

FUSION™

309856ZAA
EN

Plural Component, Impingement Mix Mechanical Purge Spray Gun

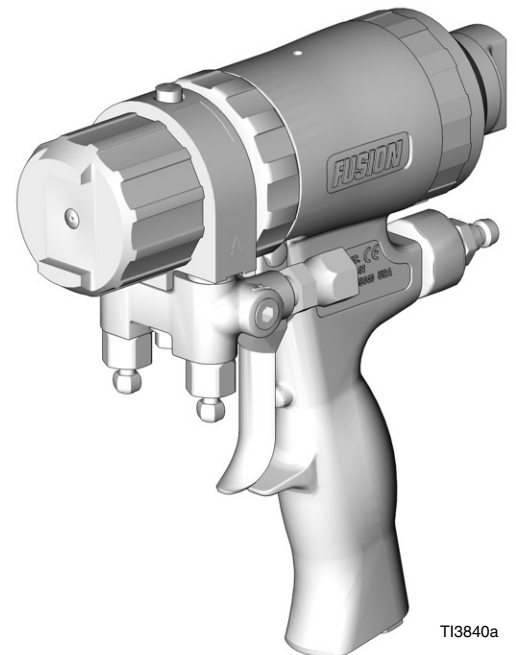
***For use with non-flammable foam and polyurea.
Not for use in explosive atmospheres.
For professional use only.***

*3500 psi (24.2 MPa, 242 bar) Maximum Fluid Working Pressure
80-130 psi (0.55-0.9 MPa, 5.5-9.1 bar) Air Inlet Pressure Range
200° F (94° C) Maximum Fluid Temperature*



Important Safety Instructions

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



T13840a






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Manual Conventions

Warning

| |
|--|
|  WARNING |
|   |
| <p>A warning alerts you to possible serious injury or death if you do not follow instructions.</p> <p>Symbols, such as fluid injection (shown), alert you to a specific hazard and direct you to read the indicated hazard warnings on pages 9-10.</p> |

Caution


| |
|--|
| CAUTION |
| <p>A caution alerts you to possible equipment damage or destruction if you do not follow instructions.</p> |

Note

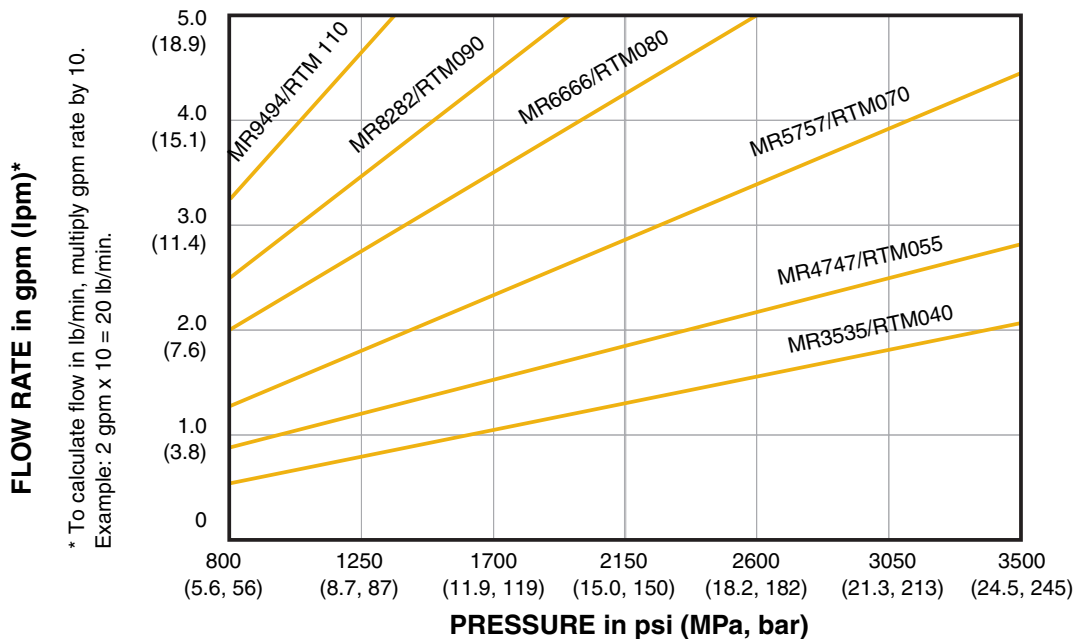
 A note indicates additional helpful information.

List of Models/Selection Guide


Standard Round Pattern Guns

 Use only these mix module/tip combinations.

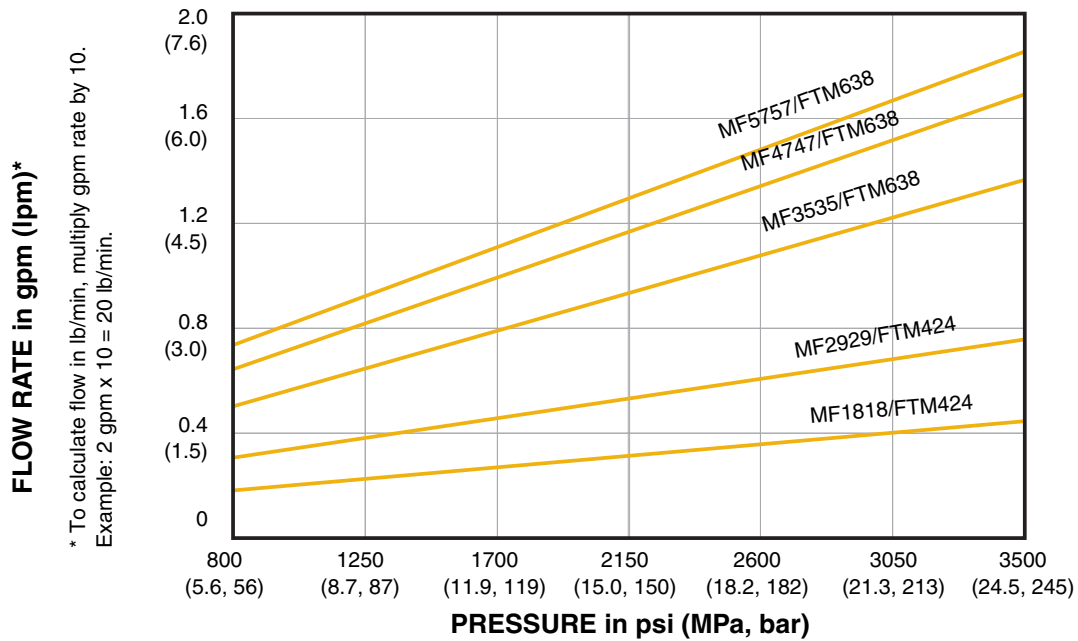
| Gun Part No., Series | Slip-Fit™ Polycarbally™ Mix Module Part No., see page 50 for numbering code | Round CeramTip™ Part No., see page 52 for numbering code |
|----------------------|--|---|
| 247211, A | MR3535 | RTM030 |
| 247212, A | MR3535 | RTM040 |
| 247213, A | MR3535 | RTM055 |
| 247218, A | MR4747 | RTM040 |
| 247219, A | MR4747 | RTM055 |
| 247225, A | MR5757 | RTM055 |
| 247226, A | MR5757 | RTM070 |
| 247231, A | MR6666 | RTM070 |
| 247232, A | MR6666 | RTM080 |
| 247233, A | MR6666 | RTM090 |
| 247239, A | MR8282 | RTM090 |
| 247240, A | MR8282 | RTM100 |
| 247245, A | MR9494 | RTM100 |
| 247246, A | MR9494 | RTM110 |




Standard Flat Pattern Guns

 Use only these mix module/tip combinations.

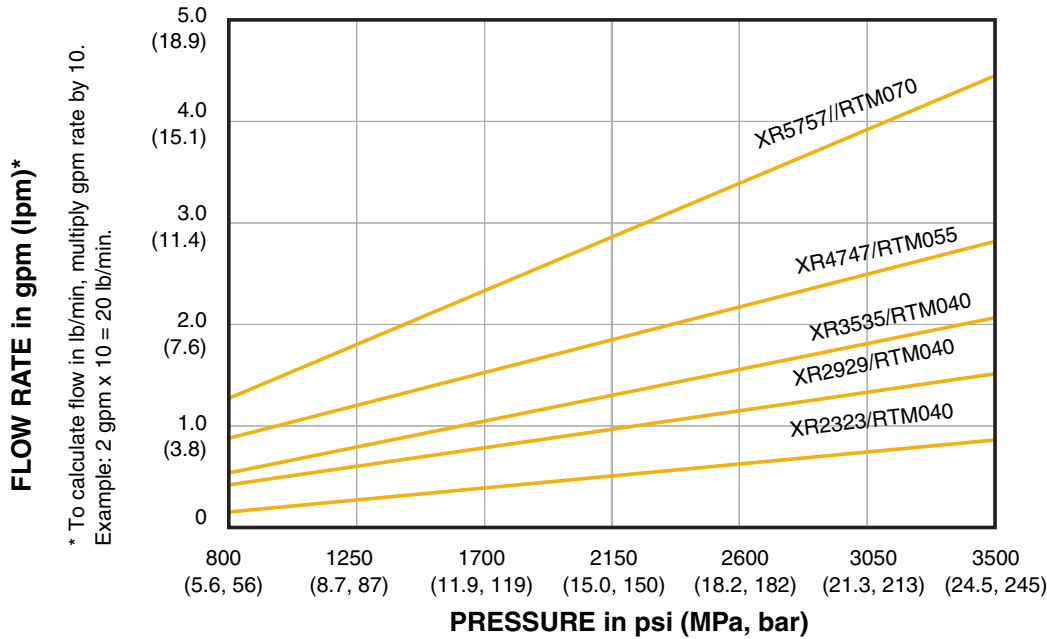
| Gun Part No., Series | Slip-Fit™ Polycarbally™ Mix Module Part No., see page 50 for numbering code | Flat CeramTip™ Part No., see page 52 for numbering code |
|----------------------|--|--|
| 247257, A | MF1818 | FTM317 |
| 247258, A | MF1818 | FTM424 |
| 247265, A | MF2929 | FTM424 |
| 247266, A | MF2929 | FTM438 |
| 247267, A | MF2929 | FTM624 |
| 247273, A | MF3535 | FTM438 |
| 247274, A | MF3535 | FTM624 |
| 247275, A | MF3535 | FTM638 |
| 247281, A | MF4747 | FTM624 |
| 247282, A | MF4747 | FTM638 |
| 247283, A | MF4747 | FTM838 |
| 247289, A | MF5757 | FTM638 |
| 247290, A | MF5757 | FTM838 |
| 247291, A | MF5757 | FTM848 |



Direct Impingement Round Pattern Guns

 Use only these mix module/tip combinations.

| Gun Part No., Series | Slip-Fit™ Polycarballoy™ Mix Module Part No., see page 50 for numbering code | Round CeramTip™ Part No., see page 52 for numbering code |
|----------------------|---|---|
| 247003, A | XR2323 | RTM040 |
| 247006, A | XR2929 | RTM030 |
| 247007, A | XR2929 | RTM040 |
| 247011, A | XR3535 | RTM030 |
| 247012, A | XR3535 | RTM040 |
| 247013, A | XR3535 | RTM055 |
| 247018, A | XR4747 | RTM040 |
| 247019, A | XR4747 | RTM055 |
| 247025, A | XR5757 | RTM055 |
| 247026, A | XR5757 | RTM070 |



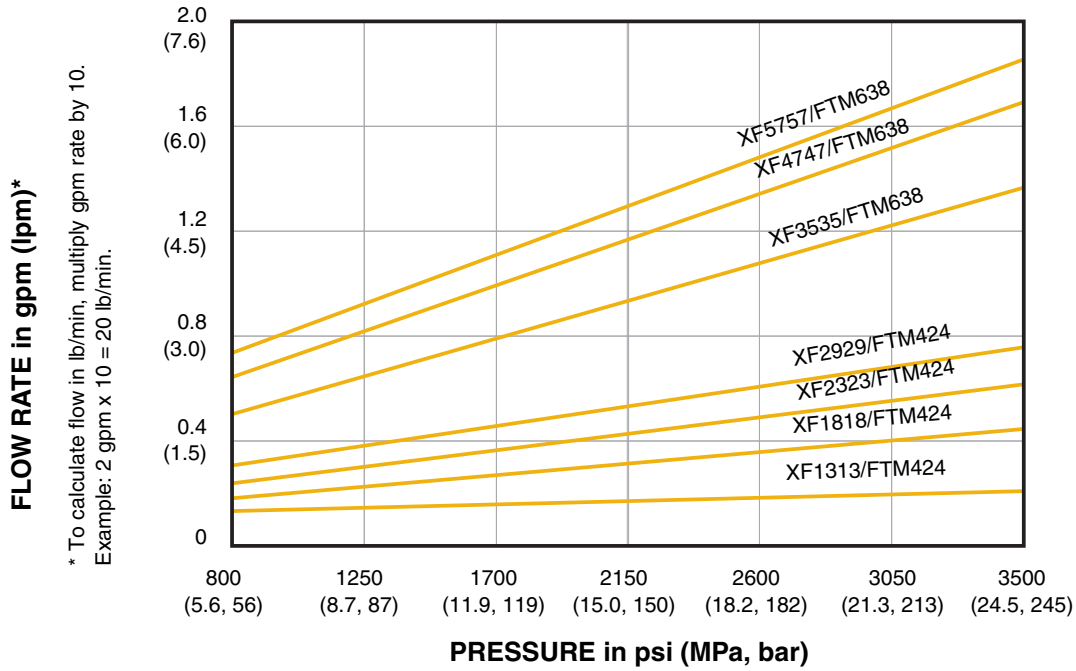
Direct Impingement Flat Pattern Guns



Use only these mix module/tip combinations.

| Gun Part No., Series | Slip-Fit™ Polycarballoy™ Mix Module Part No., see page 50 for numbering code | Flat CeramTip™ Part No., see page 52 for numbering code |
|-----------------------------|---|--|
| 247050, A | XF1313 | FTM317 |
| 247051, A | XF1313 | FTM424 |
| 247057, A | XF1818 | FTM317 |
| 247058, A | XF1818 | FTM424 |
| 247061, A | XF2323 | FTM424 |
| 247062, A | XF2323 | FTM438 |
| 247063, A | XF2323 | FTM624 |
| 247065, A | XF2929 | FTM424 |
| 247066, A | XF2929 | FTM438 |
| 247067, A | XF2929 | FTM624 |
| 247073, A | XF3535 | FTM438 |
| 247074, A | XF3535 | FTM624 |
| 247075, A | XF3535 | FTM638 |
| 247081, A | XF4747 | FTM624 |
| 247082, A | XF4747 | FTM638 |
| 247083, A | XF4747 | FTM838 |
| 247089, A | XF5757 | FTM638 |
| 247090, A | XF5757 | FTM838 |
| 247091, A | XF5757 | FTM848 |
| 247163, A | XF2332 | FTM438 |

