

Instructions – Parts List



3M

Paint Preparation System Spray Guns



INTENDED USE: 3M–Graco spray gun systems are intended for use only by trained and professional tradesmen, and used solely for the purpose of spray application of liquid coating materials. They must be used only in areas which are compatible with the material being sprayed, in strict compliance with applicable local and national regulations.

HVLP, Compliant, and Airspray

100 psi (0.7 MPa, 7 bar) Maximum Working Air Pressure
29 psi (200 kPa, 2.0 bar) Maximum Compliant Inbound Air Pressure
(HVLP and Compliant)

U.S. Patent Pending



Read warnings and instructions.

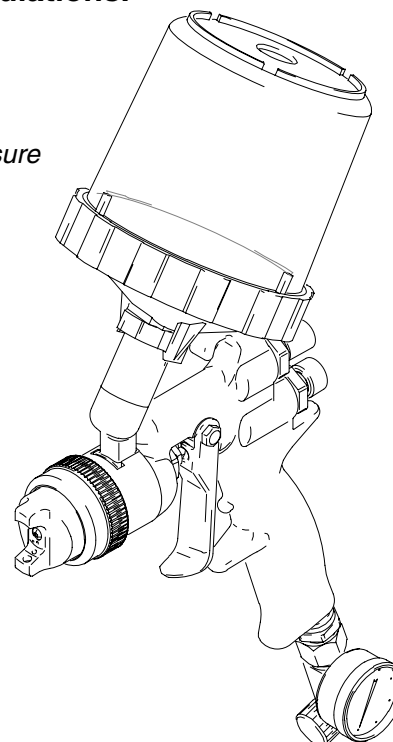


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Symbols

Warning Symbol



This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

CAUTION

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

WARNING



INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- 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.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. See intended use statement on front cover.
- 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.
- This equipment is to be used only by professional tradesmen who are familiar with its possible hazards.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. See intended use statement on front cover.

⚠ WARNING



PRESSURIZED EQUIPMENT HAZARD



Fluid from the gun/dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow the **Pressure Relief Procedure** on page 11 whenever you are instructed to relieve pressure.
- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Do not point the spray gun at anyone or at any part of the body.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.



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).
- Keep work area free of debris, including solvent, rags, and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground equipment and conductive objects in work area. See **Grounding** instructions on page 11.
- If there is static sparking or you feel a shock, **stop operation immediately**. Do not use equipment until you identify and correct the problem.



TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDS's to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
- Gloves must be worn for spraying or cleaning equipment.



NOISE HAZARD

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 hearing loss.

Selection Charts

Spray Gun Assemblies

HVLP Guns – for high efficiency with low pressure

Gun and PPS Cup Assy. Part No.	Orifice Size in. (mm)	Pattern Length† in. (mm)	Air Cap Marking	Housing Color
16212	.051 (1.3)	13 (330)	H	Purple
16213	.055 (1.4)	13 (330)	H	Purple
16214	.059 (1.5)	13 (330)	H	Purple
16215	.070 (1.8)	13 (330)	H	Purple

Airspray Guns

Gun and PPS Cup Assy. Part No.	Orifice Size in. (mm)	Pattern Length† in. (mm)	Air Cap Marking	Housing Color
16204	.051 (1.3)	9 (228)	A	Black
16205	.055 (1.4)	9 (228)	A	Black
16206	.059 (1.5)	9 (228)	A	Black
16207	.070 (1.8)	9 (228)	A	Black

Compliant Guns

Gun and PPS Cup Assy. Part No.	Orifice Size in. (mm)	Pattern Length† in. (mm)	Air Cap Marking	Housing Color
16208	.051 (1.3)	11 (279)	C	Gold
16209	.055 (1.4)	11 (279)	C	Gold
16210	.059 (1.5)	11 (279)	C	Gold
16211	.070 (1.8)	11 (279)	C	Gold

