

# RS Gun, Cutter

3A0232E

ENG

**For use with polyester resin and gel-coat.**

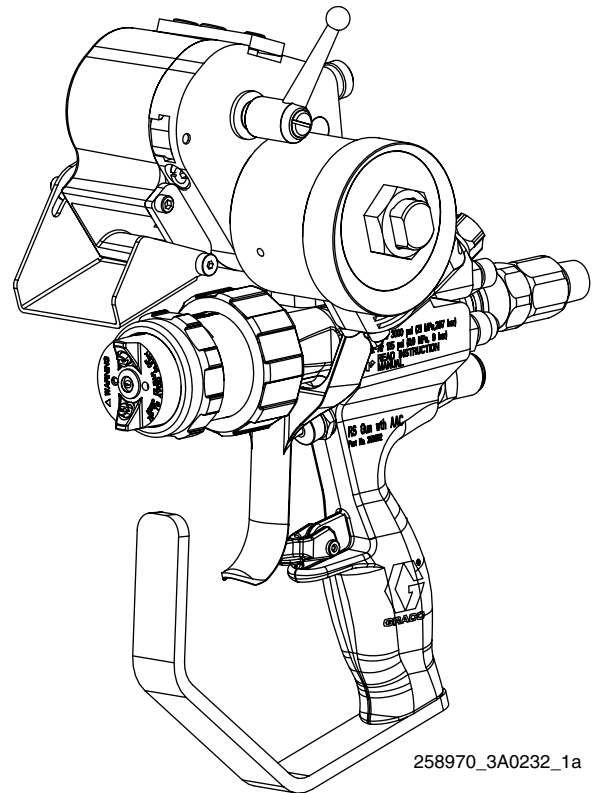
**For professional use only.**



**Important Safety Instructions**

Read all warnings and instructions in this manual. Save these instructions.

See page 3 for model information, including maximum working pressure.



Patents Pending

258970\_3A0232\_1a

*External Mix Chop Gun with Cutter shown*



HO03

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# Models

See **Technical Data** on page 52 for more specifications.

Model	Description	Maximum Fluid Working Pressure psi (MPa, bar)	Maximum Catalyst Working Pressure psi (MPa, bar)	Air Inlet Working Pressure Range psi (MPa, bar)	Maximum Fluid Temperature °F (°C)
<b>258853</b>	Internal Mix Gel Gun	2000 (14, 138)	2000 (14, 138)	0-125 (0-0.86, 0-8.6)	100 (38)
<b>258854</b>	Internal Mix Chop Gun, No Cutter	2000 (14, 138)	2000 (14, 138)	0-125 (0-0.86, 0-8.6)	100 (38)
<b>258971</b>	Internal Mix Chop Gun, Cutter	2000 (14, 138)	2000 (14, 138)	80-125 (0.55-0.86, 5.5-8.6)	100 (38)
<b>258840</b>	External Mix Gel Gun	3000 (21, 207)	200 (1.4, 14)	0-125 (0-0.86, 0-8.6)	100 (38)
<b>258852</b>	External Mix Chop Gun, No Cutter	3000 (21, 207)	200 (1.4, 14)	0-125 (0-0.86, 0-8.6)	100 (38)
<b>258970</b>	External Mix Chop Gun, Cutter	3000 (21, 207)	200 (1.4, 14)	80-125 (0.55-0.86, 5.5-8.6)	100 (38)
<b>24E512</b>	Cutter	--	--	80-125 (0.55-0.86, 5.5-8.6)	--





## Related Manuals






Component manuals in English. Manuals are available at [www.graco.com](http://www.graco.com).

Part	Description
<b>3A1226</b>	RS Gun Field Install Kit Instructions

# Warnings



The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 <b>WARNING</b>	
	<p><b>FIRE AND EXPLOSION HAZARD</b></p> <p>Flammable fumes, such as solvent and paint fumes, in <b>work area</b> can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).</li> <li>• Keep work area free of debris, including solvent, rags and gasoline.</li> <li>• Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.</li> <li>• Ground all equipment in the work area. See <b>Grounding</b> instructions.</li> <li>• Use only grounded hoses.</li> <li>• Hold gun firmly to side of grounded pail when triggering into pail.</li> <li>• If there is static sparking or you feel a shock, <b>stop operation immediately</b>. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul>
	<p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from dispensing device, 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. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"> <li>• Engage trigger lock when not dispensing.</li> <li>• Do not point dispensing device at anyone or at any part of the body.</li> <li>• Do not put your hand over the fluid outlet.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Follow the <b>Pressure Relief Procedure</b> when you stop dispensing and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses and couplings daily. Replace worn or damaged parts immediately.</li> </ul>
	<p><b>MOVING PARTS HAZARD</b></p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> <li>• Keep clear of moving parts.</li> <li>• Do not operate equipment with protective guards or covers removed.</li> <li>• Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the <b>Pressure Relief Procedure</b> and disconnect all power sources.</li> </ul>




 <b>WARNING</b>	
	<p><b>TOXIC FLUID OR FUMES HAZARD</b></p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> <li>• Read MSDSs to know the specific hazards of the fluids you are using.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> <li>• Always wear chemically impermeable gloves when spraying, dispensing, or cleaning equipment.</li> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This equipment includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eyewear, and hearing protection.</li> <li>• Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.</li> </ul>
	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Data</b> in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. See <b>Technical Data</b> in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.</li> <li>• Do not leave the work area while equipment is energized or under pressure. Turn off all equipment and follow the <b>Pressure Relief Procedure</b> when equipment is not in use.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>
	<p><b>PRESSURIZED ALUMINUM PARTS HAZARD</b></p> <p>Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.</p> <ul style="list-style-type: none"> <li>• Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.</li> <li>• Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.</li> </ul>

## Important Two-Component Information

### Material Self-ignition

						
<p>Some materials may become self-igniting if applied too thickly. Read material manufacturer's warnings and material MSDS.</p>						

### Keep Components A and B Separate

						
<p>Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination of the equipment's wetted parts, <b>never</b> interchange component A (catalyst) and component B (resin) parts.</p>						

### Changing Materials

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers after flushing.
- Check with your material manufacturer for chemical compatibility.

# Important Methyl Ethyl Ketone Peroxide (MEKP)

## Safety Information

MEKP is among the more hazardous materials found in commercial channels. Proper handling of the “unstable (reactive)” chemicals presents a definite challenge to the plastics industry. The highly reactive property which makes MEKP valuable to the plastics industry in producing the curing reaction of polyester resins and gel-coats also produces the hazards which require great care and caution in its storage, transportation, handling, processing and disposal.

Workers must be thoroughly informed of the hazards that may result from improper handling of MEKP, especially in regards to contamination and heat. They must be thoroughly instructed regarding the proper action to be taken in the storage, use and disposal of MEKP and other hazardous materials used in the laminating operation.

Current catalysts are premixed and do not require any diluents. Graco strongly recommends that diluents not be used. Diluents add to the possibility of contaminants entering the catalyst system. Never dilute MEKP with acetone or any solvent since this can produce an extremely shock-sensitive compound which can explode.

Use only original equipment or equivalent parts from Graco in the catalyst system (i.e.: hoses, fittings, etc.) because a hazardous chemical reaction may result between substituted parts and MEKP.

To prevent contact with MEKP, appropriate personal protective equipment, including chemically impermeable gloves, boots, aprons and goggles are required for everyone in the work area.









**MEKP is flammable and potentially explosive, as well as potentially damaging to the eyes and skin. Read material manufacturer's warnings and material MSDS to know specific hazards and precautions related to MEKP.**

Contaminated MEKP can become explosive. Prevent contamination of MEKP with other materials, which includes, but is not limited to polyester overspray, polymerization accelerators and promoters, and non-stainless metals. Even small amounts of contaminants can make MEKP explosive. This reaction may start slowly, and gradually build-up heat, which can accelerate until fire or an explosion result. This process can take from seconds to days.






Heat applied to MEKP, or heat build-up from contamination reactions can cause it to reach what is called its Self-Accelerating Decomposition Temperature (SADT), which can cause fire or explosion. Spills should be promptly removed, so no residues remain. Spillage can heat up to the point of self-ignition. Dispose in accordance with manufacture's recommendation.

Store MEKP in a cool, dry and well-ventilated area in the original containers away from direct sunlight and away from other chemicals. It is strongly recommended that the storage temperature remain below 86° F (30° C). Heat will increase the potential for explosive decomposition. Refer to NFPA 432. Keep MEKP away from heat, sparks and open flames.

## Polyester Resins and Gel-Coats

						
<p>Spraying materials containing polyester resin and gel-coats creates potentially harmful mist, vapors and atomized particulates. Prevent inhalation by providing sufficient ventilation and the use of respirators in the work area.</p> <p>Read the material manufacturer's warnings and material MSDS to know specific hazards and precautions related to polyester resins and gel-coats.</p> <p>To prevent contact with polyester resins and gel-coats, appropriate personal protective equipment, including chemically impermeable gloves, boots, aprons and goggles are required for everyone in the work area.</p>						

## Spraying and Lamination Operations

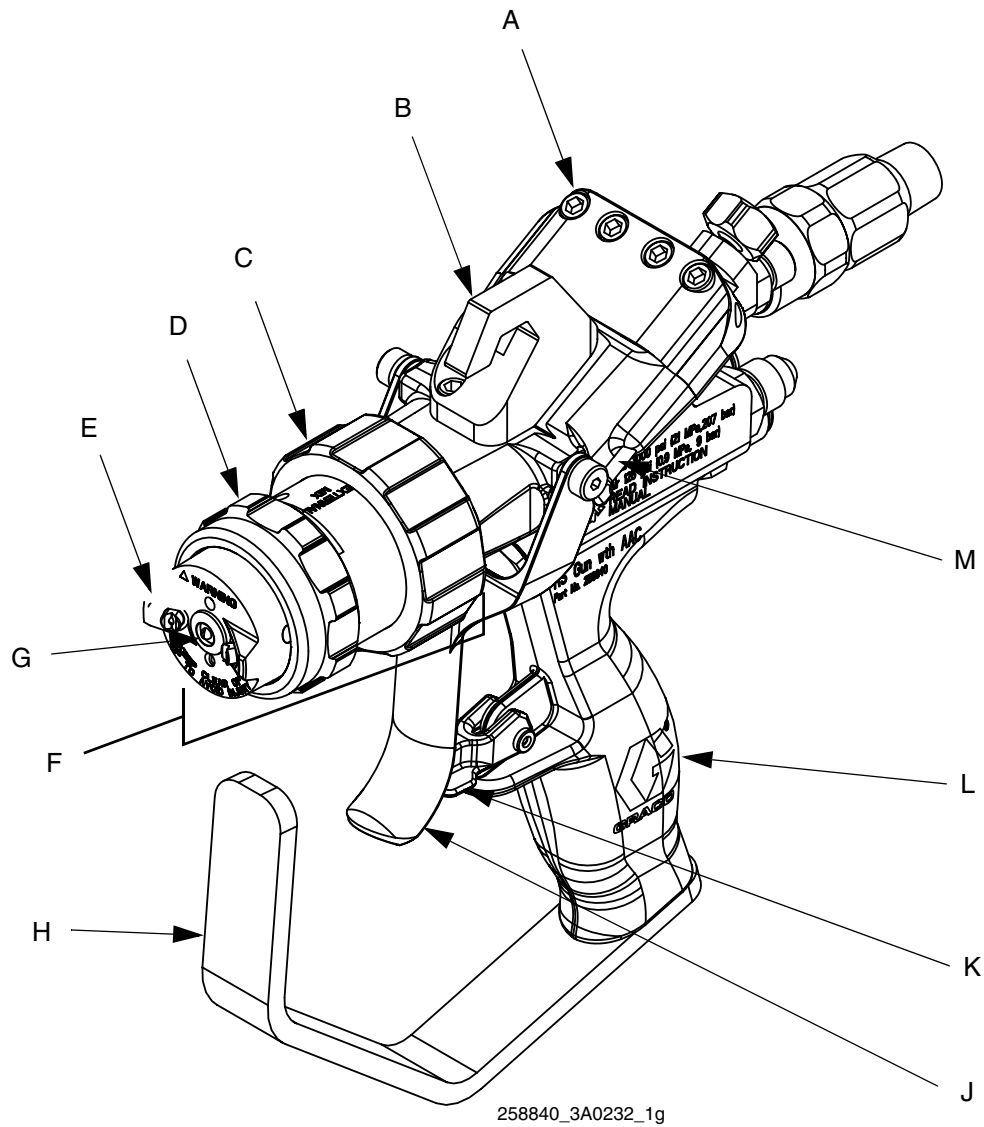
						
<p>Remove all accumulations of overspray, FRP sandings, etc. from the building as they occur. If this waste is allowed to build up, spillage of catalyst is more likely to start a fire.</p> <p>If cleaning solvents are required, read material manufacture's warnings and material MSDS to know specific hazards and precautions. (Graco recommends that clean-up solvents be nonflammable.)</p>						

**NOTE:** Graco recommends that you consult OSHA Sections 1910.94, 1910.106, 1910.107 and NFPA No. 33, Chapter 16,17, and NFPA No. 91 for further guidance.

[illegible]

# Component Identification

## External Mix Gel Gun, 258840



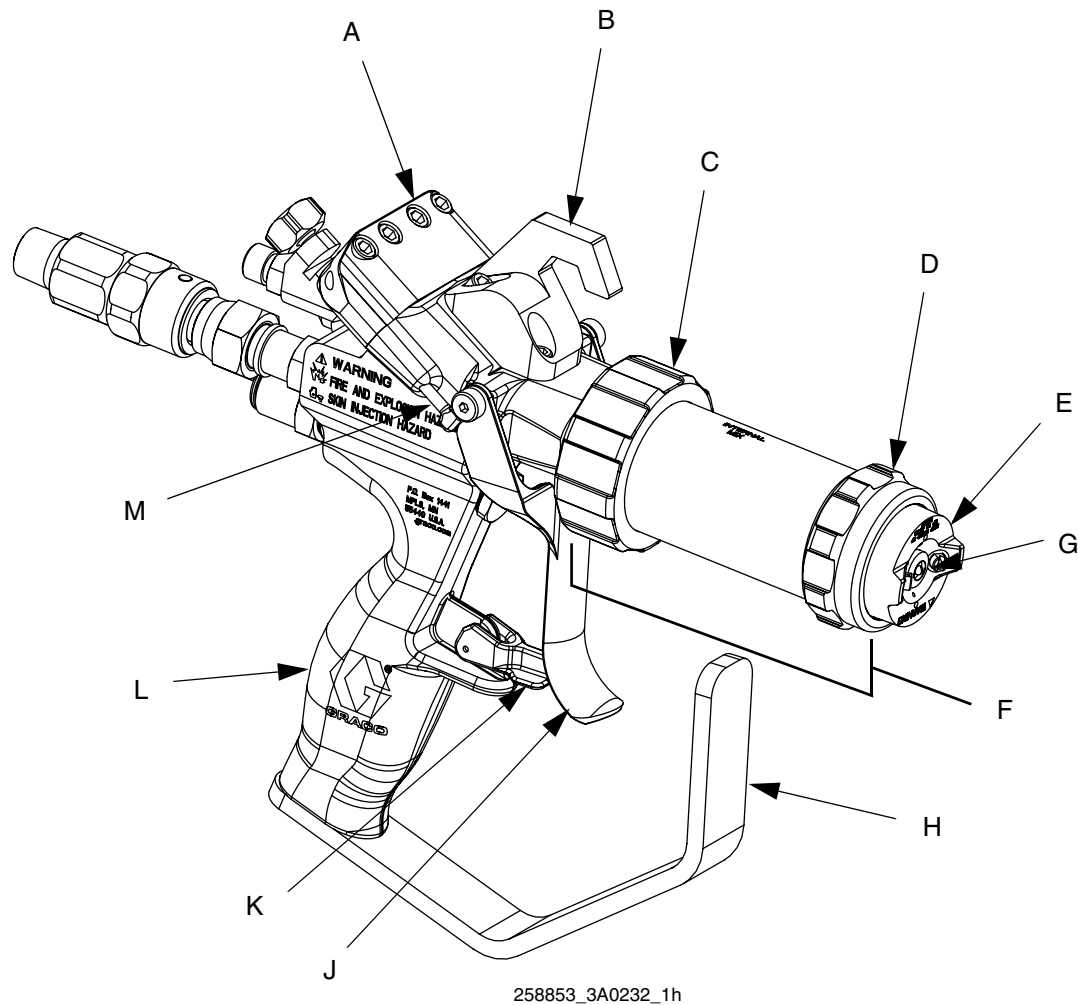
### Key:

