

# ST1

## PLURAL COMPONENT, AIR PURGE SPRAY GUN SERVICE MANUAL



SPECIFICATIONS	
Maximum Fluid Pressure	3500 PSI (245 bar)
Air Pressure Range	70-130 PSI (4.8 - 9.0 bar)
Max Fluid Temperature	200 F 94 C
Wetted Parts	Stainless Steel, Coated Aluminum, Plated Steel, Chemically Resistant Plastic, Chemically Resistant O-Rings

Patent Pending

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

### **WARNING**

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

### **CAUTION**

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

### **NOTE**

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.



**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.



**LOCK OUT / TAG-OUT** Failure to de-energize, disconnect, lock out and tag-out all power sources before performing equipment maintenance could cause serious injury or death.



**AUTOMATIC EQUIPMENT** Automatic equipment may start suddenly without warning.



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



**KEEP EQUIPMENT GUARDS IN PLACE** Do not operate the equipment if the safety devices have been removed.



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



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



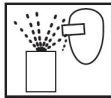
**INSPECT THE EQUIPMENT DAILY** Inspect the equipment for worn or broken parts on a daily basis. Do not operate the equipment if you are uncertain about its condition.



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



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



**PROJECTILE HAZARD** You may be injured by venting liquids or gases that are released under pressure, or flying debris.



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



**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.



**WEAR RESPIRATOR** Toxic fumes can cause serious injury or death if inhaled. Wear a respirator as recommended by the fluid and solvent manufacturer's Safety Data Sheet.



**TOXIC FLUID & FUMES** Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, injected or swallowed. LEARN and KNOW the specific hazards or the fluids you are using.



**FIRE AND EXPLOSION HAZARD** Improper equipment grounding, poor ventilation, open flame or sparks can cause a hazardous condition and result in fire or explosion and serious injury.



**MEDICAL ALERT** Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:

- ◆ Go to an emergency room immediately.
- ◆ Tell the doctor you suspect an injection injury.
- ◆ Show the doctor this medical information or the medical alert card provided with your airless spray equipment.



**GET IMMEDIATE MEDICAL ATTENTION** To prevent contact with the fluid, please note the following:

- Never point the gun/valve at anyone or any part of the body.
- Never put hand or fingers over the spray tip.
- Never attempt to stop or deflect fluid leaks with your hand, body, glove or rag.



**CA PROP 65** **PROP 65 WARNING** WARNING: This product contains chemicals known to the State of California

**It is the responsibility of the employer to provide this information to the operator of the equipment.**

**For further safety information regarding this equipment, see the General Equipment Safety Booklet (77-5300).**

## SAFETY PRECAUTIONS

### PERSONAL PROTECTIVE EQUIPMENT

- Always wear appropriate personal protective equipment and cover all skin when spraying, servicing equipment, or when in the work area. Protective equipment helps prevent serious injury, including long-term exposure; inhalation of toxic fumes, mists or vapors; allergic reaction; burns; eye injury and hearing loss. This protective equipment includes but is not limited to:
  - ◇ A properly fitting respirator, which may include a supplied-air respirator, chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority.
  - ◇ Protective eyewear and hearing protection.

### TOXIC FLUID OR FUMES HAZARD

- Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled or swallowed.
- Read Safety Data Sheet (SDS) for handling instructions and to know the specific hazards of the fluids you are using, including the effects of long-term exposure.
- When spraying, servicing equipment, or when in the work area, always keep work area well ventilated and always wear appropriate personal protective equipment. See **Personal Protective Equipment** warnings in this manual.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

### SKIN INJECTION HAZARD

- High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**
- Do not point the gun at anyone or at any part of the body.
- Do not put your hand or fingers over the gun fluid nozzle.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Follow **Pressure Relief Procedure**, page 12, when you stop spraying and before cleaning, checking, or servicing equipment.
- Use lowest possible pressure when flushing, priming, or troubleshooting.
- Engage piston safety lock when not spraying.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. High pressure hose cannot be recoupled; replace the entire hose.

### BURN HAZARD

- Equipment surfaces and fluid that’s heated can become very hot during operation. To avoid severe burns, do not touch hot fluid or equipment. Wait until equipment/fluid has cooled completely.



## SAFETY PRECAUTIONS

### FIRE AND EXPLOSION HAZARD

- Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:
  - ◇ Use equipment only in well ventilated area.
  - ◇ Eliminate all ignition sources, such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
  - ◇ Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
  - ◇ Keep the work area free of debris, including solvent, rags, and gasoline.
  - ◇ Ground equipment and conductive objects. See **Grounding**, page 7.
  - ◇ Hold gun firmly to side of grounded pail when triggering into pail.
  - ◇ Use only grounded hoses.
  - ◇ If there is static sparking or you feel a shock, **stop operation immediately**. Do not use equipment until you identify and correct the problem.

### EQUIPMENT MISUSE HAZARD

- Misuse can cause serious injury or death.
- For professional use only.
- Use equipment only for its intended purpose. Call your Carlisle distributor for information.
- Read manuals, warnings, tags, and labels before operating equipment. Follow instructions.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not alter or modify equipment. Use only Carlisle parts and accessories.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not use hoses to pull equipment.
- Comply with all applicable safety regulations.

### PRESSURIZED ALUMINUM PARTS HAZARD

- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use can cause serious chemical reaction and equipment rupture, and result in death, serious injury, and property damage.


## IMPORTANT ISOCYANATE INFORMATION

Isocyanates (ISO) are catalysts used in two component materials.

### ISOCYANATE CONDITIONS

Spraying or dispensing fluids that contain isocyanates creates potentially harmful mists, vapors, and atomized particulates.

- Read and understand the fluid manufacturer's warnings and Safety Data Sheet (SDS) to know specific hazards and precautions related to isocyanates.
- Use of isocyanates involves potentially hazardous procedures. Do not spray with this equipment unless you are trained, qualified, and have read and understood the information in this manual and in the fluid manufacturer's application instructions and SDS.
- Use of incorrectly maintained or mis-adjusted equipment may result in improperly cured material which could cause off gassing and offensive odors. Equipment must be carefully maintained and adjusted according to instructions in the manual.
- To prevent inhalation of isocyanate mists, vapors and atomized particulates, everyone in the work area must wear appropriate respiratory protection. Always wear a properly fitting respirator, which may include a supplied-air respirator. Ventilate the work area according to instructions in the fluid manufacturer's SDS.
- Avoid all skin contact with isocyanates. Everyone in the work area must wear chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority. Follow all fluid manufacturer recommendations, including those regarding handling of contaminated clothing. After spraying, wash hands and face before eating or drinking.
- Hazard from exposure to isocyanates continues after spraying. Anyone without appropriate personal protective equipment must stay out of the work area during application and after application for the time period specified by the fluid manufacturer. Generally this time period is at least 24 hours.
- Warn others who may enter work area of hazard from exposure to isocyanates. Follow the recommendations of the fluid manufacturer and local regulatory authority. Posting a sign such as the following outside the work area is recommended:

<b>WARNING</b>	
	<b>TOXIC FUMES HAZARD</b>
DO NOT ENTER DURING SPRAY FOAM APPLICATION OR FOR ___ HOURS AFTER APPLICATION IS COMPLETE	
<b>DO NOT ENTER UNTIL:</b>	
DATE: ___ TIME: ___	

## MATERIAL SELF IGNITION

Some materials may become self igniting if applied too thick. Read material manufacturer's warnings and Safety Data Sheet (SDS)

## KEEP COMPONENTS A and B SEPARATE

Avoid cross contamination of A and B materials. Cured material in fluid lines and passages could cause serious injury or damage equipment.

Never interchange component A and component B wetted parts

Never use solvent on one side that has been contaminated with fluid from the other side.

## MOISTURE SENSITIVITY of ISO-CYANATES

Exposure to moisture, such as humidity, will cause ISO to partially cure and form small, hard, abrasive crystals. These become suspended in the fluid and can damage equipment. Eventually, a film will develop on the surface and the ISO will begin to gel and increase in viscosity.

### NOTE

Partially cured ISO will reduce performance and the life of all wetted parts.

- Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere in the empty headspace of the container.
- **Never** store ISO in an open container.
- Keep the ISO pump wet cup or reservoir (if installed) filled with appropriate lubricant. The lubricant creates a barrier between the ISO and the atmosphere.
- Use only moisture-proof hoses compatible with ISO.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.

## FOAM RESINS with 245 FA BLOWING AGENTS

Some foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

## CHANGING MATERIALS

### NOTE

Avoid equipment damage and downtime when changing materials:

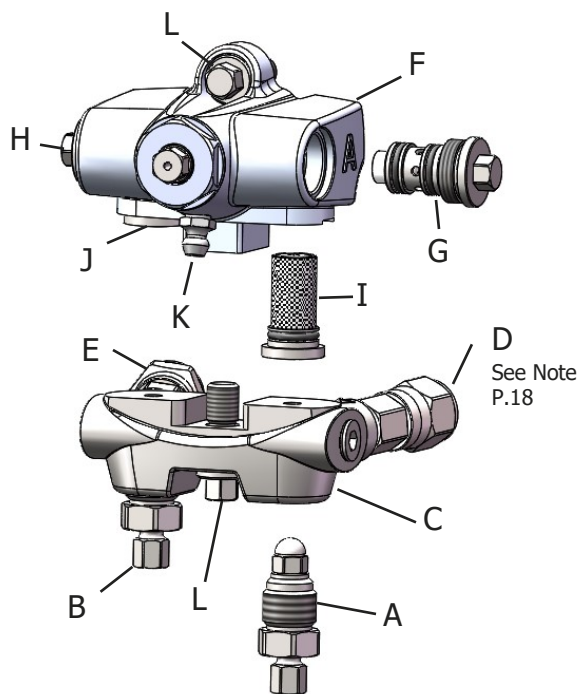
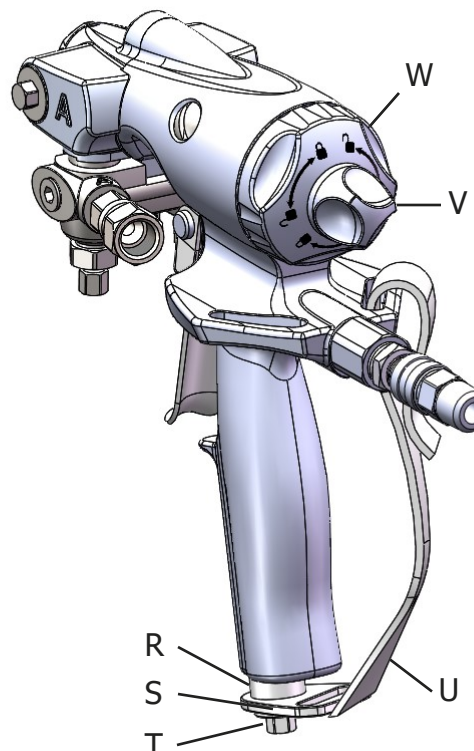
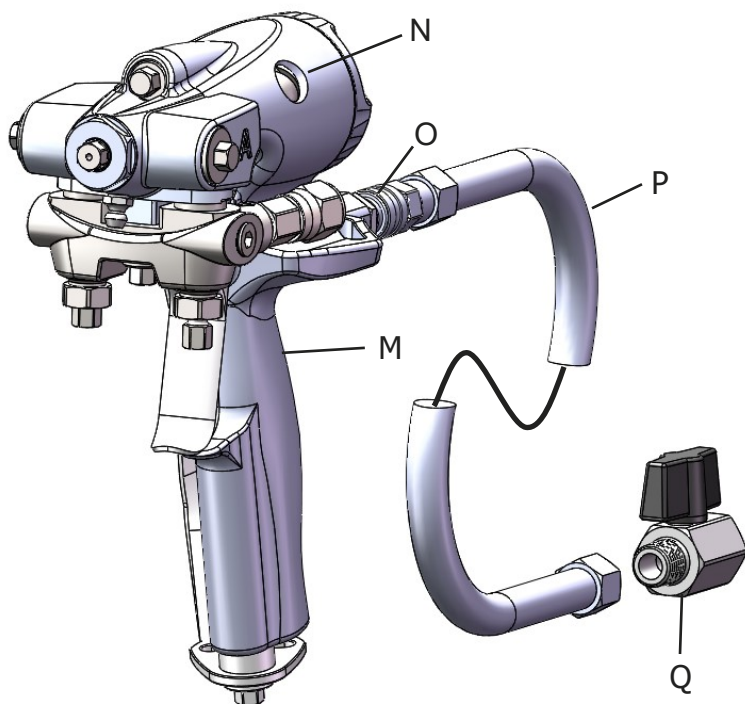
- Flush equipment multiple times to make sure it is clean.
- Always clean the fluid strainers after flushing
- Check with the material manufacturer for chemical compatibility.
- When changing between epoxies and urethanes or polyureas, disassemble and clean all wetted parts, and change hoses.

## GROUNDING

Check local electrical code and proportioner manual for grounding instructions.

Ground spray gun through connection to a Carlisle approved grounded fluid supply hose.