Direct Impingement Flat Pattern Guns







Four-Hose Gun

Wide Round Pattern Gun with Four-Hose Recirculating Gun Manifold

| Gun Part No., Series | Slip-Fit™ Polycarballoy™ Mix Module Part No., see page 50 for numbering code | Flat CeramTip™ Part No., see page 52 for numbering code |
|----------------------|---|--|
| 249815, A | XF2323 | FTM438 |


WARNING

| | |
|---|---|
|  | <p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>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:</p> <ul style="list-style-type: none"> • 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. |
|  | <p>TOXIC FLUID OR FUMES HAZARD</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"> • 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. |
|  | <p>SKIN INJECTION HAZARD</p> <p>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.</p> <ul style="list-style-type: none"> • Do not point the gun at anyone or at any part of the body. • Do not put your hand over the spray tip. • 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 21, 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. |
|  | <p>BURN HAZARD</p> <p>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.</p> |


WARNING
**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 15.
- 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**

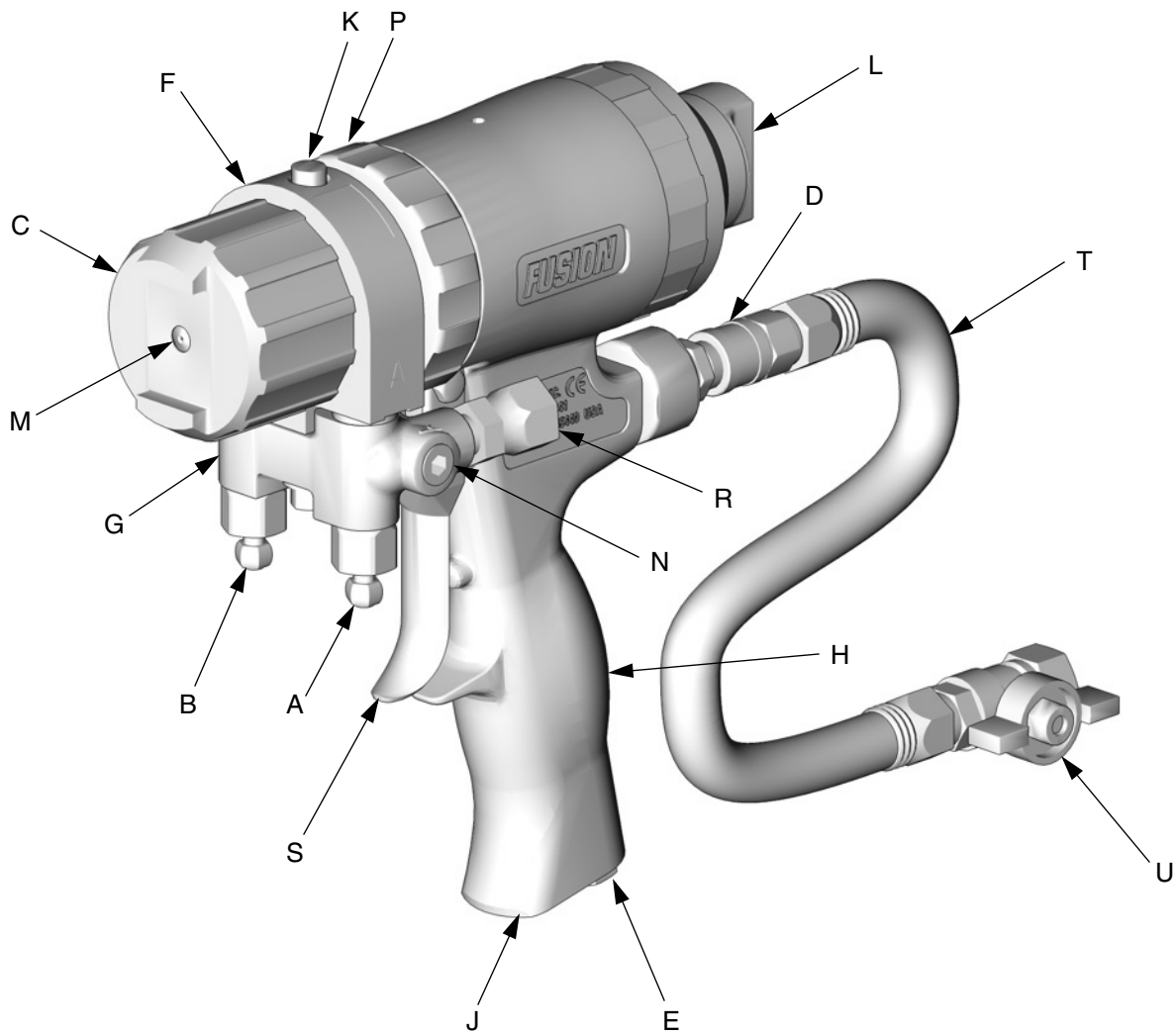
Misuse can cause serious injury or death.

- For professional use only.
- Use equipment only for its intended purpose. Call your Graco 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 Graco 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.

Overall View



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Key:

- | | | | |
|---|----------------------------|---|--------------------------------------|
| A | A Side Fluid Valve (ISO) | N | Optional Fluid Inlets (A Side Shown) |
| B | B Side Fluid Valve (RESIN) | P | Lock Ring |
| C | Air Cap | R | Fluid Inlet Swivels (A Side Shown) |
| D | Air Line Quick Coupler | S | Trigger |
| E | Muffler | T | Gun Air Whip Hose |
| F | Fluid Housing | U | Air Valve |
| G | Gun Fluid Manifold | | |
| H | Handle | | |
| J | Optional Air Inlet | | |
| K | Cleanoff Air Valve | | |
| L | Piston Safety Lock | | |
| M | CeramTip (behind air cap) | | |

Important Isocyanate (ISO) Information

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

Isocyanate Conditions

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|--|--|--|--|--|--|--|--|---|-------------------------------|---|--|----------------------------|--|---|--|
|  |  |  |  | | | | | | | | | | | | | | | | |
| <p>Spraying or dispensing fluids that contain isocyanates creates potentially harmful mists, vapors, and atomized particulates.</p> <ul style="list-style-type: none"> • 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 placard such as the following outside the work area is recommended: | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td colspan="2" style="background-color: #ff9900; color: white; padding: 5px;"> WARNING</td> </tr> <tr> <td style="width: 30%; text-align: center;"></td> <td style="text-align: center; padding: 5px;">TOXIC FUMES HAZARD</td> </tr> <tr> <td colspan="2" style="padding: 5px;"> <p>DO NOT ENTER DURING SPRAY FOAM APPLICATION OR FOR ___ HOURS AFTER APPLICATION IS COMPLETE</p> </td> </tr> <tr> <td colspan="2" style="background-color: #ff9900; color: white; padding: 5px;">DO NOT ENTER UNTIL:</td> </tr> <tr> <td colspan="2" style="padding: 5px;"> <p>DATE: _____</p> <p>TIME: _____</p> </td> </tr> </table> | | | | | | | | | |  WARNING | |  | TOXIC FUMES HAZARD | <p>DO NOT ENTER DURING SPRAY FOAM APPLICATION OR FOR ___ HOURS AFTER APPLICATION IS COMPLETE</p> | | DO NOT ENTER UNTIL: | | <p>DATE: _____</p> <p>TIME: _____</p> | |
|  WARNING | | | | | | | | | | | | | | | | | | | |
|  | TOXIC FUMES HAZARD | | | | | | | | | | | | | | | | | | |
| <p>DO NOT ENTER DURING SPRAY FOAM APPLICATION OR FOR ___ HOURS AFTER APPLICATION IS COMPLETE</p> | | | | | | | | | | | | | | | | | | | |
| DO NOT ENTER UNTIL: | | | | | | | | | | | | | | | | | | | |
| <p>DATE: _____</p> <p>TIME: _____</p> | | | | | | | | | | | | | | | | | | | |

For all applications except spray foam



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. 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.

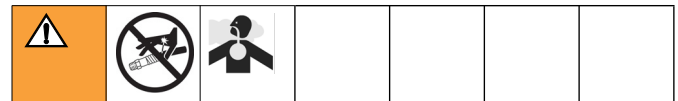
Avoid all skin contact with isocyanates. Everyone in the work area must wear chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority. Follow all fluid manufacturer recommendations, including those regarding handling of contaminated clothing. After spraying, wash hands and face before eating or drinking.

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



Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination:

- **Never** interchange component A and component B wetted parts.
- Never use solvent on one side if it has been contaminated from the other side.

Moisture Sensitivity of Isocyanates

Exposure to moisture (such as humidity) will cause ISO to partially cure, forming small, hard, abrasive crystal that become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity.

NOTICE

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. **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.
- Always lubricate threaded parts with an appropriate lubricant when reassembling.

NOTE: The amount of film formation and rate of crystallization varies depending on the blend of ISO, the humidity, and the temperature.

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

NOTICE

Changing the material types used in your equipment requires special attention to avoid equipment damage and downtime.

- 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.
- When changing between epoxies and urethanes or polyureas, disassemble and clean all fluid components and change hoses. Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

Grounding

⚠ WARNING



Read warnings, page 10.

Check your local electrical code and proportioner manual for detailed grounding instructions.

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

Piston Safety Lock

Engage piston safety lock whenever you stop spraying, to avoid accidental triggering.

⚠ WARNING



Read warnings, page 9.

To engage piston safety lock: push knob in and turn clockwise. When engaged, piston safety lock allows some purge rod movement but shuts off fluid flow and gun cannot spray. **To disengage piston safety lock:**



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push knob in and turn counterclockwise until it pops out.

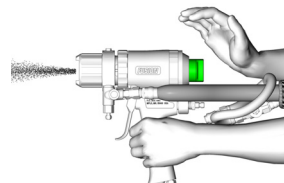


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Loss of Air Pressure

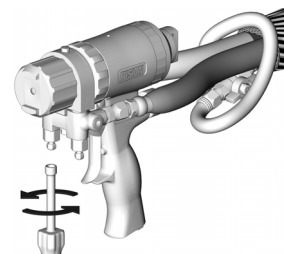
In event of loss of air pressure while gun is triggered, gun will continue to spray. To shut off gun, do one of the following:

- Push hard or hit end of safety lock, to engage piston safety lock.



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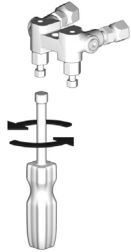
- Close fluid valves A and B.



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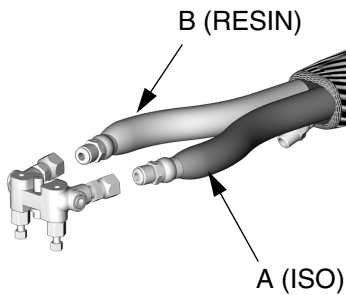
Setup

- 1.** Close fluid valves A and B.



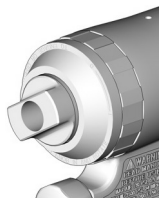
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- 2.** Connect A (ISO) and B (RESIN) fluid hoses to fluid manifold.



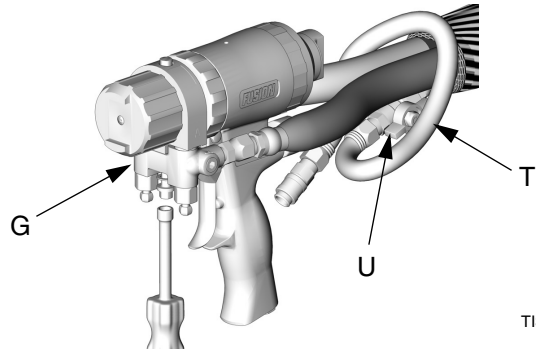
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- 3.** Engage piston safety lock, page 15.




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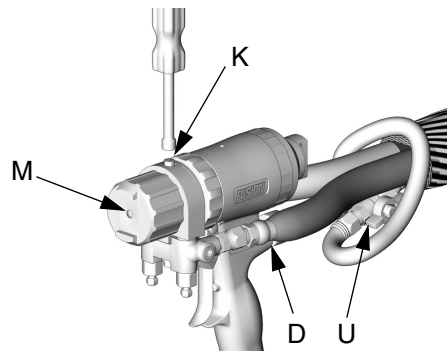
- 4.** Connect gun air whip hose (T) and air valve (U) to main air hose. Attach fluid manifold (G) to gun.




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 To change position of fluid manifold or use optional fluid inlets, see pages 22 and 23.

- 5.** Connect air line to quick coupler (D). Turn on air. Open air valve (U). Air should flow from air cap around CeramTip (M). Open cleanoff air valve (K) about 1/4 to 1/2 turn, then adjust air flow as required.



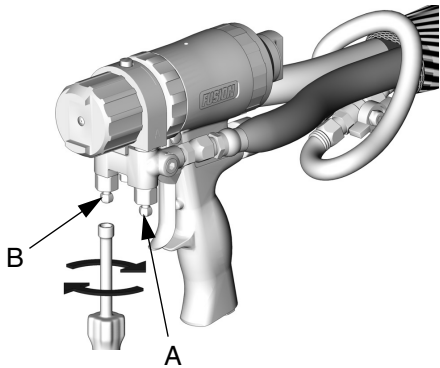
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 To use optional air inlet, see page 23.

- 6.** Adjust purge rod, page 18.

- 7.** Turn on proportioner.

- 8.** Open B (RESIN) fluid valve (about three half turns). Then open A (ISO) fluid valve.



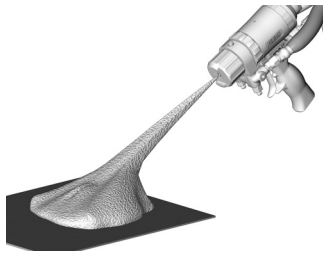
TI3838a

- 9.** Disengage piston safety lock, page 15.



TI3849a

- 10.** Test spray onto cardboard. Adjust pressure and temperature to get desired results.



TI3861a

- 11.** Apply layer of lubricant over front of gun and lock ring, or use gun cover to prevent overspray buildup and ease disassembly. See page 55 to order Fusion Gun Lubricant and gun cover.

- 12.** Gun is ready to spray.

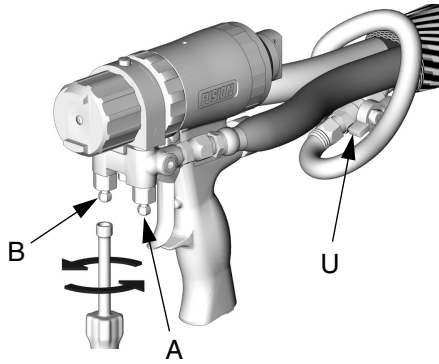
Adjust Purge Rod

1. Engage piston safety lock, page 15.



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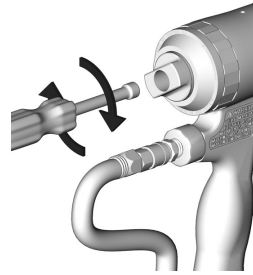
2. Close fluid valves A and B.