- |   |                         |   |               |
|---|-------------------------|---|---------------|
| A | Trigger Clamp Assembly  | G | Spray Tip     |
| B | Gun Mount               | H | Trigger guard |
| C | Front Head Locking Ring | J | Trigger       |
| D | Air Cap Retaining Ring  | K | Trigger lock  |
| E | External Mix Aircap     | L | Handle        |
| F | External Mix Front Head | M | Actuator Pin  |

FIG. 1

## Internal Mix Gel Gun, 258853

**NOTE:** On internal mix guns, the tip rotates to allow vertical or horizontal spray pattern.



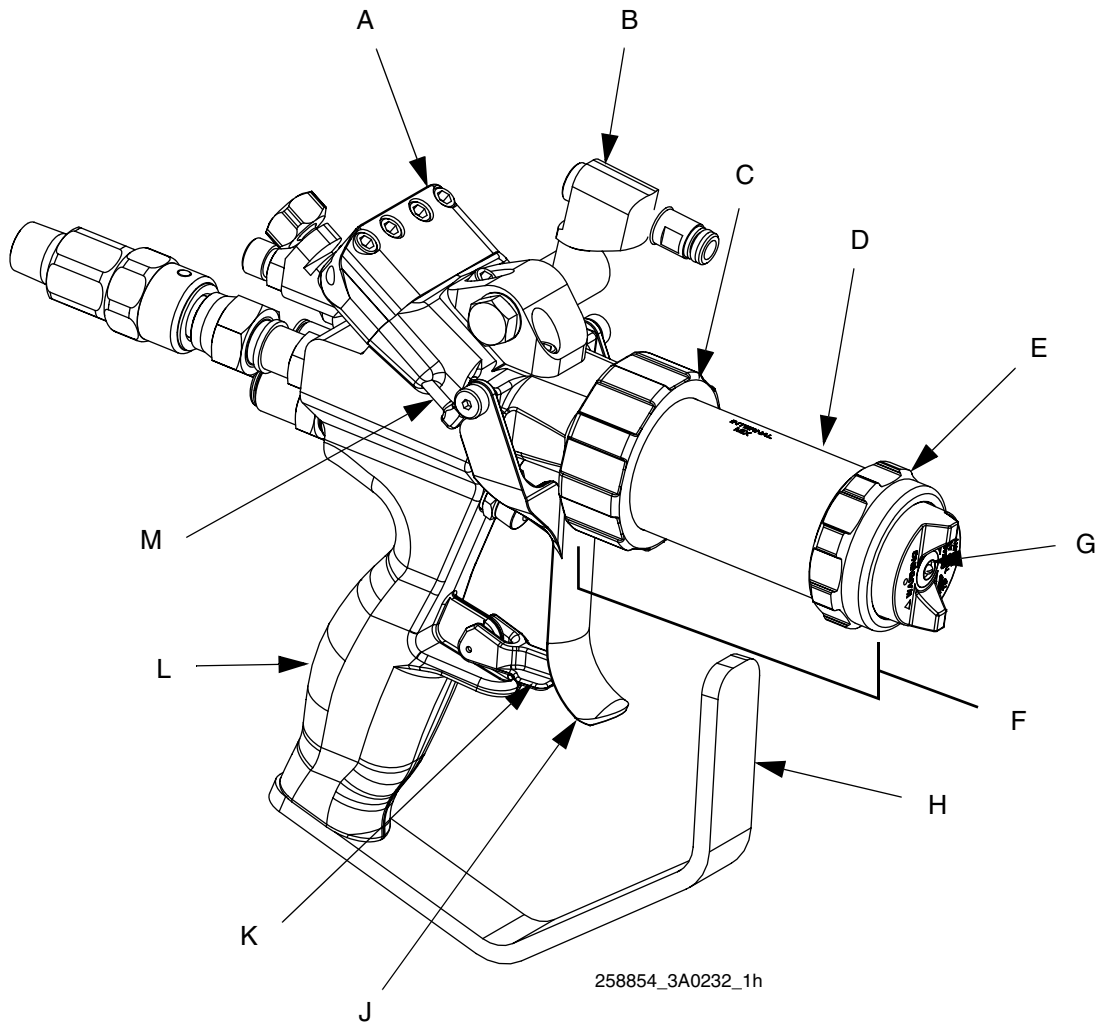
### Key:

A	Trigger Clamp Assembly	G	Spray Tip
B	Gun Mount	H	Trigger guard
C	Front Head Locking Ring	J	Trigger
D	Air Cap Retaining Ring	K	Trigger lock
E	Internal Mix Aircap	L	Handle
F	Internal Mix Front Head	M	Actuator Pin

FIG. 2

## Internal Mix Chop Gun, 258854

**NOTE:** On internal mix guns, the tip rotates to allow vertical or horizontal spray pattern.

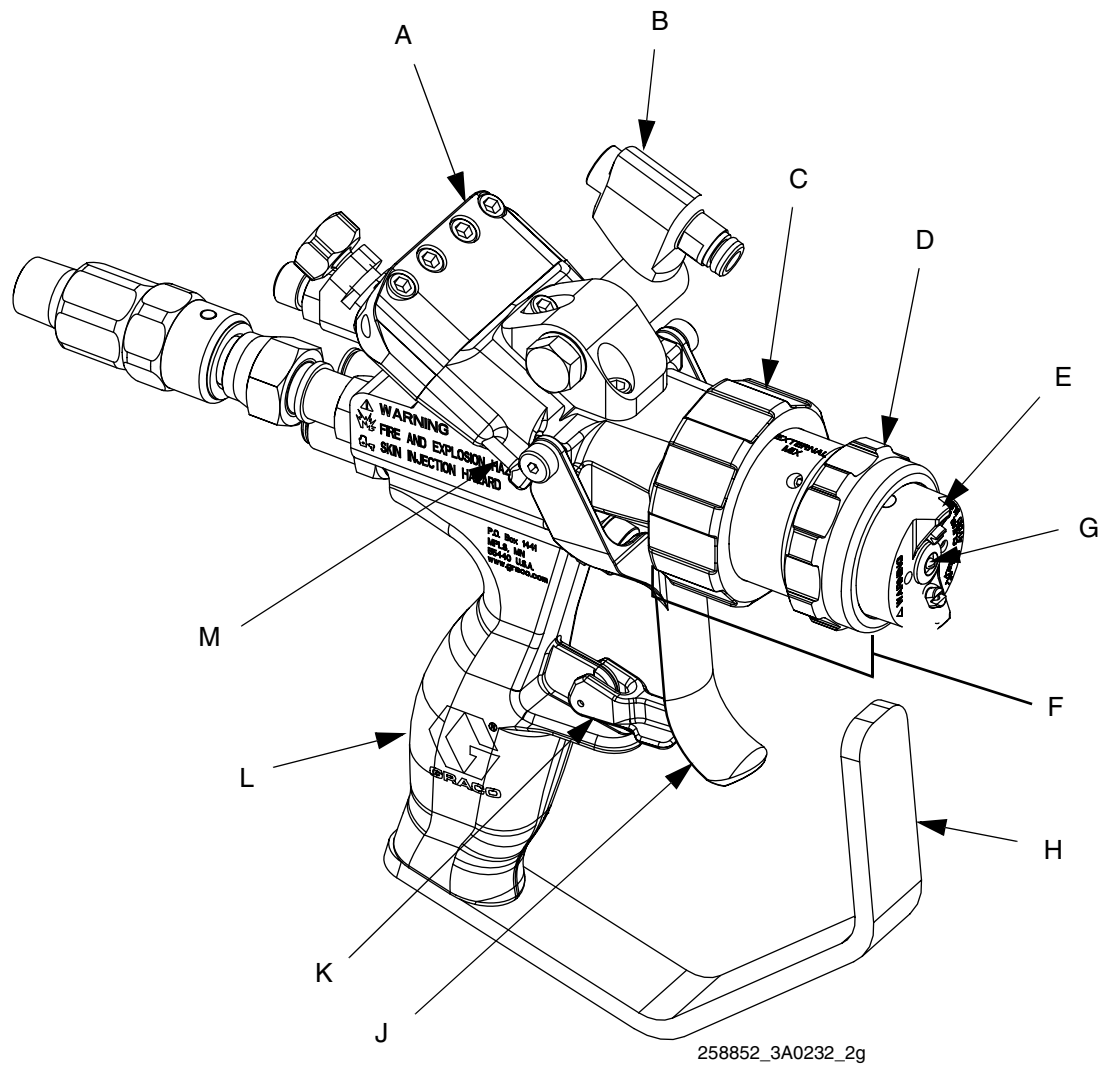


**Key:**

A	Trigger Clamp Assembly	G	Spray Tip
B	Cutter Mount	H	Trigger guard
C	Front Head Locking Ring	J	Trigger
D	Air Cap Retaining Ring	K	Trigger lock
E	Internal Mix Aircap	L	Handle
F	Internal Mix Front Head	M	Actuator Pin

FIG. 3

# External Mix Chop Gun, 258852

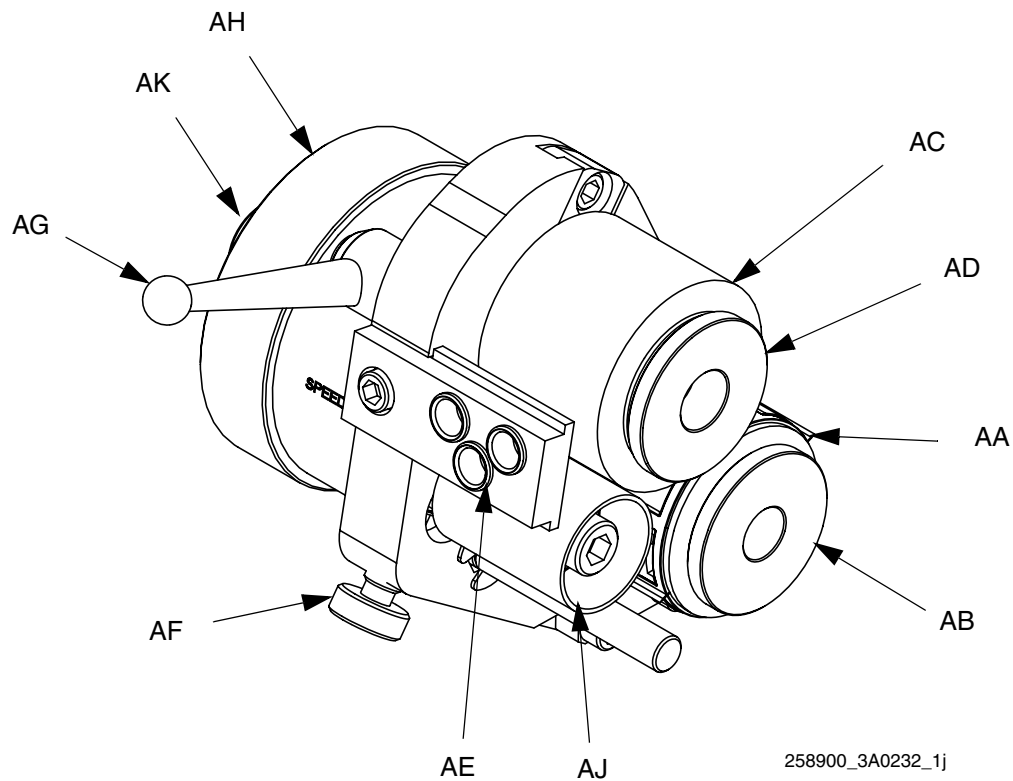


**Key:**

- |                           |                 |
|---------------------------|-----------------|
| A Trigger Clamp Assembly  | G Spray Tip     |
| B Cutter Mount            | H Trigger guard |
| C Front Head Locking Ring | J Trigger       |
| D Air Cap Retaining Ring  | K Trigger lock  |
| E External Mix Aircap     | L Handle        |
| F External Mix Front Head | M Actuator Pin  |

FIG. 4

## Cutter, 24E512



**Key:**

AA Blade Cartridge  
AB Cutter Head Assembly Cap  
AC Anvil  
AD Anvil Cap  
AE Glass Feed  
AF Anvil to Blade Tension  
Adjustment Knob

AG Anvil to Blade Tension  
Lockdown  
AH Air Motor  
AJ Idler Wheel  
AK Motor Lock button  
AL Cover (not shown)  
AM Chute (not shown)

FIG. 5

# Theory of Operation

## External Mix

The independent material stream, resin or gelcoat, and catalyst impinge when they exit the spray tip. The catalyst is atomized with air pressure and is contained by AAC air to achieve high mix quality. This reduces internal clogs from cured material.

## Internal Mix

The material and catalyst pass through an internal static mixer where they mix. The mixed solution is dispensed.

## Chop Guns

Fiberglass is pulled through cutter and cut into small strands. The cut strands are then dispensed into the mixed material stream.

## Impingement versus Standard Spray Tips

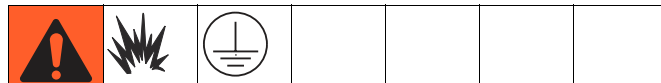
Impingement spray tips are typically for chop guns. This utilizes multiple impinging streams to create the fan pattern.

Standard spray tips are typically for gel guns. This utilizes a single cat-eye shaped orifice to create the fan pattern.

## Air Assist Containment (AAC)

When material exits the spray tip, air is sprayed against the material stream to shape it into a more consistent pattern.

# Grounding



This equipment must be grounded.

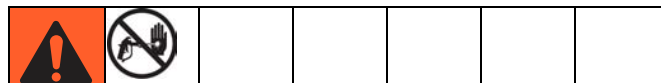
Grounding reduces the risk of static shock by providing an escape wire for electrical current due to static build up or in the event of short circuit.

**NOTE:** Grounding wire and clamp assembly 17440-00 is included with Graco FRP proportioner. If using a different proportioner that does not come with a grounding wire and clamp assembly, order 17440-00 or provide your own.

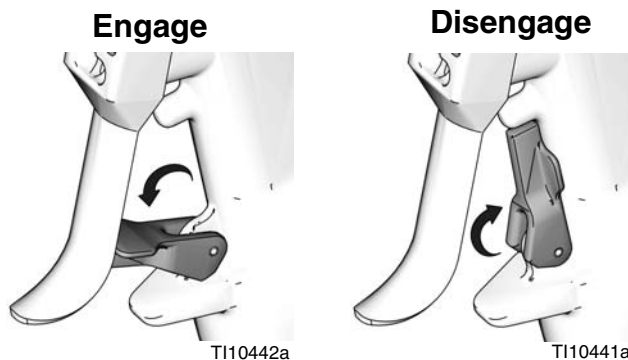
Ground the dispense gun through connection to a Graco approved grounded fluid supply hose.

Check your local electrical code and related manuals for detailed grounding instructions of all equipment in the work area.

# Trigger Lock



Engage trigger lock whenever you stop spraying to avoid accidental triggering.

