

# **BINKS "TROPHY" SERIES MANUAL SPRAY GUNS** GRAVITY FEED HVLP, LVMP & CONVENTIONAL (2466-XXXX-XXXX)

# **( €** 🕼 II 2 G X

Binks Trophy Series Gravity Spray Gun is the premier spray gun for use in gravity feed spray applications and sets a new standard in durability, ergonomics, and atomization. The lightweight ergonomic design offers unsurpassed comfort and control. The latest advanced atomization technology has been incorporated for achieving consistent, fine finishes when spraying a wide range of industrial coating applications.

Binks Trophy Series Gravity Spray Guns are offered in three different atomization technologies: HVLP, LVMP and Conventional.



#### **SPECIFICATIONS**

The Trophy HVLP Series of Spray Guns can be used to operate at high transfer efficiencies in compliance with "California South Coast Air Quality Management District" regulations as a High Volume, Low Pressure spray gun.

Maximum Air Pressure	140 psi / 9.6 bar (P-1)
Gun Body	Anodized Aluminum
Fluid Path	Stainless Steel
Fluid Inlet Size	3/8" – 19 NPS / BSP(f)
Air Inlet Size	1/4" NPS / BSP(m)
Gun Weight	13.8 oz. / 394 grams (less cup)
Wetted Parts	Stainless Steel & PTFE

# **IMPORTANT! DO NOT DESTROY**

It is the customer's responsibility to have all operators and service personnel read and understand this manual. Contact your local Binks representative for additional copies of this manual.

#### **READ ALL INSTRUCTIONS BEFORE OPERATING THIS BINKS PRODUCT.**

In this part sheet, the words **WARNING**, **CAUTION** and **NOTE** are used to emphasize important safety information as follows:

# A WARNING

Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

# **A**CAUTION

Hazards or unsafe practices which could result in minor personal injury, product or property damage.



Important installation, operation or maintenance information.

# WARNING

#### Read the following warnings before using this equipment.



#### READ THE MANUAL

Before operating finishing equipment, read and understand all safety, operation and maintenance information provided in the operation manual.



#### WEAR SAFETY GLASSES

Failure to wear safety glasses with side shields could result in serious eye injury or blindness.



#### DE-ENERGIZE, DEPRESSURIZE, DISCONNECT AND LOCK OUT ALL POWER SOURCES DURING MAINTENANCE Failure to De-energize, disconnect and lock out all power supplies before performing equipment maintenance could cause

serious injury or death.

#### **OPERATOR TRAINING**

All personnel must be trained before operating finishing equipment.



#### EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury.



#### **KEEP EOUIPMENT GUARDS IN PLACE**

under pressure, or flying debris.

Do not operate the equipment if the safety devices have been removed.

You may be injured by venting liquids or gases that are released



PROJECTILE HAZARD

PINCH POINT HAZARD Moving parts can crush and cut. Pinch points are basically any areas where there are moving parts.



INSPECT THE EQUIPMENT DAILY

condition.

NEVER MODIFY THE FOUIPMENT Do not modify the equipment unless the manufacturer provides written approval.

Inspect the equipment for worn or broken parts on a daily basis.

Do not operate the equipment if you are uncertain about its



KNOW WHERE AND HOW TO SHUT OFF THE EQUIPMENT IN CASE OF AN EMERGENCY



PRESSURE RELIEF PROCEDURE Always follow the pressure relief procedure in the equipment instruction manual.



NOISE HAZARD You may be injured by loud noise. Hearing protection may be required when using this equipment.



#### STATIC CHARGE

Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and all other electrically conductive objects in the dispensing area. Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.



#### FIRE AND EXPLOSION HAZARD

Never use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in equipment with aluminum wetted parts. Such use could result in a serious chemical reaction, with the possibility of explosion. Consult your fluid suppliers to ensure that the fluids being used are compatible with aluminum parts.