OVERVIEW



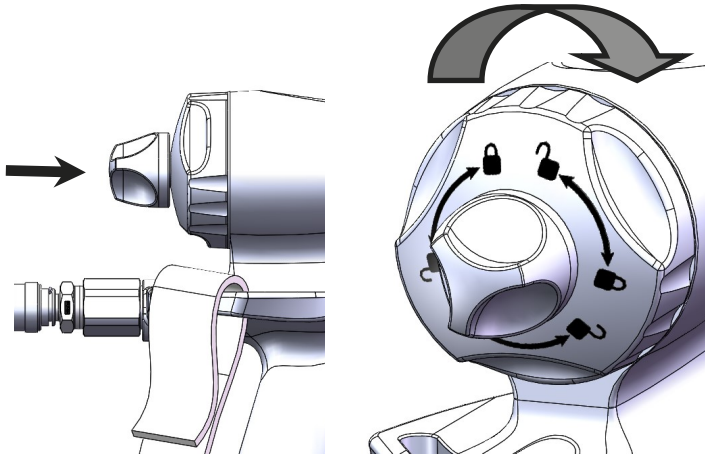
A	A-SIDE SHUT-OFF VALVE
B	B-SIDE SHUT-OFF VALVE
C	FLUID MANIFOLD
D	A-SIDE FLUID INLET SWIVEL
E	B-SIDE FLUID INLET SWIVEL
F	GUN HEAD
G	A-SIDE SIDE SEAL ASSEMBLY
H	B-SIDE SIDE SEAL ASSEMBLY
I	A-SIDE CHECK VALVE
J	B-SIDE CHECK VALVE
K	GREASE FITTING
L	SCREW
M	HANDLE
N	CHECK VALVE (AIR)
O	QD COUPLER (AIR)
P	AIR HOSE (18 IN LONG)
Q	BALL VALVE (AIR)
R	SPACER
S	CLIP (STRAP)
T	STUD (STRAP)
U	STRAP
V	SAFETY STOP KNOB
W	END CAP

## PISTON SAFETY STOP/LOCK

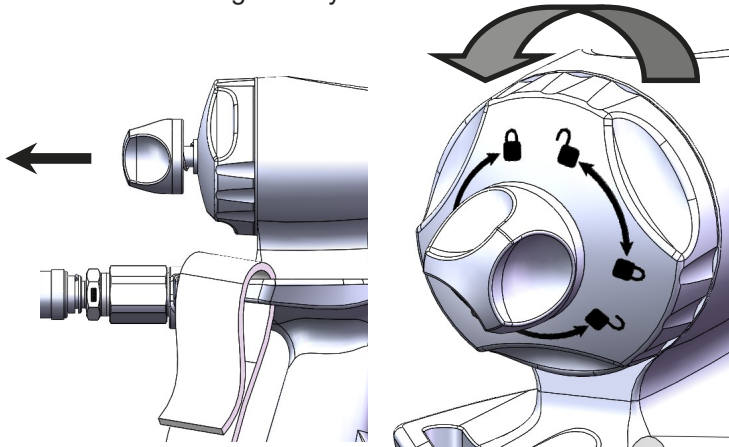
### WARNING

The gun is equipped with a safety stop/lock. Always engage safety stop/lock when not spraying to prevent accidental triggering.

**To engage piston safety lock:** push knob in and turn clockwise. If engaged, gun will not actuate.



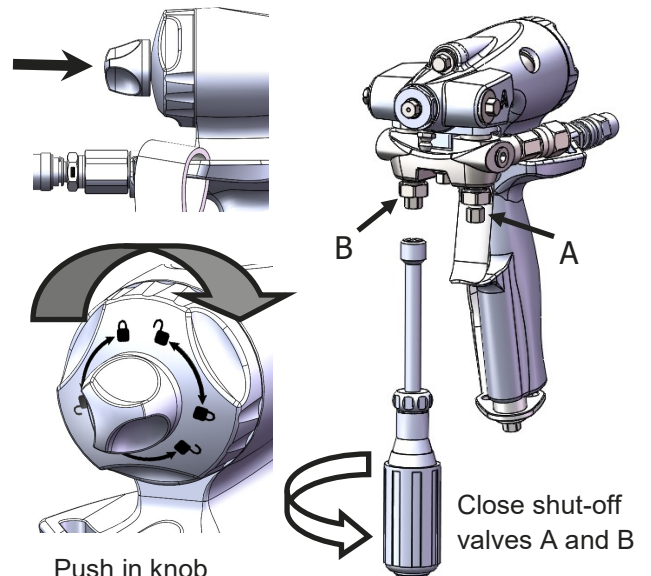
**To disengage piston safety lock:** push knob in and turn counterclockwise until it pops out. There will be a gap between knob and gun body.



## LOSS OF AIR PRESSURE

### WARNING

In event of loss of air pressure, gun will continue to spray. To shut off gun, engage the safety stop/lock and/or close both shut-off valves.



Push in knob and turn to the right to lock and stop fluid.

Close shut-off valves A and B

## AIR PRESSURE KEEPS GUN IN TRIGGERED POSITION

### WARNING

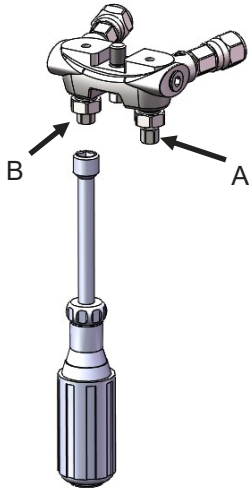
**A DAMAGED O-RING IN THE AIR VALVE CAN CAUSE THE GUN TO KEEP SPRAYING. SHUT OFF THE AIR IMMEDIATELY!**

Then engage safety stop. Push knob in and turn clockwise. Shut off manual valves.

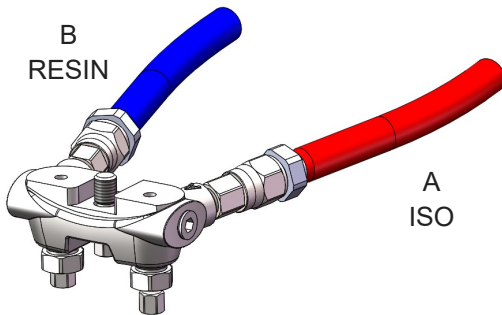


**GETTING STARTED, SET-UP**

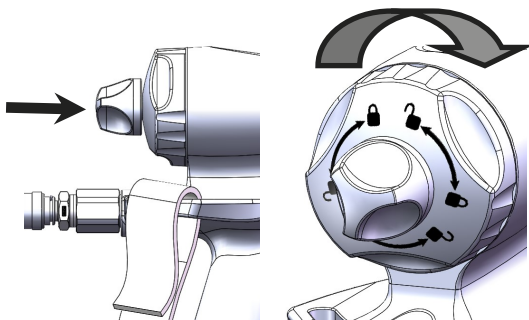
1. Close A-side and B-side shut-off valves.



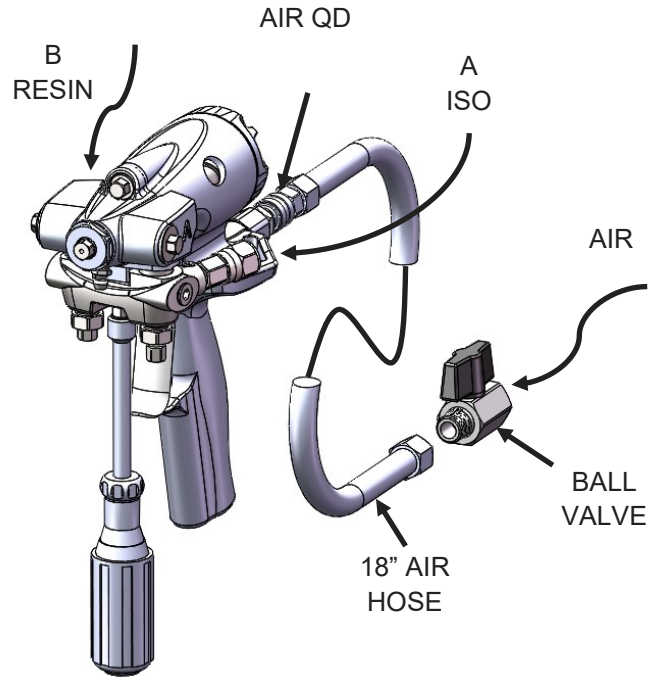
2. Connect A (ISO) and B (Resin) hoses to manifold.



3. Engage safety stop/lock

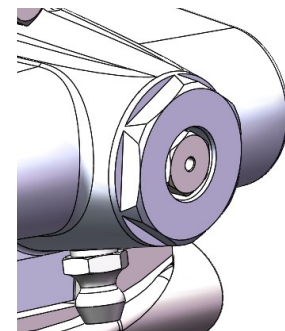
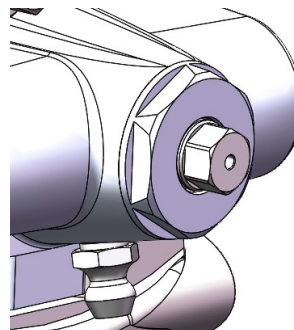


4. Connect manifold (with A and B hoses) to gun. Connect ball valve to 18" air hose and connect main air to ball valve. Use QD Coupler to connect air to gun.



5. Turn on air and open ball valve (air). Air should now flow through the mix tip with gun not triggered.

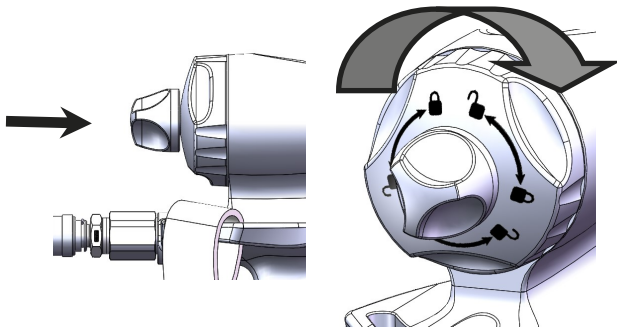
6. Keep shut-off valves closed. Disengage safety stop/lock and trigger gun. Piston will actuate. Note travel of Mix Tip. The Mix Tip will come approximately flush with the front of the gun when the gun is triggered. Air flow should stop when gun is triggered.



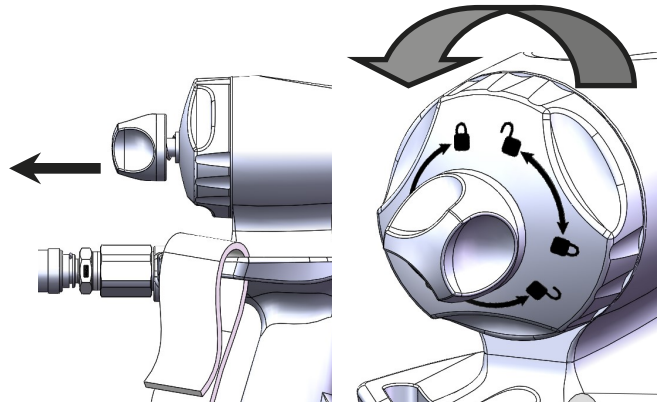
7. Apply layer of lubricant over front of gun to prevent overspray build-up and to aid disassembly.

**GETTING STARTED, SET-UP**

8. Engage safety stop/lock.

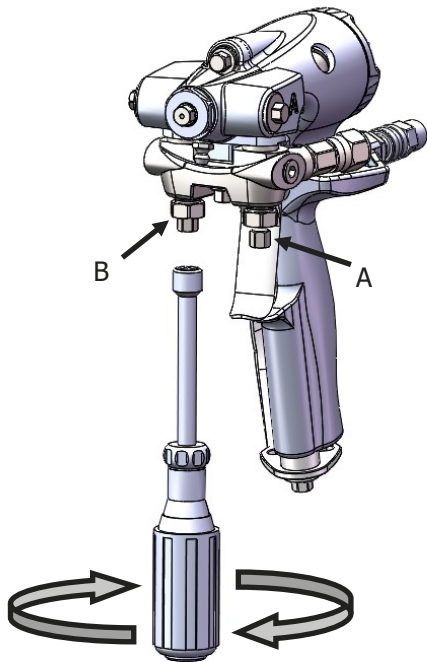


11. Dis-engage safety stop/lock.




9. Turn on the proportioner. Follow all manufacturer's instructions for starting the proportioner.

10. Fully open B (RESIN) shut-off valve. Then open A (ISO) shut-off valve.



12. Test spray onto cardboard or plastic. Adjust pressure and temperature to get desired results.

13. When pressure and temperature are set, and the foam is satisfactory, the gun is ready to spray.

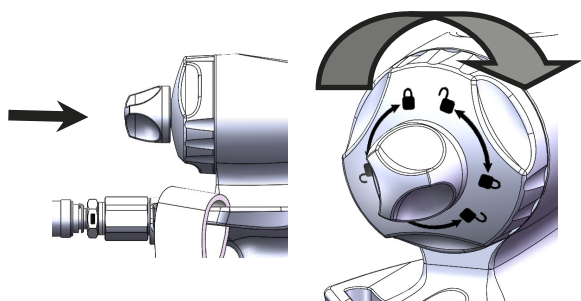
 <b>CAUTION</b>
<p>Air supply is required for gun actuation. Do not disconnect gun air supply until fluid pressure is relieved.</p>



## PRESSURE RELIEF AND SHUT DOWN

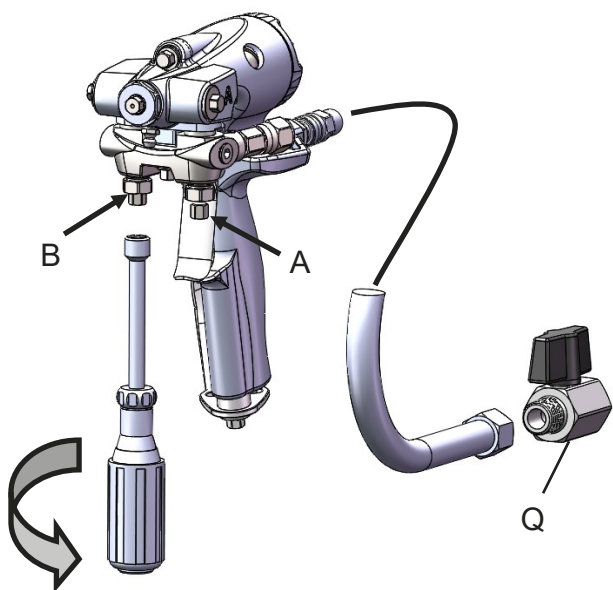
**⚠ WARNING**  
 Relieve pressure before cleaning or repairing gun.