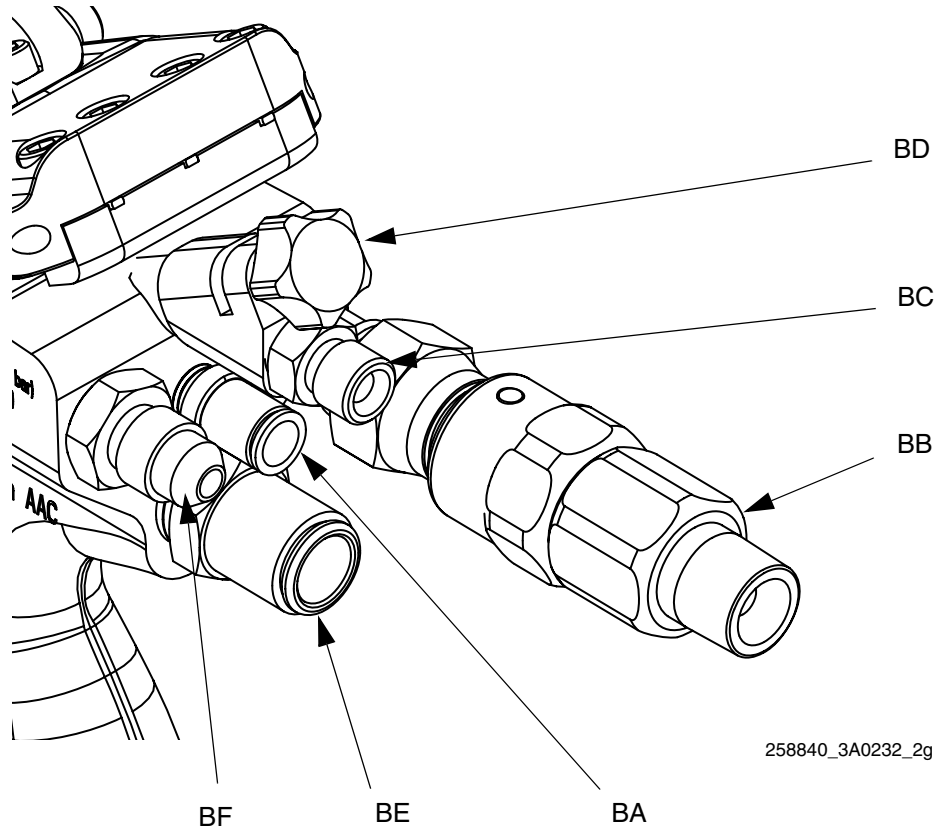


# Setup

1. **Before first use**, flush the gun. The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the equipment with a compatible solvent before using the equipment. See **Flush Gun**, page 23.
2. Engage trigger lock.
3. **For guns with cutters**, install cutter:
  - a. If necessary, use a crescent wrench to adjust pivot (541) so that it is parallel to gun front end. See **Chop Guns, 258852, 258854** on page 40.
  - b. If necessary, use a crescent wrench to adjust pivot so that open end points to front of gun.
  - c. Back out screws (630). See **Cutter Assembly, 24E512** on page 42.
  - d. Install cutter onto pivot so glass feed holes are on top.
  - e. Tighten screws (630) to lock cutter in place.
  - f. Adjust cutter dispensing angle and chute angle as desired.
4. **For internal mix guns**, verify solvent knob (BD) is adjusted to the fully closed position. See FIG. 6 on page 17.
5. Attach gun connections as described in FIG. 6 on page 17. See **Technical Data** on page 52 for fitting sizes.
6. **For internal mix guns**, prime the solvent line. Turn solvent adjustment knob (BD) until solvent discharges from the front of the gun. See FIG. 6 on page 17.
7. **For guns with cutters**, insert glass strands into feed.
8. **For guns with cutters**, adjust anvil to blade tension:
  - a. Release lockdown (AG). See FIG. 5 on page 14.
  - b. Adjust tension knob (AF) as desired.
  - c. Tighten lockdown (AG).
  - d. Perform test spray to verify proper cutting of glass strands.
  - e. Adjust tension as necessary.
9. **For external mix guns**, adjust AAC knob (BD) to middle of possible range of movement. See FIG. 6 on page 17.
10. Adjust AAC pressure on proportioner.
11. Perform test spray. Adjust system and gun settings as necessary to get desired results.

## NOTICE

To prevent material curing inside the gun, do not trigger gun if solvent is not primed.



Ref	External Mix	Internal Mix Chop	Internal Mix Gel	Fitting Size
BA	Atomized Air (Catalyst)	Air Assist Containment (AAC)	Plugged	1/4 tube
BB	Resin Inlet			1/4 NPSM
BC	Air Assist Containment (AAC)	Solvent		1/8 NPSM
BD	Adjustment Knob			--
BE	Chop Air Inlet		Air Assist Containment (AAC)	3/8 tube
BF	Catalyst Inlet			#4 JIC

**FIG. 6: Fitting Details**

# Operation



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 gun at anyone or at any part of the body.
- Do not put your hand over the dispense outlet.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow **Pressure Relief Procedure** when you stop dispensing and before cleaning, checking, or servicing equipment.

## Trigger Lock



Engage trigger lock whenever you stop spraying to avoid accidental triggering.

## AAC Adjustment

If the spray pattern is not even, the AAC air pressure may need to be adjusted. For all guns, the AAC air pressure is set at the system. The external mix gun includes an AAC air pressure adjustment on the gun also, see AAC reference in FIG. 6 on page 17. To increase AAC air pressure on the external mix gun, turn knob counter-clockwise. To decrease air pressure, turn knob clockwise. For large changes in AAC air pressure, adjust the pressure at the system.

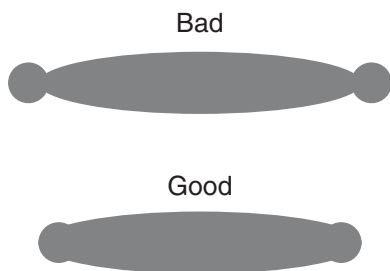


FIG. 7

## Trigger Clamp Adjustment Procedure

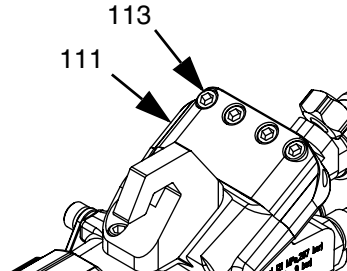
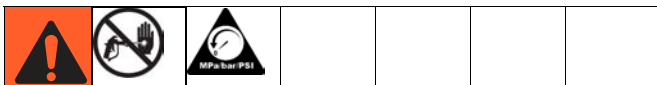


FIG. 8

1. Engage trigger lock.
2. Loosen four screws (113). Do not remove.
3. While pushing the trigger clamp assembly (111) against the gun body, use a 9/64 in. hex key to lightly tighten the four screws.
4. Torque the four screws to 22-24 in-lb (2.5-2.7 N•m) in the following order: inner two screws first then outer two screws last.

**NOTE:** Be careful not to overtighten trigger clamp assembly as this will cause the material needles to bind and cause material needles to operate incorrectly.

## Trigger Adjustment



When the trigger is pulled, it moves the trigger clamp assembly resulting in fluid flow from each component. The actuator pins are factory set. If the trigger, trigger clamp assembly, or pins are removed then the trigger may need to be adjusted.

1. Perform **Pressure Relief Procedure**, page 22.
2. Engage trigger lock.
3. Use 5/64 in. Remove adjuster screws (114).

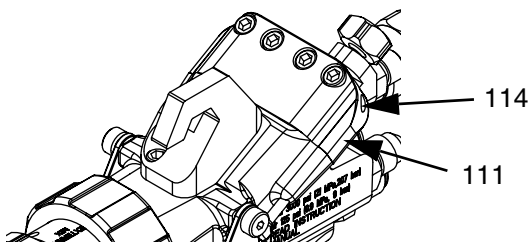


FIG. 9

4. Apply medium strength thread sealant to threads of screws.
5. Install adjuster screws (114) into trigger clamp assembly (111).
6. Squeeze trigger so that it touches the trigger lock. If trigger cannot touch trigger lock, back out adjuster screws until trigger touches the trigger lock.
7. Adjust each screw until the actuator pin just begins to touch the trigger. This can be verified by the trigger just beginning to lift off of the trigger lock.
8. Back each screw out 1/2 turn.
9. Disengage trigger lock.

10. While watching the trigger clamp assembly, trigger the gun to verify both sides of the trigger clamp assembly pull away from the gun body at the same time.

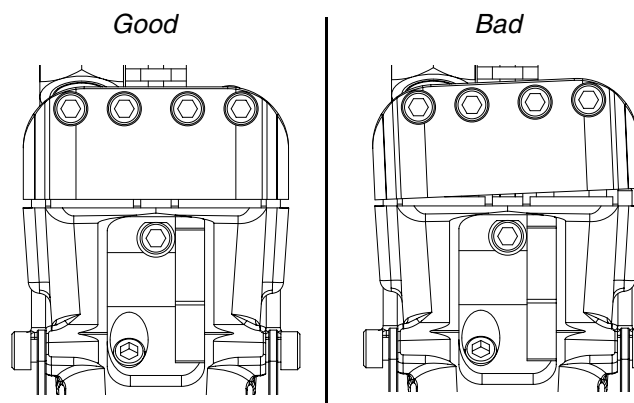
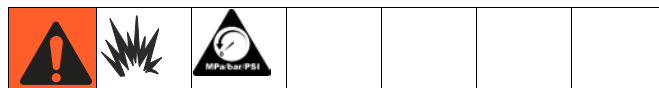


FIG. 10

11. Hold the trigger fully engaged and measure the space between the trigger clamp and the gun body on both sides. The gaps should be at least 0.065 in. (1.65 mm) in the open position. Adjust screws as necessary. See FIG. 10.

## Internal Mix Flush



After spraying, open the solvent knob (BC) to allow solvent to flow through the gun. See FIG. 6 on page 17. While flushing, hold a metal part of the gun firmly to a grounded metal pail.

## Cutter Assembly

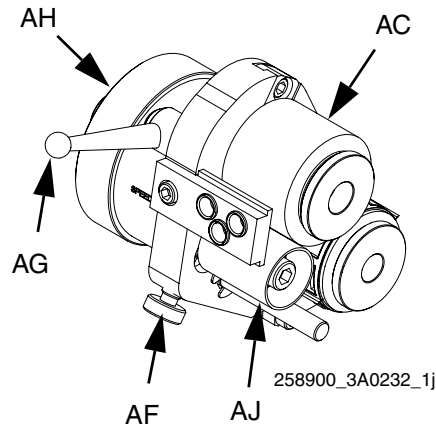


FIG. 11

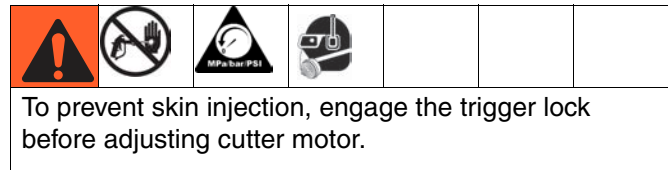
RS guns with a cutter installed have two modes of operation. When the trigger is pulled halfway, material sprays but the cutter is not activated. When the trigger is pulled all the way, the air motor in the cutter is started and glass begins dispensing.

### Adjust Cutter Speed

When dispensing a material and glass mixture, the speed at which the cutter spins can be adjusted to ensure the ratio of glass to dispensed material.

1. Determine whether more or less glass is needed.
  - a. Place bag over cutter chute.
  - b. Place bag over gun fluid outlet. Try to keep bag away from the dispense outlet to prevent piercing the bag which will lead to inaccurate dispense measurements.
  - c. Dispense a 15-30 second shot.
  - d. Weigh both bags and calculate ratio.
  - e. Determine whether more or less glass is needed. Consult material manufacturer recommendations for ratio requirements.
  - f. If ratio is ok, then no adjustment is needed. Otherwise, continue with adjustment procedure.

2. Engage trigger lock.



3. With the trigger lock engaged, rotate the cutter motor (AJ): clockwise to decrease speed, counter-clockwise to increase speed. See FIG. 11.
4. Go to step 1 to test ratio and repeat adjustment as necessary.

### Adjust Anvil to Blade Cartridge Tension

To cut the glass strands, the blade cartridge is pressed against the anvil. If the strands do not appear to be getting cut correctly an adjustment may be needed.

To adjust the tension:

1. Engage trigger lock.
2. Disengage the tension lockdown (AG) by pushing towards the front of the gun.
3. Turn the tension knob (AF) on the cutter: counter-clockwise to increase tension, clockwise to decrease tension. See FIG. 11.
4. Engage tension lockdown.

**NOTE:** More tension leads to the anvil and blade cartridge wearing out faster. Do not apply more tension than is necessary.

## Adjust Anvil to Idler Tension

To adjust the anvil (AC) to idler (AJ) tension, the idler position can be adjusted.

1. Follow **Pressure Relief Procedure**, page 22.
2. Engage trigger lock.
3. Loosen knob (528) then remove cover (527). See page 42.
4. Loosen idler cap screw (617) using 3/16 in. hex key.
5. Slide idler to desired position.
6. Tighten idler cap screw to lock idler in position.

## Blower Air Adjustment

The cutter has blower air to help keep the anvil cool and to keep the inside of the cover free of debris. The blower air has been factory set to optimize performance of the cutter, however it can be adjusted.

Use a 3/32 hex allen key to turn adjusting screw (635) counter-clockwise to allow more air flow into the inside of the cover on the cutter assembly. This will affect air motor performance as less air will go to the air motor resulting in slower cutter speeds. See **Cutter Assembly, 24E512** on page 42 for adjusting screw location.

## Pressure Relief Procedure

1. Shutdown proportioner.
2. Relieve proportioner pressure. See proportioner manual.
3. Engage gun trigger lock.
4. Close the bleed-type master air valve.
5. Disengage the trigger lock.
6. Hold a metal part of the gun firmly to a grounded metal pail. Trigger the gun to relieve pressure.
7. Engage the trigger lock.
8. With a waste container in place, open all fluid drain valves in the system. Leave drain valve(s) open until you are ready to spray again.



9. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen retaining ring (D) or loosen hose end coupling to relieve pressure gradually, then loosen completely. Clear hose or tip obstruction. See FIG. 1 on page 10 for part references.

## Shutdown

### Daily

1. Perform **Pressure Relief Procedure**.
2. Perform **Clean Gun Front End** procedure, see page 24.

### Long-Term

If gun will be unused for at least one week, perform this long-term shutdown procedure.

1. Perform **Daily** shutdown procedure.
2. **Flush Gun**, see page 23.

# Maintenance

## Tools Required

The following tools are required to perform regular maintenance on the gun.

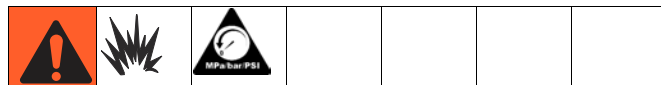
- 7/16 in. wrench
- 1/2 in. wrench
- 9/16 in. wrench
- 5/8 in. wrench
- 11/16 in. wrench
- 3/4 in. wrench
- 13/16 in. wrench
- 5/64 in. allen key
- 3/32 in. allen key (supplied)
- 9/64 in. allen key (supplied)
- 3/16 in. allen key (supplied with cutter assembly)
- 1/2 in. deep well socket
- 9/32 in. socket
- 7/32 in. deep well socket

Task	Schedule
Clean Gun Front End, page 24	Daily
Add Oil to Air Motor, page 28	3-4 drops per 8 hours of use
Replace Anvil, page 29	When surface is badly scored or does not cut
Replace Blade Cartridge, page 29	When glass roving is no longer cut cleanly (verify proper tension first)
Flush, page 23	As needed
Adjust Needle Packing, page 27	When leaks at back of gun are present

## Daily Cleaning

Wipe the trigger clamp assembly and actuator pins with a rag to remove material. Use a compatible solvent if necessary.

## Flush Gun



### NOTE:

- Flush before changing colors, before fluid can dry in the equipment, before storing, and before repairing equipment.
  - Flush at the lowest pressure possible. Check connectors for leaks and tighten as necessary.
  - Flush with a fluid that is compatible with the fluid being dispensed and the equipment wetted parts.
1. Follow **Pressure Relief Procedure**, page 22.
  2. Remove from head from gun and soak in solvent.
  3. Place siphon tube in grounded metal pail containing solvent.
  4. Set pump to lowest possible fluid pressure then start pump.
  5. Hold a metal part of the gun firmly to a grounded metal pail. Trigger the gun until clean solvent dispenses.
  6. Perform **Pressure Relief Procedure**, page 22.
  7. Remove gun from hose.

## Clean Gun Front End

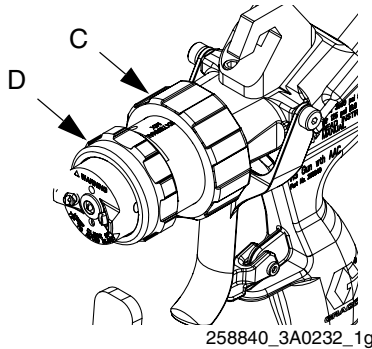


FIG. 12

1. Perform **Pressure Relief Procedure**, page 22.
2. Remove front end of gun by loosening locking ring (C).
3. Soak front end of gun in cleaning solution overnight. Ensure cleaning solution is compatible with aluminum and stainless steel.
4. Inspect o-rings on check valve housings. Replace as needed. See FIG. 13.