# www.carlisleft.com

Solvent and Water based Materials
Zone 1 / Zone 2
II 2 G X
TRAC Global Ltd (0891)
Lodging of Technical file
Carlisle Fluid Technologies, 320 Phillips Ave., Toledo, OH 43612

# **EU Declaration of Conformity**

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Machinery Directive 2006/42/EC

ATEX Directive 2014/34/EU

by complying with the following statutory documents and harmonized standards:

EN ISO 12100:2010 Safety of Machinery - General Principles for Design

BS EN 1953:2013 Atomising and spraying equipment for coating materials - Safety requirements

EN 1127-1:2011 Explosive atmospheres - Explosion prevention - Basic concepts

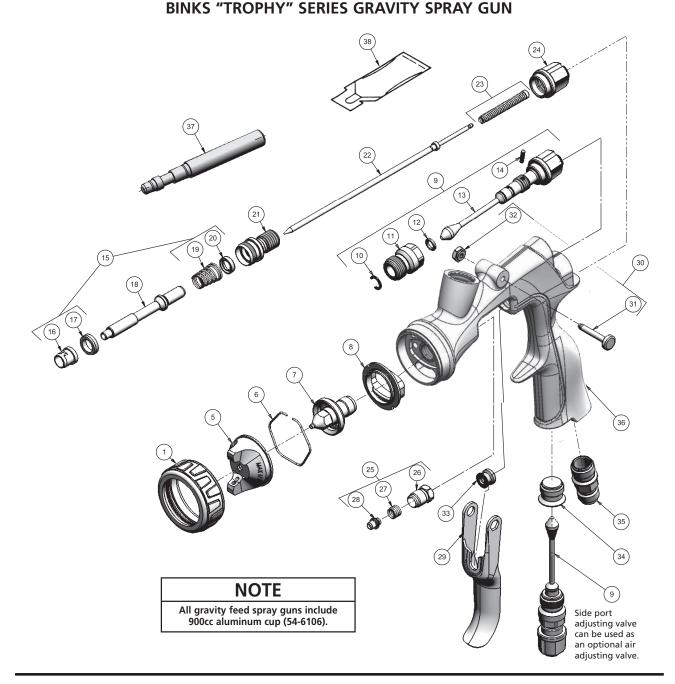
EN 13463-1:2009 Non electrical equipment for use in potentially explosive atmospheres - Basic methods and requirements

Providing all conditions of safe use / installation stated within the product manuals have been complied with and also installed in accordance with any applicable local codes of practice.

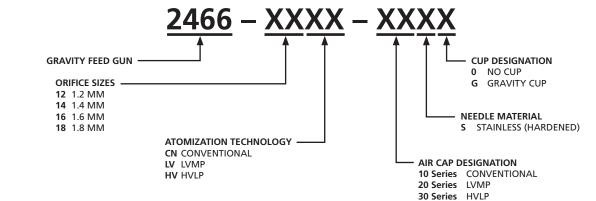
Signed for and on behalf of Ausschutz Carlisle Fluid Technologies:

(Vice President: Global Product Development) DJ Hasselschwert 11-Jul-16 Toledo, OH 43612

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## NUMBERING SYSTEM FOR FULL SIZE BINKS "TROPHY" SERIES GRAVITY SPRAY GUNS



See charts on page 6 for complete gun assemblies.

**EN** 

### CHART 1: BINKS "TROPHY" SERIES GRAVITY SPRAY GUN PARTS LIST

1	54-6120		AIR CAP RETAINING RING ASSEMBLY	1
5	SEE CHARTS ON PAGE 7		AIR CAP	1
6	JGA-156-K10		SPRING-CLIP (KIT OF 10)	1
7	SEE CHARTS BELOW		FLUID NOZZLE	1
8	54-6102-K3		BAFFLE/SEPARATOR (KIT OF 3)	1
9	54-6122		SIDE PORT VALVE ASSEMBLY	1
10		$^+_{\Delta}$	RETAINING CLIP	1
11		+	BODY BUSHING	1
12		$^+_{\Delta}$	O-RING	1
13		+	+ SIDE PORT STEM	
14		$^+_{\Delta}$	PIN	1
15	54-6131-K		AIR VALVE SERVICE KIT	1
16		•	FRONT SEAL – AIR VALVE	
17		•	FRONT AIR VALVE SEAL	
18	54-6109		AIR VALVE SPINDLE	1
19		•	AIR VALVE SPRING	1
20		•	REAR SEAL – AIR VALVE	1
21	SN-66		HOUSING	
22	47-6825		NEEDLE – STAINLESS STEEL (STD.)	
22			SPRING/PAD ASSEMBLY	
23	54-6133-K3		SPRING/PAD ASSEMBLY (KIT OF 3)	
24	54-6111		KNOB – NEEDLE ADJUSTING	1