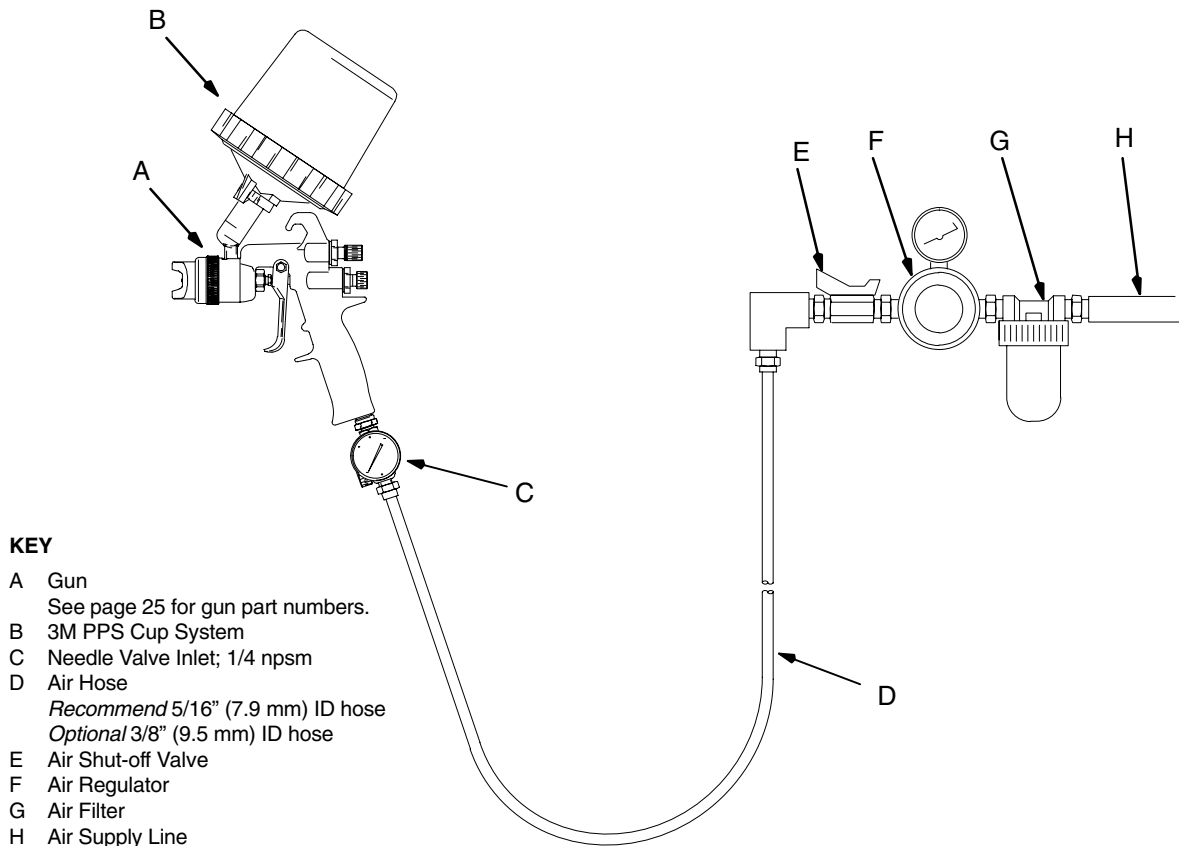
† Measured with gun nozzle 8 in. (203 mm) from target surface

Selection Charts

Selecting the Proper Nozzle Size

Follow your material suppliers recommendations for proper nozzle size. In general, use the smaller nozzle sizes for low flow rates or light viscosity materials and larger nozzle sizes for higher flows and higher viscosity materials.

Typical Installation



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The spray guns were designed to produce the highest quality finish with today's automotive paint systems.

The HVLP and Compliant guns typically utilize 29 psi (200 kPa, 2.0 bar) inbound air pressure to produce high quality paint finishes and comply with environmental regulations.

The air regulator must have a minimum air flow capacity of 30 scfm at 100 psi (0.7 MPa, 7 bar) air pressure.

Ventilate the Spray Booth

WARNING



To prevent hazardous concentrations of toxic and/or flammable vapors, spray only in a properly ventilated spray booth. Do not operate the spray gun unless ventilation fans are operating.

Check and follow all of the National, State and Local codes regarding air exhaust velocity requirements.

Check and follow all local safety and fire codes.