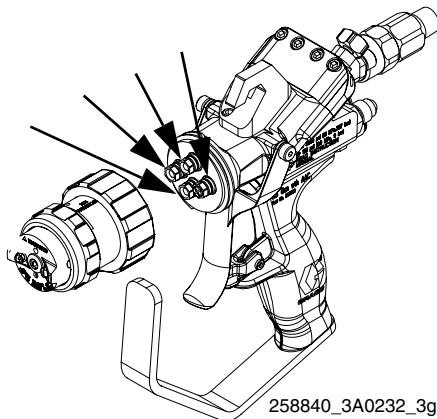


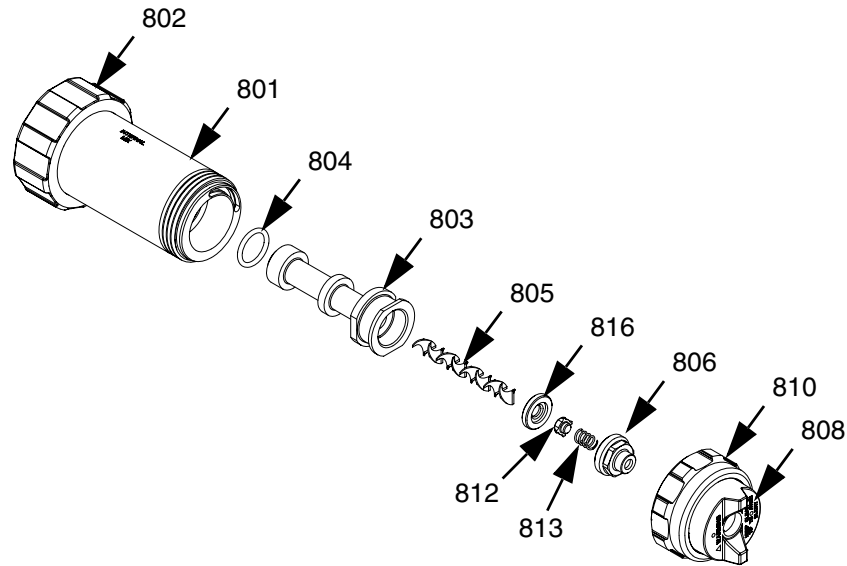
FIG. 13: Check Valve Housings

5. Apply lube (Part No. 118665) to check valve housing o-rings prior to installing the front head onto the gun.
6. Align front head with check valve and install front head then tighten locking ring (C).
7. Verify retaining ring (D) is tight.



Ensure locking ring (C) and retaining ring (D) are tight before spraying. Spraying while either item is loose may result in skin injection.

## Replace Internal Mix Element



**FIG. 14**

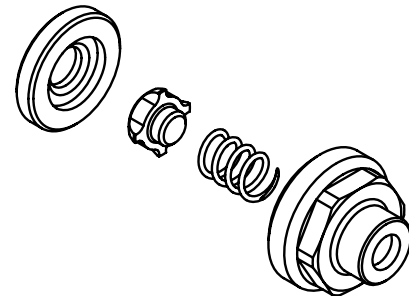
See internal mix front head parts list on page 45 for available kits.

### NOTICE

There is a half-moon pin pressed into the front head (801) behind the diffuser assembly (803). Do not attempt to remove this pin. Removal will result in undesired operation.

1. Perform **Pressure Relief Procedure**, page 22.
2. Remove retaining ring (810) and air cap assembly (808) from head (801).
3. Remove diffuser assembly (803).
4. Use two wrenches on flats of diffuser and cap (806) to remove cap. Spring (813) and check valve (812) will fall out when cap is removed.
5. Use a small hex key in the small hole in the back of the diffuser to push the mix element (805) and check valve seat (816) out.
6. Install new mix element into diffuser (803).
7. Install check valve seat (816) into diffuser. See FIG. 14 for seat orientation.

8. Install check valve (812) and spring (813) into the seat then install cap (806). See FIG. 15 for orientation of parts.



**FIG. 15**

9. Remove and inspect o-ring (804). Replace if worn or damaged.
10. Lubricate o-ring and install onto diffuser. Install diffuser into head.
11. Torque cap to 23-27 in-lb (2.6-3.1 N•m).
12. Install diffuser into head (801).
13. Install air cap assembly and tighten retaining ring.

## Replace External Mix Check Valve and O-Rings

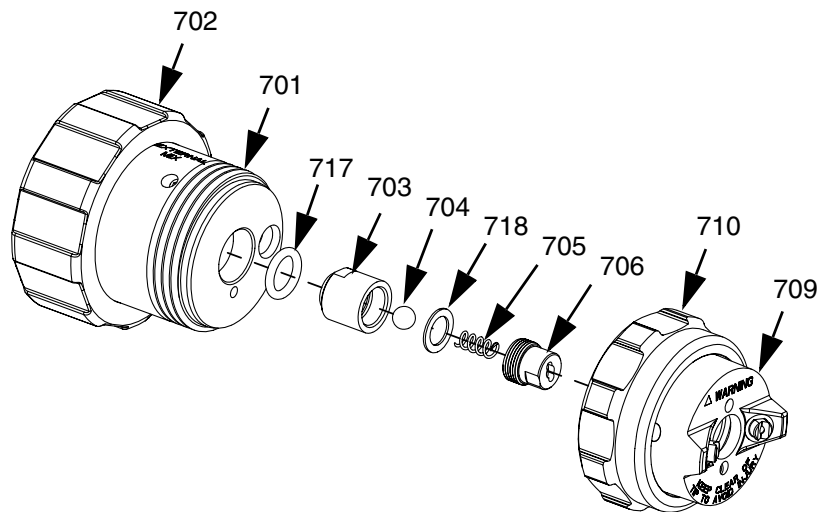


FIG. 16

See **Front Head Assemblies** beginning on page 44 for available kits.

1. Perform **Pressure Relief Procedure**, page 22.
2. Remove retaining ring (710) and air cap assembly (709) from head (701).
3. Remove check valve assembly (703).
4. Use two wrenches on flats of seal (703) and check valve cap (706) to remove cap. Spring (705) and ball (704) will fall out when cap is removed.
5. Remove and inspect o-ring (717) and washer (718). Replace if worn or damaged.
6. Lubricate o-ring and install onto check valve assembly (703).
7. Install washer (718), ball (704), and spring (705) into check valve seal (703) then install check valve cap (706) onto check valve seal finger-tight.
8. Use two wrenches on flats of seal (703) and check valve cap (706) to torque check valve cap onto check valve seal to 23-27 in-lb (2.6-3.1 N•m).
9. Install check valve assembly into head. See FIG. 16 for assembly orientation.

10. Install air cap onto head and tighten retaining ring (710).

### NOTICE

To prevent distorting the end of the cap (706), do not over-tighten the check valve assembly.

## Adjust Needle Packing



If there is a fluid leak at the rear of the needle assembly, the packings can be tightened to stop the leak.

1. Follow **Pressure Relief Procedure**, page 22.
2. Loosen four screws (113) then remove trigger clamp assembly (111). See page 34.
3. Use 7/16 in. wrench to tighten packing nut (906) 1/8th of a turn.
4. Re-pressurize and re-check for leaks in rear of needle. If leak remains, packings may need to be replaced. If necessary, see **Replace Needle Packing** on page 27.
5. Ensure needle flats are aligned with one another.
6. Install trigger clamp assembly on gun then perform **Trigger Clamp Adjustment Procedure** on page 18.
7. Trigger gun to check for smooth operation of material needles. If material needles do not operate smoothly, packings may need to be replaced.

### NOTICE

Be careful not to overtighten trigger clamp assembly as this will cause the material needles to bind and cause material needles to operate incorrectly.

## Replace Needle Packing

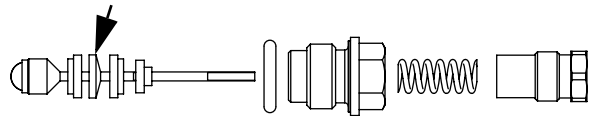


**NOTE:** The needle packing is the seal (904) inside the needle assembly (105). See pages 34 and 46.

### NOTICE

Needles bend easily. To prevent bending and damaging the needles, be careful when using wrenches to remove the needle packings.

1. Follow **Pressure Relief Procedure**, page 22.
2. Use 9/64 in. hex key to loosen the four screws (114) on trigger clamp (111). Remove clamp. See page 34.
3. Use 7/16 in. wrench to break loose then remove the packing nuts (906). See page 46.
4. Remove needle (908).
5. Remove old packing from needle.
6. Liberally lubricate the new packing.
7. Install new packing onto needle. Install packing with beveled edge facing rear of needle.



8. Install needle.
9. Install packing nuts and torque to 30 in-lb (3.4 N•m).
10. Ensure needle flats are aligned with one another.
11. Install trigger clamp assembly on gun then perform **Trigger Clamp Adjustment Procedure** on page 18.

### NOTICE

Be careful not to overtighten trigger clamp assembly as this will cause the material needles to bind and cause material needles to operate incorrectly.

## Replace Material Needle Assembly



**NOTE:** The material needle assemblies are the two side needles (105) in the rear of the gun. See page 34.

1. Follow **Pressure Relief Procedure**, page 22.
2. Loosen four screws (113) then remove trigger clamp assembly (111). See page 34.
3. Use 1/2 in. deep well socket to break loose and remove material needle assemblies.
4. Install new material needle assemblies.
5. Ensure needle flats are aligned with one another.
6. Install trigger clamp assembly on gun then perform **Trigger Clamp Adjustment Procedure** on page 18.

### NOTICE

Be careful not to overtighten trigger clamp assembly as this will cause the material needles to bind and cause material needles to operate incorrectly.

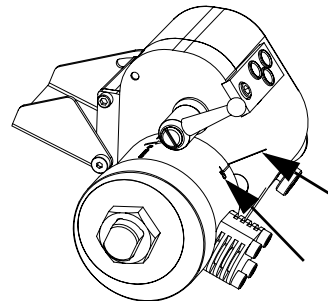
## Replace Center Needle Assembly



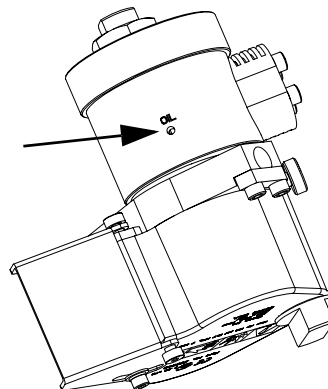
1. Follow **Pressure Relief Procedure**, page 22.
2. Loosen four screws (113) then remove trigger clamp assembly (111). See page 34.
3. Use 7/32 in. deep well socket to remove retainer (108) then remove the needle (106), spring (107), and o-ring (110).
4. Install new o-ring. Verify needle is clean before reinstalling. Use a liberal amount of lubrication.
5. Install rear packing retainer with a liberal amount of lubrication.

## Air Motor Oiling

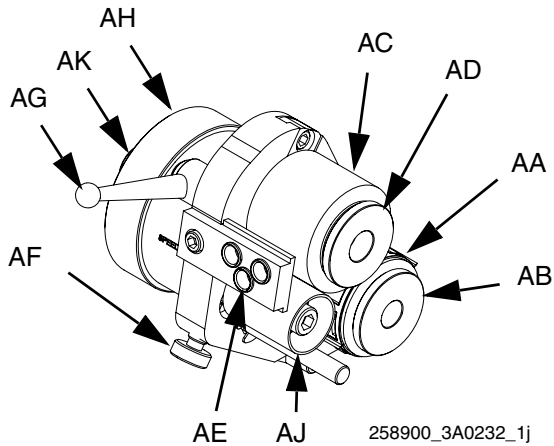
1. Perform **Pressure Relief Procedure**.
2. Engage trigger lock.
3. Rotate speed control until oil mark line is aligned with line on back plate of the cutter.



4. Add 3-4 drops of air motor oil, Graco part 202659, into oil hole on air motor.



## Anvil Replacement



258900\_3A0232\_1j

**FIG. 17**

For part references, see FIG. 17 on this page and cutter parts illustration on page 42.

1. Follow **Pressure Relief Procedure**, page 22.
2. Engage trigger lock.
3. Loosen knob (528) then remove cover (527). See page 42.



Blade cartridge is sharp. Always wear protective gloves to prevent cuts when the cutter cover is removed.

4. Use hand to prevent anvil from spinning, then push in and rotate anvil cap (AD) 90 degrees counter-clockwise to remove.
5. Disengage the anvil to blade cartridge tension lock-down lever (AG).
6. Use the anvil to blade cartridge tension adjustment knob (AF) to relieve the tension between the anvil and blade cartridge.
7. Remove anvil (AC).
8. Install new anvil onto sleeve.
9. Install anvil cap.

10. Install cover and knob.

11. **Adjust Anvil to Blade Cartridge Tension**, page 20.

## Blade Cartridge Replacement



If glass is not getting cut properly, verify the tension is correct before replacing the blade cartridge.

1. Follow **Pressure Relief Procedure**, page 22.
2. Engage trigger lock.
3. Remove knob (528) then remove cover (527). See page 42.



Blade cartridge is sharp. Always wear protective gloves to prevent cuts when the cutter cover is removed.

4. Press and hold motor lock button (AK) to prevent blade cartridge (AA) from spinning, then push in and rotate blade cartridge cap (AB) 90 degrees counter-clockwise to remove. See FIG. 17.
5. Remove the blade cartridge from sleeve (5). If necessary, use a pick to aid in removing the blade cartridge.
6. Install new blade cartridge into sleeve.
7. Install blade cartridge cap.
8. Install cover and knob.
9. **Adjust Anvil to Blade Cartridge Tension**, page 20.

# Troubleshooting

Problem	Cause	Solution
Gun does not fully actuate when triggered	Safety lock engaged	Disengage safety lock
	Trigger clamp pins bent	Inspect and replace if necessary
	Cutter air valve stuck	Inspect and replace if necessary
	Overspray on trigger clamp pins	Clean and lubricate
	Needle assembly stuck	Check and adjust needle packing tension
	Hardened material in the needle/seal area	Remove needle assembly, clean and replace if necessary
Fluid does not spray when trigger is fully actuated	Proportioner off or in bypass mode	Turn on proportioner and make ready to spray
	Worn trigger clamp pins	Inspect and replace if necessary
	Worn trigger	Inspect and replace if necessary
	Loose trigger clamp assembly	Inspect and torque as per the manual
	Misadjusted or missing trigger clamp set screws	Adjust or replace set screws
	Hardened material in front head (passage-way and spray tip)	Check for blockage, clean and replace as necessary
	Hardened material in the needle/seal area	Remove needle assembly, clean and replace if necessary
Resin is present with NO catalyst	No catalyst	Check catalyst fluid level
	Catalyst pump in bypass	Turn on and make ready to spray
	Trigger clamp out of phase	Adjust trigger clamp, see page 18
	Actuator adjustment screw missing	Replace
	Trigger worn	Inspect and replace if necessary
	Actuator pin worn	Inspect and replace if necessary
	Trigger clamp assembly loose	Inspect and torque as per the manual
	Catalyst check valve stuck closed	Inspect and replace if necessary
	Hardened material in the needle/seal area	Remove needle assembly, clean and replace if necessary
No resin catalyst ONLY	No resin	Check material fluid level
	Trigger clamp out of phase	Adjust trigger clamp, see page 18
	Catalyst pump in bypass	Turn on and make ready to spray
	Trigger clamp out of phase	Adjust trigger clamp, see page 18
	Actuator adjustment screw missing	Replace
	Trigger worn	Inspect and replace if necessary
	Actuator pin worn	Inspect and replace if necessary
	Trigger clamp assembly loose	Inspect and torque as per the manual
	Hardened material in the needle/seal area	Remove needle assembly, clean and replace if necessary