ITEM NO.	PART NUMBER		DESCRIPTION			
25	54-6130-К		NEEDLE PACKING KIT (STANDARD)	1		
26			NUT – PACKING	1		
27			SPRING FOR PACKING	1		
28			NEEDLE PACKING (STANDARD)	1		
29	54-4360		TRIGGER	1		
30	54-6132-К		TRIGGER SCREW NUT KIT	1		
31		0	TRIGGER SCREW	1		
32		0	TRIGGER NUT	1		
33	54-3513		SPINDLE CAP	1		
34	SN-11		PLUG	1		
35	54-6112		FITTING – AIR INLET	1		
36			GUN BODY WITH FLUID INLET	1		
37	SPN-7		TOOL – SEAL INSERTION	1		
38			GUNNER'S MATE (3 CC BAG)	1		

+	PARTS INCLUDED IN 54-6122
	PARTS INCLUDED IN 54-6130-K
▼	ALSO AVAILABLE IN KIT OF 3 SN-2-K3
•	PARTS INCLUDED IN 54-6131-K

PARTS INCLUDED IN
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gti-428-k5 side port Repair kit

Δ

PARTS INCLUDED IN 54-6135

#### CHART 2: STAINLESS STEEL (HARDENED) FLUID NOZZLES – STD.

	STAINLESS FLUID NOZZLE ORIFICE SIZE				
.039"	1.0 mm	45-11050-10			
.047"	1.2 mm	45-11050-12			
.055"	1.4 mm	45-11050-14			
.063"	1.6 mm	45-11050-16			
.071 "	1.8 mm	45-11050-18			

#### CHART 3: TEST AIR CAP KITS – OPTIONAL

CONVENTIO	CONVENTIONAL						
54-6141-K 12-C KIT							
LVMP							
54-6147-K	23-L KIT						
HVLP							
54-6152-K	32-H KIT – HVLP						

#### BINKS "TROPHY" SERIES GRAVITY SPRAY GUN NEEDLE AND NOZZLE SELECTION GUIDE

THIN 5-25 CENTIPOISE 15-19 sec. Zahn 2 cup wash primers, dyes,	2466-14CN-12SG	1.4 mm (.055") X 12C	.4 mm (.055") X 12C		2466-12LV-23SG	1.2 mm (.067") X 23L
stains, solvents, water, inks, sealers, laquers, lubricants, zinc chromates, acrylics	2466-16CN-12SG	1.6 mm (.063") X 12C		dyes, stains, solvents, water, inks, sealers, laquers, lubricants, zinc chromates, acrylics	2466-14LV-23SG	1.4 mm (.055") X 23L
MEDIUM 25-70 CENTIPOISE 20-30 sec. Zahn 2 cup synthetic enamels, varnishes, shellacs,	2466-16CN-12SG	1.6 mm (.063") X 12C		MEDIUM 25-70 CENTIPOISE 20-30 sec. Zahn 2 cup synthetic enamels,	2466-14LV-23SG	1.4 mm (.055") X 23L
fillers, primers, epoxies, urethanes, lubricants, wax emulsions, enamels	2466-18CN-12SG	1.8 mm (.070") X 12C		varnishes, shellacs, fillers, primers, epoxies, urethanes, lubricants, wax emulsions, enamels	2466-18LV-23SG	1.8 mm (.070") X 23L

THIN 5-25 CENTIPOISE 15-19 sec. Zahn 2 cup	2466-12HV-325G	1.2 mm (.047") X 32H	
wash primers, dyes, stains, solvents, water, inks, sealers,			
laquers, lubricants, zinc chromates, acrylics	2466-14HV-32SG	1.4 mm (.055") X 32H	
MEDIUM 25-70 CENTIPOISE 20-30 sec. Zahn 2 cup synthetic enamels, varnishes, shellacs,	2466-14HV-32SG	1.4 mm (.055") X 32H	
varifishes, sineliacs, fillers, primers, epoxies, urethanes, lubricants, wax emulsions, enamels	2466-18HV-32SG	1.8 mm (.070") X 32H	