1. Engage safety stop/lock.

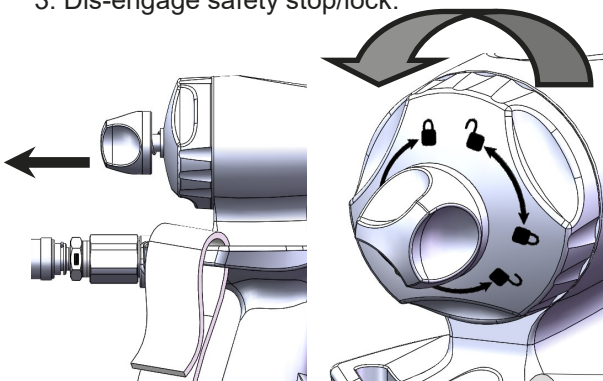


**⚠ CAUTION**  
 Air supply is required for gun actuation. Do not disconnect gun air supply until fluid pressure is relieved.

2. Close shut-off valves A and B.

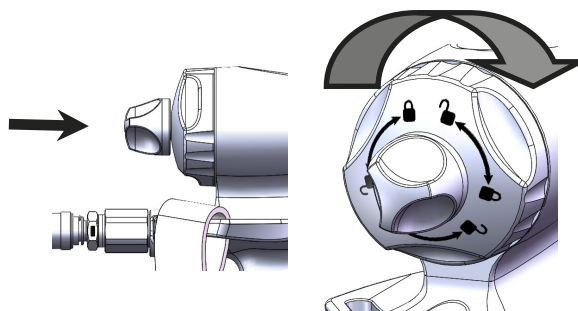


3. Dis-engage safety stop/lock.

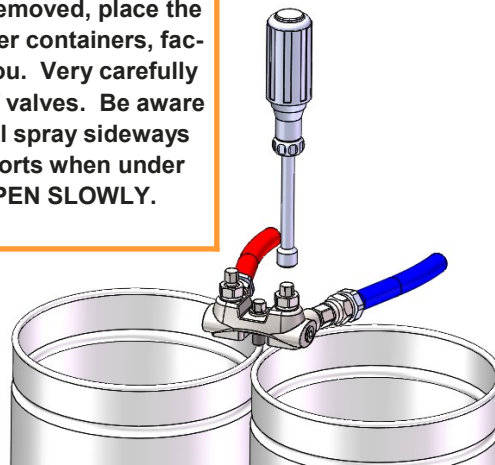


4. Trigger onto cardboard or into waste container to relieve pressure.

5. Engage safety stop/lock.



**⚠ WARNING**  
 Fluid in the hose and proportioner is still under pressure. Follow the Pressure Relief Procedure in the proportioner manual.  
 To relieve pressure in the hose after the gun is removed, place the fluid manifold over containers, facing away from you. Very carefully open the shut-off valves. Be aware that the fluid will spray sideways from the fluid ports when under pressure. **OPEN SLOWLY.**



## REPOSITION HOSES (OPTIONAL)

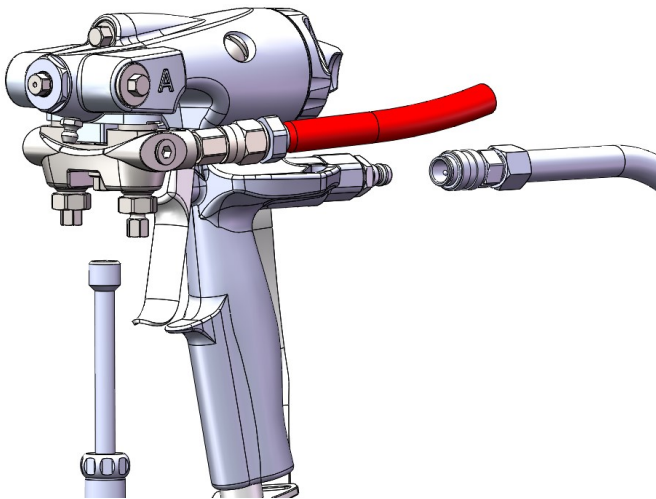
Fluid and/or air hoses normally point to the rear. These may be repositioned to point down.

**⚠ CAUTION**

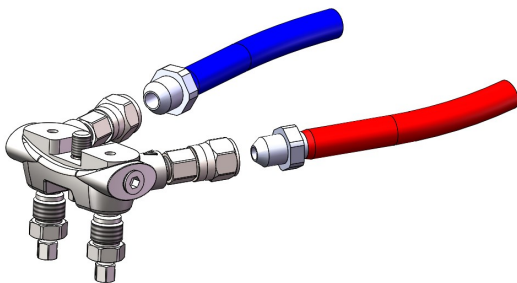
**To prevent cross contamination of wetted parts, do not interchange A component (ISO) and B compo-**

1. Follow the pressure relief procedure on page 12. Also, shut off proportioner and relieve system pres-

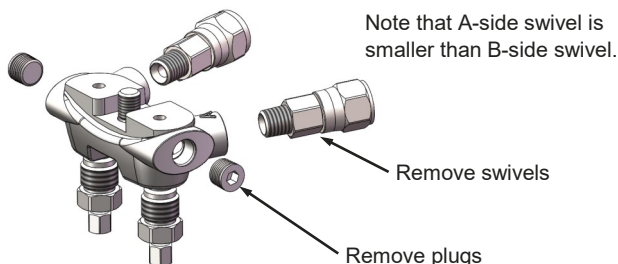
2. Disconnect air and remove fluid manifold.



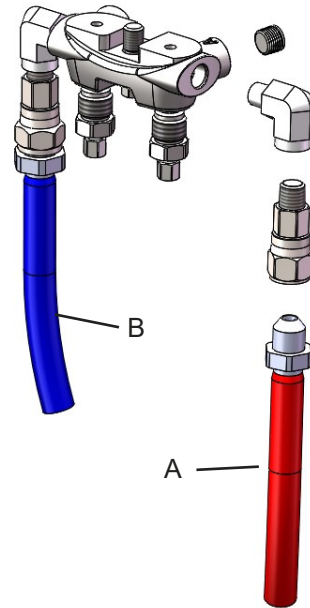
3. Disconnect fluid hoses from swivels.



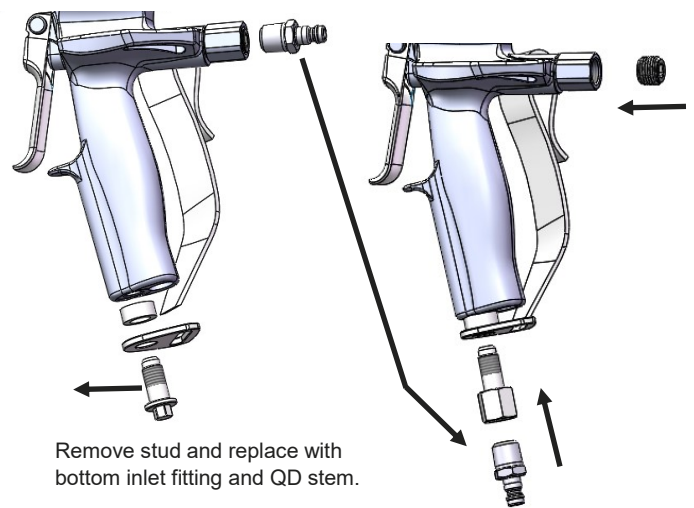
4. Remove swivels and plugs.



5. Apply thread sealant to plugs removed in step 3 and reinstall as shown. Use elbows from Bottom Inlet Kit and install as shown using pipe sealant or PTFE tape on threads. Assemble swivels to elbows. Make sure that smaller swivel is on the A side. Reattach A and B hoses making sure that all A components are on their correct side and B components are on their correct



5. Remove QD Stem from rear air inlet and install into bottom air inlet fitting. Replace strap stud with bottom air inlet fitting as shown. Install 1/4 NPT plug from Bottom Inlet Kit into rear inlet as shown.



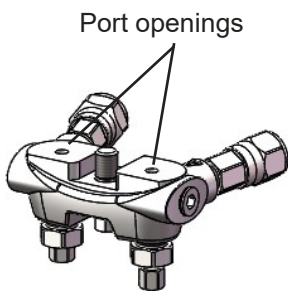
6. Attach fluid manifold. Re-connect air. Gun is ready

## MAINTENANCE

Before a job — Apply a release agent or light coat of grease to the outside of the gun prior to spraying to make cleaning easier.

As needed:

- Clean outside of gun with a compatible solvent. To soften cured material use Dynasolve CU-6 or an equivalent solvent. **NOTE: The cleaning solvent is not recommended for flushing.**
- Clean the mix tip. See p. 15. Use correct drill bit. Soak in Dynasolve CU-6 or equivalent to soften cured material. **NOTE: the drill bit may be dipped in solvent to aid in cleaning.**
- Clean the mix chamber. See p. 16. — Follow pressure relief procedure. After pressure is relieved, remove mix chamber from gun. Soak in Dynasolve CU-6 or equivalent. Use correct drill bit to clean impingement ports.
- Clean the muffler — soak in compatible solvent.
- Clean fluid manifold — Keep sealing faces clean when manifold is removed from gun. Use a compatible solvent. Do not scratch or damage the sealing faces. Apply a film of grease to the manifold port openings.

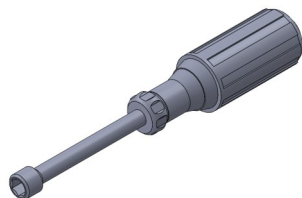


## TOOLS

### 336407 5/16" NUT DRIVER

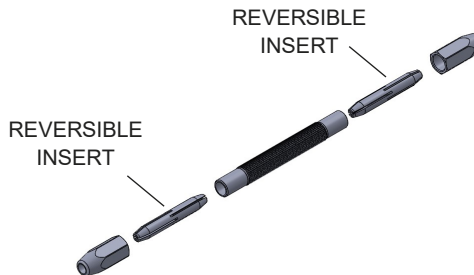
Many components can be easily tightened or removed with a 5/16 nut driver including:

- Mix Tip
- Side seals
- Manifold Screw
- Manual Shut-off Valves
- Trigger Screw



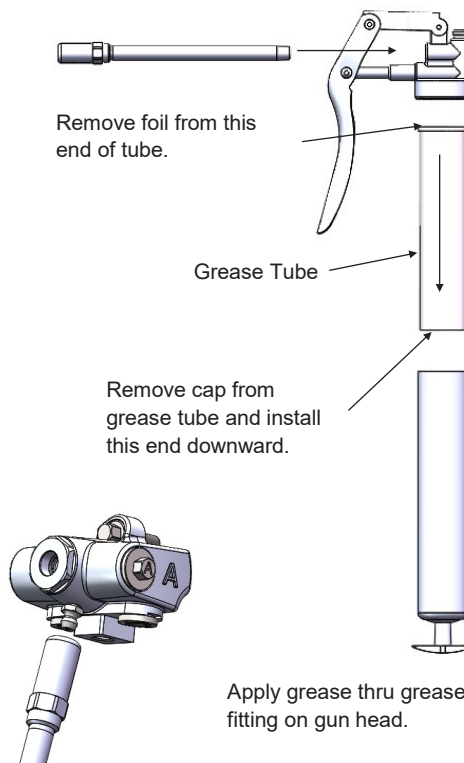
### 336403 PIN VISE

The pin vise inserts are reversible for use with a variety of drill bits.



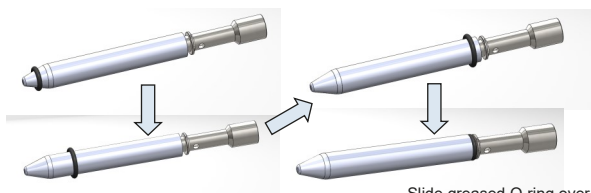
### 336404 GREASE GUN 336406 3 oz GREASE TUBE

Assemble the grease gun as shown. Install the 3 oz tube of grease—remove the cap and install open end downward. Remove foil from the top end



### 336740 O-RING INSTALLATION TOOL

Use this tool to avoid damaging O rings (item 35) installed on Valve Stem (item 36) and Rod & Piston Assembly (item 22).



Slide greased O-ring over front of tool. Use fingernail in land to position tool. Slide O-ring into position.

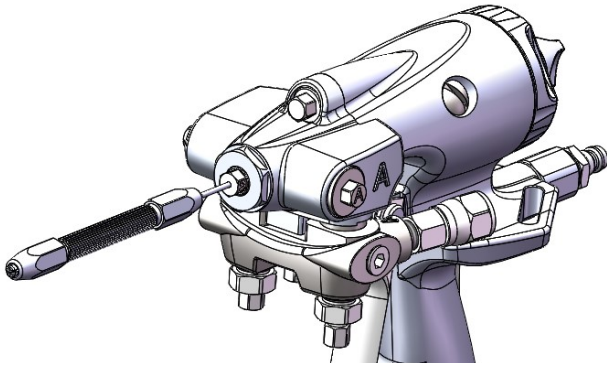
## MAINTENANCE - MIX TIPS

### WARNING

Be sure that Safety Stop is engaged and manual shut-off valves are closed before changing mix chamber or mix tip components.