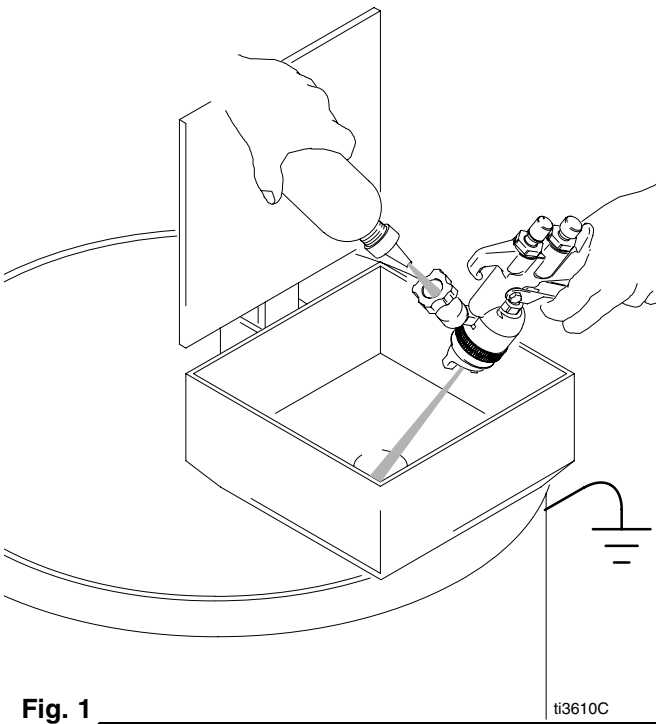
Setup

Flushing the Spray Gun

NOTE: Flush the spray gun before putting any paint through the gun.

To flush the gun, squeeze water or solvent into the gun adapter while triggering the gun.

Make sure to use a solvent that is compatible with paint to be sprayed.

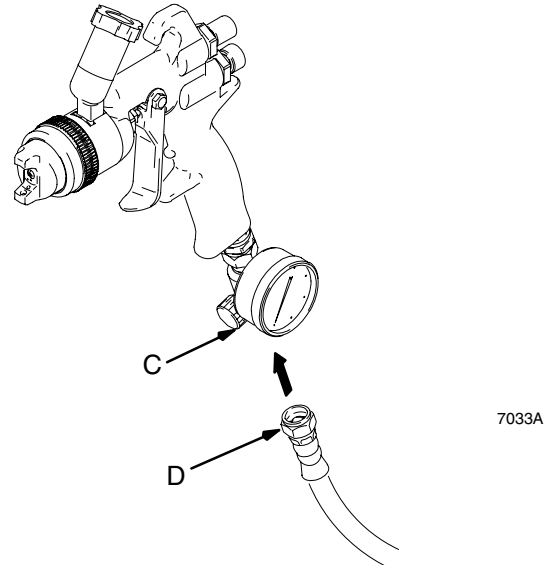


Connecting the Air Line

- You must install an air pressure regulator (F) on the gun air line to control air pressure to the gun. See Fig. 3.
- *If your regulated air source does not have a filter, install an air filter (G) on the air line to ensure a dry, clean air supply to the gun. Dirt and moisture can ruin the appearance of your finished workpiece. See Fig. 3.*

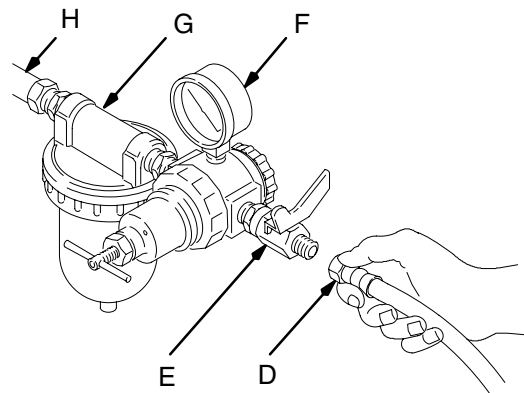
- Use a 5/16 inch (7.9 mm) I.D. air hose to minimize excessive pressure drop in the hose.