#### BINKS "TROPHY" SERIES GRAVITY SPRAY GUN AIR CAP AND FLUID NOZZLE SELECTION CHARTS

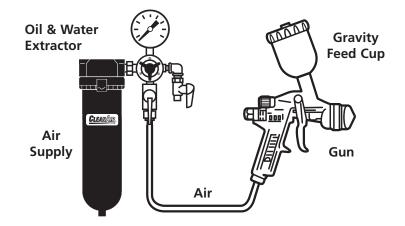
	CHART 7: CONVENTIONAL AIR CAP AND FLUID NOZZLE SELECTION CHART							
Air Cap	Air Cap Part No.	Spray Pattern Range	CFM @ 30 PSI	CFM @ 50 PSI	CFM @ 70 PSI	Fluid Nozzle	Typical Coatings	
12-C	46-6501	4 – 12"	8.3	12.1	14.2	45-11050 series, 1.2 mm – 1.8 mm	Lacquers, Enamels, Top Coats, Low Viscosity Adhesives	

CHA	CHART 8: LVMP – LOW VOLUME MEDIUM PRESSURE AIR CAP AND FLUID NOZZLE SELECTION CHART									
Air Cap	Air Cap Part No.	Spray Pattern Range	CFM @30 PSI Gun Inlet (Dynamic)	Fluid Nozzle	Typical Coatings					
23-L	46-6511	4 – 12"	10.6	45-11050 series, 1.2 mm – 1.8 mm	Lacquers, Enamels, Top Coats, Low Viscosity Adhesives					
24-L	46-6512	2 – 6"	14.3	45-11050 series, 1.0 mm – 1.8 mm	Small Pattern Applications of Stains, Lacquers, Enamels, Acrylics					

C	CHART 9: HVLP – HIGH VOLUME LOW PRESSURE AIR CAP AND FLUID NOZZLE SELECTION CHART					
Air Cap	Air Cap Part No.	Spray Pattern Range	SCFM @ 10 PSI Cap Pressure (Dynamic)	Gun Inlet PSI @ 10 PSI at Air Cap (Dynamic)	Fluid Nozzle	Typical Coatings
32-H	46-6518	8 – 14"	18.5	24	45-11050 series, 1.2 mm – 1.8 mm	Lacquers, Enamels, Multi-Colors, Multi-Spec, Nonstick Coatings, Cut-Latex

CHART 10: ROUND SPRAY AIR CAP AND FLUID NOZZLE SELECTION CHART (OPTIONAL)							
Air Cap	Air Cap Part No.	Spray Pattern Range	CFM @ 30 PSI	CFM @ 50 PSI	CFM @ 70 PSI	Fluid Nozzle	Typical Coatings
16	46-6505	2 – 4"	5.6	7.8	10.5	45-11050 series, 1.2 mm – 1.8 mm	Lacquers, Enamels

#### TYPES OF INSTALLATION



Air pressure for atomization is regulated at the extractor. The flow of the fluid is adjusted by the fluid valve control knob on gun, viscosity of paint and air pressure.

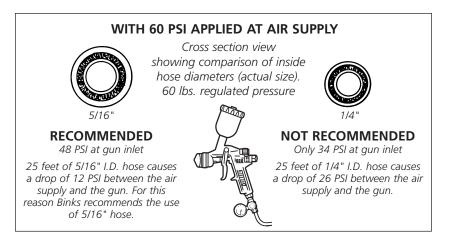
#### **GRAVITY FEED HOOKUP**

On gravity-feed spray guns the cup is located above the gun. The force of gravity pushes the fluid into the gun.

Advantages: this method offers quick color changes and convenience on small jobs or touch-up applications. Gravity spray guns are able to use all of the coating—reducing waste.

#### **AIR PRESSURE**

Atomizing pressure must be set properly to allow for the drop in air pressure between the regulator and the spray gun.



# An oil and water extractor is important.

Achieving a fine spray finish without the use of a good oil and water extractor is virtually impossible.

A regulator/extractor serves a double purpose. It eliminates blistering and spotting by keeping air free of oil and water, and it gives

precise air pressure control at the gun.

Use DeVilbiss oil and water extractors and regulators. See your local distributor for models.



### INSTALLATION INSTRUCTIONS

For maximum transfer efficiency, do not use more pressure than is necessary to atomize the material being applied.