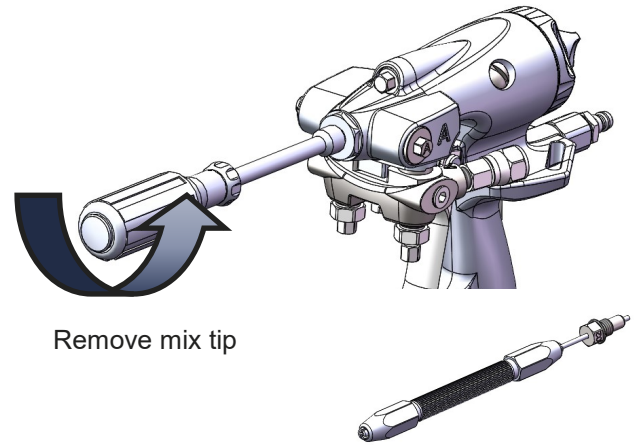
#### Clean mix tip in place.

- Install correct drill bit in pin vise (44). Carefully insert drill bit into mix tip. Keep drill bit straight and clean with in/out and rotational motions.
- **TIP: Dip the drill bit in solvent to aid in cleaning.**



#### Remove mix tip in for cleaning.

- Remove the mix tip with a 5/16 Nut Driver.
- Soak mix tip in cleaning solvent to soften hardened material.
- Install correct drill bit in pin vise. Carefully insert drill bit into mix tip. Keep drill bit straight and clean with in/out and rotational motions.



Remove mix tip

Soak mix tip and use drill bit to clean.

### Mix Tip Drill Bit Sizes

Mix Tip Part No. (Drill Included)	Tip Size	Drill Size, in [mm]
336452	00	#55, .052 [1.30]
336453	01	#53, .060 [1.50]
336454	15	#52, .064 [1.60]
336455	02	#50, .070 [1.75]
336456	03	#44, .086 [2.15]
336457	04	#42, .094 [2.35]

#### Change mix tip size.

- Easily change your pattern size or flow rate. Changing a mix tip is very straight forward:
- Unscrew and remove existing mix tip with a 5/16 nut driver. (47)
- Install new mix tip with 5/16 nut driver. Tighten securely.

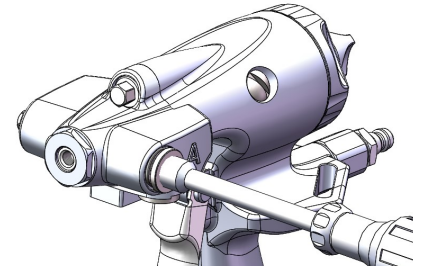
## MAINTENANCE - MIX CHAMBERS

### WARNING

Be sure that Safety Stop is engaged and manual shut-off valves are closed before changing mix chamber or mix tip components.

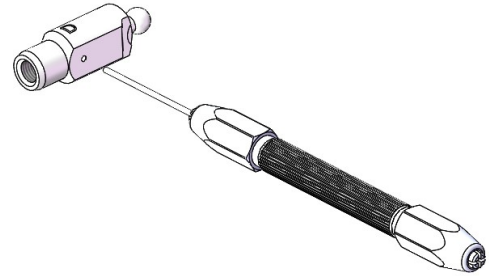
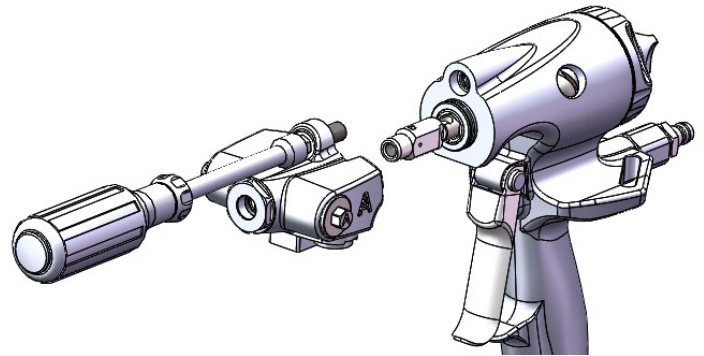
### CAUTION

To prevent cross contamination of wetted parts, do not interchange A component (ISO) and B component (RESIN) parts



### Removal/cleaning/replacing of mix chamber.

- Follow the pressure relief procedure on page 12.
- After shutting off manual valves, remove gun from manifold. (Manifold to remain attached to the hose.)
- Flush gun with a compatible solvent. (See p. 17)
- Unscrew and remove mix tip with a 5/16 nut driver. (47). See previous page.
- Loosen the A and B side seal cartridges (5 & 6) so that the mix chamber can easily slide out when the head is removed from the handle.
- Note: If necessary, fully remove the side seal cartridges and inspect the side seals. Replace side seals if worn.
- Use 5/16 Nut Driver to remove the head assembly from the gun handle.
- Clean the mix chamber's impingement ports with the appropriate drill bit.
- Soften hardened material by soaking mix chamber in a cleaning solvent. Then use drill bit.
- Install the cleaned mix chamber, or install a new mix chamber. Couple the ball end to the piston rod.
- Slide the head over the mix chamber and retighten the screw (7).
- Re-tighten the side seal cartridges. Tighten securely. (Do not mix the side seal cartridges.)



### Mix Chamber Impingement Drill Bit Sizes

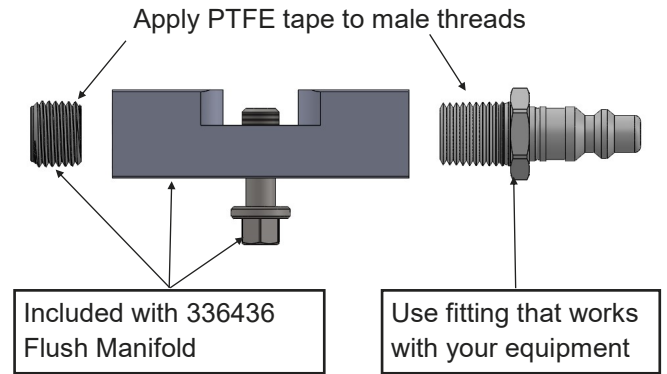
Mix Chamber Part No. (Drill Included)	Size	Drill Size, in [mm]
336447	B	#58, .042 [1.00]
336448	C	#56, .047 [1.15]
336449	D	#55, .052 [1.30]
336450	E	#53, .060 [1.50]
336451	F	#50, .070 [1.75]



## MAINTENANCE - FLUSHING

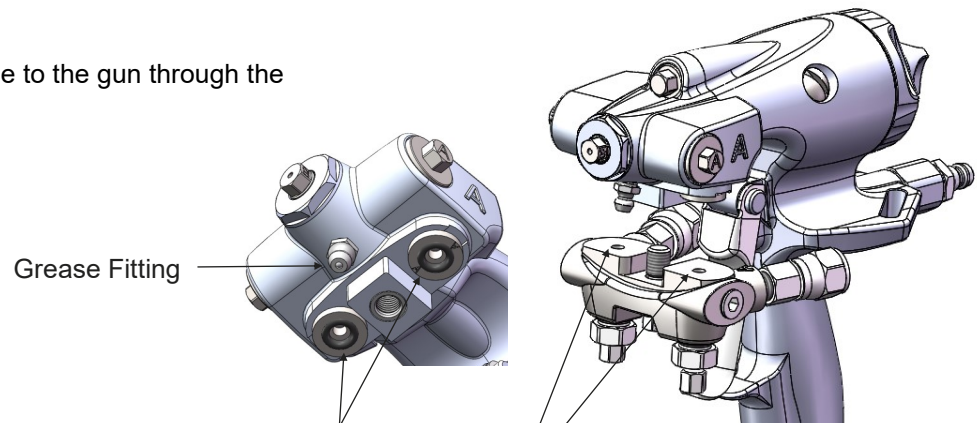
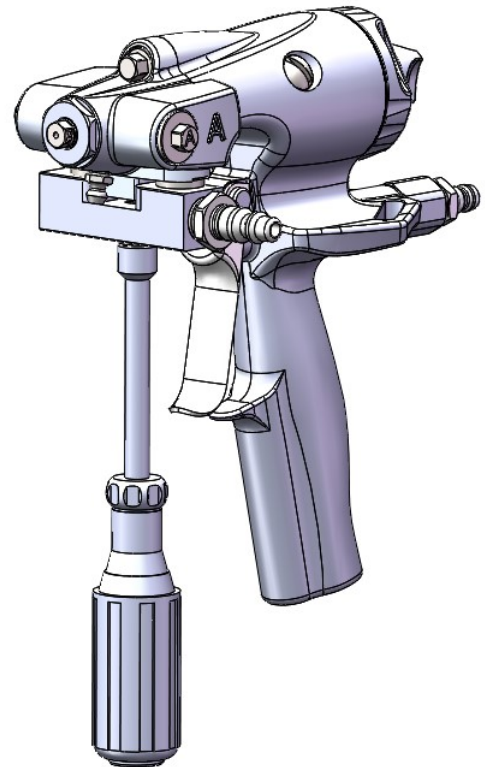
### Assemble the flush manifold

- Apply PTFE tape to the male threads of a 1/4 NPT plug and a fitting that will accept the solvent flush line, (a male QD stem is shown for reference) and tighten securely into the manifold block.



### Flushing the gun

- Follow the pressure relief procedure on page 12.
- Make sure that safety stop is in the locked position and the manual valves are closed shut.
- Turn off air supply to the gun.
- Remove gun from fluid manifold. (Leave manifold attached to the hose.)
- Assemble the flush manifold block assembly (48) to the gun. The flush manifold can be attached in either direction.
- Connect flushing solvent source to flush manifold. Use a suitable flushing solvent.
- When ready to flush, open air valve and turn the safety stop knob to the unlocked position.
- Point gun into a suitable waste container and trigger gun.
- When flushing is complete, turn the safety stop knob to the locked position.
- Close the air valve.
- Remove the flush manifold from the gun.
- Apply grease to the check valve face O-rings and the top sealing faces of the fluid manifold, and reassemble the gun to the manifold.
- Apply one shot of fresh grease to the gun through the grease fitting.

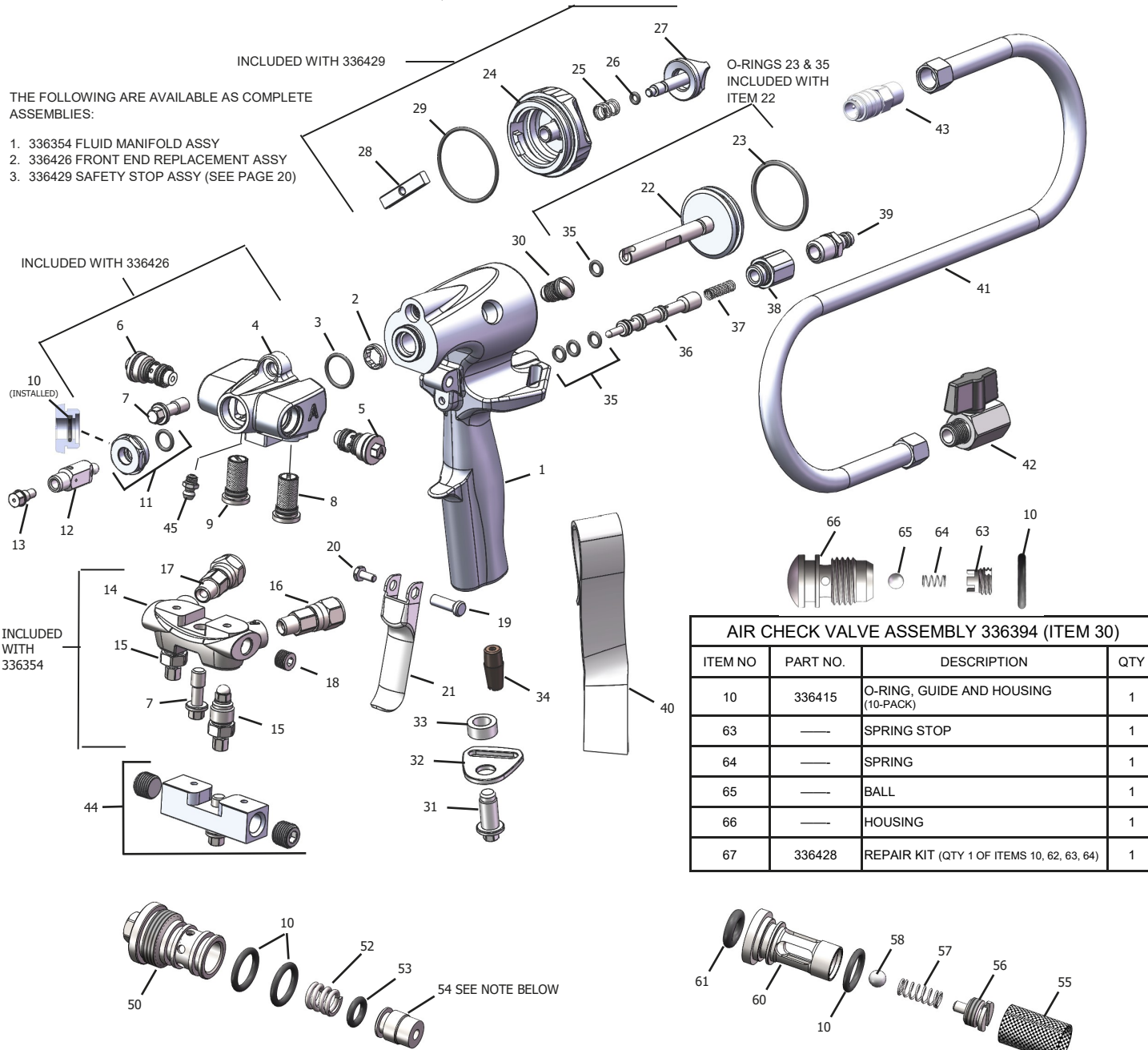


Before re-attaching gun to fluid manifold, apply grease at locations shown.