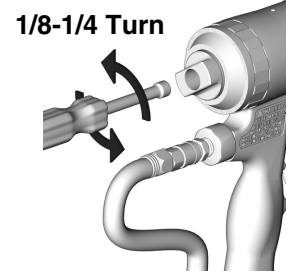
T13837a

3. Connect air supply and open air valve (U).


4. Adjust purge rod with nut driver clockwise until it just touches CeramTip, then back off 1/8-1/4 turn.



T13829a



T13828a

 Be sure to back out purge rod 1-2 turns before changing CeramTips or mix modules. Readjust purge rod after replacing CeramTips or mix modules.

Adjust Flat CeramTip

⚠ WARNING



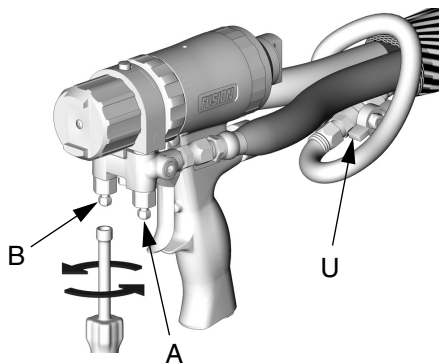
Read warnings, page 9.

1. Engage piston safety lock, page 15.



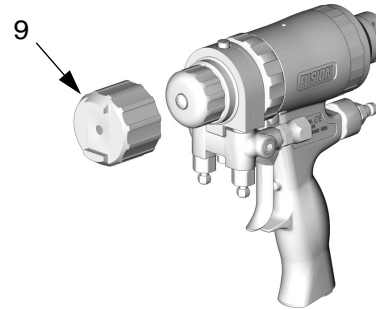
T13850a

2. Close fluid valves A and B.



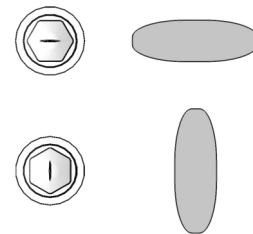
T13837a

3. Remove air cap (9).



T13854a

4. Using nut driver, position CeramTip as desired.



T13867a

5. Reassemble air cap (9) fingertight.

Shutdown

Daily Shutdown


Follow **Pressure Relief Procedure**, page 21.

Shutdown for More than a Day

- 1.** Flush Gun, page 25.
- 2.** Follow **Pressure Relief Procedure**, page 21.

Pressure Relief Procedure

⚠ WARNING



Read warnings, page 9. Relieve pressure before cleaning or repairing gun.

1. Engage piston safety lock, page 15.

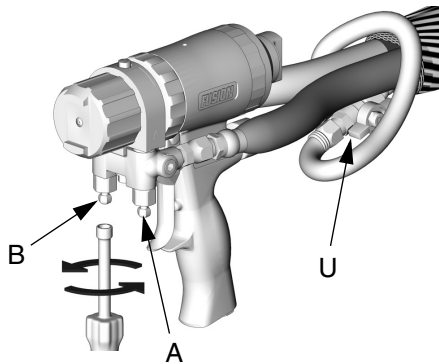


TI3850a



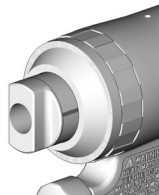
Air supply is required for gun actuation. Do not disconnect gun air supply until fluid pressure is relieved.

2. Close fluid valves A and B. Leave air valve (U) open.



TI3837a

3. Disengage piston safety lock, page 15.



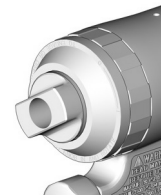
TI3849a

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



TI4243a

5. Engage piston safety lock, page 15.



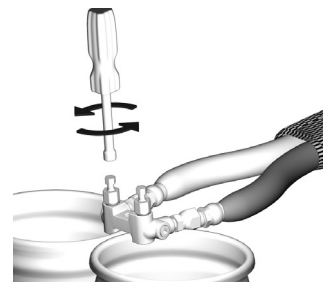
TI3850a

⚠ WARNING



If 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 fluid valves. Under high pressure, fluid will spray sideways from the fluid ports.



TI2484A

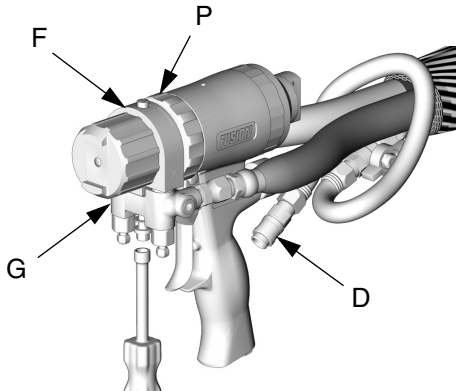
Optional Configurations

Optional Fluid Manifold Position

Fluid manifold is mounted to bottom of gun, with A side on left, viewed from operator's position at back of gun. If desired, manifold may be moved to top of gun. Doing this will reposition A side parts (fluid inlet, check valve, and fluid housing A side) to right.

| CAUTION |
|--|
| To prevent cross-contamination of gun's wetted parts, do not interchange A component (isocyanate) and B component (resin) parts. |

1. Follow **Pressure Relief Procedure**, page 21.
2. Disconnect air (D) and remove fluid manifold (G).



T13837a

3. Unscrew lock ring (P) until front end of gun is loose.
4. Rotate fluid housing (F) 180° and retighten lock ring very securely.
5. Attach fluid manifold. Connect air. Return gun to service.

Optional Hose Position

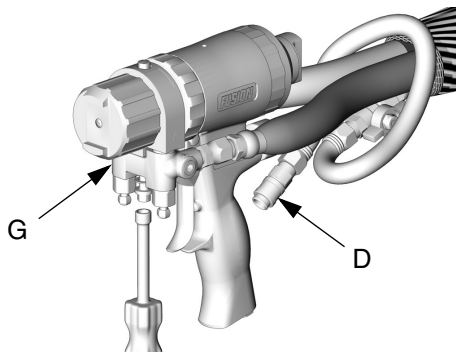
Fluid inlet swivels and air quick disconnect fitting point to rear. If desired, these positions can be changed so hoses travel downward.

Fluid Hoses

CAUTION

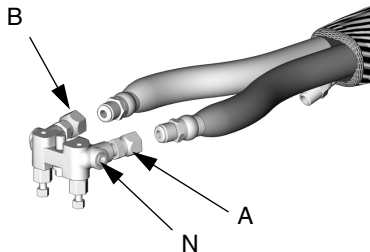
To prevent cross-contamination of gun's wetted parts, do not interchange A component (ISO) and B component (RESIN) parts.

1. Follow **Pressure Relief Procedure**, page 21. Also relieve system pressure, see proportioner manual.
2. Disconnect air (D) and remove fluid manifold (G).



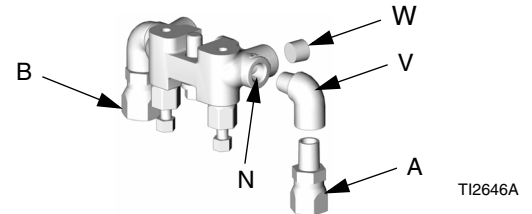
TI3837a

3. Disconnect fluid hoses from inlet swivels (A, B). Remove swivels. Remove plugs from optional inlets (N).



TI2417A

4. Apply thread sealant to plugs (W), elbows (V), and male threads of swivels (A, B). Install elbows (V) in optional inlets (N), facing down. Install swivels (A, B) in elbows. Be sure to install A swivel (smaller) in A side. Install plugs (W) where swivels had been. Torque all parts to 235-245 in-lb (26.6-27.7 N•m).

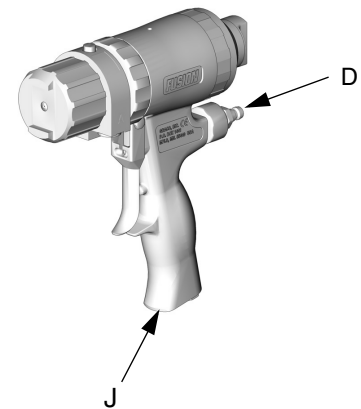


TI2646A

5. Connect A and B hoses to A and B swivels.

Air Hose

1. Remove fitting (D) and plug (J). Reverse positions. Apply thread sealant and torque to 125-135 in-lb (14-15 N•m).



TI3853a

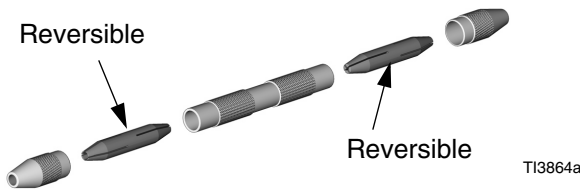
2. Attach fluid manifold. Connect air. Return gun to service.

Maintenance

Supplied Tool Kit

- Hex Nut Driver; 5/16
- Screwdriver; 1/8 blade
- CeramTip Drill Bit; various sizes depending on CeramTip size. See TABLE 2, page 29.
- Mix Module Drill Bit; various sizes depending on port size. See TABLE 1, page 27.

- 117661 Pin Vise; dual reversible chucks



- 15B817 Flush Manifold

Keep Gun Clean

Keep gun clean with accessory gun cover, page 55.

Applying a light coat of lubricant will make cleaning easier. Lubricate threads and outside of lock ring (11) to ease disassembly. Use Fusion Gun Lubricant, page 55.

As Needed

- 1. Clean Outside of Gun**, page 25.
- 2. Clean CeramTip**, page 29, a minimum of once a day.
- 3. Clean Air Cap**, page 25.

- 4. Clean Muffler**, page 25.

- 5. Clean Fluid Manifold**, page 25.

- 6. Clean Slip-Fit Polycarbally Mix Module**, page 26.

Daily

Follow **Shutdown**, page 20.

Weekly to Monthly


- 1. Clean Purge Rod**, page 30.
- 2. Clean Check Valves**, page 44. Check o-rings and screens.
- 3. Check that piston safety lock threaded connection is tight**, page 47.

Flush Gun

If it is necessary to flush gun, use following procedure.

| |
|---|
|  WARNING   |
| Read warnings, page 10. |

1. Follow **Pressure Relief Procedure**, page 21.
2. Flush with a compatible solvent.
3. Flush into a grounded metal pail, holding a metal part of fluid manifold firmly to side of pail. Use the lowest possible fluid pressure when flushing.
4. Follow **Pressure Relief Procedure**, page 21.

 Flush Manifold 15B817 is included with gun. Install in place of fluid manifold and connect solvent line to flush gun.

Solvent Flush Kits 248139 and 248229 are available as accessories. See page 55.

Clean Outside of Gun

Wipe off outside of gun with compatible solvent.

| |
|---|
| CAUTION |
| Use N Methyl Pyrrolidone (NMP), Dynasolve CU-6, Dzolv, or equivalent to soften cured material when cleaning the outside of gun. Do not use as flushing solvents. |

Clean Air Cap

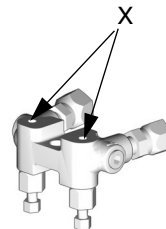
Soak air cap in compatible solvent. If necessary, clean gently with stiff brush.

Clean Muffler

A partially plugged muffler will slow gun actuation. Remove and clean muffler with compatible solvent.

Clean Fluid Manifold

Clean fluid manifold sealing faces with compatible solvent and a brush whenever removed from gun. Be sure to clean the two fluid ports (X) in the top mating surface. Do not damage the flat sealing surfaces. Cover with Fusion Lubricant (page 55) if left exposed, to seal out moisture.



TI2411-1


Clean Slip-Fit Polycarballyoy Mix Module

1. Follow **Pressure Relief Procedure**, page 21.
2. **Flush Gun**, page 25.
3. Remove mix module, page 41.

CAUTION

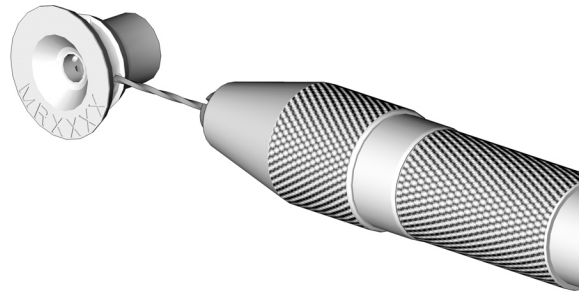
To avoid damaging mix module, do not force drill bits when cleaning impingement ports. Some ports are offset or angled.

4. See FIG. 1 and FIG. 2. Clean mix module impingement ports (IP) with appropriate size drill (supplied). See TABLE 1, page 27. Also see identification chart under **Drill Bit Kits**, page 53.

 Component B (RES) impingement ports, at rear of mix module, are angled toward front of gun. See FIG. 2.

Some mix modules have counterbored holes (CB) and require two drill sizes to clean impingement ports completely. See FIG. 3 and TABLE 1.

5. Reassemble, page 41.



T13863a

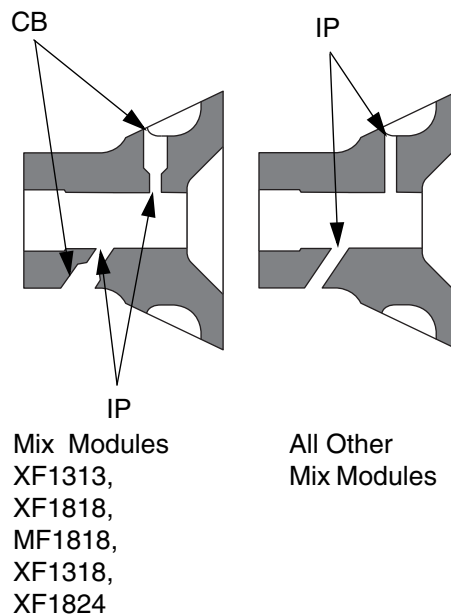
FIG. 1. Cleaning Component A (ISO) Ports



T13862a

FIG. 2. Cleaning Component B (Resin) Ports

NOTE: View is not to scale.