### NOTE

# When using HVLP do not exceed inlet pressures listed on page 7.

1. Connect the gun to a clean, moisture and oil free air supply using a conductive hose of at least 5/16 in I.D.

# NOTE

Depending on hose length, larger I.D. hose may be required. Install an air gauge at the gun handle. See page 7 for operating pressures. Do not use more pressure than is necessary to atomize the material being applied. Excess pressure will create additional overspray and reduce transfer efficiency.

# NOTE

If quick connect couplings are required, use only high flow quick connects approved for HVLP use. Other types will not flow enough air for correct gun operation.

# NOTE

If an air adjusting valve is used at the gun inlet, use HAV-501 adjusting valve.

# NOTE

Before using the spray gun, flush it with solvent to ensure that the fluid passages are clean.

### **OPERATION**

#### **GRAVITY MODELS**

- 1. Mix coating material to manufacturer's instructions and strain material.
- 2. Fill the cup to no more than 3/4 inch from the top of the cup. DO NOT OVERFILL.
- 3. Attach to cup lid.
- 4. Turn fluid adjusting knob (24) clockwise to prevent fluid needle movement.
- 5. Turn sideport control (9) counter clockwise to fully open.
- 6. Adjust inlet air pressure if required.
- 7. Turn fluid adjusting knob counter clockwise until first thread shows.
- 8. Test spray. If the finish is too dry, reduce airflow by reducing air inlet pressure.

- 9. If finish is too wet, reduce fluid flow by turning fluid adjusting knob (24) clockwise. If atomization is too coarse, increase inlet air pressure. If too fine, reduce inlet pressure.
- 10. The pattern size can be reduced by turning sideport control (9) clockwise.
- 11. Hold gun perpendicular to surface being sprayed. Arcing or tilting may result in uneven coating.
- 12. The recommended spray distance is 8 inches.
- Spray edges first. Overlap each stroke a minimum of 75%. Move gun at a constant speed.
- 14. Always turn off air supply and relieve pressure when gun is not in use.

#### PREVENTIVE MAINTENANCE AND CLEANING

To clean air cap and fluid nozzle, brush exterior with a stiff bristle brush. If necessary to clean cap holes, use a broom straw or toothpick if possible. If a wire or hard instrument is used, extreme care must be used to prevent scratching or burring of the holes which will cause a distorted spray pattern.

To clean fluid passages, remove excess material from gun, then flush with gun wash solution. Wipe the gun exterior with a dampened cloth. Never completely immerse in any solvent or cleaning solutions as this is detrimental to the lubricants and life of the spray gun.

# NOTE

When replacing the fluid nozzle (7) or fluid needle (22), replace both at the same time. Using worn parts can cause fluid leakage. See page 4. Also, replace the needle packing at this time. Torque the fluid nozzle to 230–240 inch-lbs. Do not over tighten.

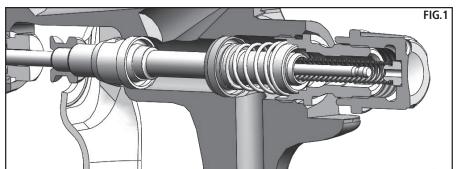
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To prevent damage to fluid nozzle (7) or fluid needle (22), be sure to either 1) pull the trigger and hold while tightening or loosening the fluid nozzle, or 2) remove fluid adjusting knob (24) to relieve spring pressure against needle collar.

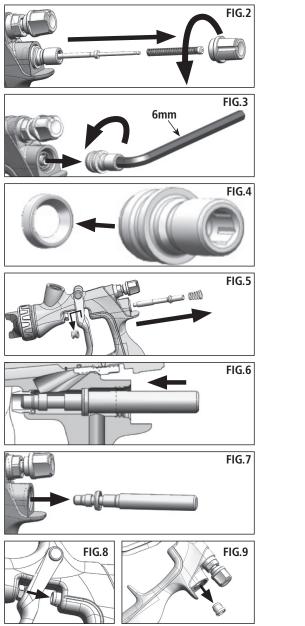
**GRAVITY CUP.** Empty excess material and clean the cup. Make sure the vent hole in the lid is clear.