# ST1 PLURAL COMPONENT, AIR PURGE SPRAY GUN — COMPONENTS

THE FOLLOWING ARE AVAILABLE AS COMPLETE ASSEMBLIES:

1. 336354 FLUID MANIFOLD ASSY
2. 336426 FRONT END REPLACEMENT ASSY
3. 336429 SAFETY STOP ASSY (SEE PAGE 20)



AIR CHECK VALVE ASSEMBLY 336394 (ITEM 30)			
ITEM NO	PART NO.	DESCRIPTION	QTY
10	336415	O-RING, GUIDE AND HOUSING (10-PACK)	1
63	—	SPRING STOP	1
64	—	SPRING	1
65	—	BALL	1
66	—	HOUSING	1
67	336428	REPAIR KIT (QTY 1 OF ITEMS 10, 62, 63, 64)	1

SIDE SEAL CARTRIDGE ASSEMBLY 336375 (ITEM 5) & 336376 (ITEM 6)			
ITEM NO	PART NO.	DESCRIPTION	QTY
50	—	SIDE SEAL CARTRIDGE HOUSING 336377 A, TBD B	1
10	336415	O-RING, HOUSING (10-PACK)	2
52	336378	SPRING, SIDE SEAL	1
53	336414	O-RING, SIDE SEAL (10-PACK)	1
54	336379	SIDE SEAL, POLY (2-PACK W/ O-RINGS)	1
	336410	SIDE SEAL, POLY (60-PACK W/ O-RINGS)	

FLUID CHECK VALVE ASSEMBLY 336360 (ITEM 8) 336361 (ITEM 9)			
ITEM NO	PART NO.	DESCRIPTION	QTY
55	336422	SCREEN, 40 MESH (10-PACK)	1
	336423	SCREEN, 60-MESH (10-PACK)	
56	—	SPRING RETAINER	1
57	336362	SPRING, CHECK VALVE	1
58	336427	BALL, CHECK VALVE (10-PACK)	1
10	336415	O-RING, HOUSING (10-PACK)	1
60	—	HOUSING (A / B SIDE)	1
61	336418	O-RING, CHECK VALVE FACE (10-PACK)	1

NOTE: All spray guns are shipped with polymer side seals which are recommended for pressures up to 2000 psi. Stainless Steel side seals (PN 336381) are available for higher operating pressures up to 3500 psi.

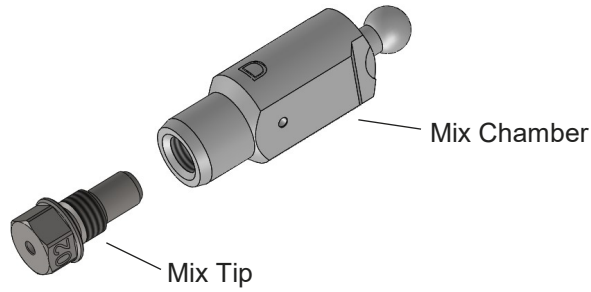


## PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	336352	HANDLE	1
2	336359	SHAFT GUIDE	1
3	336417	O-RING HEAD AND HANDLE JUNCTION (2-PACK)	1
4	336353	HEAD	1
5	336375	SIDE SEAL CARTRIDGE ASSEMBLY, A-SIDE	1
6	336376	SIDE SEAL CARTRIDGE ASSEMBLY, B-SIDE	1
7	336356	MANIFOLD SCREW	2
8	336360	CHECK VALVE, A-SIDE	1
9	336361	CHECK VALVE, B-SIDE	1
10	336415	O-RING GUIDE AND HOUSING, (10-PACK)	1
11	336437	GUIDE (INCLUDES ITEM 10)	1
12	336446	MIX CHAMBER	1
13	336453	MIX TIP	1
14	336355	FLUID MANIFOLD	1
15	336372	MANUAL VALVE	2
16	336357	SWIVEL ADAPTER, A-SIDE	1
17	336358	SWIVEL ADAPTER, B-SIDE	1
18	336335	PIPE PLUG, 1/8 NPT 303 SS	2
19	336364	TRIGGER STUD	1
20	336365	TRIGGER SCREW	1
21	336363	TRIGGER	1
22	336370	ROD & PISTON ASSEMBLY	1
23	336419	O-RING AIR PISTON (2-PACK)	1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
24	336373	END CAP	1
25	336735	SPRING	1
26	336413	O-RING SAFETY STOP (2-PACK)	1
27	336737	SAFETY STOP KNOB	1
28	336736	LOCK ARM	1
29	336420	O-RING END CAP (2-PACK)	1
30	336394	CHECK VALVE ASS'Y, AIR	1
31	336401	STUD	1
32	336399	CLIP	1
33	336400	SPACER	1
34	336374	MUFFLER	1
35	336412	O-RING AIR VALVE, PISTON ROD (10-PACK)	4
36	336366	VALVE STEM	1
37	336367	SPRING	1
38	336395	QD BASE	1
39	336396	QD STEM	1
40	336398	STRAP	1
41	336643	HOSE	1
42	336408	BALL VALVE	1
43	336397	QD COUPLER	1
44	336436	FLUSH MANIFOLD ASSEMBLY	1
45	336738	GREASE FITTING	1
P.14	336403	PIN VISE	1
P.14	336404	GREASE GUN	1
P.14	336406	3 OZ GREASE TUBE	1
P.14	336407	5/16 NUT DRIVER	1
P.14	336740	O RING INSTALLATION TOOL	1

**MIX CHAMBERS AND MIX TIPS**



See pages 15 and 16 for mix tip and mix chamber installation and maintenance instructions.

**STANDARD MIX CHAMBER & MIX TIP COMBINATIONS (INCLUDES DRILL BITS)**

PART NO	MIX CHAMBER	MIX TIP	EQUIVALENT
336441	B	01	4242
336442	C	15	4747
336443	D	02	5252
336444	E	03	6060
336445	F	04	7070

**INDIVIDUAL MIX CHAMBERS (INCLUDES IMPINGMENT DRILL BIT)**

MIX CHAMBER PART NO	SIZE	STD. SIZE EQUIVALENT
336447	B	01
336448	C	15
336449	D	02
336450	E	03
336451	F	04

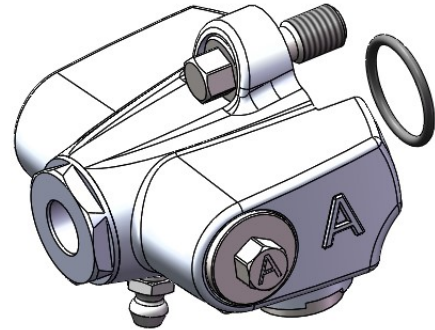
**INDIVIDUAL MIX TIPS (INCLUDES DRILL BIT)**

MIX TIP PART NO.	SIZE
336452	00
336453	01
336454	15
336455	02
336456	03
336457	04

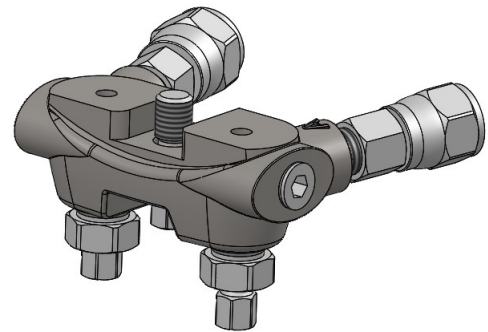
**REPLACEMENT SUBASSEMBLIES**

**Keep your operation running. Keep head, manifold, and safety-stop replacement assemblies on hand for quick field repair.**

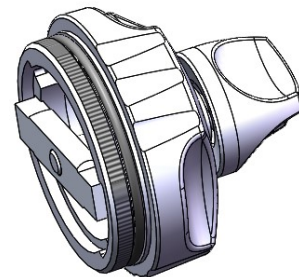
**336426 HEAD REPLACEMENT ASS'Y**  
(Includes POLY side seals. See p. 25 for maintenance/repair instructions)



**336354 MANIFOLD REPLACEMENT ASS'Y**  
(See p. 26 for maintenance/repair instructions)



**336429 SAFETY STOP REPLACEMENT ASS'Y**  
(See p. 27 for maintenance/repair instructions)



## FLOW RATES AND PATTERN SIZES

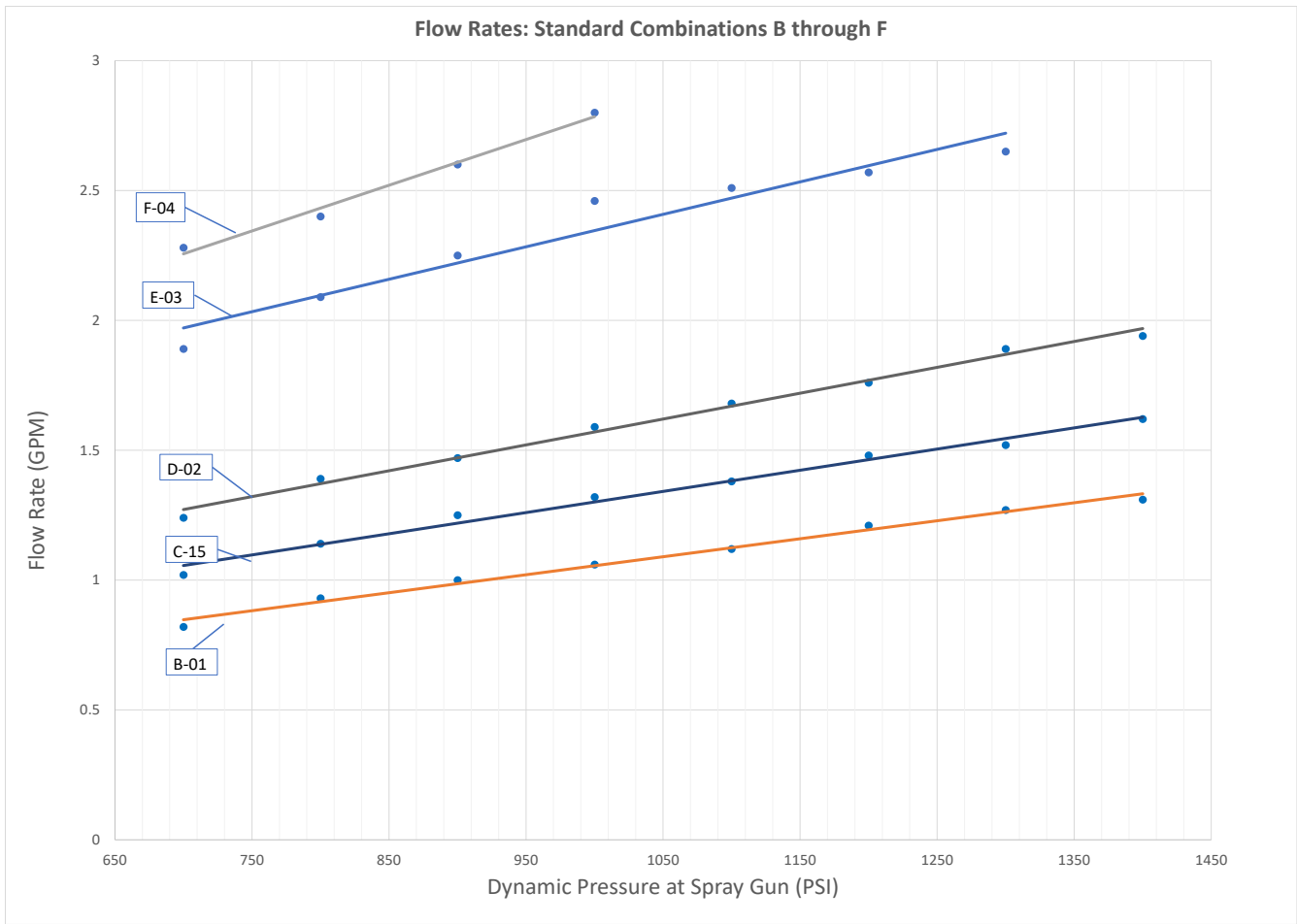
The following chart shows typical flow rates (in GPM) for standard combinations of ST1 mix chambers and tips (e.g. B-01, C-15, D-02, E-03, F-04). Sprayers can use other combinations of chambers and tips to achieve intermediate results (e.g. D-15 will produce curved roughly between C-15 and D-02 results).

Output in LB/MIN is roughly equal to GPM X 10 (e.g. 2.5 GPM = 25 LB/MIN).

The dynamic pressure shown in the chart is measured at the end of the heated hose, not at the proportioner. Dynamic pressure at the proportioner would be higher by 1-2 psi/foot of hose (depending on flow rate and fluid viscosity).

Material used in this test was Carlisle SealTite Pro Closed Cell sprayed at 120°F on both A and B sides. Actual output is highly dependent on fluid viscosity.

The table shows typical pattern sizes for various tips at a distance of 24" from the substrate surface.