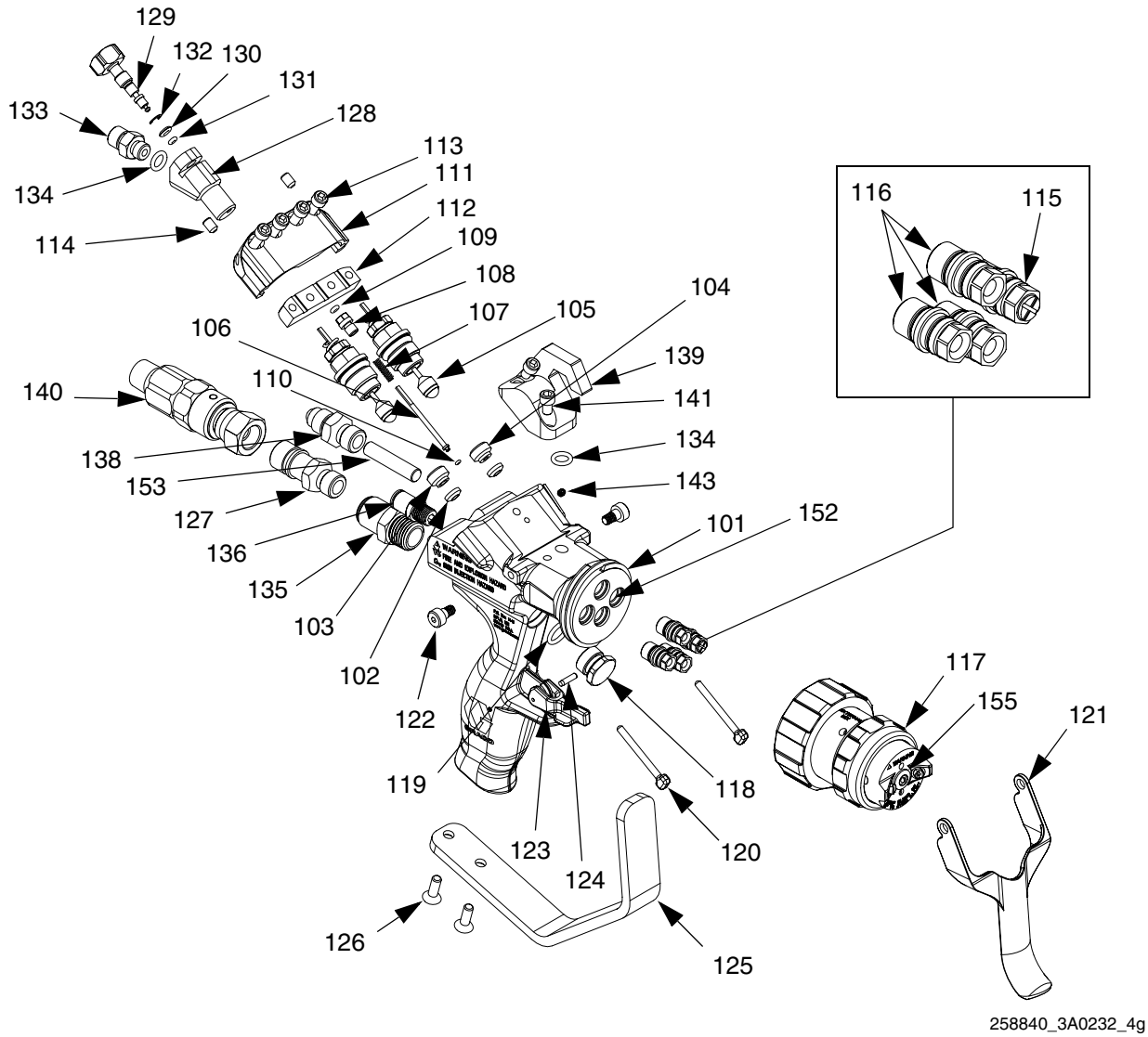
<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Catalyst pressure dumps on initial trigger	Trigger clamp out of phase	Adjust trigger clamp, see page 18
Material continues to spray after trigger is released	Foreign object under trigger clamp	Clean and replace if necessary
	Overspray on trigger clamp pins	Clean and lubricate
	Actuator pins sticking	Clean and replace if necessary
	Needle packing too tight	Adjust
Material spraying out AAC ports	Retaining ring not tight	Tighten retaining ring
	Cut or missing internal mix diffuser o-ring	Inspect and replace if necessary
	Cut or missing external mix check valve o-ring	Inspect and replace if necessary
	Internal mix check valve seat missing or damaged or not tight	Inspect and replace if necessary
	External mix check valve seat missing or damaged or not tight	Inspect and replace if necessary
Catalyst leaking	Trigger clamp assembly slipped	Inspect and adjust trigger clamp, see page 18
	Catalyst hose loose	Inspect and tighten
	Catalyst fitting loose	Inspect and tighten
	Locking ring loose	Clean and tighten
	Air cap catalyst post o-ring damaged or missing	Inspect and replace if necessary
	Catalyst check valve housing o-rings missing or damaged	Inspect and replace if necessary
	Needle assembly o-ring damaged or missing	Inspect and replace if necessary
	Needle packing loose	Tighten packing, see page 27
	Valve seat worn or damaged	Inspect and replace if necessary
	Valve seat seal damaged	Inspect and replace if necessary
Resin leaking	Trigger clamp assembly slipped	Inspect and adjust trigger clamp, see page 18
	Resin hose loose	Inspect and tighten
	Resin fitting loose	Inspect and tighten
	Locking ring loose	Clean and tighten
	Air cap catalyst post o-ring damaged or missing	Inspect and replace if necessary
	Resin check valve housing o-rings missing or damaged	Inspect and replace if necessary
	Needle assembly o-ring damaged or missing	Inspect and replace if necessary
	Needle packing loose	Tighten packing, see page 27
	Valve seat worn or damaged	Inspect and replace if necessary
	Valve seat seal damaged	Inspect and replace if necessary

Problem	Cause	Solution
Material not mixed	External mix catalyst tips plugged	Clean and replace
	Atomizing air pressure too low	Adjust
	Static mixer missing	Replace
	Static mixer worn	Inspect and replace if necessary
	Incorrect static mixer	Replace if necessary
AAC does not function	Air supply to gun is shut off	Open air supply
	Air regulator set incorrectly	Adjust
	Ports plugged	Clean air capped or replace
	AAC needle valve closed (external mix)	Open AAC needle valve
	Trigger clamp assembly loose	Inspect and tighten, see page 18
Roving binds up in Cutter	Obstruction in roving path	Ensure the roving path is free from obstruction
	Overspray/binder build up on internal components	Clean components and reinstall the cover
	Resin on roving.	Clean as necessary, keep roving away from resin and overspray.
	Incorrect anvil to idler wheel tension	Adjust
	Incorrect anvil to cutter blade assembly tension	Adjust
	Cutter blade assembly is worn out	Replace
	Anvil is worn out	Replace
Cutter does not actuate when the gun is triggered	Air supply to gun is shut off	Open air supply
	Speed control in off position	Adjust
	Quick release plunger stuck in	Inspect, clean and lubricate, replace if necessary
	Incorrect anvil to idler wheel tension	Adjust
	Incorrect anvil to cutter blade assembly tension	Adjust
	Cutter air valve stuck	Inspect and replace if necessary
	Air motor is "locked up"	Check for free rotation, replace if necessary
Cutter is cutting long strands	Anvil to cutter blade tension is incorrect	Adjust
	Anvil to blade tension lockdown is loose	Tighten the anvil to blade tension lockdown
	Anvil is worn out	Replace
	Cutter blade assembly is worn out	Replace
Air motor spins but doesn't cut glass	Cutter head set screws (606) loose, see page 42	Apply medium strength thread sealant and tighten
	Anvil to cutter blade tension is incorrect	Adjust
Air motor speed incorrect	Incoming air supply issues	Ensure proper air supply to gun
	Supply air volume too low	Ensure adequate air volume
	Air motor speed control set incorrectly	Adjust air motor speed, see page 20
	Anvil to cutter blade tension is too high	Adjust tension, see page 20
	Cutter blade assembly is worn out	Replace
	Air motor exhaust filter plugged	Clean and replace as necessary

Problem	Cause	Solution
No solvent	No fluid in pressure pot	Refill pressure pot
	Output valve closed	Open output valve
	Check valve stuck closed	Increase pressure in pressure pot
	Material check valve plugged	Clean and replace as needed
	Solvent needle valve closed	Open solvent needle valve
	Solvent check valve stuck closed	Ensure the solvent check valve opens freely
Solvent in catalyst/resin mix	Solvent needle valve open	Close solvent needle valve
	Solvent check valve o-ring damaged or missing	Inspect and replace if necessary
	Solvent valve damaged	Inspect and replace if necessary
Resin in solvent line	Solvent needle valve open	Close solvent needle valve
	Solvent check valve o-ring damaged or missing	Inspect and replace if necessary
	Solvent valve damaged	Inspect and replace if necessary
AAC does not shut off	AAC needle o-ring damaged (internal mix)	Inspect and replace if necessary
Atomized catalyst air does not shut off	Atomized catalyst air Needle o-ring damaged (external mix)	Inspect and replace if necessary
Air leakage	Air lines not fully seated in push lock tube fittings	Ensure air lines are fully seated in fitting
	Cutter Assembly pivot tube o-ring damaged or missing	Inspect and replace if necessary
	AAC/Atomized catalyst external needle o-ring damaged	Inspect and replace if necessary
	Cutter air valve seat damaged	Inspect and replace if necessary
	G hook o-ring missing	Inspect and replace if necessary
	Cutter mount o-ring missing	Inspect and replace if necessary

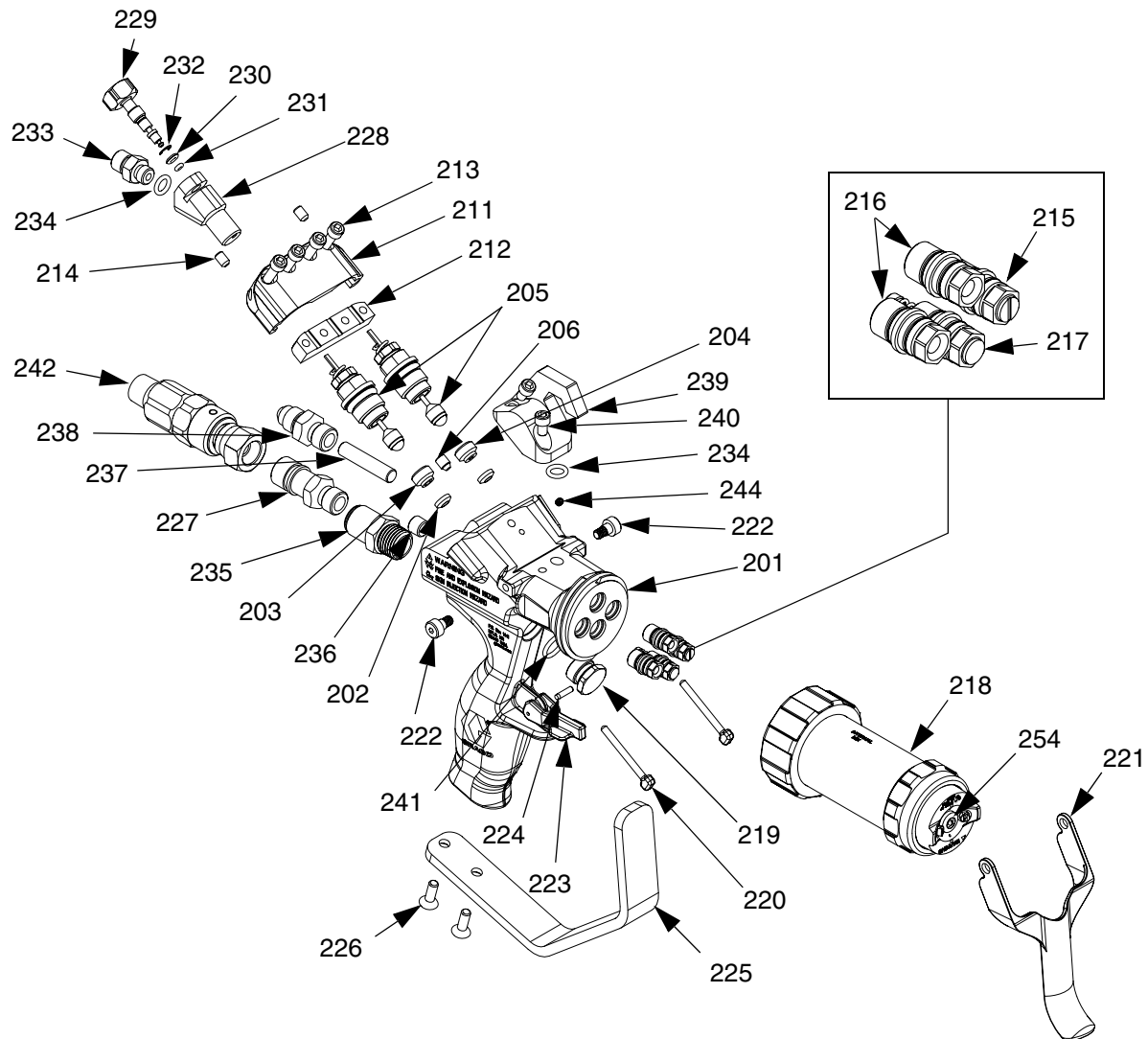
# Parts

## External Mix Gel Gun, 258840



Ref	Part	Description	Qty	Ref	Part	Description	Qty
101	---	HANDLE, gun	1	139	16C279	BODY, gel gun mount	1
102†‡	24E428	SEAL, needle, seat (pack of 6)	2	140	239663	SWIVEL, straight	1
103‡	---	RETAINER, seat, needle valve,	1	141	123909	SCREW, cap, sh	2
		resin		143	---	SCREW, set	1
104†	---	RETAINER, seat, catalyst	1	148	24F007	KIT, tool, hex keys, gun	1
105**	24E417	NEEDLE, assembly	2	152	GC2081	SCREW, set	1
106*	---	NEEDLE, aac	1	153★	---	RESTRICTOR, catalyst	1
107*	---	SPRING, needle assembly	1	154▲	222385	TAG, warning	1
108*	---	RETAINER, aac	1	155	CST521	TIP, spray, 521	1
109*	24E429	O-RING (pack of 6)	1	* Parts included in Solvent/AAC assembly kit 24E415.			
110*	24E430	O-RING (pack of 6)	1	† Parts included in catalyst seat kit 24E420.			
111◆	---	CLAMP, trigger, top	1	‡ Parts included in resin seat kit 24E421.			
112◆	---	CLAMP, trigger, bottom	1	◆ Parts included in needle clamp kit 24E416.			
113◆	---	SCREW, cap, sh	4	* Parts included in AAC needle kit 24E419.			
114◆	GC2082	SCREW, set, flpt	2	★ Parts included in catalyst fitting kit 24H269.			
115❖	24E423	HOUSING, check valve asm,	1	❖ Parts included in gun trigger kit 24H268.			
		catalyst		** Kit 24E436 includes 6 needle assemblies.			
116❖	24E424	HOUSING, check valve asm	3	❖ O-rings on housings are available in kit 257425.			
117	24E427	HEAD, asm, ext mix, vert	1	▲ Replacement Danger and Warning labels, tags, and			
118	16C705	PLUG, trigger	1	cards are available at no cost.			
119	111316	PACKING, o-ring	1	--- Not sold separately.			
120❁	179737	PIN, actuator	2				
121❁	---	TRIGGER, gun, 2-finger	1				
122❁	---	BOLT, shoulder, self locking	2				
123	---	STOP, trigger	1				
124	112033	PIN, dowel	1				
125	16C130	GUARD, trigger	1				
126	111945	SCREW, cap, fl hd	2				
127	16C107	FITTING, resin hose	1				
128*	---	FITTING, solvent	1				
129*	---	VALVE, solvent	1				
130*	24E437	PACKING, o-ring (pack of 6)	1				
131*	24E431	O-RING (pack of 6)	1				
132*	24E432	RING, retaining, e-ring	1				
		(pack of 6)					
133*	---	FITTING, insert, solvent	1				
134*	111450	PACKING, o-ring	2				
135	123737	FITTING, tube, push connector	1				
136	123736	FITTING, tube, push connector	1				
138★	16C108	FITTING, catalyst hose	1				

# Internal Mix Gel Gun, 258853



258853\_3A0232\_2h

Ref	Part	Description	Qty	Ref	Part	Description	Qty
201	---	HANDLE, gun	1	237★	---	RESTRICTOR, catalyst	1
202†‡	24E428	SEAL, needle, seat (pack of 6)	2	238★	16C108	FITTING, catalyst hose	1
203‡	---	RETAINER, seat, needle valve, resin	1	239	16C279	BODY, gel gun mount	1
204†	---	RETAINER, seat, catalyst	1	240	123909	SCREW, cap, sh	2
205**	24E417	NEEDLE, assembly	2	241	111316	PACKING, o-ring	1
206	GC2241	SCREW, set	1	242	239663	SWIVEL, straight	1
211◆	---	CLAMP, trigger, top	1	244	---	SCREW, set	1
212◆	---	CLAMP, trigger, bottom	1	249	24F007	KIT, tool, hex keys, gun	1
213◆	---	SCREW, cap, sh	4	254	CST521	TIP, spray, 521	1
214◆	GC2082	SCREW, set, flpt	2	* Parts included in Solvent/AAC assembly kit 24E415.			
215❖	24G764	HOUSING, check valve asm, catalyst	1	† Parts included in catalyst seat kit 24E420.			
216❖	24E424	HOUSING, check valve asm	2	‡ Parts included in resin seat kit 24E421.			
217❖	24H270	HOUSING, check valve asm, solvent	1	◆ Parts included in needle clamp kit 24E416.			
218	24G615	HEAD, asm, internal mix, gel	1	★ Parts included in catalyst fitting kit 24H269.			
219	16C705	PLUG, trigger	1	✿ Parts included in gun trigger kit 24H268.			
220✿	179737	PIN, actuator	2	❖ O-rings on housings are available in kit 257425.			
221✿	---	TRIGGER, gun, 2-finger	1	** Kit 24E436 includes 6 needle assemblies.			
222✿	---	BOLT, shoulder, self locking	2	--- Not sold separately.			
223	---	STOP, trigger	1				
224	112033	PIN, dowel	1				
225	16C130	GUARD, trigger	1				
226	111945	SCREW, cap, fl hd	2				
227	16C107	FITTING, resin hose	1				
228*	---	FITTING, solvent	1				
229*	---	VALVE, solvent	1				
230*	24E437	PACKING, o-ring (pack of 6)	1				
231*	24E431	O-RING (pack of 6)	1				
232*	24E432	RING, retaining, e-ring (pack of 6)	1				
233*	---	FITTING, insert, solvent	1				
234*	111450	PACKING, o-ring	2				
235	123737	FITTING, tube, push connector	1				
236	116134	PLUG, pipe, headless	1				