# **REMOVAL AND INSTALLATION PROCEDURES**

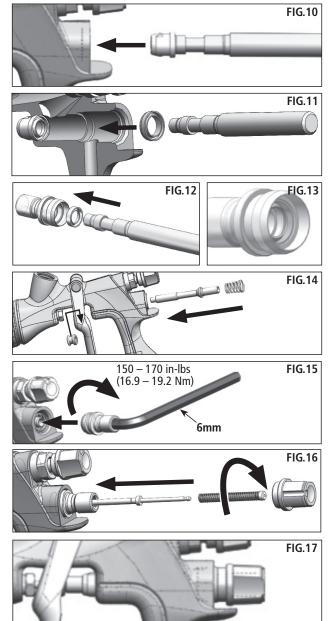
NEEDLE AND VALVE DISASSEMBLY AND ASSEMBLY



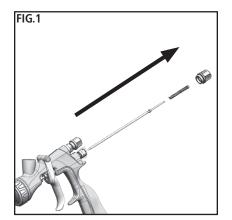
### DISASSEMBLY

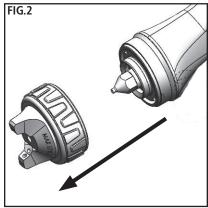


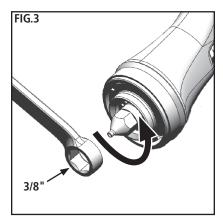
ASSEMBLY

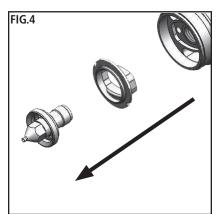


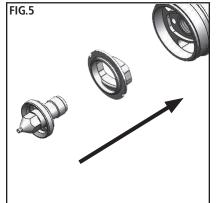
#### MAINTENANCE – FLUID NOZZLE AND BAFFLE REMOVAL AND INSTALLATION

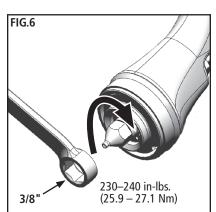


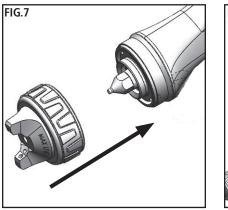


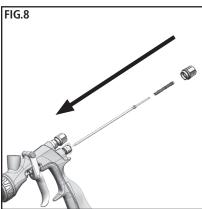






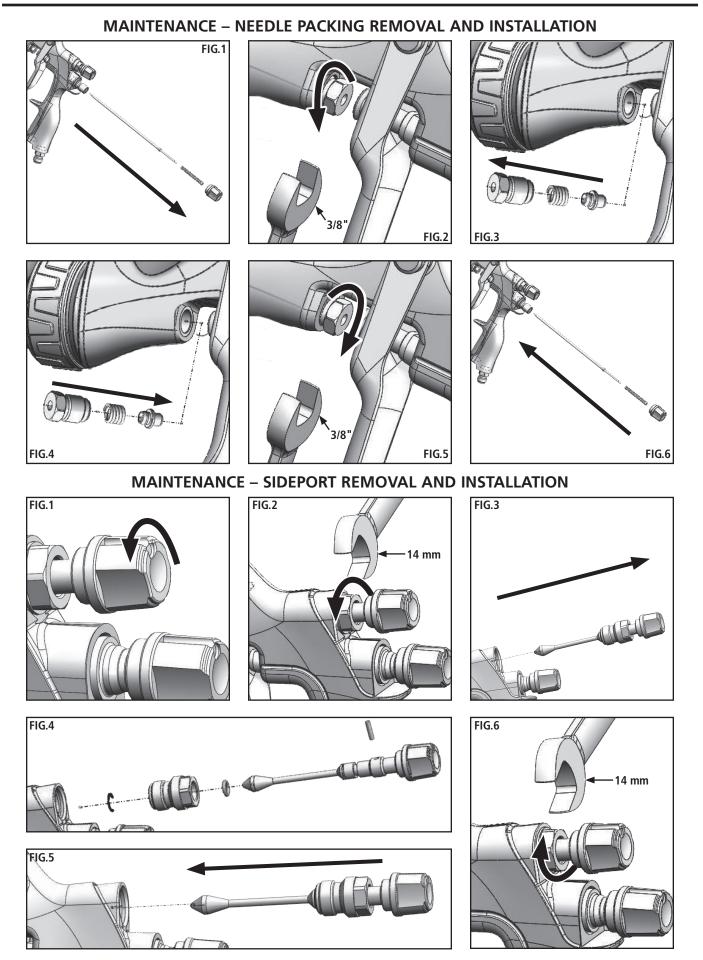






AIR CAP INDEX PIN (54-6184) INSTALLATION (OPTIONAL – 90° INCREMENTS INDEXING FEATURE)