Pattern width @ 24" from substrate	
Mix Tip	Width (in)
01	11-12
15	12-13
02	13-14
03	15
04	17

## SPARE PARTS PACKS

O-RING QUANTITY PACKS		
PART NO.	DESCRIPTION	QTY
336412	AIR VALVE, PISTON ROD O-RING	10
336413	SAFETY STOP O-RING	2
336414	SIDE SEAL O-RING	10
336415	GUIDE & HOUSING O-RING, MIX CHAMBER GUIDE, SIDE SEAL, and AIR & FLUID CHECK VALVE HOUSINGS	10
336416	WETTED PARTS O-RING KIT	1
336417	HEAD/HANDLE JUNCTION O-RING	2
336418	CHECK VALVE FACE O-RING	10
336419	AIR PISTON O-RING	2
336420	END CAP O-RING	2
336421	COMPLETE O-RING KIT	VARIES

336416 WETTED PARTS O-RING KIT	
DESCRIPTION	QTY
SIDE SEAL O-RING	2
GUIDE & HOUSING O-RING, MIX CHAMBER GUIDE, SIDE SEAL, and FLUID CHECK VALVE HOUSINGS	7
CHECK VALVE FACE O-RING	2

336421 COMPLETE O-RING KIT	
DESCRIPTION	QTY
AIR VALVE, PISTON ROD O-RING	4
TRIGGER LOCK O-RING	1
SIDE SEAL O-RING	2
GUIDE & HOUSING O-RING, MIX CHAMBER GUIDE, SIDE SEAL, and AIR & FLUID CHECK VALVE HOUSINGS	8
GUN HEAD O-RING	1
CHECK VALVE FACE O-RING	2
AIR PISTON O-RING	1
END CAP O-RING	1

MIX CHAMBER IMPINGEMENT CLEAN-OUT DRILLS			
PART NO.	DESCRIPTION	SIZE	QTY
336464	NO. 68 DRILL (.031)	A	6
336465	NO. 58 DRILL (.042)	B	6
336466	NO. 56 DRILL (.0465)	C	6
336467	NO. 55 DRILL (.052)	D	6
336468	NO. 53 DRILL (.0595)	E	6
336470	NO. 50 DRILL (.070)	F	6

MIX TIP CLEAN-OUT DRILLS			
PART NO.	DESCRIPTION	SIZE	QTY
336467	NO. 55 DRILL (.052)	00	6
336468	NO. 53 DRILL (.0595)	01	6
336469	NO. 52 DRILL (.0635)	15	6
336470	NO. 50 DRILL (.070)	02	6
336471	NO. 44 DRILL (.086)	03	6
336472	NO. 42 DRILL (.0935)	04	6

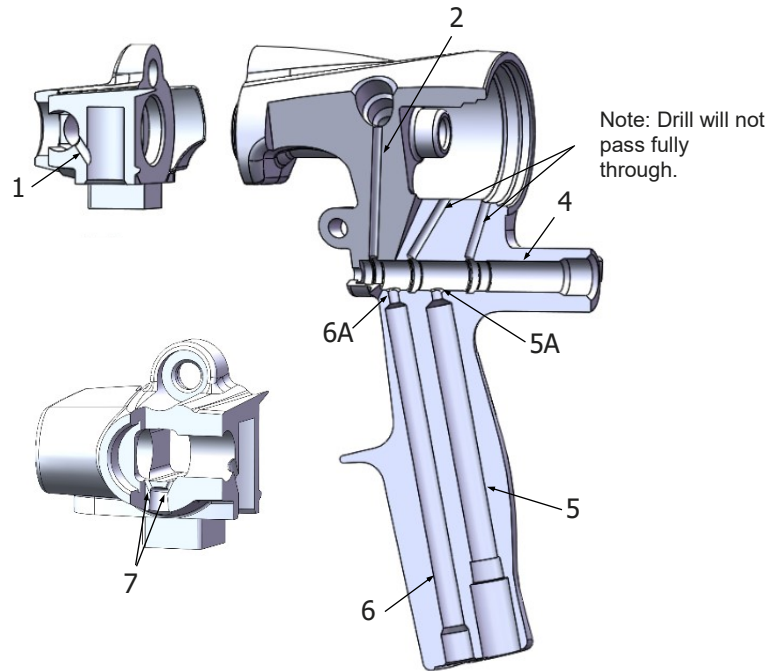
## HANDLE AND HEAD DRILL BIT KIT (336439)

**WARNING**  
Relieve pressure before cleaning or repairing gun.

**NOTE**  
Do not drill into metal during clean-out operation

Use Dynasolve CU-6, N Methyl Pyrrolidone (NMP), Dzolv, or equivalent to soften cured material.

**CAUTION**  
These solvents are not to be used for flushing.



Ref No.	Passage Description	Drill Size
1	FLUID TRANSFER	No. 36 (.1065)
2	PURGE AIR	No. 36 (.1065)
3	PISTON AIR	No. 36 (.1065)
4	AIR VALVE BORE	"T" (.358)
5	EXHAUST PORT (LARGE DIA.)	"Q" (.332)
5A	EXHAUST PORT (SMALL DIA.)	No. 31 (.120)
6	OPTIONAL AIR INLET (LARGE DIA.)	"I" (.272)
6A	OPTIONAL AIR INLET (SMALL DIA.)	No. 31 (.120)
7	GREASE CHANNELS	No. 58 (.042)

## GUN CLEANING KIT (336642)

Kit of brushes and tools for keeping your gun clean and in top condition.

## COMPLETE SPARES KIT (336424)

Assortment of O-rings and spare parts to keep you up and running. Refer to page 18 for Item references in assembly.

ITEM	PN	DESCRIPTION
7	336356	Manifold Screw
8	336360	CHECK VALVE ASSEMBLY, A-SIDE
9	336361	CHECK VALVE ASSEMBLY, B-SIDE
15	336371	MANUAL VALVE 2 PACK
28	336736	LOCK ARM
25	336735	LOCK ARM SPRING
34	336374	MUFFLER
5	336375	SIDE SEAL CARTIDGE ASSEMBLY, A
6	336376	SIDE SEAL CARTIDGE ASSEMBLY, B
54	336379	SIDE SEAL, POLY, 2-PACK
54	336381	SIDE SEAL, STAINLESS STEEL, 2-PACK
30	336394	CHECK VALVE ASSEMBLY, AIR
43	336397	QD COUPLER
40	336398	STRAP
32	336399	GUN CLIP
33	336400	SPACER
35	336412	O-RING 10 PACK, AIR VALVE & PISTON
26	336413	O-RING 2 PACK, SAFETY STOP
53	336414	O-RING 10 PACK, SIDE SEAL
10	336415	O-RING 10 PACK, SIDE SEAL & GUIDE
3	336417	O-RING 2 PACK, HEAD/BODY JUNCTION
61	336418	O-RING 10 PACK, CHECK VALVE FACE
23	336419	O-RING 2 PACK, AIR PISTON
29	336420	O-RING 2 PACK, END CAP
55	336422	FILTER SCREEN, 40 MESH, 10-PACK
49	336738	GREASE FITTING
11	336437	GUIDE ASSEMBLY
13	336453	MIX TIP SIZE 01 & DRILL BIT
13	336454	MIX TIP SIZE 15 & DRILL BIT
13	336455	MIX TIP SIZE 02 & DRILL BIT
P.14	336740	O RING INSTALLATION TOOL

## GUN HEAD ASSEMBLY SERVICE

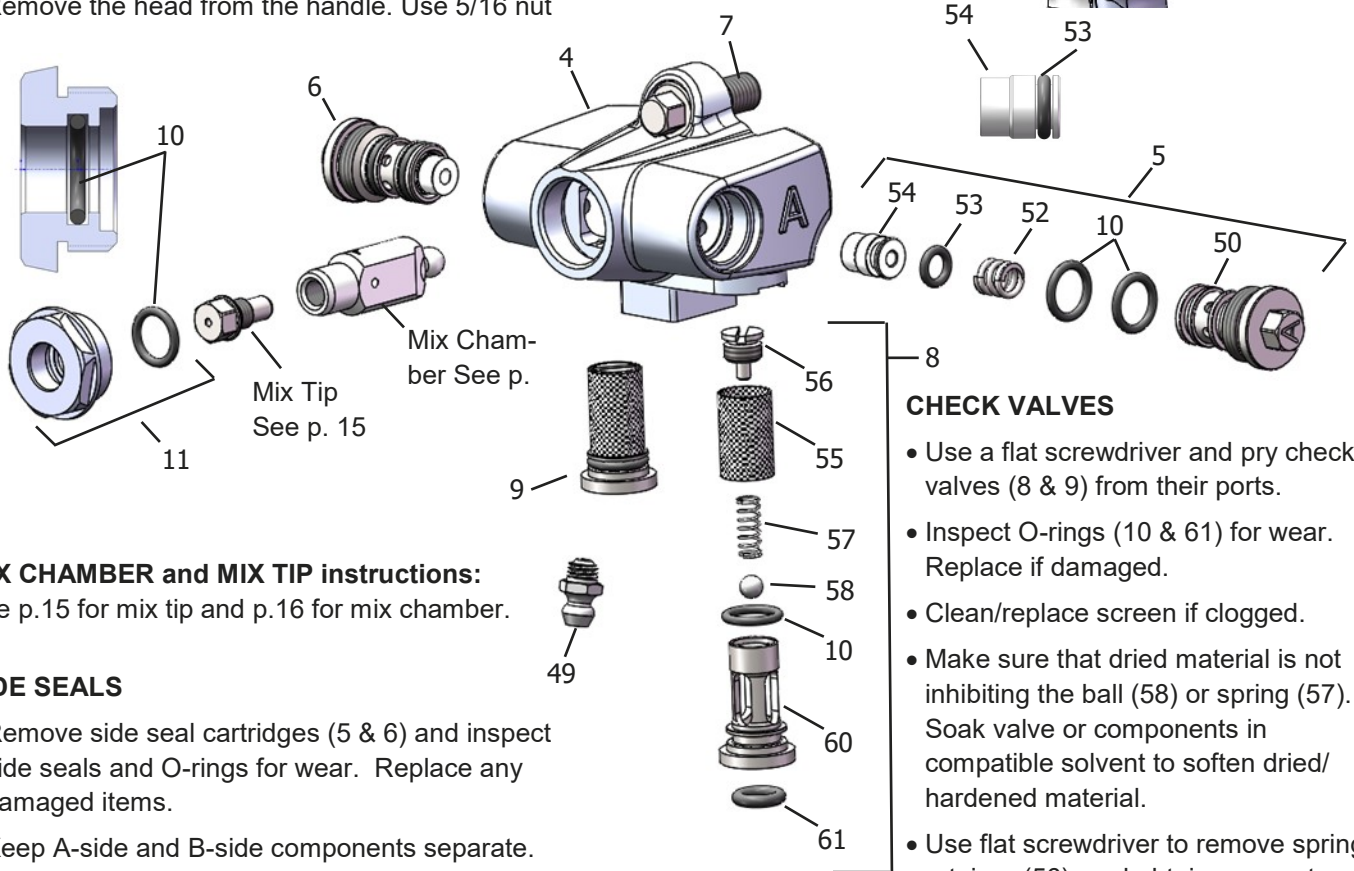
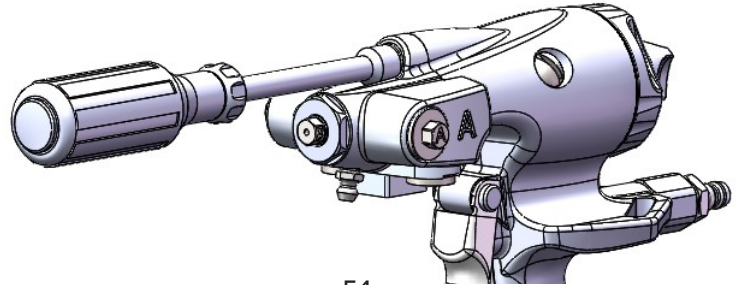
**⚠ WARNING**  
Relieve pressure before cleaning or repairing gun.

**⚠ WARNING**  
Be sure that Safety Stop is engaged and manual shut-off valves are closed before changing mix chamber or mix tip components.

**⚠ CAUTION**  
To prevent cross contamination of wetted parts, do not interchange A component (ISO) and B component (RESIN) parts

### Remove GUN HEAD assembly

- Follow the pressure relief procedure on page 12.
- Make sure that safety stop is in the locked position and the manual valves are closed shut.
- Loosen the A and B side seal cartridges (5 & 6) so that the mix chamber can easily slide out when the head is removed from the handle.
- Remove the head from the handle. Use 5/16 nut



**MIX CHAMBER and MIX TIP instructions:**  
See p.15 for mix tip and p.16 for mix chamber.

### SIDE SEALS

- Remove side seal cartridges (5 & 6) and inspect side seals and O-rings for wear. Replace any damaged items.
- Keep A-side and B-side components separate. Do not mix.
- Soak components in compatible solvent to soften dried/hardened material.
- When re-assembling the side seal cartridge(s), make sure that the spring (52) is installed in the housing (50) before installing the side seal (54)!
- Apply grease to the side seal, all O-rings, and housing threads, and re-install the cartridge(s) in correct (A/B) port.
- Tighten securely.

**Reduce downtime. Keep spraying. Keep an extra Gun Head Assembly in your rig. See page 20.**

### CHECK VALVES

- Use a flat screwdriver and pry check valves (8 & 9) from their ports.
- Inspect O-rings (10 & 61) for wear. Replace if damaged.
- Clean/replace screen if clogged.
- Make sure that dried material is not inhibiting the ball (58) or spring (57). Soak valve or components in compatible solvent to soften dried/hardened material.
- Use flat screwdriver to remove spring retainer (56), and obtain access to ball and spring.
- Install cleaned/new ball & spring and tighten spring retainer until it stops flush with top of valve housing.
- Keep A-side and B-side components separate. Do not mix.
- Apply grease to the O-rings, and re-install the check valve(s).
- Reinstall check valve in correct (A/B) port.



## FLUID MANIFOLD ASSEMBLY SERVICE

### ⚠ WARNING

Relieve pressure before cleaning or repairing gun.