T13876a

FIG. 3. Mix Module Cross Section

Table 1: Impingement Port Cleanout Drill Sizes

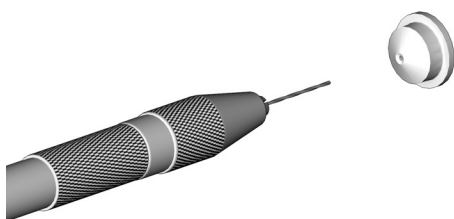
| Standard Round Slip-Fit Polycarbally Mix Modules | | | | | | |
|--|--------------------------|---|------------------------|-------------------------|----------------------|-------------------------|
| Mix Module Part No. | No. of Impingement Ports | | Impingement Port Drill | | Counterbore Drill | |
| | A | B | Drill Size (nominal) | Drill Diameter in. (mm) | Drill Size (nominal) | Drill Diameter in. (mm) |
| MR3535 | 2 | 2 | #73 | .0240 (0.61) | N/A | N/A |
| MR4747 | 2 | 2 | #67 | .0320 (0.81) | N/A | N/A |
| MR5757 | 3 | 3 | #67 | .0320 (0.81) | N/A | N/A |
| MR6666 | 4 | 4 | #67 | .0320 (0.81) | N/A | N/A |
| MR8282 | 4 | 4 | #60 | .0400 (1.02) | N/A | N/A |
| MR9494 | 4 | 4 | #56 | .0465 (1.18) | N/A | N/A |
| Standard Flat Slip-Fit Polycarbally Mix Modules | | | | | | |
| Mix Module Part No. | No. of Impingement Ports | | Impingement Port Drill | | Counterbore Drill | |
| | A | B | Drill Size (nominal) | Drill Diameter in. (mm) | Drill Size (nominal) | Drill Diameter in. (mm) |
| MF1818 | 1 | 1 | #77 | .0180 (0.46) | #67 | .0320 (0.81) |
| MF2929 | 1 | 1 | #69 | .0292 (0.74) | N/A | N/A |
| MF3535 | 2 | 2 | #73 | .0240 (0.61) | N/A | N/A |
| MF4747 | 2 | 2 | #67 | .0320 (0.81) | N/A | N/A |
| MF5757 | 3 | 3 | #67 | .0320 (0.81) | N/A | N/A |
| Direct Impingement Round Slip-Fit Polycarbally Mix Modules | | | | | | |
| Mix Module Part No. | No. of Impingement Ports | | Impingement Port Drill | | Counterbore Drill | |
| | A | B | Drill Size (nominal) | Drill Diameter in. (mm) | Drill Size (nominal) | Drill Diameter in. (mm) |
| XR2323 | 1 | 1 | #74 | .0230 (0.57) | N/A | N/A |
| XR2929 | 1 | 1 | #69 | .0292 (0.74) | N/A | N/A |
| XR3535 | 2 | 2 | #73 | .0240 (0.61) | N/A | N/A |
| XR4747 | 2 | 2 | #67 | .0320 (0.81) | N/A | N/A |
| XR5757 | 3 | 3 | #67 | .0320 (0.81) | N/A | N/A |

| Direct Impingement Flat Slip-Fit Polycarbally Mix Modules | | | | | | |
|---|--------------------------|---|------------------------|-------------------------|----------------------|-------------------------|
| Mix Module Part No. | No. of Impingement Ports | | Impingement Port Drill | | Counterbore Drill | |
| | A | B | Drill Size (nominal) | Drill Diameter in. (mm) | Drill Size (nominal) | Drill Diameter in. (mm) |
| XF1313 | 1 | 1 | #81 | .0130 (0.33) | #67 | .0320 (0.81) |
| XF1818 | 1 | 1 | #77 | .0180 (0.46) | #67 | .0320 (0.81) |
| XF2323 | 1 | 1 | #74 | .0230 (0.57) | N/A | N/A |
| XF2929 | 1 | 1 | #69 | .0292 (0.74) | N/A | N/A |
| XF3535 | 2 | 2 | #73 | .0240 (0.61) | N/A | N/A |
| XF4747 | 2 | 2 | #67 | .0320 (0.81) | N/A | N/A |
| XF5757 | 3 | 3 | #67 | .0320 (0.81) | N/A | N/A |
| XF1318 | 1 | 1 | #81 | .0130 (0.33) | #67 | .0320 (0.81) |
| | 1 | 1 | #77 | .0180 (0.46) | #67 | .0320 (0.81) |
| XF1824 | 1 | 1 | #77 | .0180 (0.46) | #67 | .0320 (0.81) |
| | 1 | 1 | #74 | .0230 (0.57) | N/A | N/A |
| XF2332 | 1 | 1 | #74 | .0230 (0.57) | N/A | N/A |
| | 1 | 1 | #67 | .0320 (0.81) | N/A | N/A |

Clean CeramTip

Round CeramTip

1. Follow **Pressure Relief Procedure**, page 21.
2. Remove CeramTip, page 37.
3. Clean CeramTip hole with appropriate size drill (supplied). See TABLE 2. Also see identification chart under **Drill Bit Kits**, page 53.



TI3868a

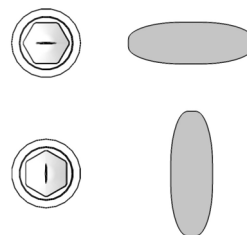
Table 2: Cleanout Drill Sizes for Round CeramTips

| Round CeramTip Kit Part No. | Drill Size (nominal) | Cleanout Drill Diameter in. (mm) |
|-----------------------------|----------------------|----------------------------------|
| RTM024 | #73 | .0240 (0.61) |
| RTM030 | #67 | .0320 (0.81) |
| RTM040 | #60 | .0400 (1.02) |
| RTM055 | #54 | .0550 (1.40) |
| RTM070 | #50 | .0700 (1.78) |
| RTM080 | 2.0 mm | .0787 (2.00) |
| RTM090 | #43 | .0890 (2.26) |
| RTM100 | #39 | .0995 (2.53) |
| RTM110 | 7/64 | 0.1094 (2.78) |

4. Clean CeramTip internal dome with 15D234 Tip Cleanout Tool, page 55.

Flat CeramTip

1. Follow **Pressure Relief Procedure**, page 21.
2. Remove CeramTip, page 37.
3. Soak CeramTip in compatible solvent. Clean gently with 15D234 Tip Cleanout Tool, page 55, to fit tip configuration.
4. Reposition CeramTip horizontally or vertically.



TI3867a

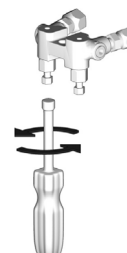
External Quick Cleaning Method

1. Engage piston safety lock, page 15.



TI3850a

2. Close fluid valves A and B.

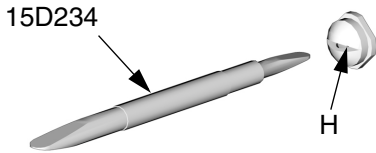


TI2411A

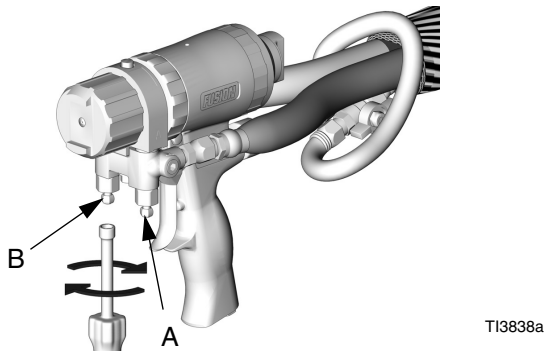
3. Clean *CeramTip* hole (E) with appropriate size drill (supplied). See TABLE 2. Also see identification chart under **Drill Bit Kits**, page 53.



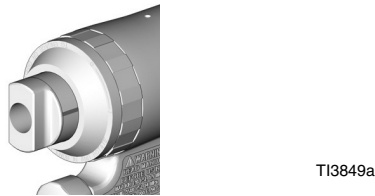
Clean *flat tip slit* (H) with tip cleanout tool 15D234 (page 55).



4. Open B (RESIN) fluid valve (about three half turns). Then open A (ISO) fluid valve.



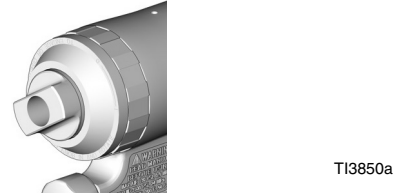
5. Disengage piston safety lock, page 15.



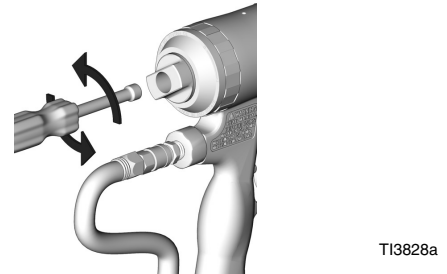
Stuck Purge Rod

If purge rod (31) is stuck and cannot actuate, use this procedure to free it.

1. Engage piston safety lock, page 15.



2. Trigger gun and hold. Turn purge rod counter-clockwise.



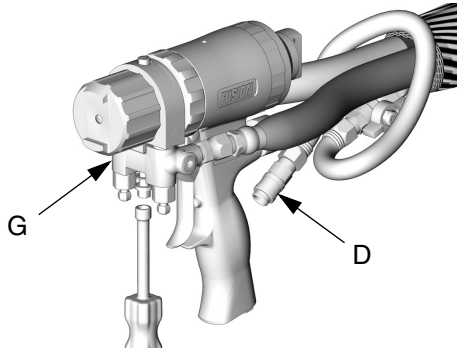
3. Adjust Purge Rod, page 18.

Clean Purge Rod

Clean purge rod (31) weekly or monthly.

1. Follow **Pressure Relief Procedure**, page 21.
2. **Flush Gun**, page 25.

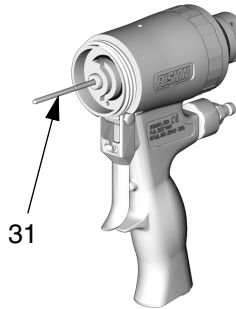
3. Disconnect air (D) and remove fluid manifold (G).



TI3837a

4. Disassemble Front End, page 38.

5. Clean exposed portion of purge rod (31). Apply Fusion Gun Lubricant, page 55.



TI3873a

6. Reassemble Front End, page 39.

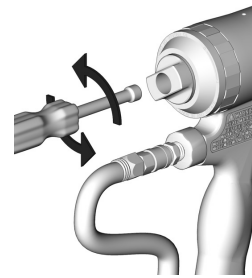
7. Adjust Purge Rod, page 18.

8. Attach fluid manifold. Connect air. Return gun to service.

Adjust Front Rod Seal

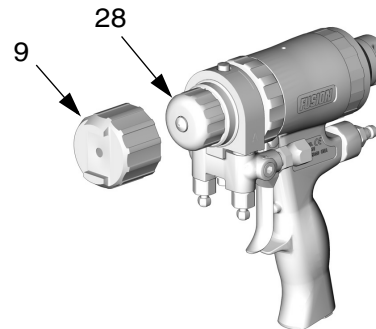
If fluid misting occurs from tip when gun is not triggered, use following procedure to temporarily stop leakage until parts are replaced.

1. Follow **Pressure Relief Procedure**, page 21.
2. Back out purge rod 1-2 turns with nut driver.



TI3828a

3. Remove air cap (9).



TI3854a

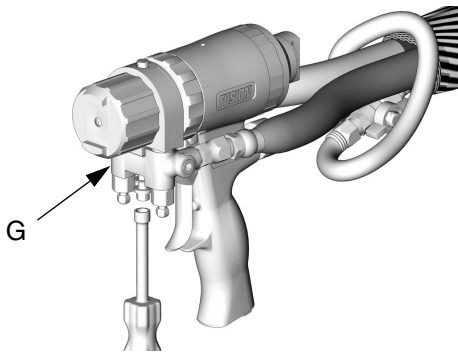
4. Trigger gun and hold. Tighten retainer (28) an additional notch, to tighten front seal (46) onto purge rod (31).

5. Detrigger gun. Reassemble air cap (9) fingertight.

6. **Adjust Purge Rod**, page 18.

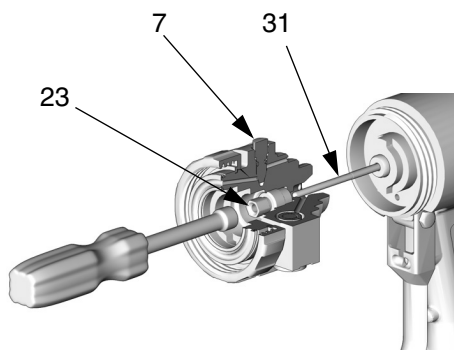
Adjust Rear Rod Seal

1. Follow **Pressure Relief Procedure**, page 21.
2. **Flush Gun**, page 25.
3. Remove fluid manifold (G). Leave air connected.



TI3852a

4. **Disassemble Front End**, page 38.
5. Assemble fluid housing (7) backwards onto lubricated purge rod (31). Adjust rear rod seal nut (23) with nut driver until drag is felt when sliding on rod.



TI3831a

6. Remove fluid housing (7) from rod (31).
7. **Reassemble Front End**, page 39.
8. **Adjust Purge Rod**, page 18.
9. Attach fluid manifold. Return gun to service.