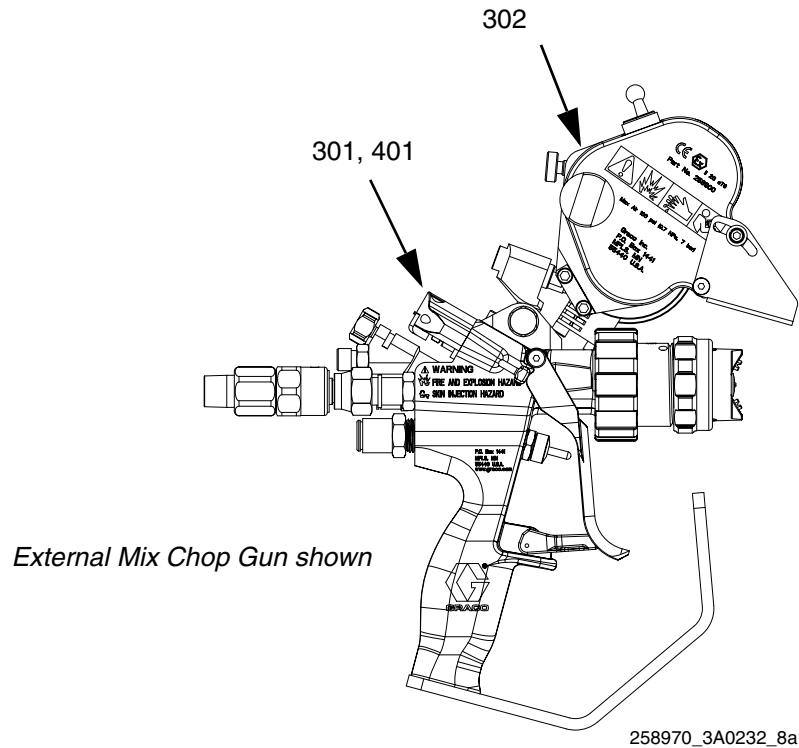


## External Mix Chop Gun with Cutter, 258970

Ref	Part	Description	Qty
301	258852	GUN, external mix, chop	1
302	24E512	CUTTER ASSEMBLY	1

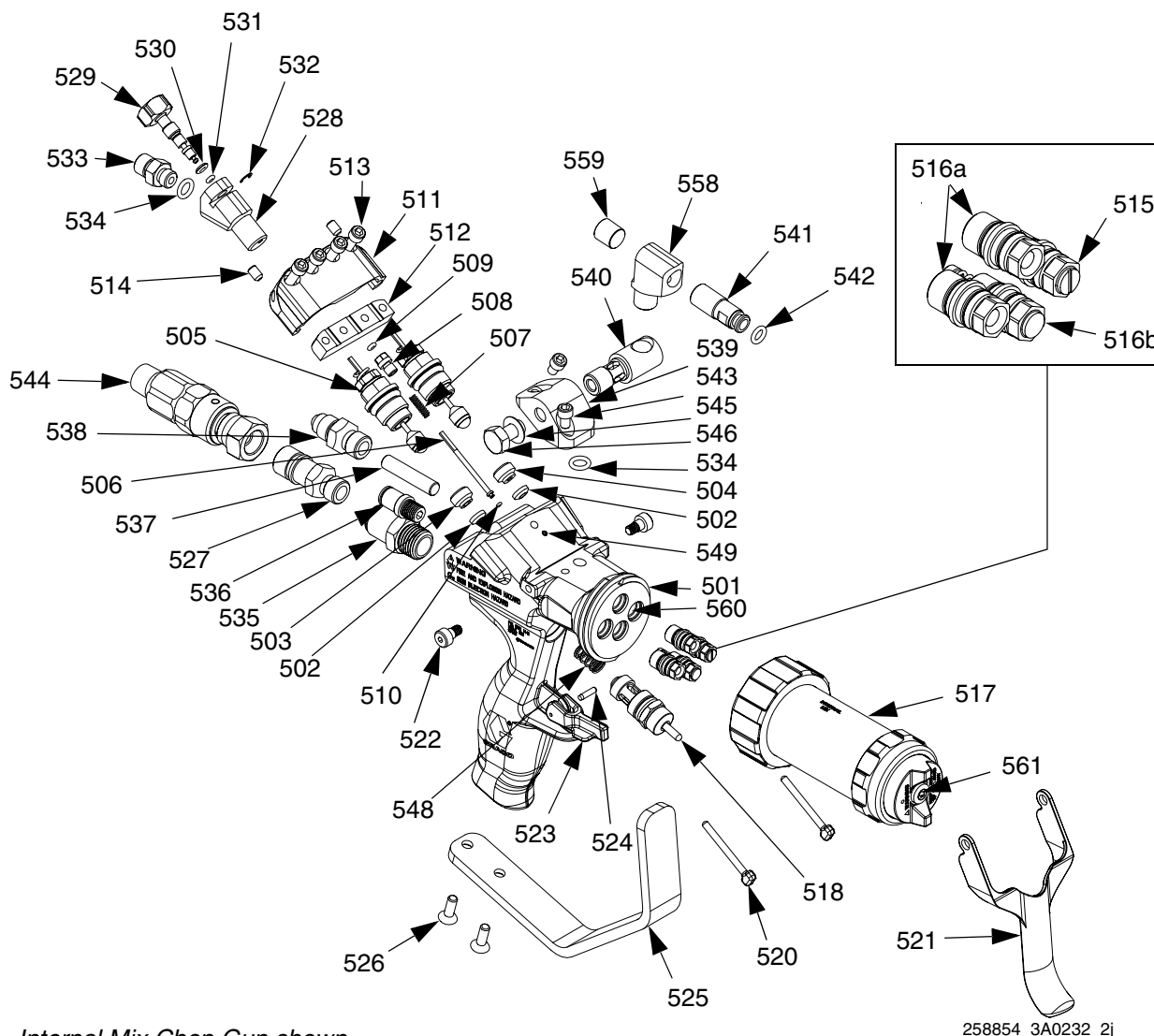
## Internal Mix Chop Gun with Cutter, 258971

Ref	Part	Description	Qty
401	258854	GUN, internal mix, chop	1
302	24E512	CUTTER ASSEMBLY	1



External Mix Chop Gun shown

# Chop Guns, 258852, 258854



Ref	Part	Description	Quantity	
			258852	258854
501	---	HANDLE, gun	1	1
502††	24E428	SEAL, needle, seat (pack of 6)	2	2
503†	---	RETAINER, seat, needle valve, resin	1	1
504†	---	RETAINER, seat, catalyst	1	1
505**	24E417	NEEDLE, assembly	2	2
506*	---	NEEDLE, aac	1	1
507*	---	SPRING, needle assembly	1	1
508*	---	RETAINER, aac	1	1
509*	24E429	O-RING (pack of 6)	1	1
510*	24E430	O-RING (pack of 6)	1	1
511*	---	CLAMP, trigger, top	1	1
512*	---	CLAMP, trigger, bottom	1	1
513*	---	SCREW, cap, sh	4	4
514*	GC2082	SCREW, set, flpt	2	2
515*	24G764	HOUSING, check valve asm, catalyst		1
	24E423	HOUSING, check valve asm, catalyst	1	
516a*	24E424	HOUSING, check valve asm	3	2
516b*	24H270	HOUSING, check valve asm, solvent		1

Ref	Part	Description	Quantity	
			258852	258854
517	24E426	HEAD, asm, ext mix, horiz	1	
	24E442	HEAD, asm, internal mix, chop		1
518	24E425	VALVE, air, assy, trigger	1	1
520❖	179737	PIN, actuator	2	2
521❖	---	TRIGGER, gun, 2-finger	1	1
522❖	---	BOLT, shoulder, self locking	2	2
523	---	STOP, trigger	1	1
524	112033	PIN, dowel	1	1
525	16C130	GUARD, trigger	1	1
526	111945	SCREW, cap, fl hd	2	2
527	16C107	FITTING, resin hose	1	1
528*	---	FITTING, solvent	1	1
529*	---	VALVE, solvent	1	1
530*	24E437	PACKING, o-ring (pack of 6)	1	1
531*	24E431	O-RING (pack of 6)	1	1
532*	24E432	RING, retaining, e-ring (pack of 6)	1	1
533*	---	FITTING, insert, solvent	1	1
534*♦	111450	PACKING, o-ring	2	2
535	123737	FITTING, tube, push connector	1	1
536	123736	FITTING, tube, push connector	1	1
537★	---	RESTRICTOR, catalyst		1
538★	16C108	FITTING, catalyst hose	1	1
539♦	---	BODY, chopper mount	1	1
540♦	---	ADAPTER, chopper rotation	1	1
541♦	---	EXTENSION, cutter	1	1
542♦	24E433	PACKING, o-ring (pack of 6)	1	1
543♦	---	SCREW, cap, sh	2	2
544	239663	SWIVEL, straight	1	1
545♦	---	SPRING, belleville	1	1
546♦	C19080	SCREW, cap, hex hd	1	1
548	124058	SPRING, compression	1	1
549	---	SCREW, set, cppt	1	1
554	24F008	KIT, tool, hex keys, chop	1	1
558♦	---	TUBE, air pivot	1	
	---	TUBE, air pivot		1
559♦	295662	PLUG, pipe	1	1
560	124612	SCREW, set	1	
	GC2081	SCREW, set, flpt		1
561	CST443	TIP, spray, 443	1	1
562▲	222385	TAG, warning	1	

\* Parts included in solvent/AAC assembly kit 24E415.

† Parts included in catalyst seat kit 24E420.

♦ Parts included in **Cutter Adapter Kits**.

‡ Parts included in resin seat kit 24E421.

❖ Parts included in needle clamp kit 24E416.

\* Parts included in AAC needle kit 24E419.

\*\* Kit 24E436 includes 6 needle assemblies.

★ Parts included in catalyst fitting kit 24H269.

❖ Parts included in gun trigger kit 24H268.

✱ O-rings on housings are available in kit 257425.

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

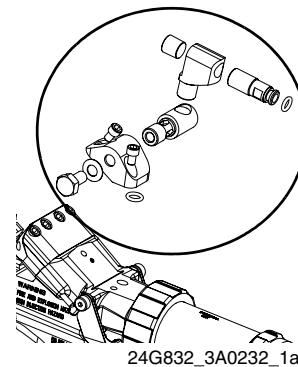
--- Not sold separately.

## Cutter Adapter Kits

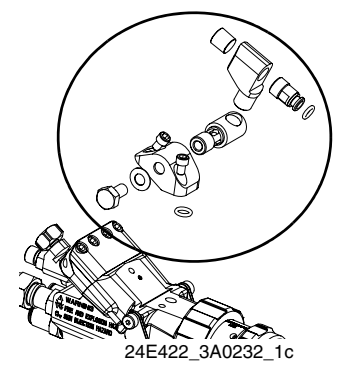
External Mix Cutter Adapter Kit, 24E422

Internal Mix Cutter Adapter Kit, 24G832

Internal Mix Adapter



External Mix Adapter



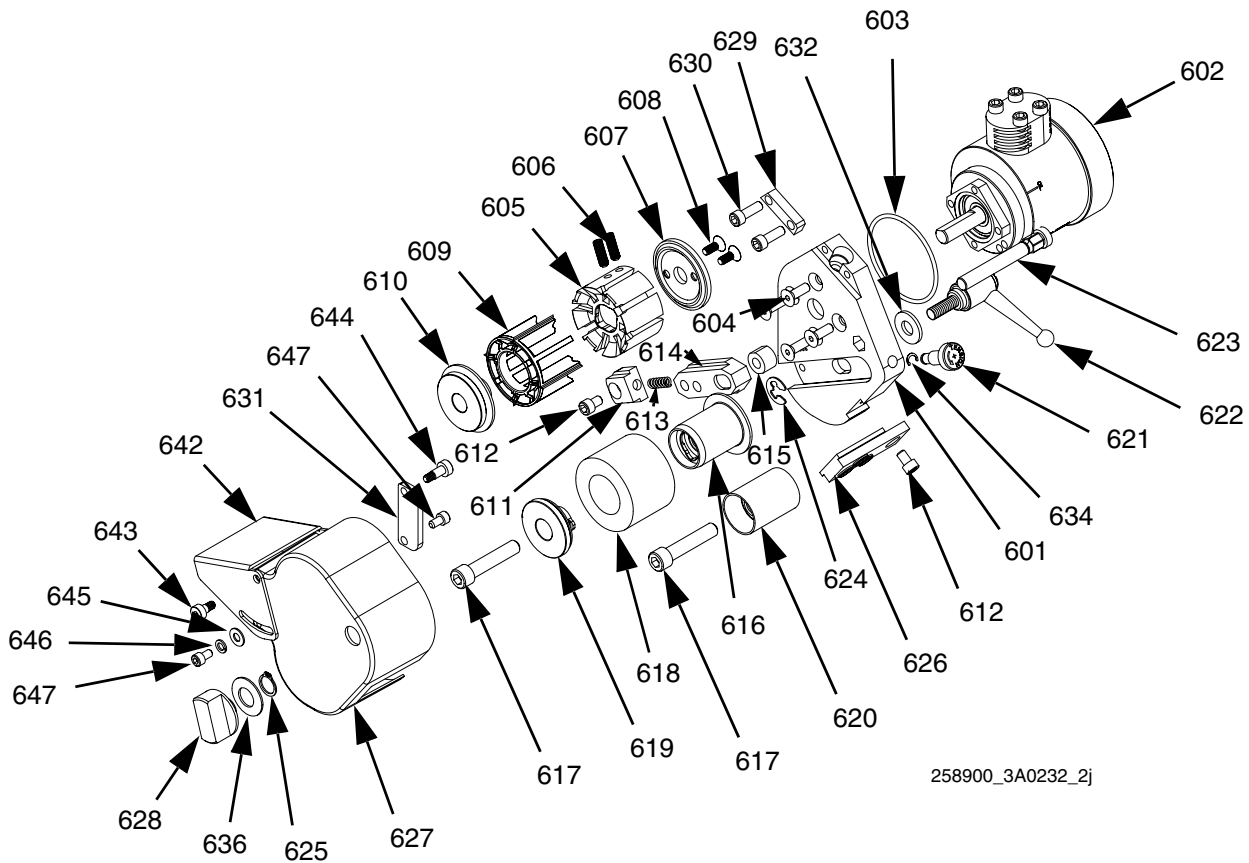
These kits provide replacement parts for the cutter adapter.

To convert an external mix gel gun to an external mix chop gun, see **External Mix Gel Gun to Chop Gun Conversion** on page 49. The internal mix gel gun cannot be converted to a chop gun.

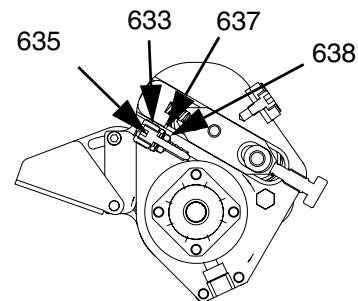
## Cutter Assembly, 24E512

### NOTICE

To prevent undesired operation, do not disassemble any part of the air motor (602) except for the air motor muffler as shown in the **Air Motor Muffler** section on page 49.