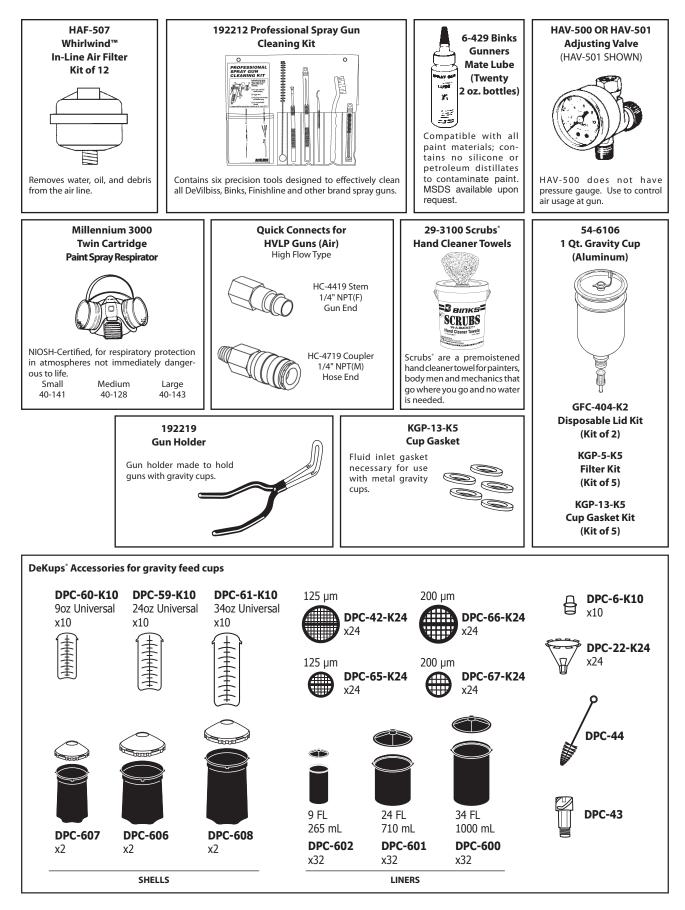
## TROUBLESHOOTING

CONDITION	CAUSE	CORRECTION			
Heavy top or bottom pattern	Horn holes plugged. Obstruction on top or bottom of fluid tip. Cap and/or tip seat dirty.	Clean. Ream with non-metallic point. Clean. Clean.			
Heavy right or left side pattern	Left or right side horn holes plugged. Dirt on left or right side of fluid tip.	Clean. Ream with non-metallic point. Clean.			
	<ul> <li>Remedies for the top-heavy, bottom-heavy, right-heavy, and left-heavy patterns:</li> <li>1. Determine if the obstruction is on the air cap or the fluid tip. Do this by making a test spray pattern. Then, rotate the cap one-half turn and spray another pattern. If the defect is inverted, obstruction is on the air cap. Clean the air cap as previously instructed.</li> <li>2. If the defect is not inverted, it is on the fluid tip. Check for a fine burr on the edge of the fluid tip. Remove with #600 wet or dry sand paper.</li> <li>3. Check for dried paint just inside the opening; remove by washing with solvent.</li> </ul>				
Heavy center pattern	Fluid flow too high for atomization air.	Balance air pressure and fluid flow. Increase spray pattern width with spreader adjustment valve.			
	Material flow exceeds air cap's capacity. Spreader adjustment valve set too low. Atomizing pressure too low. Material too thick.	Thin or lower fluid flow. Adjust. Increase pressure. Thin to proper consistency.			
Split spray pattern	Atomization air pressure too high. Fluid flow too low. Spreader adjusting valve set too high.	Reduce at transformer or gun. Increase fluid flow (increases gun handling speed). Adjust.			
Jerky or fluttering spray	*Loose or damaged fluid tip/seat. Material level too low. Container tipped too far. Obstruction in fluid passage. Dry or loose fluid needle packing nut.	Tighten or replace. Refill. Hold more upright. Backflush with solvent. Lubricate or tighten.			
Unable to get round spray	Spreader adjustment screw not seating properly. Air cap retaining ring loose.	Clean or replace. Tighten.			
Will not spray	No air pressure at gun. Fluid needle adjusting screw not open enough. Fluid too heavy for gravity feed.	Check air supply and air lines, blow out gun air passages. Open fluid needle adjusting screw. Thin material and/or change to larger tip size.			
Paint bubbles in cup	Fluid tip not tight.	Tighten tip.			
Fluid leaking or dripping from cup lid	Cup lid loose. Dirty threads on cup or lid. Cracked cup or lid.	Tighten lid. Clean. Replace cup and lid.			