Troubleshooting

1. Follow **Pressure Relief Procedure**, page 21, before checking or repairing gun.

2. Check all possible problems and causes before disassembling gun.

| CAUTION |
|--|
| To prevent cross-contamination of the gun's wetted parts, do not interchange A component (isocyanate) and B component (resin) parts. |

| PROBLEM | CAUSE | SOLUTION |
|--|---|---|
| Gun does not fully actuate when triggered. | Piston safety lock engaged. | Disengage piston safety lock, page 15. |
| | Plugged muffler (22). | Clean, page 25. |
| | Damaged air valve o-rings (24). | Replace, page 47. |
| Fluid does not spray when gun is fully actuated. | Closed fluid valves (12b). | Open. |
| | Plugged impingement ports. | Clean, page 26. |
| | Plugged check valves (36). | Clean, page 44. |
| Gun actuates slowly or with delayed action. Mixed material spits out end of gun after de-triggering. | Plugged muffler (22). | Clean, page 25. |
| | Damaged piston o-rings (16, 19). | Replace, page 45. |
| | Dirty air valve, or damaged o-rings (24). | Clean air valve or replace o-rings, page 47. |
| | Mix module nut (25) too tight. | Loosen nut, then retighten, page 40. |
| | Incorrect purge rod adjustment. | Adjust Purge Rod , page 18. |
| Purge rod will not actuate. | Loose lock ring (11). | Tighten, use tool if necessary. Adjust Purge Rod , page 18. |
| | No air pressure. | Connect air supply. |
| | Low air pressure. | Set air pressure above 80 psi (0.56 MPa, 5.6 bar). |
| | Buildup on purge rod (31). | See Clean Purge Rod , page 30. |

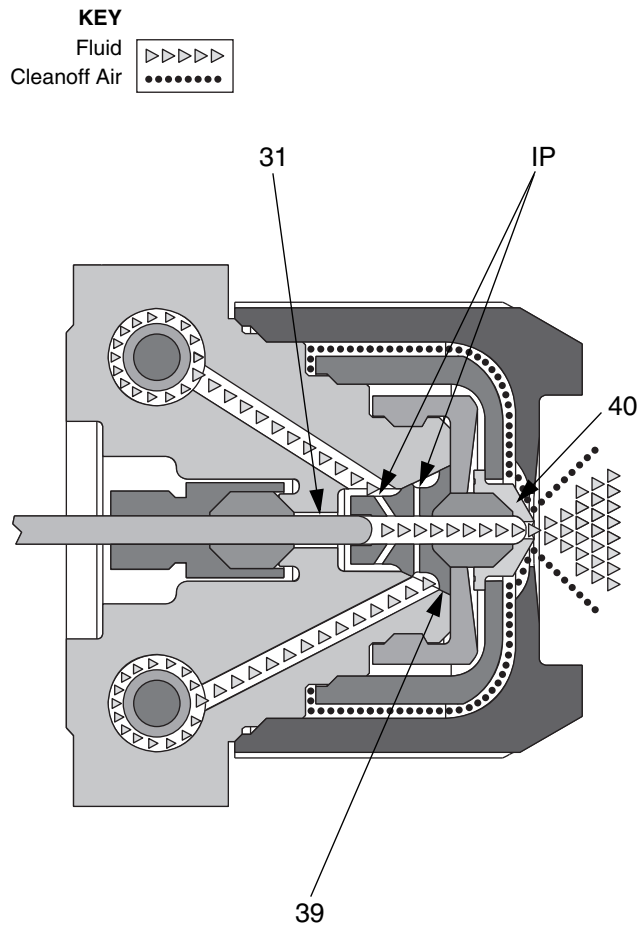
| PROBLEM | CAUSE | SOLUTION |
|---|----------------------------------|--|
| Loss of round pattern. | Dirty CeramTip (40). | Clean, page 29. |
| | Too little cleanoff air. | Readjust, page 16. |
| Loss of flat pattern. | Plugged CeramTip (40). | Clean in compatible solvent. |
| | Worn CeramTip (40). | Replace, page 37. |
| Pressure imbalance. | Plugged impingement ports. | Clean, page 26. Reinstall mix module, page 41. |
| | Plugged check valves (36). | Clean, page 44. |
| | Viscosities not equal. | Adjust temperature to compensate. |
| Fluid mist from CeramTip. | Worn mix module (39). | Replace, page 41. |
| | Worn front rod seal (46). | Replace, page 43. |
| Excessive overspray. | Too much cleanoff air. | Reduce, page 16. |
| Rapid buildup of material on air cap. | Too little cleanoff air. | Increase, page 16. |
| Fluid does not shut off when fluid valves are closed. | Damaged fluid valves (12b). | Replace. |
| Reduced cleanoff air. | Plugged air passage. | Open. |
| Air leakage around fluid housing. | Damaged or missing o-ring (20). | Replace. |
| Air leakage from piston safety lock. | Damaged or missing o-rings (18). | Replace, page 45. |
| Burst of air from muffler when gun is triggered. | Normal. | No action required. |
| Steady air leakage from muffler. | Damaged air valve o-rings (24) | Replace, page 47. |
| | Damaged piston o-rings (16, 19). | Replace, page 45. |
| Air leakage from front air valve. | Damaged air valve o-rings (24). | Replace, page 47. |
| Component B (resin) leak from fluid housing. | Worn rear rod seal. | Adjust Rear Rod Seal , page 32. |

Theory of Operation

Gun Triggered (Fluid Spraying)

Purge rod (31) moves back, opening impingement ports (IP). Components A and B combine in mix module (39). Fluid sprays from CeramTip (40).

Cleanoff air flows whether gun is triggered or detri-gered. See page 16 to adjust.

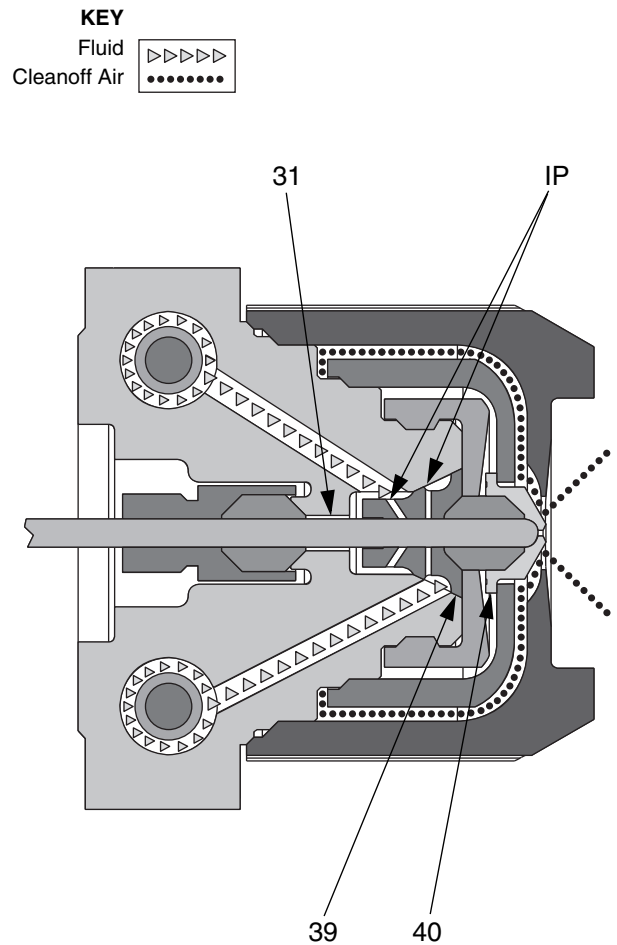


TI3882a

Gun Detriggered (Mechanical Purg- ing)

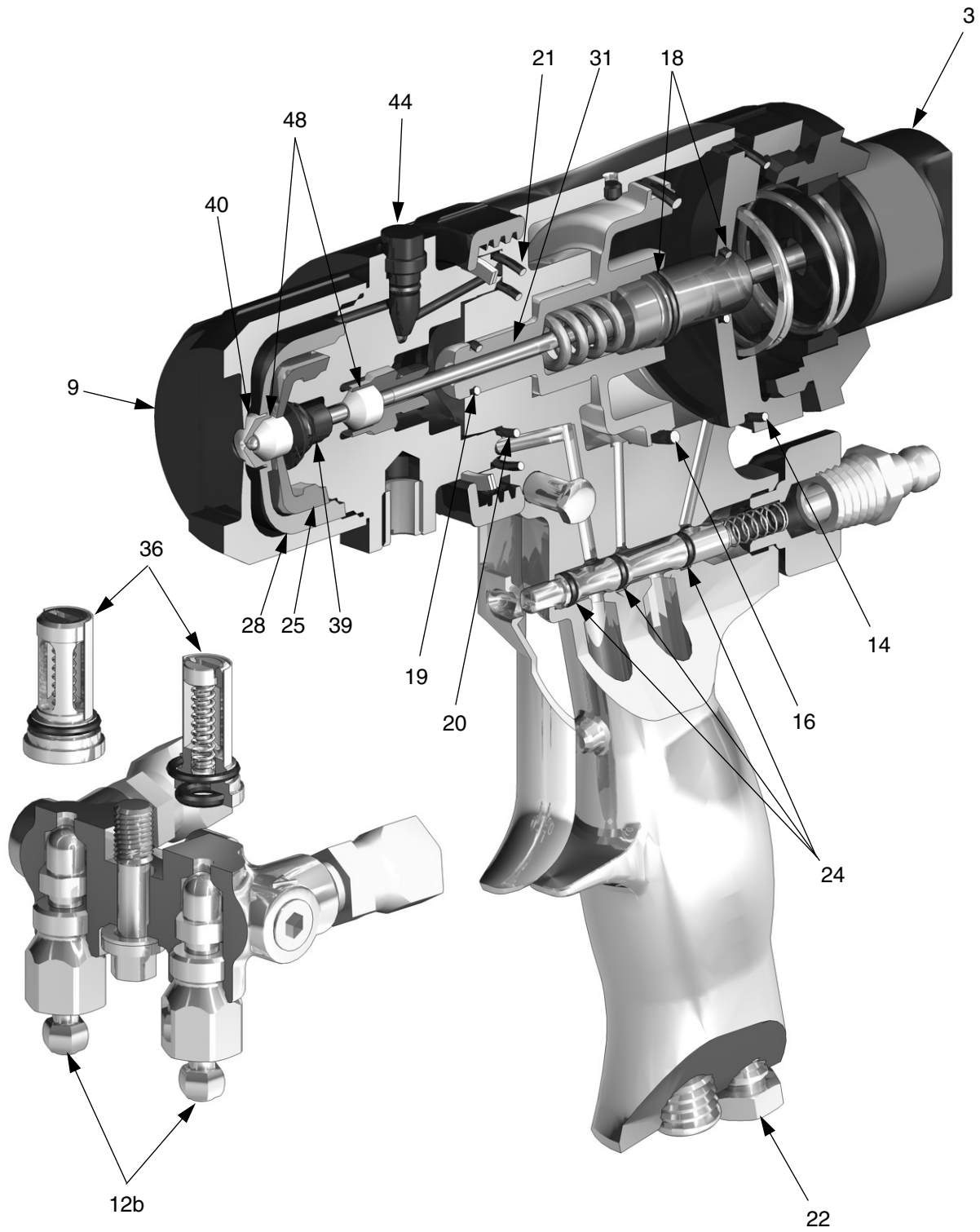
Purge rod (31) moves forward, closing impingement ports (IP) and shutting off fluid flow. Rod pushes through mix module (39) and bottoms on CeramTip (40), forcing out excess fluid and restoring proper orifice diameter.

Cleanoff air flows whether gun is triggered or detri-gered. See page 16 to adjust.



TI3881a

Cutaway View



Repair

Tools Required

Tools needed for complete gun repair:

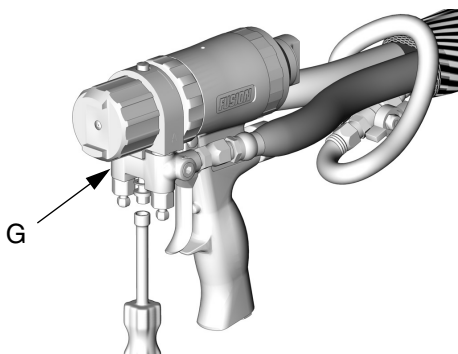
- adjustable wrench
- flat head screwdriver (included)
- channel-lock pliers (2 pair)
- 5/16 hex nut driver (included)
- o-ring pick
- medium-strength Loctite®
- solvent or alcohol

Lubrication

Liberally lubricate all o-rings, seals, and threads with Fusion Gun Lubricant, page 55. Lubricate threads and outside of lock ring (11).

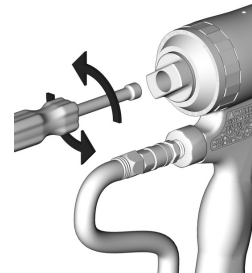
Replace CeramTip

1. Follow **Pressure Relief Procedure**, page 21.
2. Remove fluid manifold (G). Leave air connected.



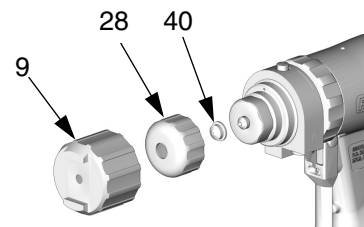
TI3852a

3. Back out purge rod 1-2 turns with nut driver.



TI3828a

4. Remove air cap (9), retainer (28), and CeramTip (40).



TI3843a




If CeramTip is stuck, trigger and detriquer gun once to release it.

5. Install new CeramTip (40). Lubricate all threads. Install retainer (28) fingertight, plus 1 notch. Install air cap (9) fingertight.
6. **Adjust Purge Rod**, page 18.
7. Attach fluid manifold. Return gun to service.

Disassemble Front End

WARNING



Read warnings, page 9. Proper attachment of front end is critical. Do not operate gun if front end is loose or lock ring is not snug against handle.

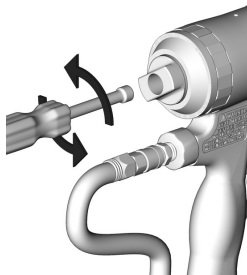
CAUTION

If lock ring (11) is stuck due to material buildup, do not force it by turning entire front end. Locating tabs (Z) may break off. Soak front of gun in solvent to soften cured material and free lock ring.

CAUTION

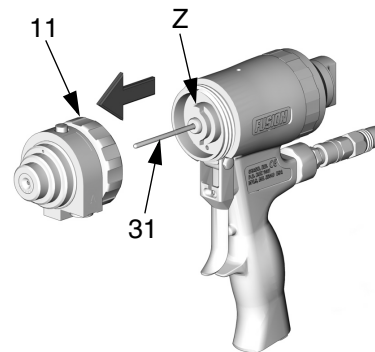
To prevent damage to purge rod (31), always pull front end straight off handle (1).

1. Follow **Pressure Relief Procedure**, page 21.
2. **Flush Gun**, page 25.
3. Back out purge rod 1-2 turns with nut driver.



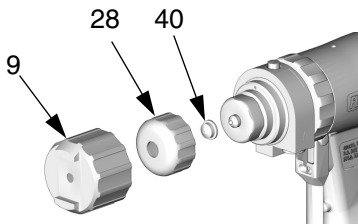
TI3828a

6. Unscrew lock ring (11) to remove front end and mix module. Pull front end straight off handle (1).



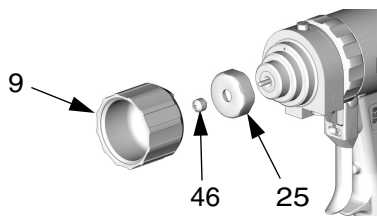
TI3865b

4. Remove air cap (9), retainer (28), and CeramTip (40).



TI3843a

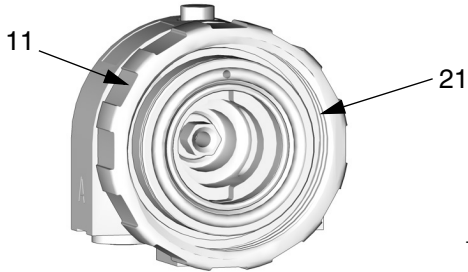
5. Remove mix module nut (25), using air cap (9) backwards, or a wrench. Remove front seal (46).