258900\_3A0232\_2j



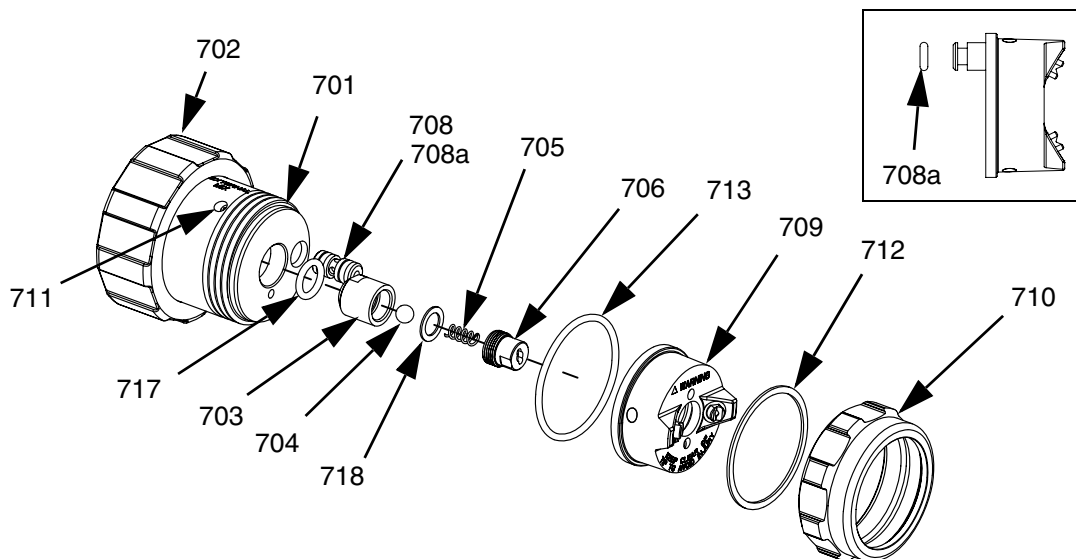
258900\_3A0232\_4j

Ref	Part	Description	Qty	Ref	Part	Description	Qty
601	---	PLATE, cutter back	1	635	16E010	SCREW, adjusting	1
602†	24E511	MOTOR, air	1	636◆	---	WASHER, spring, belleville	1
603	117519	O-RING	1	637	104893	PACKING, o ring	1
604	111945	SCREW, cap, fl hd	4	638	15G117	O-RING	1
605✿	---	HEAD, cutter	1	642◆	16E227	DEFLECTOR, chute, chopper, rs	1
606✿	---	SCREW, set	2	643◆	---	SCREW, shldr, shc	1
607✿	---	CAP, front, cutter	1	644◆	---	SCREW, shldr, shc	1
608✿	---	SCREW, fhsc	2	645◆	154570	WASHER, flat	1
609	24E448	CARTRIDGE, 4 blade (pack of 5)	1	646◆	100068	WASHER, lock, spring	1
	24F602	CARTRIDGE, 6 blade (pack of 5)	1	647◆	---	SCREW, cap, sh	2
	24E449	CARTRIDGE, 8 blade (pack of 5)	1	† Air motor muffler kit 24H280 is available. See <b>Air Motor Muffler</b> on page 49.			
610✿	258905	CAP, cutter head assembly	1	✿ Parts included in cutter head kit 24H271.			
611	16C686	PLATE, spring retainer	1	✱ Parts included in anvil sleeve kit 24H272.			
612	123909	SCREW, cap, sh	2	★ Parts included in idler assembly kit 24H273.			
613	123882	SPRING, slide, anvil	1	◆ Parts included in cutter cover kit 24H282.			
614	16C678	PLATE, slider mounting	1	--- Not sold separately.			
615	16C679	NUT, idler mounting	1				
616✱	---	SLEEVE, anvil, assembly	1				
617✱★	---	SCREW, cap, sh	2				
618	123672	WHEEL, anvil, cutter	1				
619✱	258903	CAP, anvil sleeve	1				
620★	---	BEARING, idler assembly	1				
621	16C687	SCREW, spring tension	1				
622	124048	HANDLE, clamp, cutter	1				
623	16C691	TUBE, blower	1				
624	123883	RING, retaining, e-ring	1				
625◆	---	RING, snap	1				
626	24F038	BAR, feed, cutter	1				
627◆	---	COVER, cutter	1				
628◆	---	KNOB, cover release	1				
629	16C676	CLAMP, air pivot	1				
630	124057	SCREW, cap, sh	2				
631◆	---	PLATE, cutter cover	1				
632	110755	WASHER, plain	1				
633	16E024	NUT, block	1				
634	24E432	RING, retaining, e-ring (pack of 6)	1				

## Front Head Assemblies

**External Mix Vertical Spray Pattern Front Head, 24E426**

**External Mix Horizontal Spray Pattern Front Head, 24E427**



Ref	Part	Description	Qty
701	---	HEAD, spray, external mix	1
702	16C220	RING, locking	1
703*	---	SEAL, tip, external mix	1
704*†	---	BALL, sst	1
705*†	---	SPRING, compression	1
706*	---	CAP, check valve, external mix	1
708	---	INSERT, valve assist, asm, ext mix	1
708a	111504	O-RING	3
709★	---	AIR CAP, vertical (Model 24E426 only)	1
*	---	AIR CAP, horizontal (Model 24E427 only)	1
710✿★★	---	RING, retaining	1
711	GC2081	SCREW, set, flpt	1
712✿★★	---	WASHER	1
713✿★★	107313	PACKING, o-ring	1
717*†	113137	PACKING, o-ring	1
718*†	---	WASHER, non-metallic	1

\* Parts available in external mix front head check valve kit 24E446.

† Parts available in external mix front head check valve repair kit 24E447.

✿ Parts included in retaining ring kit 24H274.

\* Parts included in horizontal air cap kit 24H275.

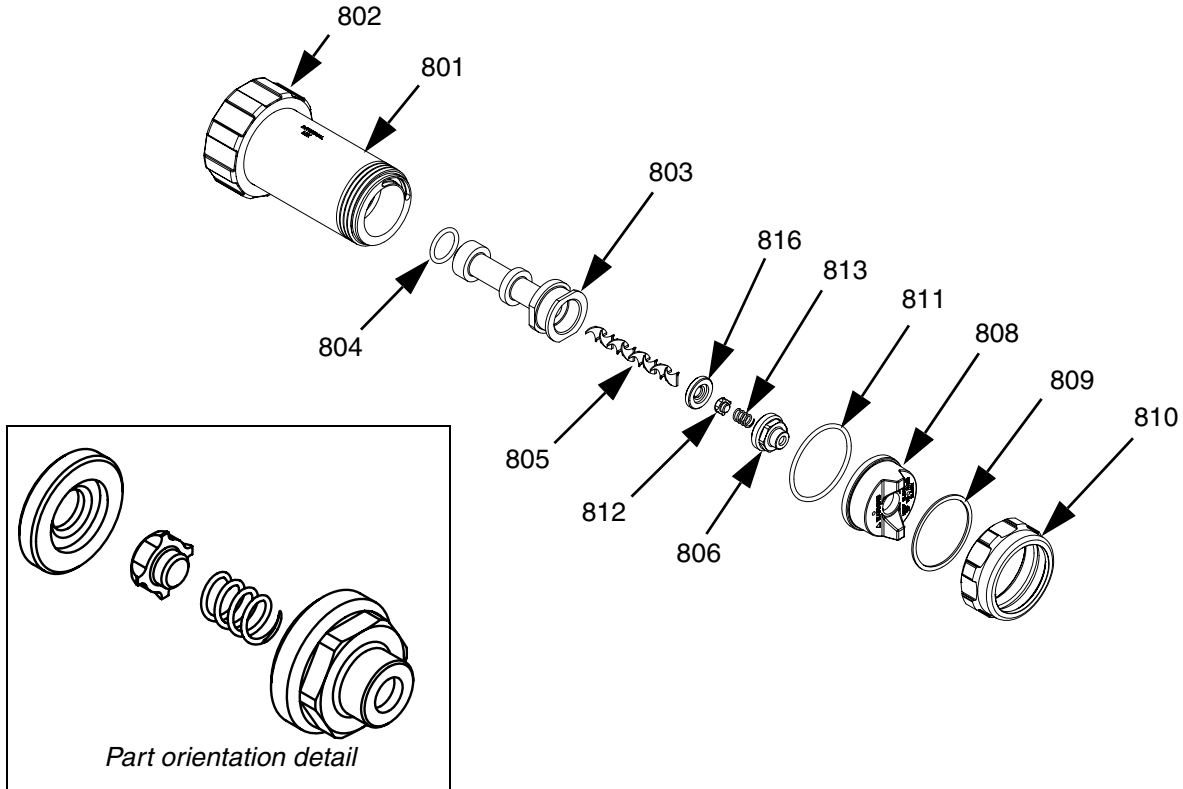
★ Parts included in vertical air cap kit 24H283.

--- Not sold separately.

# **Internal Mix Gel Front Head, 24E442** **Internal Mix Chop Front Head, 24G615**

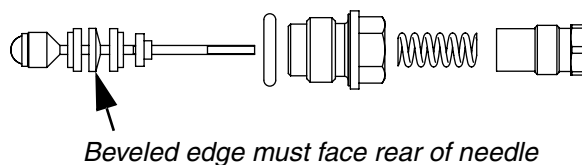
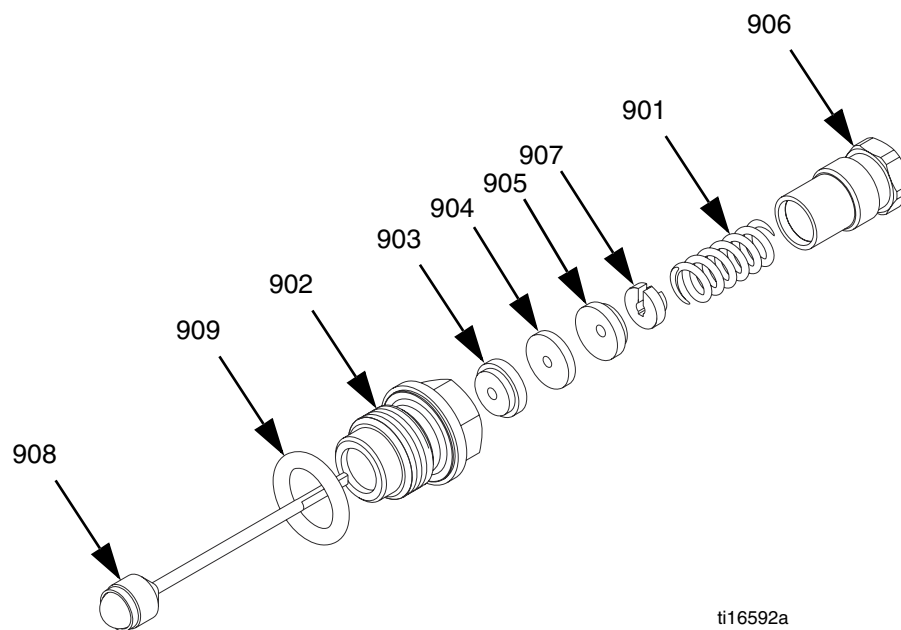
## **NOTICE**

There is a half-moon pin pressed into the front head (801) behind the diffuser assembly (803). Do not attempt to remove this pin. Removal will result in undesired operation.



Ref	Part	Description	Qty	
801	---	HEAD, spray, internal	1	* Parts available in internal mix front head check valve kit 24E443.
802	16C220	RING, locking	1	
803	---	DIFFUSER, internal mix	1	† Parts available in internal mix check valve spring kit 24E444.
804	113746	PACKING, o-ring	1	
805*	16C300	ELEMENT, mixing, internal mix	1	✿ Parts included in retaining ring kit 24H274.
806*	---	CAP, check valve, internal mix	1	
808*	---	AIR CAP, asm, internal mix, chop (Model 24G615 only)	1	* Parts included in internal mix chop air cap kit 24H277.
★	---	AIR CAP, asm, internal mix, gel coat (Model 24E442 only)	1	★ Parts included in internal mix gel air cap kit 24H278.
809✿★	---	WASHER	1	--- Not sold separately.
810✿★	---	RING, retaining	1	
811✿★	107313	PACKING, o-ring	1	
812*†	---	VALVE, check, internal mix	1	
813*†	---	SPRING, compression	1	
816*†	---	SEAT, check valve, int mix	1	

## Needle Assembly, 24E417



Ref	Part	Description	Qty
901	---	SPRING, needle assembly	1
902	---	HOUSING, needle packing	1
903*	---	RETAINER, packing	1
904*	24H279	PACKING, disk (pack of 6)	1
905*	16C083	RETAINER, packing	1
906	---	NUT, packing material	1
907*	---	CLIP, retainer	1
908	---	NEEDLE, assembly	1
909*	24H281	O-RING (pack of 6)	1

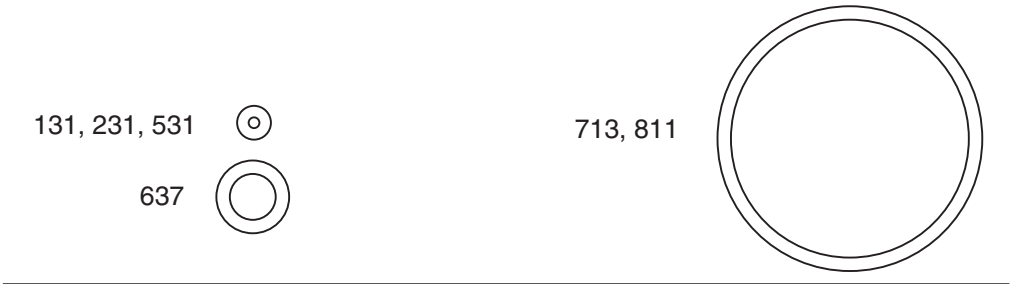
\* Parts included in needle repair kit 24E418.

--- Not sold separately.

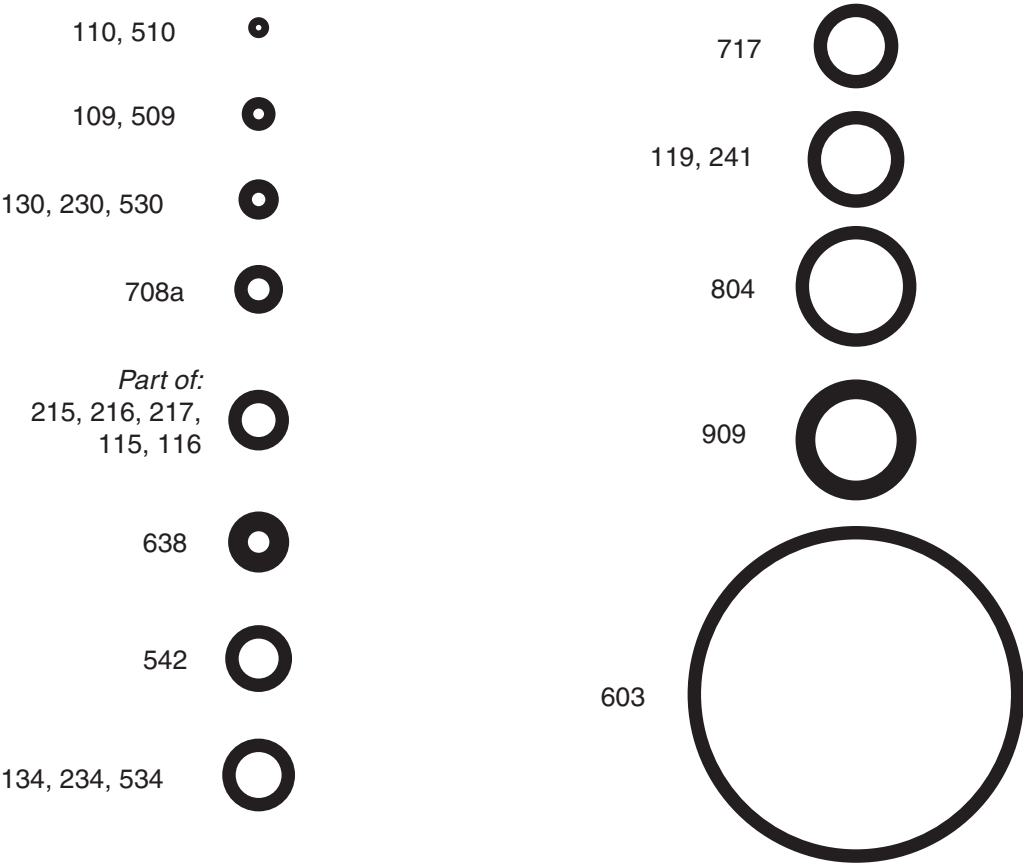
# O-ring Identification

The following illustration shows all available o-rings at actual size. See the respective illustration in the **Parts** section beginning on page 34 for part references and locations.