# TROUBLESHOOTING

CONDITION	CAUSE	CORRECTION
Starved spray pattern	Inadequate material flow.	Back fluid adjusting screw out to first thread, or change to larger tip size.
	Low atomization air pressure.	Increase air pressure and rebalance gun.
Excessive overspray	Too much atomization air pressure. Gun too far from work surface. Improper stroking (arcing, gun motion too fast).	Reduce pressure. Adjust to proper distance. Move at moderate pace, parallel to work surface.
Excessive fog	Too much or too fast-drying thinner. Too much atomization (air pressure.)	Remix properly. Reduce air pressure.
Dry spray	Air pressure too high. Gun tip too far from work surface. Gun motion too fast. Gun out of adjustment.	Reduce air pressure. Adjust to proper distance. Slow down. Adjust.
Fluid leaking from packing nut	Packing nut loose. Packing worn or dry.	Tighten, do not bind needle. Replace or lubricate.
Fluid leaking or dripping from front of gun	Packing nut too tight. Dry packing. Fluid tip or needle worn or damaged. Foreign matter in tip. Fluid needle spring broken. Wrong size needle or tip.	Adjust. Lubricate. Replace tip and needle. Clean. Replace. Replace.
Fluid dripping or leaking from bottom of cup	Cup loose on gun. Cup gasket worn or missing below cup. Cup threads dirty.	Tighten. Replace cup gasket. Clean.
Runs and sags	Too much material flow. Material too thin. Gun tilted on an angle, or gun motion too slow.	Adjust gun or reduce fluid flow. Mix properly or apply light coats. Hold gun at right angle to work and adapt to proper gun technique.
Thin, sandy coarse finish drying before it flows out	Gun too far from surface. Too much air pressure. Improper thinner being used.	Check distance. Normally approximately 8". Reduce air pressure and check spray pattern. Follow paint manufacturer's mixing instructions.
Thick, dimpled finish "orange peel"	Gun too close to surface. Too much material coarsely atomized. Air pressure too low. Improper thinner being used. Material not properly mixed. Surface rough, oily, dirty.	<ul> <li>Check distance. Normally approximately 8".</li> <li>Follow paint manufacturer's mixing instructions.</li> <li>Increase air pressure or reduce fluid flow.</li> <li>Follow paint manufacturer's mixing instructions.</li> <li>Follow paint manufacturer's mixing instructions.</li> <li>Properly clean and prepare.</li> </ul>

# ACCESSORIES



## WARRANTY POLICY

This product is covered by Carlisle Fluid Technologies' materials and workmanship limited warranty. The use of any parts or accessories, from a source other than Carlisle Fluid Technologies, will void all warranties. Failure to reasonably follow any maintenance guidance provided may invalidate any warranty.

For specific warranty information please contact Carlisle Fluid Technologies.

Carlisle Fluid Technologies is a global leader in innovative finishing technologies. Carlisle Fluid Technologies reserves the right to modify equipment specifications without prior notice.

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For technical assistance or to locate an authorized distributor, contact one of our international sales and customer support locations.

Region	Industrial / Automotive	Automotive Refinishing			
Americas	Tel: 1-800-992-4657 Fax: 1-888-246-5732	Tel: 1-800-445-3988 Fax: 1-800-445-6643			
Europe, Africa, Middle East, India	Tel: +44 (0)1202 571 111 Fax: +44 (0)1202 573 488				
China	Tel: +8621-3373 0108 Fax: +8621-3373 0308				
Japan	Tel: +81 45 785 6421 Fax: +81 45 785 6517				
Australia	Tel: +61 (0) 2 8525 7555 Fax: +61 (0) 2 8525 7575				

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