TI3843a

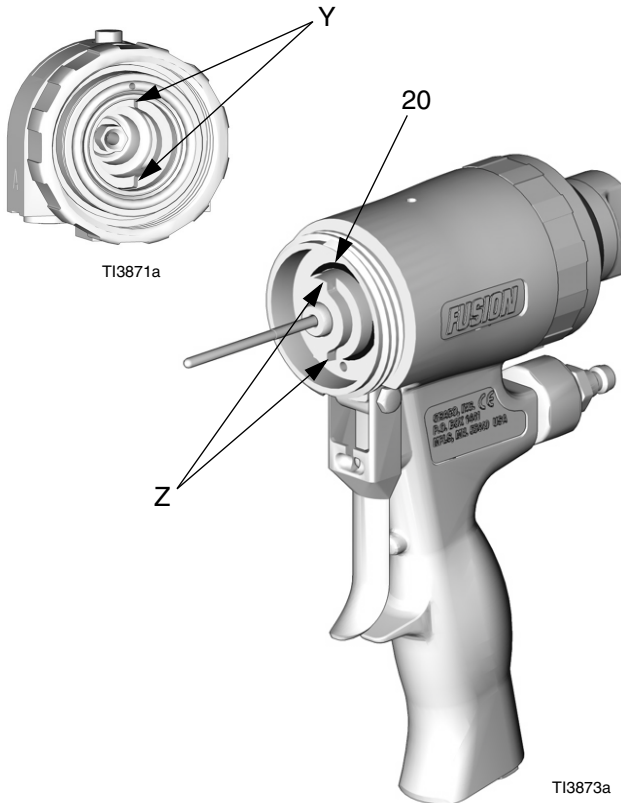
Reassemble Front End

1. Check that o-rings (20, 21) are in position. Liberally lubricate o-rings, threads of lock ring (11) and handle (1), and outside of lock ring.



TI3871a

2. Orient front end as required for desired fluid manifold mounting (bottom mounting shown). Align slots (Y) to engage tabs (Z).

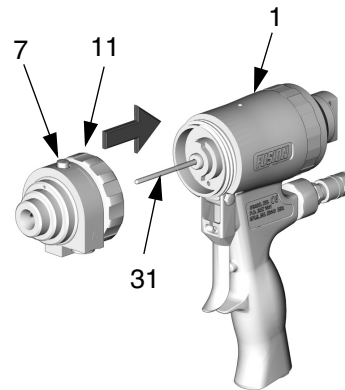


TI3871a

TI3873a

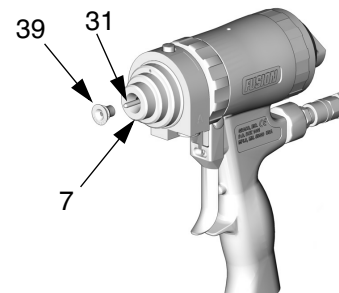
| CAUTION |
|--|
| To prevent damage to purge rod (31), always slide front end straight onto purge rod. |

3. Carefully slide front end straight onto purge rod (31). Screw lock ring (11) onto handle (1) as far as possible by hand. Push on front end to ensure it is properly seated. Continue screwing lock ring onto handle until tightened very securely. When properly assembled, lock ring is snug against handle.



TI3866a

4. Push mix module (39) onto rod (31) as far as possible.

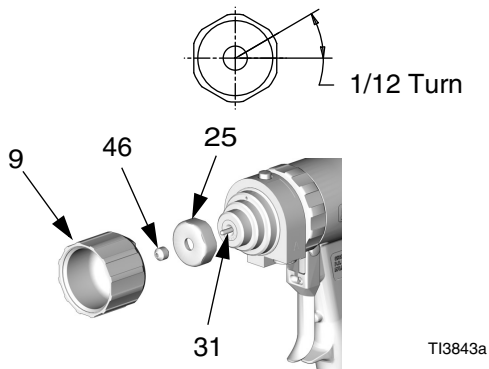


TI3845a

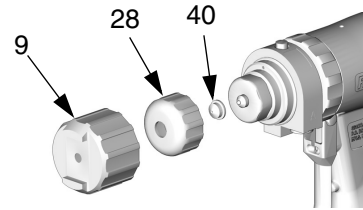
CAUTION

Do not overtighten mix module nut (25). Overtightening can deform impingement holes and cause slow gun actuation.

- 5.** Lubricate all threads and reassemble mix module nut (25) **fingertight**. Tighten additional 1/12 turn with air cap (9) or wrench. Install front seal (46) on rod (31).



- 6.** Reinstall CeramTip (40). Lubricate all threads. Install retainer (28) fingertight, plus 1 notch. Install air cap (9) fingertight.

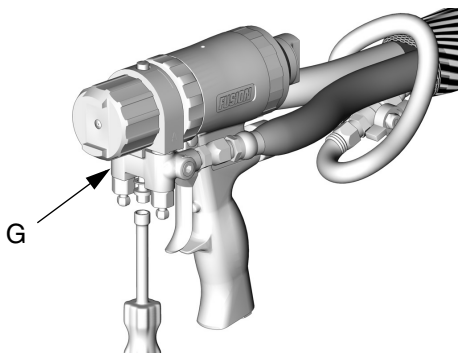


- 7.** Adjust Purge Rod, page 18.

Slip-Fit Polycarballoy Mix Module

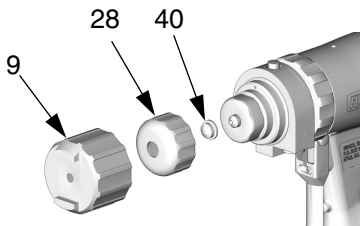
See page 50 for available Slip-Fit Polycarballoy Mix Module sizes.

1. Follow **Pressure Relief Procedure**, page 21.
2. **Flush Gun**, page 25.
3. Remove fluid manifold (G). Leave air connected.



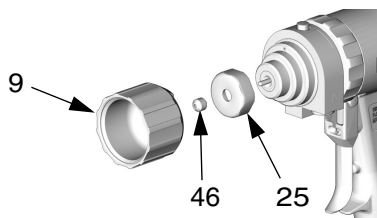
TI3852a

4. Remove air cap (9), retainer (28), and CeramTip (40).



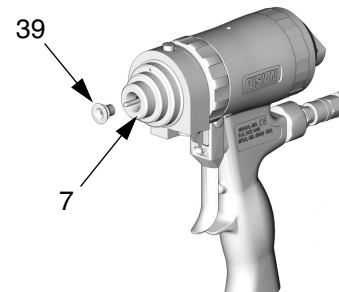
TI3843a

5. Remove mix module nut (25), using air cap (9) backwards, or a wrench. Remove front seal (46).



TI3843a

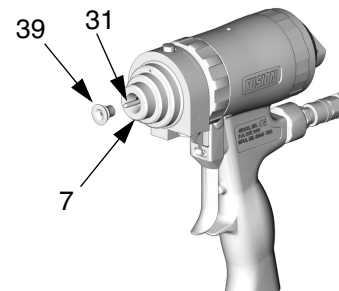
6. Disengage piston safety lock, page 15. Trigger and dettrigger gun once to release mix module (39) from fluid housing (7). Remove mix module. Engage piston safety lock.



TI3845a

If mix module (39) does not protrude from fluid housing (7), slightly loosen then retighten lock ring (11), to allow gripping of edge for removal.

7. Push mix module (39) onto rod (31) as far as possible.

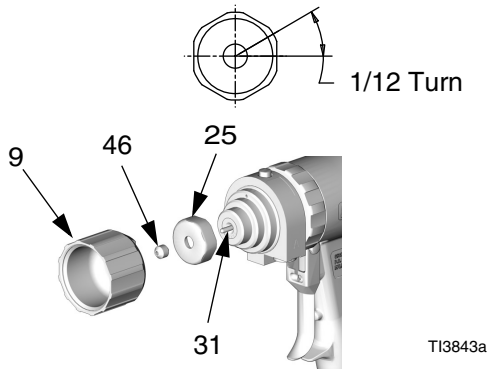


TI3845a

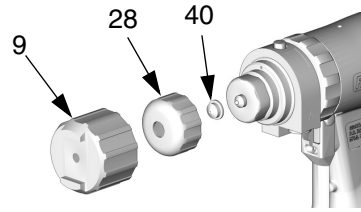
CAUTION

Do not overtighten mix module nut (25). Overtightening can deform impingement holes and cause slow gun actuation.

- 8.** Lubricate all threads and reassemble mix module nut (25) **fingertight**. Tighten additional 1/12 turn with air cap (9) or wrench. Install front seal (46) on rod (31).



- 9.** Reinstall CeramTip (40). Lubricate all threads. Install retainer (28) fingertight, plus 1 notch. Install air cap (9) fingertight.



- 10.** Adjust Purge Rod, page 18.

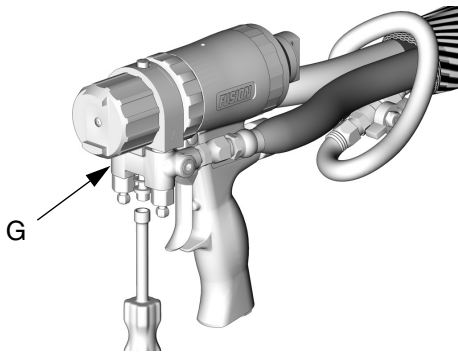
- 11.** Attach fluid manifold. Return gun to service.

Rear Rod Seal

1. Follow **Pressure Relief Procedure**, page 21.

2. **Flush Gun**, page 25.

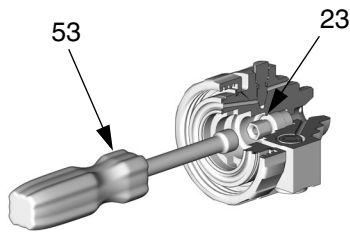
3. Remove fluid manifold (G). Leave air connected.



TI3852a

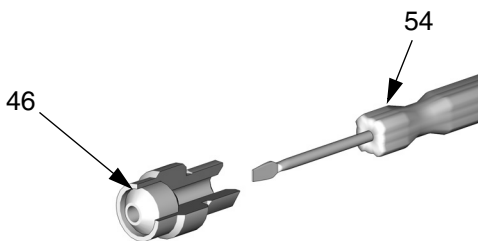
4. **Disassemble Front End**, page 38.

5. Remove rear rod seal nut (23) with nut driver (53).



TI3869a

6. Push out rear seal (46) with screwdriver (54).



TI3872a


7. Reassemble new rear seal (46) in rear rod seal nut (23). Lubricate threads and install in fluid housing (7) with nut driver.

8. **Reassemble Front End**, page 39.

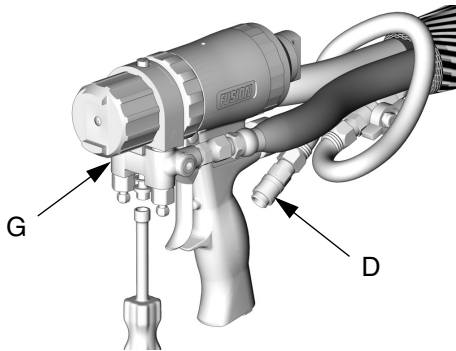
9. **Adjust Purge Rod**, page 18.

10. Attach fluid manifold. Connect air. Return gun to service.

Check Valves

 Before disassembling, press on ball (36c) to test check valve for proper movement and spring action.

1. Follow **Pressure Relief Procedure**, page 21.
2. **Flush Gun**, page 25.
3. Disconnect air (D) and remove fluid manifold (G). Clean and inspect check valve mating surfaces and fluid ports.



TI3837a

CAUTION

To prevent cross-contamination of the check valves, do not interchange A component and B component parts. The A component check valve is marked with an A.

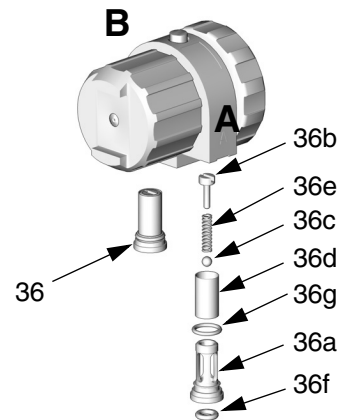
4. Pry out check valves (36) at notch.

WARNING



Read warnings, page 9. Damaged check valve o-rings (36f, 36g) may result in external leakage. Replace o-rings if any damage is seen.

5. Slide filter (36d) off. Clean and inspect parts. Thoroughly inspect o-rings (36f, 36g). If necessary, remove screw (36b) and disassemble check valve.



TI3836a

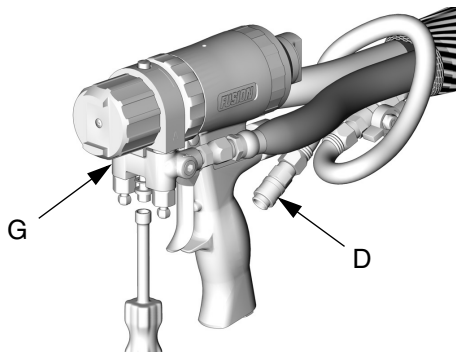
6. Reassemble check valves. Screw (36b) should be flush (within 1/16 in. or 1.5 mm) of housing (36a) surface. Liberally lubricate o-rings (36f, 36g) and carefully reinstall in fluid housing.
7. Attach fluid manifold. Connect air. Return gun to service.

Piston and Purge Rod

1. Follow **Pressure Relief Procedure**, page 21.

2. **Flush Gun**, page 25.

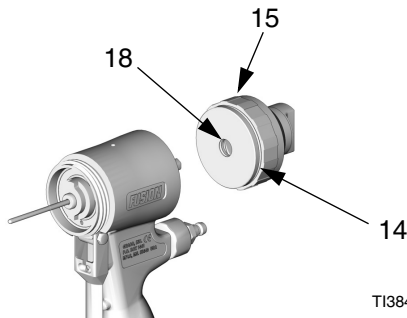
3. Disconnect air (D) and remove fluid manifold (G).



TI3837a

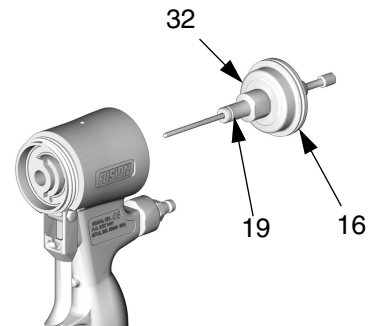
4. **Disassemble Front End**, page 38.

5. Unscrew purge rod stop (15) to remove piston safety lock assembly. Inspect o-rings (14, 18) in place.



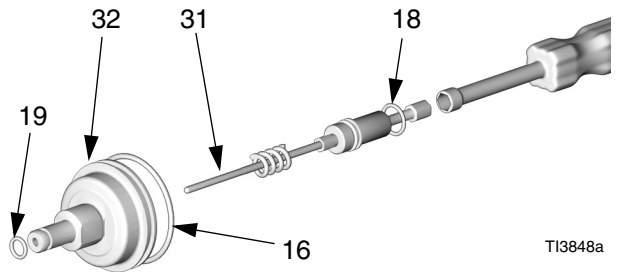
TI3847a

6. Pull purge rod to remove piston (32). Inspect piston o-ring (16) and shaft o-ring (19).



TI3846a

7. Inspect purge rod (31) for scratches or damage. Unscrew rod from piston with nut driver. Inspect o-ring (18). Liberally lubricate with Fusion Gun Lubricant, page 55. To reassemble, thread purge rod (31) into piston (32) just until o-ring (18) is not visible.