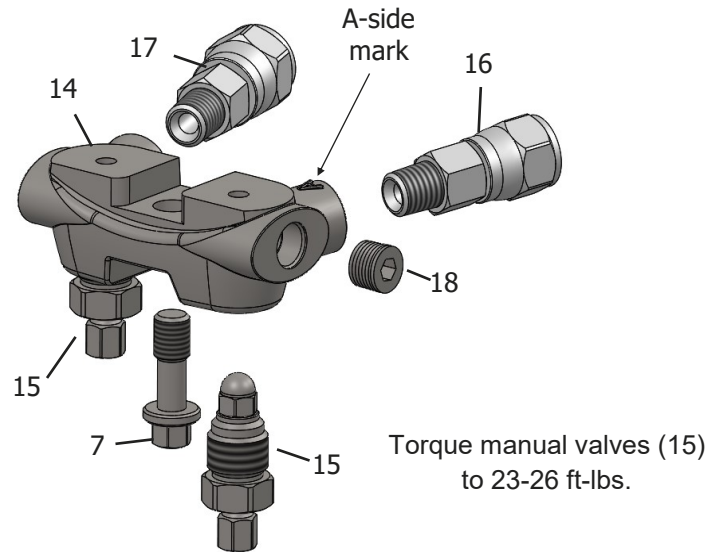
### ⚠ CAUTION

To prevent cross contamination of wetted parts, do not interchange A component (ISO) and B component (RESIN) parts

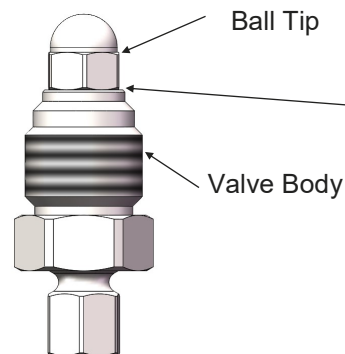
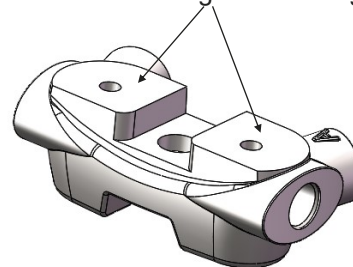
Reduce downtime. Keep spraying. Keep an extra Manifold Assembly in your rig. See page 20.

### Remove FLUID MANIFOLD assembly

- Maintenance/repair of the manifold assembly requires that hose and system pressure be relieved. Follow the pressure relief procedure on page 12.
- Remove gun from manifold. Flushing gun is recommended before beginning maintenance.
- Remove manifold assembly from hose. Plug and/or arrange hoses to prevent A and B chemicals from running out of end of hose.
- Inspect hose swivels (16 & 17), manual valves (15), plugs (18) and manifold screw (7) for damage. Clean or replace as needed.
- Keep A-side and B-side components separate. Do not mix.
- Inspect manifold (14). Soak in compatible solvent to soften dried/hardened material. Wipe away softened material. Use a stiff brush if necessary, but do not scratch/damage the top sealing surfaces of the manifold.
- Install manual valves (15). Make sure that the ball tip is against the valve body during installation. Torque to 23-26 ft-lbs.
- Install swivel fittings. Apply PTFE tape to the threads. Note that the smaller fitting (Item 16 - #5 JIC) is installed on the A side, and the larger fitting (Item 17 - #6 JIC) is installed on the B side. Tighten fittings securely.
- Wrap pipe plugs (18) with PTFE tape and install securely into manifold.
- See p. 13 for alternate configuration of swivel fittings and plugs.
- Before attaching the manifold assembly to the hose, make sure that the manual valves are fully closed. (Turned all the way in)

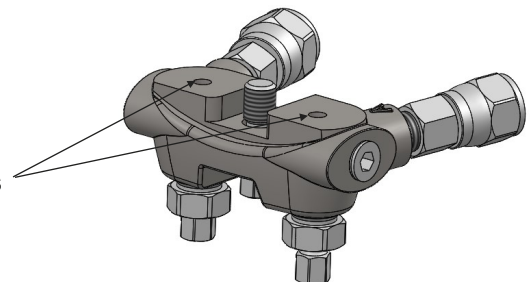


Do not scratch or damage the sealing surfaces!



To prevent damage to the ball tip and manifold seat, make sure that the ball tip is turned all the way out and it is against the valve body before installing each manual valve into the fluid manifold. Torque

Apply grease to ports and sealing area around the ports



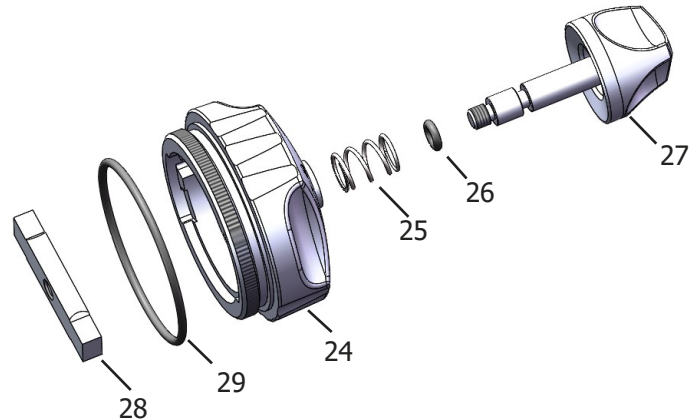
## SAFETY STOP ASSEMBLY SERVICE

### **! WARNING**

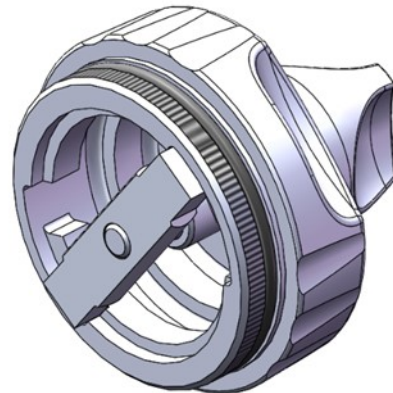
Relieve pressure before cleaning or repairing gun.

#### Remove SAFETY STOP assembly

- Follow the pressure relief procedure on page 12.
- Make sure that safety stop is in the locked position and the manual valves are closed shut.
- Remove gun from manifold. Flushing gun is recommended before beginning maintenance.
- Unscrew the safety stop assembly from the rear of the gun handle.
- Inspect the end cap o-ring (29) for damage. Replace if damaged.
- To inspect and replace the knob stem o-ring (26), the lock-arm (28) must be removed.
- Position the lock-arm in one of its slots. Place a cloth around the knob (to prevent damage) and grip with channel locks (or pliers). Unscrew the knob from the lock-arm. If the threads won't break free, heat threads briefly to soften the retaining compound.
- Pull the stem from the end cap and remove the existing o-ring.
- Clean the threads of the stem and lock arm. Soak in acetone to dissolve the retaining compound. Use wire brush and/or a pick-type tool to clean.
- Install new o-ring (26)
- Lubricate o-ring (26) and knob stem (27).
- Install spring (25) over stem and insert the stem through the end cap (24).
- If the lock-arm (28), needs to be replaced, replace it as well.
- Apply thread retaining compound to the threads of the knob stem (27) and the lock-arm (28).
- Hold the lock-arm into one of its slots and thread the knob stem into the lock-arm. Make sure that the lock-arm shoulders tight against the stem.
- Wipe off excess retaining compound.
- Allow the thread retaining compound to cure over night.
- Apply grease to the end cap (24) threads and the end cap o-ring (29) and thread the safety stop assembly to the gun.

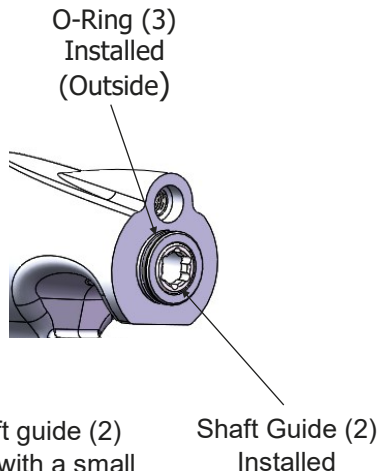
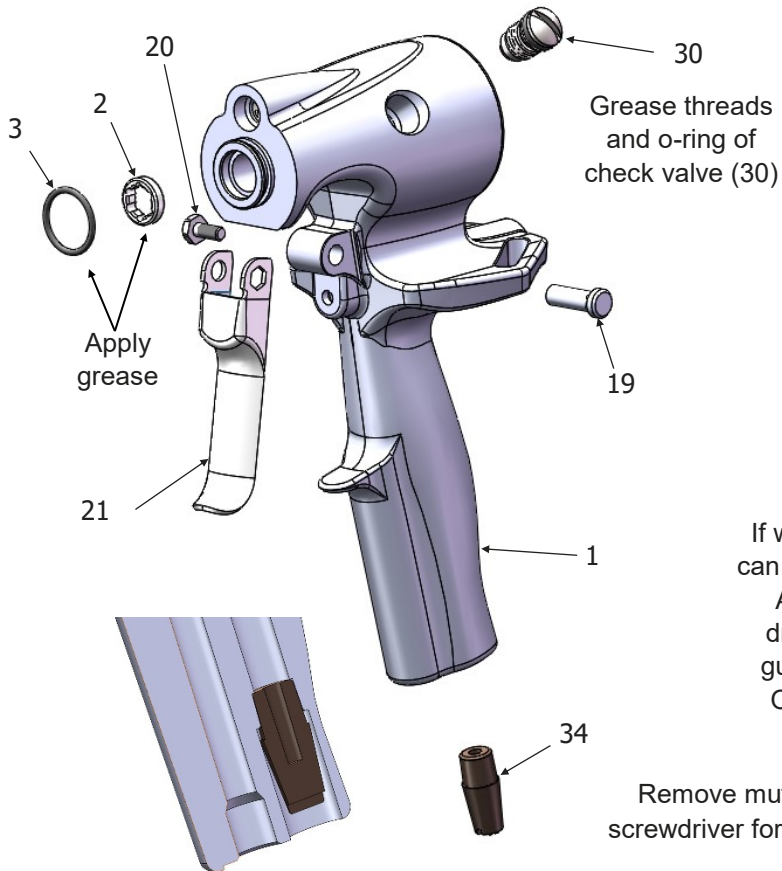


**Reduce downtime. Keep spraying. Keep an extra Safety Stop Assembly in your rig. See page 20.**



**HANDLE ASSEMBLY SERVICE**

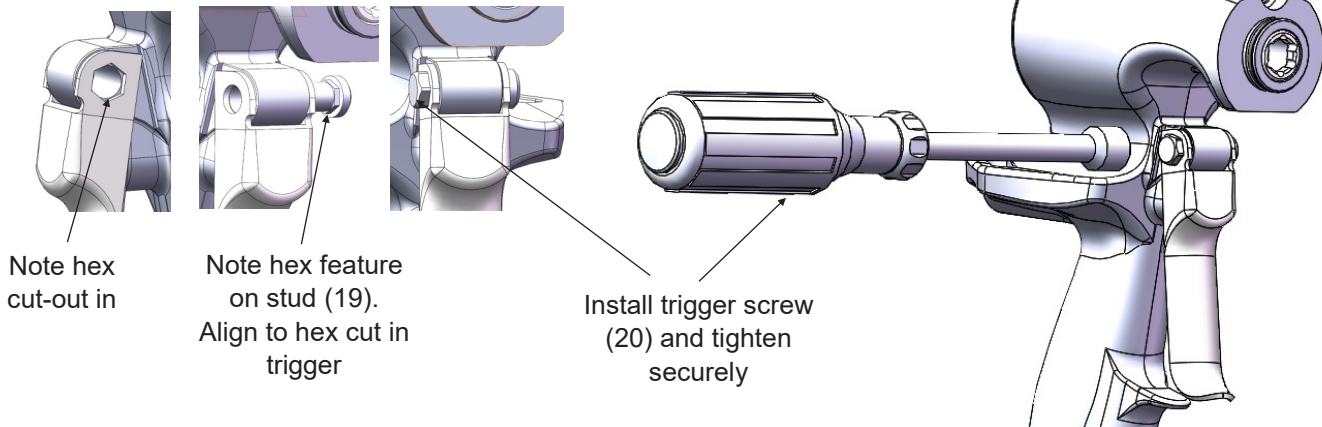
**⚠ WARNING**  
 Relieve pressure before cleaning or repairing gun.



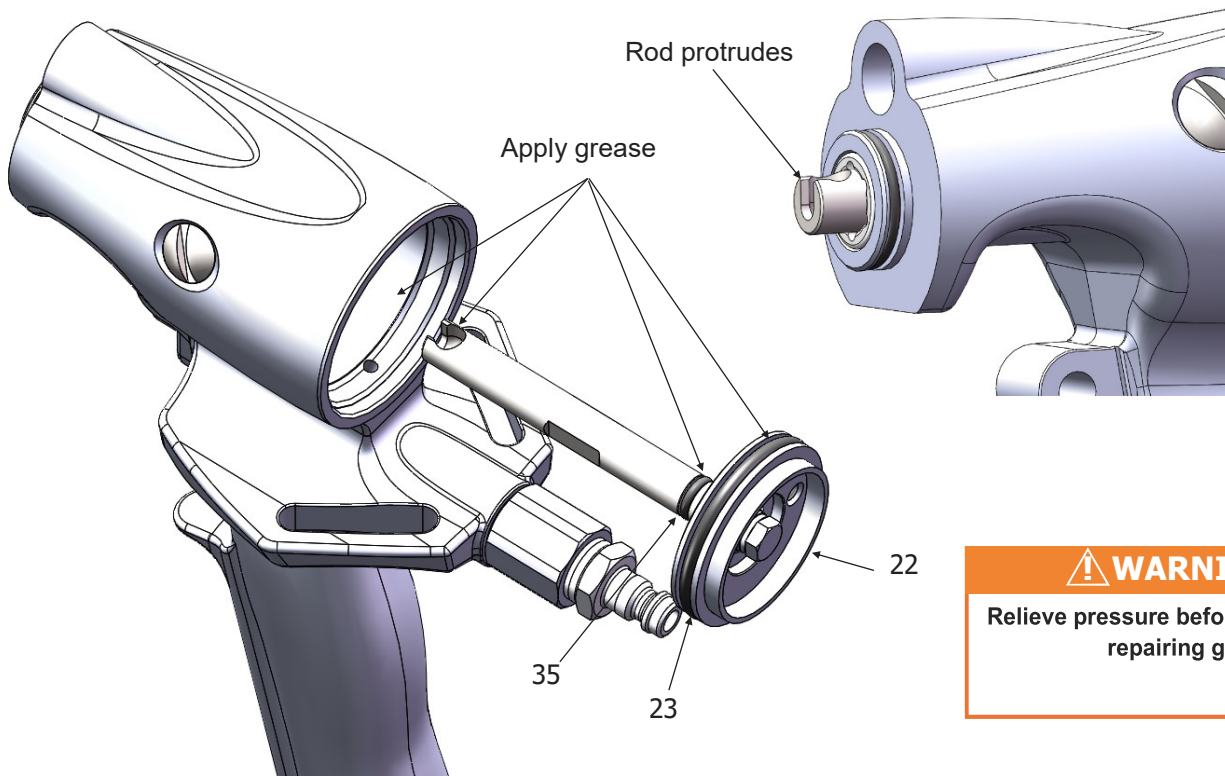
If worn, the shaft guide (2) can be pried out with a small Allen wrench or screw driver. Install new shaft guide by apply grease to O.D. and pressing it in.

