Fluid Block Assembly
AV-9604	4940-01-439-9249	Fluid Tube Fitting
AV-9605	4940-01-439-9988	Pattern Control Knob
AV-9606	4940-01-439-9986	Pattern Control Valve Retaining Screw
AV-9607	4940-01-439-9952	Pattern Control Valve
AV-9608	4940-01-439-9959	Pattern Control Washers
AV-9612	4940-01-439-9984	Needle Sizing Drum
AV-9626	See Note 1	Needle Assembly
DT-129A	4940-01-467-7185	Pattern Control Spring Washer

Note 1: Needles, Nozzles, and Air Caps are assigned NSNs for each particular size. Consult the full price schedule for the specific Needle, Nozzle or Air Cap and its NSN.

MODEL 96 SPRAY GUN AV-096
ILLUSTRATED PARTS BREAKDOWN



MODEL 96 SPRAY GUN AV-096 TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Remedy
Paint Will Not Flow	1. Blockage in fluid nozzle	1. Clean or replace; strain paint
	2. Loss of air pressure in cup	2. Search for air leaks and check cup gasket
	3. Loose fluid nozzle	3. Tighten
	4. Paint tube loose, damaged or clogged	4. Tighten, replace or clean; strain paint
	5. Coating is too thick	5. Thin the coating
	6. Loose Needle Packing	6. Adjust packing
Inconsistent Spray Pattern (Spits and Sputters)	1. Running out of paint	1. Fill cup or pot, but never the top ¼
	2. Loose fluid tube	2. Tighten
	3. Loss of fluid pressure	3. Search for air leaks or blockages
	4. Loose needle packing	4. Adjust packing
	5. Damaged air pressure tube	5. Air pressure tube requires replacing or close inspection
Leakage at Front of Gun	1. Damaged fluid needle	1. Replace
	2. Wrong size fluid needle	2. Replace
	3. Dirty fluid nozzle	3. Clean
	4. Impurities in paint	4. Strain paint
	5. Loose fluid nozzle	5. Tighten
	6. Fluid adjustment screwed all the way out	6. Rotate Fluid Control Knob (DT-012) on rear of gun clockwise
	7. Needle not firmly seated in the nozzle	7. Check for nozzle obstruction
	8. Packing too tight	8. Loosen and adjust to correct tension
Distorted Spray Pattern	1. Dirty or damaged air cap	1. Clean or replace
	2. Dirty or damaged fluid nozzle or needle	2. Clean or replace
	3. Fluid nozzle partially clogged	3. Clean
	4. Fluid nozzle not centered with air cap	4. Replace air cap
	5. Air Cap not seated correctly	5. Re-seat air cap

AV-9625 - BENCH PARTS KIT
MODEL 96 AV-096 SPRAY GUN

Part #	NSN	Description	QTY
AV-009	4310-01-395-7387	Inductor Filter (pkg of 5)	2
AV-021	5365-01-395-1464	Filter Retainer	10
AV-022	4720-01-439-9258	Atomizing Air Hose	3
AV-101	4940-01-353-8802	Pattern Control Ring	1
AV-106	5306-01-352-8274	Packing Nut	1
AV-107	5330-01-352-7527	Needle Packings	2
AV-109	-	Trigger Axle Guide	1
AV-110	-	Trigger Axle	1
AV-113	-	Trigger Screws (pair)	1
AV-115	4940-01-440-1064	Driving Ring	1
AV-116	5360-01-352-6629	Needle Spring	1
AV-122	4940-01-440-1070	Driving Ring Spring	1
AV-174	4940-01-395-8178	Air Control Valve	1
AV-181	4710-01-395-7389	10″ Air Pressure Tube	10
AV-183	4730-01-439-9015	Air Pressure Elbow/Lower	1
AV-184	4710-01-352-2458	Anti-Drip Tube - Aluminum	1
AV-186	5330-01-352-7511	1-Quart Cup Gasket	5
AV-189-12*	4940-01-396-1466	#12 Air Cap (*unless otherwise specified*)*	1
AV-9605	4940-01-439-9988	Pattern Control Knob	1
AV-9608	4940-01-439-9959	Teflon Washer (pair)	1
AV-9611	4940-01-439-9961	Set Screw Allen Wrench	1
AV-9614-14*	4940-01-439-8294	1.4 mm Fluid Nozzle (*unless otherwise specified*)*	1

* Bench Parts Kits are provided with a 1.4mm Needle/Nozzle set and a #12 Air Cap. Other standard Needle/Nozzle and Air Cap sizes may be substituted at no additional charge. **Please specify Needle/Nozzle and Air Cap sizes when ordering.**

AV-9627 - HIGH-WEAR MAINTENANCE KIT
MODEL 96 AV-096 SPRAY GUNS

Part #	NSN #	Description	Qty
AV-107	5330-01-352-7527	Needle Packing (set)	1
AV-009	4310-01-395-7387	Inductor Filter (pkg of 5)	1
AV-021	5365-01-395-1464	Filter Retainer	2
AV-181	4710-01-395-7389	10" Air Pressure Tube	2
AV-186	5330-01-352-7511	Cup Gasket - 1 Quart	3
AV-9608	4940-01-439-9959	Teflon Washer (pair)	1


AirVerter®