TI3848a

8. Liberally lubricate piston o-rings. Reinstall piston. Shaft is keyed for proper assembly. Push firmly to seat piston. Rotate piston/purge rod assembly clockwise with nut driver until piston is fully seated.



TI3846a

- 9.** Install piston safety lock assembly until bottomed out.

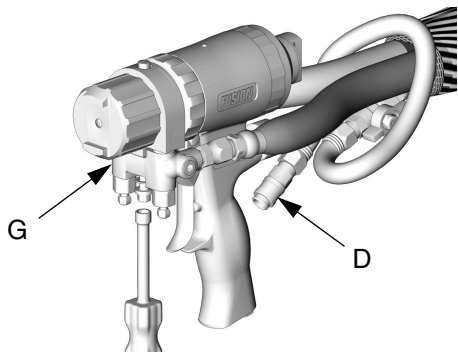


TI3847a

- 10.** Reassemble Front End, page 39.
- 11.** Adjust Purge Rod, page 18.
- 12.** Attach fluid manifold. Connect air. Return gun to service.

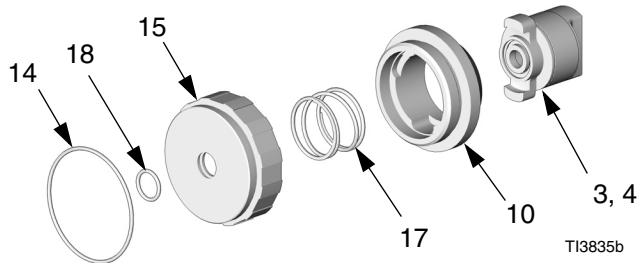
Piston Safety Lock

1. Follow **Pressure Relief Procedure**, page 21.
2. **Flush Gun**, page 25.
3. Disconnect air (D) and remove fluid manifold (G).



T13837a

4. Unscrew cap (10) from stop (15), using two pair of channel-lock pliers. Inspect spring (17), safety actuator (3), bushing (4), and o-rings (14, 18).

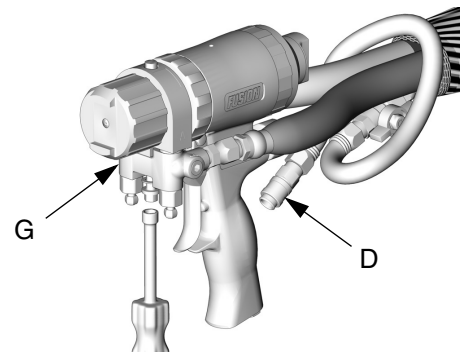


T13835b

5. Lubricate o-rings (14, 18) and piston safety lock actuator (3), and reassemble. Use Fusion Gun Lubricant, page 55. Clean threads with solvent or alcohol. Apply medium-strength Loctite® or equivalent to threads on stop (15) and cap (10), and reassemble.
6. Attach fluid manifold. Connect air. Return gun to service.

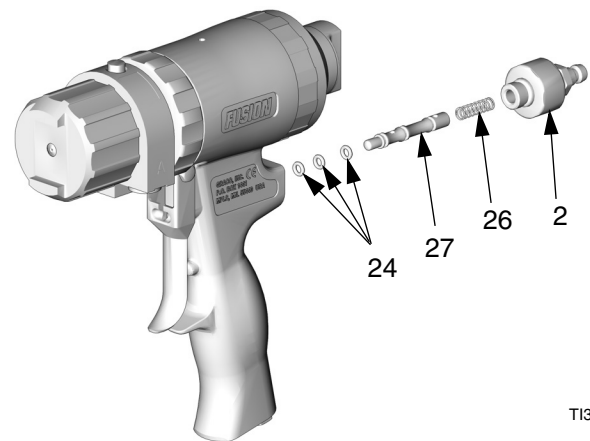
Air Valve

1. Follow **Pressure Relief Procedure**, page 21.
2. **Flush Gun**, page 25.
3. Disconnect air (D) and remove fluid manifold (G).



T13837a

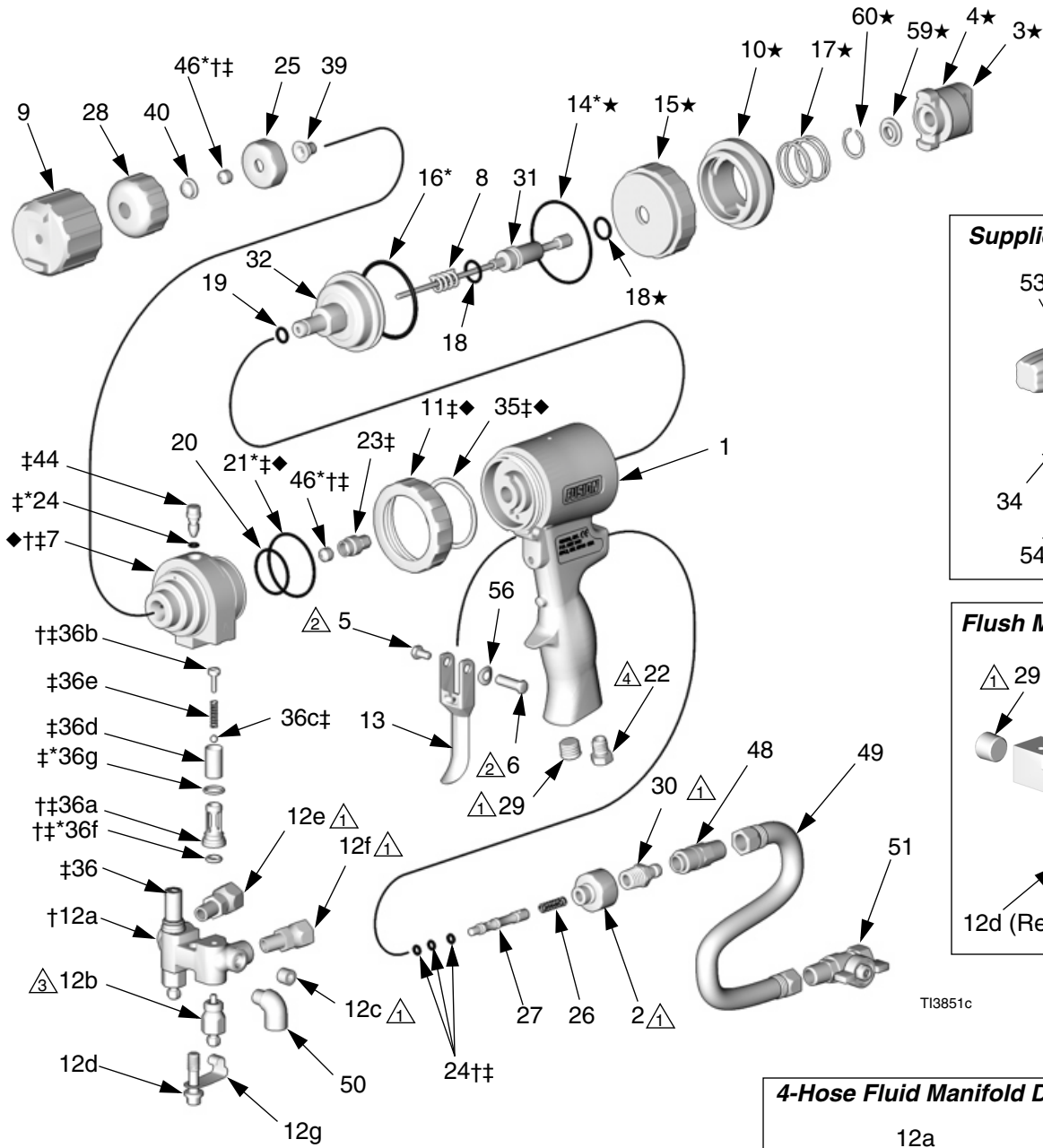
4. Unscrew air valve plug (2) and remove spring (26). Using small screwdriver (54), push spool (27) out from front. Inspect o-rings (24).



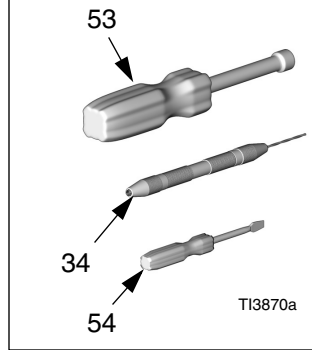
T13834a

5. Liberally lubricate o-rings and reassemble. Use Fusion Gun Lubricant, page 55. Torque plug (2) to 125-135 in-lb (14-15 N•m).
6. Attach fluid manifold. Connect air. Return gun to service.

Parts

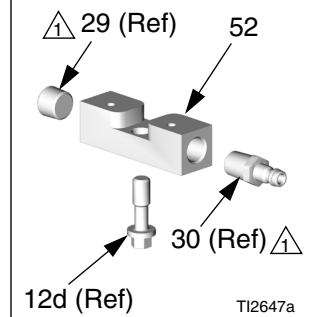


Supplied Tools



TI3870a

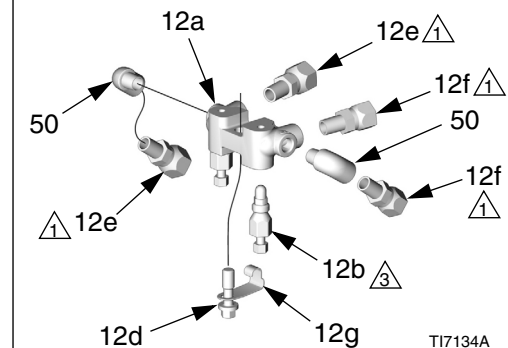
Flush Manifold Detail



TI2647a

TI3851c

4-Hose Fluid Manifold Detail



TI7134A

△ Torque to 125-135 in-lb (14-15 N•m).

△ Torque to 20-30 in-lb (2.3-3.4 N•m).

△ Torque to 32-40 ft-lb (43-54 N•m).

△ Torque to 35-45 in-lb (4-5 N•m).

| Ref. No. | Part No. | Description | Qty | Ref. No. | Part No. | Description | Qty |
|----------|----------|--|-----|----------|----------|---|-----|
| 1 | 248002 | HANDLE | 1 | 36‡ | 246731 | VALVE, check, A side; includes 36a-36g | 1 |
| 2 | 15B208 | PLUG, air valve | 1 | | 246352 | VALVE, check, B side; includes 36a-36g | 1 |
| 3★ | 15C374 | ACTUATOR; safety | 1 | 36a†† | | . HOUSING | 1 |
| 4★ | 15C390 | BUSHING, safety | 1 | 36b†† | 15B214 | . SCREW; 5/16-18 x 1/2 in. (13 mm) | 1 |
| 5 | 203953 | SCREW; 10-24 x 3/8 in. (10 mm) | 1 | 36c‡ | 104396 | . BALL; carbide | 1 |
| 6 | 192272 | PIN | 1 | 36d‡ | | . SCREEN; see page 54 | 1 |
| 7††◆ | | HOUSING, fluid | 1 | 36e‡ | 117490 | . SPRING | 1 |
| 8 | 118145 | SPRING, purge rod | 1 | 36f†* | 248133 | . O-RING, check valve face; package of 6 | 1 |
| 9 | 15C375 | AIR CAP | 1 | 36g†* | 248129 | . O-RING, check valve housing; package of 6 | 1 |
| 10★ | 15C373 | CAP, rear | 1 | 37▲ | 222385 | TAG, warning; not shown | 1 |
| 11†◆ | 15B215 | RING, lock | 1 | 39 | | MODULE, mix, round, standard; see page 50 | 1 |
| 12 | 246012 | MANIFOLD, fluid, 2-hose; includes 12a-12g | 1 | | | MODULE, mix, flat, standard; see page 50 | 1 |
| | 249523 | MANIFOLD, fluid, 4-hose; includes 12a, 12b, 12d-12g, 50 | 1 | | | MODULE, mix, round, direct impingement; see page 51 | 1 |
| 12a† | | . MANIFOLD | 1 | 40 | | CeramTip; see page 52 | 1 |
| 12b | 246356 | . VALVE, fluid | 2 | 44‡ | 15C382 | VALVE, cleanoff air | 1 |
| 12c | 100139 | . PLUG, pipe; 1/8-27 npt | 2 | 46††* | 248003 | SEAL KIT, purge rod; includes 4 seals | 1 |
| 12d | 15B221 | . BOLT; 5/16-24 | 1 | 48 | 117510 | COUPLER, air line | 1 |
| 12e | 117634 | . SWIVEL, B side; 1/8 npt(m) x no. 6 JIC(f); for 2-hose manifold | 1 | 49 | 15B772 | HOSE, air; 1/4 npsm (fbc); 18 in. (0.46 m) | 1 |
| | 117634 | . SWIVEL, B side; 1/8 npt(m) x no. 6 JIC(f); for 4-hose manifold | 2 | 50 | 112307 | ELBOW, street; 1/8 npt (m x f) | 2 |
| 12f | 117635 | . SWIVEL, A side; 1/8 npt(m) x no. 5 JIC(f); for 2-hose manifold | 1 | 51 | 15B565 | VALVE, ball; 1/4 npt (m x f) | 1 |
| | 117635 | . SWIVEL, A side; 1/8 npt(m) x no. 5 JIC(f); for 4-hose manifold | 2 | 52 | 15B817 | MANIFOLD, gun flush | 1 |
| 12g | 15B993 | . SPRING, ring, lock | 1 | 53 | 117642 | NUT DRIVER, hex; 5/16 | 1 |
| 13 | 15B209 | TRIGGER | 1 | 54 | 118575 | SCREWDRIVER; 1/8 blade | 1 |
| 14*★ | 248136 | O-RING, rod stop; package of 6 | 1 | 55 | 197979 | COVER, gun; not shown | 1 |
| 15★ | 15C372 | STOP, purge rod | 1 | 56 | 15C480 | WASHER, wave | 1 |
| 16* | 248135 | O-RING, piston; package of 6 | 1 | 57■ | 118665 | LUBRICANT, Fusion Gun; 4 oz (113 gram) | 1 |
| 17★ | 118144 | SPRING, piston safety lock | 1 | 58▲ | 15D235 | SIGN, instruction | 1 |
| 18★ | 248095 | O-RING, purge rod; package of 6 | 1 | 59★ | 15D329 | STOP, rod | 1 |
| 19 | 248096 | O-RING, piston shaft; package of 6 | 1 | 60★ | 115452 | RING, retaining | 1 |
| 20 | 248138 | O-RING, housing, small; package of 6 | 1 | | | | |
| 21†◆* | 248132 | O-RING, housing, large; package of 6 | 1 | | | | |
| 22 | 119626 | MUFFLER | 1 | | | | |
| 23‡ | 15C378 | NUT, rod seal, rear | 1 | | | | |
| 24‡* | 246354 | O-RING; package of 6 | 1 | | | | |
| 25 | 15C377 | NUT, mix module | 1 | | | | |
| 26 | 117485 | SPRING, air valve | 1 | | | | |
| 27 | 15B202 | SPOOL, air valve | 1 | | | | |
| 28 | 15C376 | RETAINER, CeramTip | 1 | | | | |
| 29 | 100721 | PLUG, pipe; 1/4-18 npt | 1 | | | | |
| 30 | 117509 | QUICK-DISCONNECT, male, air; 1/4 npt(m) | 1 | | | | |
| 31 | 248001 | ROD, purge; includes 1 of item 18 | 1 | | | | |
| 32 | 15C371 | PISTON | 1 | | | | |
| 34 | 117661 | WISE, pin; dual reversible chucks | 1 | | | | |
| 35†◆ | 116550 | RING, retaining | 1 | | | | |

* These parts are only available in repair kits. To select a kit, refer to Gun Repair Kits on page 54.