Remove muffler (34) with a straight screwdriver for cleaning or replacement.

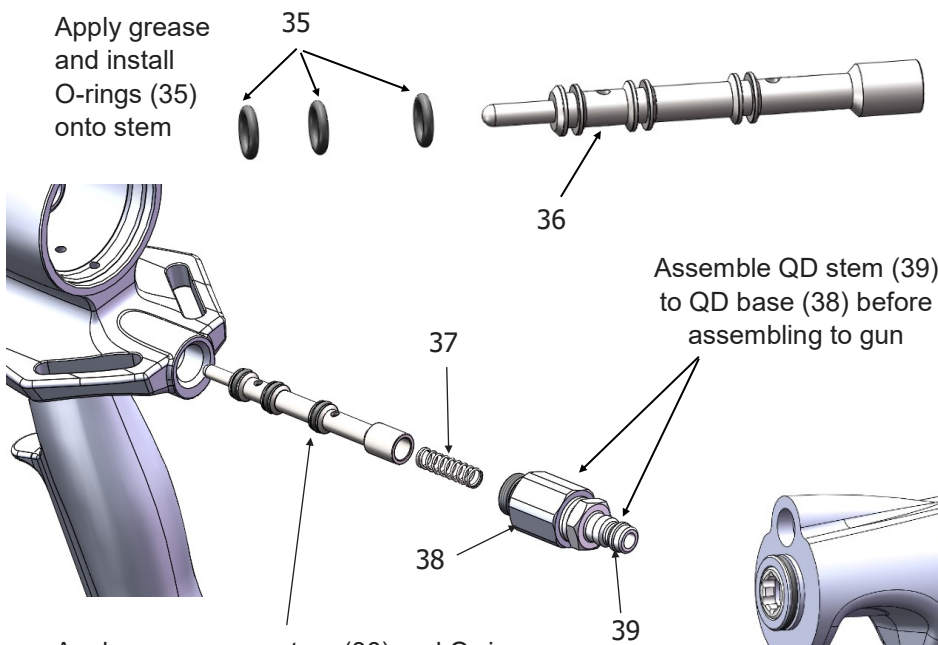
**Single-tool trigger screw**



PISTON AND AIR VALVE ASSEMBLY SERVICE



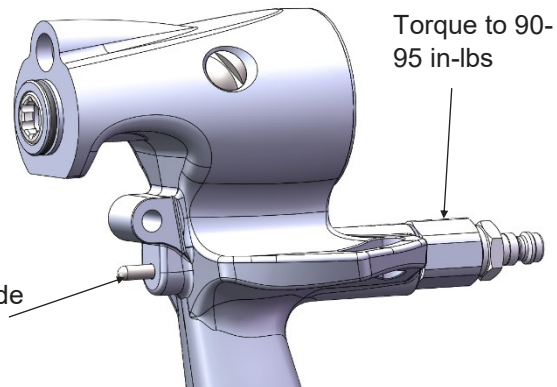
**⚠ WARNING**  
 Relieve pressure before cleaning or repairing gun



Tip: Use the O Ring installation tool (336740) supplied with gun kit and cleaning kit (336642) to avoid damaging O-rings (35).

Apply grease over stem (36) and O-rings (35) and carefully push into the gun handle.

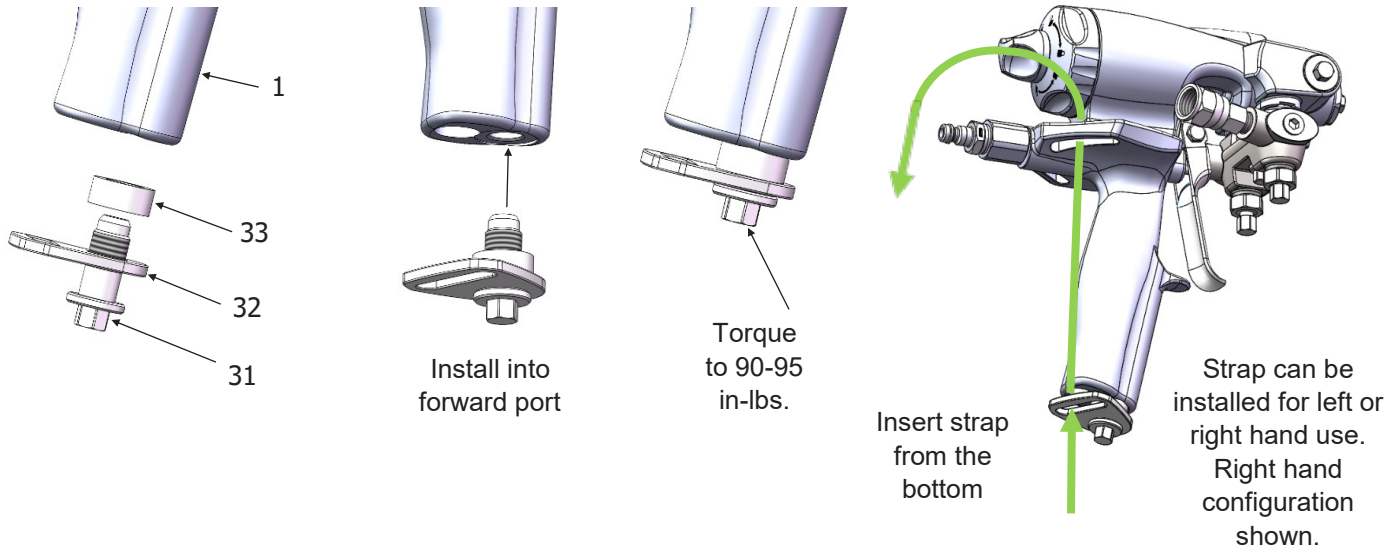
Nose of valve stem (36) should protrude through the front of the handle





**STRAP INSTALLATION**

**⚠ WARNING**  
Relieve pressure before cleaning or repairing gun.



<b>Technical Specifications</b>	
Maximum fluid pressure	3500 psi (245 bar)
Minimum air inlet pressure	70 psi (4.8 bar)
Maximum air inlet pressure	130 psi (9.0 bar)
Air flow range	See Air Flow Chart
Typical fluid flow rates	See Fluid Flow Chart (p. 21)
Maximum fluid temperature	200 F (94 C)
Air inlet size	1/4 NPT Quick Disconnect Nipple
A component (ISO) inlet size	5 JIC ; 1/2-20 UNF
B component(Resin) inlet size	6 JIC ; 9/16-18 UNF
Sound pressure	80.3 dB(A) D-02 combination at 100 psi (6.9 bar)
Sound power	88.7 dB(A) D-02 combination at 100 psi (6.9 bar)
Dimensions	7.9 x 8.3 x 3.4 in (201 x 211 x 86 mm)
Weight (with manifold)	3.1 lb (1.4 kg)
Weight (without manifold)	2.4 lb (1.1 kg)
Wetted parts	Stainless Steel, Coated Aluminum, Plated Steel, Chemically Resistant Plastic, Chemically Resistant O-Rings

<b>Air Flow Rate Data—SCFM (SLPM)</b>					
<b>Inlet Air Pressure (PSI)</b>	<b>Mix Chamber / Tip Combinations</b>				
	<b>B-01</b>	<b>C-15</b>	<b>D-02</b>	<b>E-03</b>	<b>F-04</b>
80.0	1.6 (45)	2.0 (56)	2.5 (70)	3.0 (86)	3.4 (96)
100.0	1.9 (55)	2.3 (66)	3.0 (85)	3.5 (100)	4.2 (118)

## TROUBLESHOOTING

Relieve pressure before checking or disassembling the gun. Follow pressure relief procedure.

Check all possible problems and causes before disassembling gun.

**⚠ CAUTION**

To prevent cross contamination of wetted parts, do not interchange A component (ISO) and B component (RESIN) parts

PROBLEM	CAUSE	SOLUTION
Gun does not fully actuate when triggered	Safety lock engaged	Disengage safety lock
	Plugged muffler (34)	Clean
	Damaged air valve o-rings (35)	Replace
Fluid does not spray when gun is fully actuated	Closed fluid shut-off valves (15)	Open
	Plugged impingement ports (12)	Clean
	Plugged check valves (8 & 9)	Clean valves and/or replace screen
Gun actuates slowly	Plugged muffler (34)	Clean
	Damaged piston o-rings (23 & 35)	Replace
	Dirty air valve (36), or damaged o-rings (35)	Clean air valve or replace O-rings.
Gun delays, then actuates abruptly	Cured material around side seals (5 & 6)	Inspect side seals (53) and mix chamber (12) for scratches. Clean or replace if required.
Gun does not stop spraying when trigger is released	Damaged valve stem O-ring	Replace O rings
Loss of round pattern.	Dirty mix tip (13)	Clean
Pressure imbalance	Plugged impingement ports (12)	Clean
	Plugged check valves (8 & 9)	Clean
	Viscosities not equal	Adjust temperature to compensate
	Dirty filter screens	Clean

## TROUBLESHOOTING (continued)

PROBLEM	CAUSE	SOLUTION
A and/or B fluid in gun air section	Damaged side seals (54).	Replace
	Damaged mix chamber (12).	Replace
	Damaged side seal o-rings (10, 52).	Replace
Fluid mist from mix chamber or air cap	Damaged side seals (54).	Replace
	Damaged side seal o-rings (10, 53).	Replace
	Damaged mix chamber (12).	Replace
Excessive overspray	Fluid pressure too high	Reduce
	Incorrect size mix chamber and/or mix tip for job	Select appropriate mix chamber and tip. Adjust pressure and temperature accordingly.
Rapid buildup of material on mix tip	Too little purge air.	Increase
	Mix tip not fully tightened (13)	Tighten
	Damage mix chamber (12)	Replace
	Damaged/missing fluid handle/head o-ring (3)	Replace
	Damaged guide o-ring (10).	Replace
Reduced purge air	Damaged guide o-ring (10).	Replace
	Air check valve (30) clogged or damaged	Clean or replace
	Air check valve o-ring (10) damaged	Replace
Fluid does not shut off when fluid shut-off valves are closed	Damaged fluid valves (15)	Replace
Burst of air from muffler when gun is triggered	Normal	No action required
Steady air leakage from muffler	Damaged air valve o-rings (35)	Replace
	Damaged piston o-rings (23, 35)	Replace
Air leakage from front of air valve	Damaged air valve o-rings (35)	Replace
Air leak around handle/head junction	Damaged/missing fluid handle/head o-ring (3)	Replace
Air leak from air check valve	Worn o-ring (10)	Replace



## LIMITED WARRANTY

CARLISLE SPRAY TECHNOLOGIES (CST) / CARLISLE SPRAY FOAM INSULATION (CSFI) / CARLISLE FLUID TECHNOLOGIES (CFT) will replace or repair without charge any part/or equipment that fails within the specified time (see below) because of faulty workmanship or material, provided that the equipment has been used and maintained in accordance with our written safety and operating instructions, and has been used under normal operating conditions. Normal wear items are excluded.

### **THE USE OF OTHER THAN CST's APPROVED PARTS VOIDS ALL WARRANTIES.**

EQUIPMENT: When purchased as a complete unit, (i.e. guns), is one (1) year from date of purchase.

#### **NOTE:**

**WRAPPING THE APPLICATOR IN PLASTIC WILL VOID THIS WARRANTY.**

**CST'S ONLY OBLIGATION UNDER THIS WARRANTY IS TO REPLACE PARTS THAT HAVE FAILED BECAUSE OF FAULTY WORKMANSHIP OR MATERIALS. THERE ARE NO IMPLIED WARRANTIES NOR WARRANTIES OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. CST ASSUMES NO LIABILITY FOR INJURY, DAMAGE TO PROPERTY OR FOR CONSEQUENTIAL DAMAGES FOR LOSS OF GOODWILL OR PRODUCTION OR INCOME, WHICH RESULT FROM USE OR MISUSE OF THE EQUIPMENT BY PURCHASER OR OTHERS.**

#### **EXCLUSIONS:**

If, in CST/CSFI/CFT opinion the warranty item in question, or other items damaged by this part was improperly installed, operated, or maintained, CST/CSFI/CFT will assume NO responsibility for repair or replacement of the item or items. The purchaser, therefore, will assume all responsibility for any cost of repair or replacement and service-related costs if applicable.



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