## White (PTFE) O-rings



## Black (FKM) O-rings



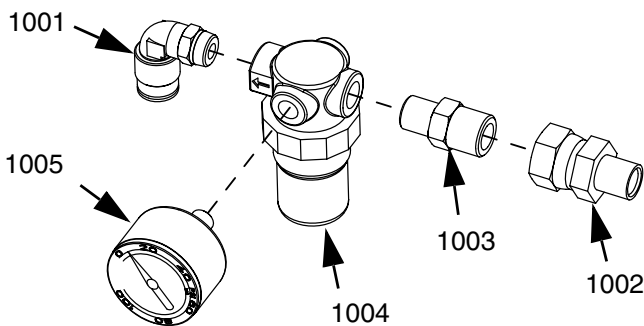
Accessories

Field Install Kit, 257754

Includes parts for installing the RS gun onto existing hose bundles.

AAC Regulators

24G571 - for use with internal mix gel guns  
22632-00 - for use with internal mix chop guns



24G571\_3A0232\_1a

Ref	Part	Description	Qty
1001	115841	FITTING, elbow (Assembly 24G571 only)	1
	20735-02	FITTING, elbow (Assembly 22632-00 only)	1
1002	7597-04	FITTING, swivel, 3/8 nptm x 3/8 npsm	1
1003	8115-06	FITTING, pipe, nipple, hex, 3/8 x 1/4	1
1004	ISD-141-3	REGULATOR, mini	1
1005	ISD-142	GAUGE, pot, solvent	1

Lubricant for Gun

118665, 4 oz. (113 gram)

High adhesion, water resistant, lithium-based lubricant.  
MSDS sheets available at [www.graco.com](http://www.graco.com).

External Mix High-Flow Kit, 24H336

Use this kit to replace the external mix front head check valve assembly with a spacer in order to increase the output. See check valve assembly kit 24E446 parts shown in the **Front Head Assemblies** section on page 44.

**NOTE:** This kit replaces the check valve and does not include a check valve.

Part	Description	Qty
113137	O-RING	1
---	SPACER, tip, external mix	1

--- Not sold separately.

Internal Mix High-Flow Kit, 24H337

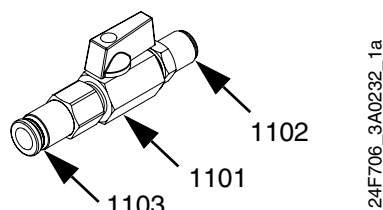
Use this kit to replace the standard 1/4 in. mixer in the internal mix front head assembly with a 3/8 in. mixer in order to increase the output. The kit includes a new diffuser assembly which does not include a new check valve.

**NOTE:** This kit replaces the entire diffuser assembly, which includes a check valve, and the new diffuser does not include a check valve.

Part	Description	Qty
---	DIFFUSER, internal mix, 3/8 in.	1
113746	O-RING	1
20310-90	ELEMENT, mixing, 3/8 in.	1

--- Not sold separately.

## Chopper Air Shutoff, 24F706



Ref	Part	Description	Qty
1101	---	VALVE, ball	1
1102	---	FITTING, tube, push connector	1
1103	---	CONNECTOR, 3/8 tube	1

--- Not sold separately.

## External Mix Gel Gun to Chop Gun Conversion

**NOTE:** The internal mix gel gun cannot be converted to a chop gun.

To convert your external mix gel gun to a chop gun, purchase and install the following kits:

- External Mix Cutter Adapter Kit, 24E422
- Trigger Air Valve Kit, 24E425
- Cutter Assembly, 24E512

To complete the conversion from an external mix gel gun to a chop gun, remove catalyst restrictor (153) from gun. See **External Mix Gel Gun, 258840** on page 34.

## Oil for Air Motor

202659, 16 oz.

MSDS sheets available at [www.graco.com](http://www.graco.com).

## Blade Cartridges

Pack of 5 cartridges

- 4 blade cartridge - 24E448
- 6 blade cartridge - 24F602
- 8 blade cartridge - 24E449

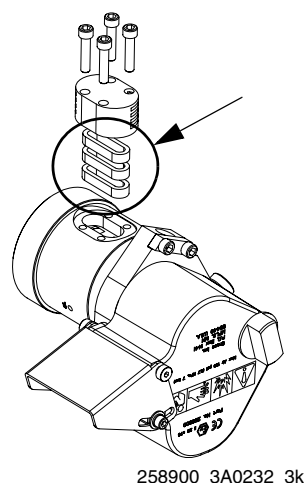
## Air Motor Muffler

### NOTICE

To prevent undesired operation, do not disassemble any part of the air motor (602) except for the air motor muffler as shown below.

Kit 24H280 (Pack of 3)

When the cutter speed or glass output has noticeably decreased the air motor muffler may be clogged. Remove the existing muffler to check whether it is dirty and replace if necessary.



## Tools

### Hex Keys for Guns, 24F007

Includes:

- One 3/32 in. hex key
- One 9/64 in. hex key

### Hex Keys for Cutter, 24F008

Includes:

- One 3/32 in. hex key
- One 9/64 in. hex key
- One 3/16 in. hex key

## Impingement Spray Tips

RS Tip Part No. (1) †	Angled Hole Dia.; in. (mm)	Straight Hole Dia.; in. (mm)	Pattern Width ‡; in. (mm)	Glas-Craft Tip Part No. Ref	Competitor Tip Part No. Ref
CSTS31	0.018 (0.46)	0.012 (0.30)	6 (150)	23047-M1	---
CSTS41	0.018 (0.46)	0.012 (0.30)	8 (200)	23047-P1	---
CSTS42	0.021 (0.53)	0.009 (0.23)	8 (200)	23005-M2	2025
CSTS52	0.021 (0.53)	0.014 (0.36)	10 (250)	23047-P2	---
CSTS73	0.036 (0.91)	0.025 (0.64)	14 (350)	23005-K3	3025
CSTS34	0.042 (1.07)	0.029 (0.74)	6 (150)	23005-C4	4010
CSTS44	0.042 (1.07)	0.029 (0.74)	8 (200)	23005-E4	4015
CSTS54	0.042 (1.07)	0.029 (0.74)	10 (250)	23005-G4	4015
CSTS64	0.042 (1.07)	0.029 (0.74)	12 (300)	23005-J4	4020
CSTS74	0.042 (1.07)	0.029 (0.74)	14 (350)	23005-M4	4025
CSTS84	0.042 (1.07)	0.029 (0.74)	16 (400)	23005-P4	4030
CSTS45	0.052 (1.32)	0.036 (0.91)	8 (200)	23005-C5	---
CSTS55	0.052 (1.32)	0.036 (0.91)	10 (250)	23005-E5	5015
CSTS65	0.052 (1.32)	0.036 (0.91)	12 (300)	23005-G5	5020
CSTS75	0.052 (1.32)	0.036 (0.91)	14 (350)	23005-J5	5020
CSTS85	0.052 (1.32)	0.036 (0.91)	16 (400)	23005-M5	---
CSTS56	0.062 (1.57)	0.043 (1.09)	10 (250)	23005-G6	6015
CSTS66	0.062 (1.57)	0.043 (1.09)	12 (300)	23005-J6	6020
CSTS86	0.062 (1.57)	0.043 (1.09)	16 (400)	23005-M6	---
CSTT66	0.062 (1.57)	0.043 (1.09)	12 (300)	23005-J6	6020
CSTS57	0.070 (1.78)	0.052 (1.32)	10 (250)	23005-G7	7020
CSTS67	0.070 (1.78)	0.052 (1.32)	12 (300)	23005-J7	---
CSTT57	0.070 (1.78)	0.052 (1.32)	10 (250)	23005-G7	7020

† **Tip Code Reference:**

CST = Composite Spray Tip

4th digit = S for stainless steel, T for tool steel

5th digit = pattern width code. Double number to get pattern size at 18 in. (450 mm). Example: 5 = 10 in. (250 mm) pattern at 18 in. (450 mm) distance to target.

6th digit = orifice size code. Number roughly matches a 0.010 in. (0.254 mm) increment of the angled hole dia. Exp: 5 = 0.052 in. (1.32 mm) dia. angled holes.

‡ **Pattern Width Condition:**

18 in. (450 mm) to target

## Standard Spray Tips

Part No. †	Orifice Dia.; in. (mm)	Pattern Width at 12 in. (305 mm) Target; in. (mm)
CST215	0.015 (0.38)	4-6 (100-150)
CST415	0.015 (0.38)	8-10 (200-300)
CST217	0.017 (0.43)	4-6 (100-150)
CST417	0.017 (0.43)	8-10 (200-250)
CST517	0.017 (0.43)	10-12 (250-300)
CST219	0.019 (0.48)	4-6 (100-150)
CST419	0.019 (0.48)	8-10 (200-250)
CST519	0.019 (0.48)	10-12 (250-300)
CST221	0.021 (0.53)	4-6 (100-150)
CST421	0.021 (0.53)	8-10 (200-250)
CST521	0.021 (0.53)	10-12 (250-300)
CST223	0.023 (0.58)	4-6 (100-150)
CST423	0.023 (0.58)	8-10 (200-250)
CST523	0.023 (0.58)	10-12 (250-300)
CST427	0.027 (0.69)	8-10 (200-250)
CST527	0.027 (0.69)	10-12 (250-300)
CST231	0.031 (0.79)	4-6 (100-150)
CST431	0.031 (0.79)	8-10 (200-250)
CST531	0.031 (0.79)	10-12 (250-300)
CST235	0.035 (0.89)	4-6 (100-150)
CST435	0.035 (0.89)	8-10 (200-250)
CST535	0.035 (0.89)	10-12 (250-300)
CST343	0.043 (1.09)	6-8 (150-200)
CST443	0.043 (1.09)	8-10 (200-250)
CST543	0.043 (1.09)	10-12 (250-300)
CST351	0.051 (1.30)	6-8 (150-200)
CST451	0.051 (1.30)	8-10 (200-250)
CST551	0.051 (1.30)	10-12 (250-300)
CST651	0.051 (1.30)	12-14 (300-350)
CST461	0.061 (1.55)	8-10 (200-250)
CST561	0.061 (1.55)	10-12 (250-300)
CST661	0.061 (1.55)	12-14 (300-350)
CST471	0.071 (1.80)	8-10 (200-250)

† **Tip Code Reference:**

*CST = Composite Spray Tip*

*4th digit = pattern width code. Double number to get pattern size at 12 in. (305 mm). Example: 5 = 10 in. (250 mm) pattern at 12 in. (305 mm) distance to target.*

*5th & 6th digit = equivalent orifice size as a round diameter orifice.*

# Technical Data

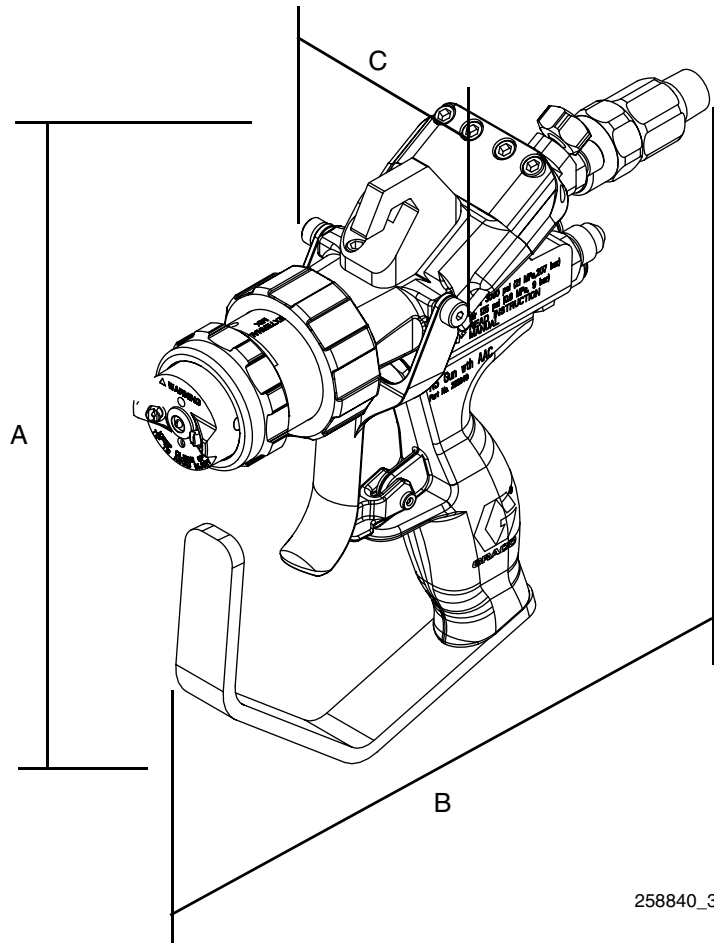
See **Models** on page 3 for more information.

Maximum Fluid Working Pressure. . . . .	<i>Internal Mix:</i> 2000 psi (14 MPa, 138 bar) <i>External Mix:</i> 3000 psi (21 MPa, 207 bar)
Minimum Air Flow (at 100 psi, 0.7 MPa, 7 bar) . . .	<i>258853 - Internal Mix Gel:</i> 12.5 scfm (0.354 m <sup>3</sup> per min.) <i>258854 - Internal Mix Chop:</i> 2.25 scfm (0.064 m <sup>3</sup> per min.) <i>258840, 258852 - External Mix:</i> 2.0 scfm (0.06 m <sup>3</sup> per min.) <i>24E512 - Cutter:</i> 16.5 scfm (0.467 m <sup>3</sup> per min.)
Cutter Minimum Air Pressure . . . . .	80 psi (0.6 MPa, 6 bar)
Maximum Air Pressure . . . . .	125 psi (0.9 MPa, 9 bar)
Maximum Fluid Temperature . . . . .	100°F (38°C)
Typical Flow Rate of Pattern Guns . . . . .	Dependent on tip size
Cutter Maximum Glass Output . . . . .	At 80 psi stall pressure: One Strand: 3.8 lb/min (1.7 kg/min) Two Strands: 6.7 lb/min (3.0 kg/min) Three Strands: 8.0 lb/min (3.6 kg/min) At 100 psi stall pressure: One Strand: 4.3 lb/min (2.0 kg/min) Two Strands: 7.6 lb/min (3.4 kg/min) Three Strands: 9.8 lb/min (4.4 kg/min)
Fitting details . . . . .	See FIG. 6 on page 17
Wetted Parts . . . . .	Aluminum, stainless steel, carbon steel, carbide, chemically resistant o-rings
Materials of Construction. . . . .	Aluminum, stainless steel, carbon steel, carbide, chemically resistant o-rings
Weight . . . . .	<i>258853 - Internal Mix Gel:</i> 2.32 lb (1.05 kg) <i>258854 - Internal Mix Chop:</i> 2.46 lb (1.12 kg) <i>258840 - External Mix Gel:</i> 2.08 lb (0.94 kg) <i>258852 - External Mix Chop:</i> 2.33 lb (1.04 kg) <i>24E512 - Cutter:</i> 2.00 lb (0.91 kg)
Sound Power . . . . .	<i>258853 - Internal Mix Gel:</i> 98.1 dB(A) @ 60 psig <i>258854 - Internal Mix Chop:</i> 90.6 dB(A) @ 50 psig <i>258840 - 258852, External Mix:</i> 90.8 dB(A) @ 50 psig <i>24E512 - Cutter:</i> 111.5 dB(A) @ 100 psig and max. speed
Sound Pressure. . . . .	<i>258853 - Internal Mix Gel:</i> 80.3 dB(A) @ 60 psig <i>258854 - Internal Mix Chop:</i> 72.8 dB(A) @ 50 psig <i>258840, 258852 - External Mix:</i> 73.0 dB(A) @ 50 psig <i>24E512 - Cutter:</i> 93.7 dB(A) @ 100 psig and max. speed

† Sound pressure measured at 3 feet (1 meter) from equipment.

◆ Sound power measured per ISO-3746.

# Dimensions



258840\_3A0232\_1g

	Dimensions; in. (mm)			
	External, Gel	Internal, Gel	Internal, Chop	External, Chop
A, Height	7.37 (187)	7.37 (187)	10.29 (261.4)	10.29 (261.4)
B, Length	8.92 (227)	10.43 (265.9)	8.92 (227)	10.43 (265.9)
C, Width	2.36 (59.9)	2.36 (59.9)	5.07 (129)	5.07 (129)

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**TO PLACE AN ORDER**, contact your Graco distributor or call to identify the nearest distributor.

**Phone:** 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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Original instructions. *This manual contains English. MM 3A0232*

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