† These parts are not available singly.

‡ These parts are included in Front End Replacement Kit 246875 (includes 1 of items 24 and 46).

★ These parts are included in Safety Stop Assembly 248028 (includes 1 of item 18).

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

■ Available in 248279 Kit, package of 10. See page 55.

◆ Available in Fluid Housing Assembly Kit 248004.

Slip-Fit Polycarbally Mix Module Kits

Slip-Fit Polycarbally Mix Module Part Numbering Code

| Example Part No. | First Two Digits | Second Two Digits | Last Two Digits |
|------------------|---|--|--|
| MR3535 | MR=Mechanical purge standard, round pattern | 35=Component A impingement port size (.035 in.). *** | 35=Component B impingement port size (.035 in.). *** |
| MF3535 | MF=Mechanical purge standard, flat pattern | | |
| XR3535 | XR=Mechanical purge direct impingement, round pattern | | |
| XF3535 | XF=Mechanical purge direct impingement, flat pattern | | |

*** Some modules have multiple impingement ports (see below). Size is given as the equivalence of a single port.

Standard Round Pattern Guns

| Slip-Fit Polycarbally Mix Module Kit (includes drill bits) | No. of Impingement Ports | | Impingement Port Drill Bit Size, nominal** |
|--|--------------------------|---|--|
| | A | B | |
| MR3535 | 2 | 2 | #73 |
| MR4747 | 2 | 2 | #67 |
| MR5757 | 3 | 3 | #67 |
| MR6666 | 4 | 4 | #67 |
| MR8282 | 4 | 4 | #60 |
| MR9494 | 4 | 4 | #56 |

Standard Flat Pattern Guns

| Slip-Fit Polycarbally Mix Module Kit (includes drill bits) | No. of Impingement Ports | | Impingement Port Drill Bit Size, nominal** | Counterbore Drill Bit Size, nominal** |
|--|--------------------------|---|--|---------------------------------------|
| | A | B | | |
| MF1818 | 1 | 1 | #77 | #67 |
| MF2929 | 1 | 1 | #69 | N/A |
| MF3535 | 2 | 2 | #73 | N/A |
| MF4747 | 2 | 2 | #67 | N/A |
| MF5757 | 3 | 3 | #67 | N/A |

For further information, see identification chart under **Drill Bit Kits, page 53.

Direct Impingement Round Pattern Guns

| Slip-Fit Polycarballoy Mix Module Kit (includes drill bits) | No. of Impingement Ports | | Impingement Port Drill Bit Size, nominal** |
|---|--------------------------|---|--|
| | A | B | |
| XR2323 | 1 | 1 | #74 |
| XR2929 | 1 | 1 | #69 |
| XR3535 | 2 | 2 | #73 |
| XR4747 | 2 | 2 | #67 |
| XR5757 | 3 | 3 | #67 |

Direct Impingement Flat Pattern Guns

| Slip-Fit Polycarballoy Mix Module Kit (includes drill bits) | No. of Impingement Ports | | Impingement Port Drill Bit Size, nominal** | Counterbore Drill Bit Size, nominal** |
|---|--------------------------|---|--|---|
| | A | B | | |
| XF1313 | 1 | 1 | #81 | #67 |
| XF1818 | 1 | 1 | #77 | #67 |
| XF2323 | 1 | 1 | #74 | N/A |
| XF2929 | 1 | 1 | #69 | N/A |
| XF3535 | 2 | 2 | #73 | N/A |
| XF4747 | 2 | 2 | #67 | N/A |
| XF5757 | 3 | 3 | #67 | N/A |
| XF1318 | 1 | 1 | #81 | #67 |
| | 1 | 1 | #77 | |
| XF1824 | 1 | 1 | #77 | N/A |
| | 1 | 1 | #74 | |
| XF2332 | 1 | 1 | #74 | N/A |
| | 1 | 1 | #67 | |

For further information, see identification chart under **Drill Bit Kits, page 53.

CeramTip Kits

Round CeramTip Part Numbering Code

| Example Part No. | First Three Digits | Last Three Digits |
|------------------|-------------------------------------|---|
| RTM055 | RTM=Round CeramTip mechanical purge | Equivalent orifice diameter size (.055 in.) |

Round CeramTips (include drill bit)

| CeramTip Part No. | Drill Bit Size, nominal** |
|-------------------|---------------------------|
| RTM024 | #73 |
| RTM030 | #67 |
| RTM040 | #60 |
| RTM055 | #54 |
| RTM070 | #50 |
| RTM080 | 2.0 mm |
| RTM090 | #43 |
| RTM100 | #39 |
| RTM110 | 7/64 |

For further information, see identification chart under **Drill Bit Kits, page 53.

Flat CeramTip Part Numbering Code

| Example Part No. | First Three Digits | Fourth Digit | Last Two Digits |
|------------------|------------------------------------|---------------------------------|---|
| FTM848 | FTM=Flat CeramTip mechanical purge | 8x2=pattern length (8x2=16 in.) | Equivalent orifice diameter size (.048 in.) |

Flat CeramTips

| CeramTip Part No. | Pattern Size, in. (mm) |
|-------------------|------------------------------|
| FTM317 | very low flow, 6-8 (152-203) |
| FTM424 | low flow, 8-10 (203-254) |
| FTM438 | medium flow, 8-10 (203-254) |
| FTM624 | low flow, 12-14 (305-356) |
| FTM638 | medium flow, 12-14 (305-356) |
| FTM838 | medium flow, 16-18 (406-457) |
| FTM848 | high flow, 16-18 (406-457) |

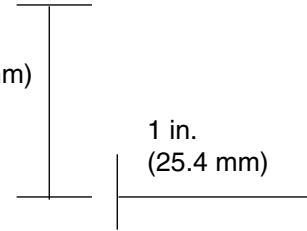
Drill Bit Kits

For cleaning gun ports and orifices. Illustrations are for diameter comparison. Actual length may vary.



Not all sizes are used with your gun.

1 in.
(25.4 mm)



| Kit Part No. | Qty in Kit | Drill Bit Size | | | Illustration |
|--------------|------------|----------------|-------|------|--------------|
| | | nominal | in. | mm | |
| 246623 | 3 | #32 | 0.116 | 2.90 | |
| 246810 | 3 | 7/64 | 0.109 | 2.77 | |
| 246813 | 3 | #39 | .099 | 2.51 | |
| 246624 | 3 | 3/32 | .094 | 2.39 | |
| 246812 | 3 | #43 | .089 | 2.26 | |
| 246625 | 3 | #44 | .086 | 2.18 | |
| 246811 | 3 | 2 mm | .079 | 2.00 | |
| 246626 | 6 | #50 | .070 | 1.78 | |
| 248893 | 6 | 1/16 | .062 | 1.59 | |
| 246627 | 6 | #53 | .060 | 1.52 | |
| 246809 | 6 | #54 | .055 | 1.40 | |
| 246628 | 6 | #55 | .052 | 1.32 | |
| 246814 | 6 | #56 | .046 | 1.18 | |
| 246629 | 6 | #58 | .042 | 1.07 | |
| 246808 | 6 | #60 | .040 | 1.02 | |
| 248618 | 6 | #63 | .037 | 0.94 | |
| 248891 | 6 | #66 | .033 | 0.84 | |
| 246807 | 6 | #67 | .032 | 0.81 | |
| 246630 | 6 | #69 | .029 | 0.74 | |
| 248892 | 6 | #70 | .028 | 0.71 | |
| 246815 | 6 | #73 | .024 | 0.61 | |
| 276984 | 6 | #74 | .023 | 0.57 | |
| 246631 | 6 | #76 | .020 | 0.51 | |
| 246816 | 6 | #77 | .018 | 0.46 | |
| 246817 | 6 | #81 | .013 | 0.33 | |

Gun Repair Kits

Read the chart left to right and top to bottom to find the quantity of each part in the kits.

| Ref. No. | Bulk O-ring Kits, (qty) | 246351 Check Valve O-ring Kit | 248000 Complete O-ring Kit |
|----------|-------------------------|-------------------------------|----------------------------|
| 14 | 248136 (6) | | 1 |
| 16 | 248135 (6) | | 1 |
| 18 | 248095 (6) | | 2 |
| 19 | 248096 (6) | | 1 |
| 20 | 248138 (6) | | 1 |
| 21 | 248132 (6) | | 1 |
| 24 | 246354 (6) | | 4 |
| 36f | 248133 (6) | 2 | |
| 36g | 248129 (6) | 2 | |
| 46 | 248003 (4) | | |

Check Valve Filter Screen Kits (10 per kit)

80 mesh filter screen is standard with gun.

246357 40 mesh (.015 in., 375 micron)

246358 60 mesh (.010 in., 238 micron)

246359 80 mesh (.007 in., 175 micron)

Accessories

Gun Cover

244915

Keeps gun clean while spraying. Pack of 10.

Fusion Gun Lubricant Kit

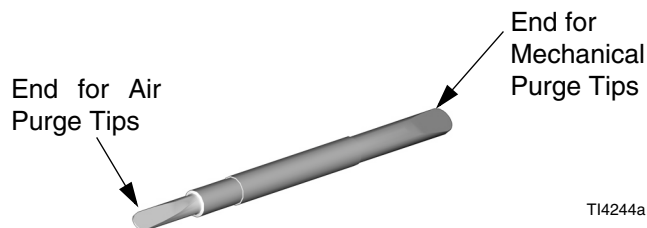
248279 Pack of 10 Tubes, 4 oz (113 gram)

High adhesion, water resistant, lithium-based lubricant for rebuilding Fusion Gun. MSDS sheet MSD025 available at www.graco.com.

Tip Cleanout Tool

15D234

Designed to fit CeramTip internal dome and flat tip slits.



Gun Cleaning Kit

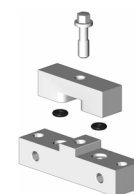
15C161

Ultimate Gun Cleaning Kit.

Circulation Manifold

246362

Attach to gun fluid manifold to enable preheating of hose. See manual 309818.



T13877a

Flushing Manifold

15B817 Manifold Block

See ref. no. 52, page 49.

Solvent Flush Kits

248139 1 qt (0.95 liter) Solvent Cup

Portable, for remote solvent flush. Includes 15B817 Flushing Manifold. See manual 309963.

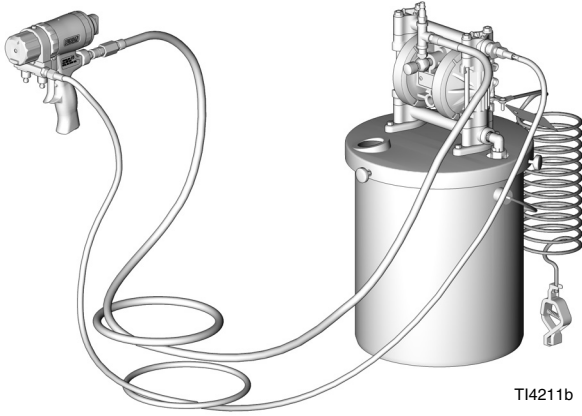


T14165a

Solvent Flush Pail Kit

248229 5.0 gal. (19 liter) Pail

Includes flush manifold with individual A and B shutoff valves, and air regulator. See manual 309963.



Hose Adapter Kits

246944

To connect non-Graco gun to Graco heated hose.

248029

To connect Graco Fusion gun to non-Graco D-gun hose set.

246945

To connect Graco Fusion gun to non-Graco heated hose.

Pour Nozzle Kit

248682

To convert mechanical purge gun for pour applications. Includes nozzle, retainer, and tip.

Gun Grips

Applicator's comfort level with a spray gun is an essential part of the spray foam and polyurea installation process. The applicator's fatigue level can dramatically affect the pattern and productivity of a project. 3M™ Gripping Material Technology is designed to:

- Reduce fatigue
- Provide comfort
- Give thermal protection

Gun Grip Kit

Graco Gun Grips are designed to be used on Fusion® A, CS, or Probler® P2 Guns.

| Kit Part No. | Qty in Kit |
|--------------|------------|
| 17G542 | 10 Pack |
| 17G543 | 50 Pack |
| 17G544 | 100 Pack |

Technical Data

| Category | Data |
|--------------------------------------|--|
| Maximum Fluid Working Pressure | 3500 psi (24.2 MPa, 242 bar) |
| Minimum Air Inlet Pressure | 80 psi (0.55 MPa, 5.5 bar) |
| Maximum Air Inlet Pressure | 130 psi (0.9 MPa, 9 bar) |
| 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 |
| Typical Flow Rate | See charts pages 4-7. |
| Sound Pressure | 70 dB(A), at 100 psi (0.7 MPa, 7 bar) |
| Sound Power, measured per ISO 9416-2 | 79.9 dB(A), at 100 psi (0.7 MPa, 7 bar) |
| Length | 7.6 in. (193 mm) |
| Height | 8.1 in. (206 mm) |
| Width | 3.1 in. (79 mm) |
| Weight | 2.9 lb (1.32 kg) |
| Wetted Parts | Aluminum, stainless steel, carbon steel, chemically resistant o-rings, ultra-high molecular weight polyethylene (UHMWPE), Polycarballyoy™, CeramTip™ |

All other brand names or marks are used for identification purposes and are trademarks of their respective owners.

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Original instructions. This manual contains English. MM 309856

Graco Headquarters: Minneapolis

International Offices: Belgium, China, Japan, Korea

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