1. Connect the air hose (D) to the 1/4 npsm air inlet (C).



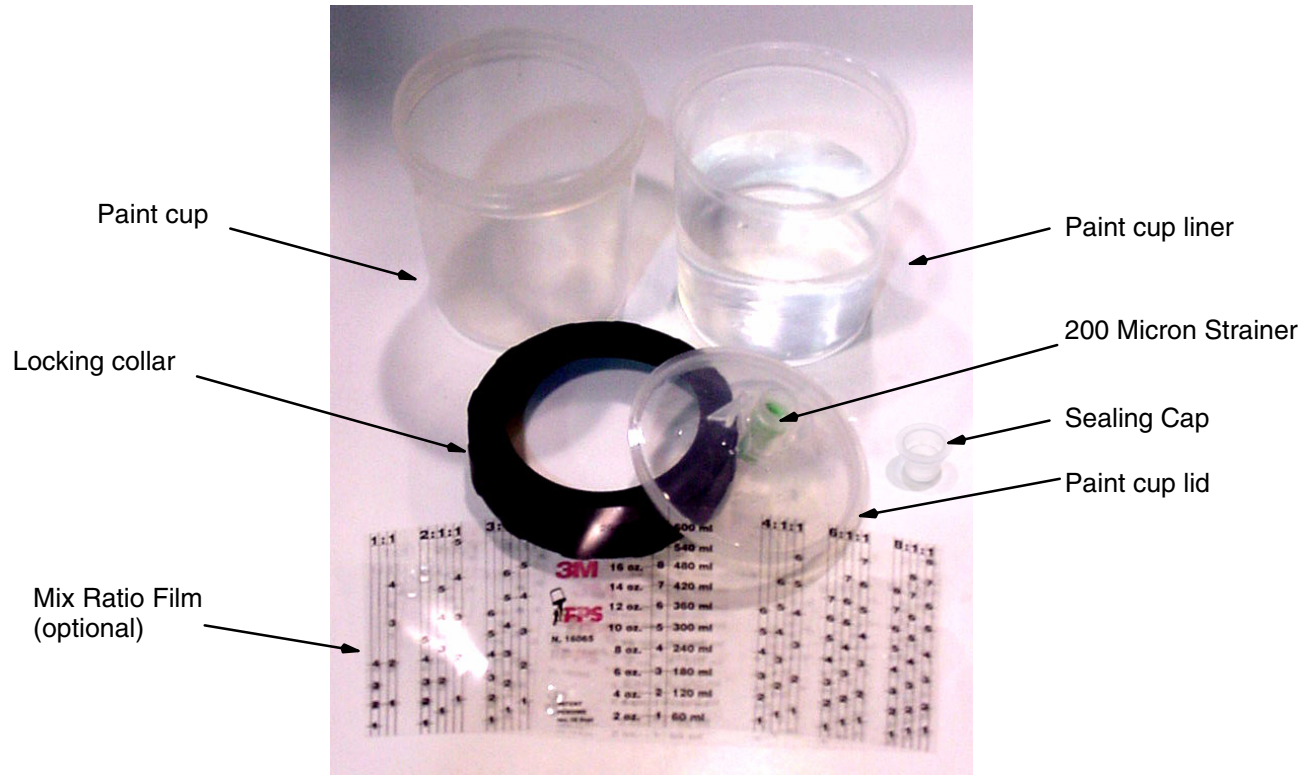
2. Connect the other end of the air hose (D) to a regulated air supply line (H).

NOTE: Fig. 3 shows the filter (G) air regulator (F), and air shut-off valve (E) on the air supply line.



Setup

Installing 3M™ Paint Preparation System (PPS)



NOTE: 3M™ Mix Ratio Film is optional.

1. Weigh paint in the cup with liner according to paint manufacturers instructions before mixing product.
5. With spray gun inverted, lower onto PPS cup and lock gun adapter, turning clockwise, to lid.



Fig. 4

2. Mix product as needed.
3. Take the lid (with built in strainer) and snap onto the top of PPS cup.
4. Position locking collar onto the PPS cup and turn until tight.



Fig. 5

Setup

6. Make sure that the lid fingers are fully engaged above adapter edge.

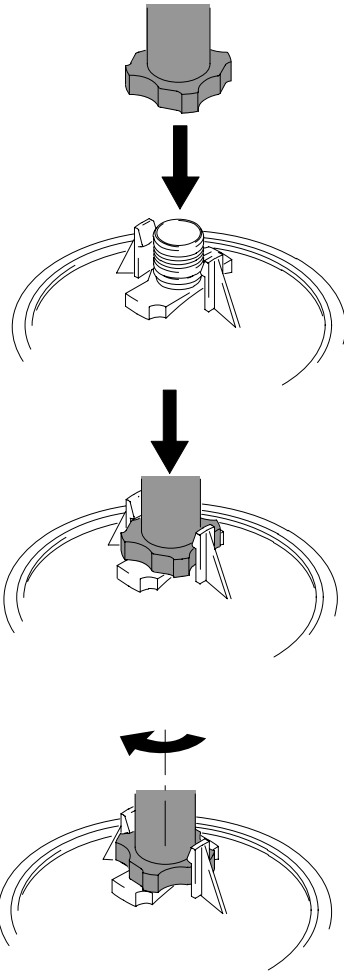


Fig. 6

7. With air line connected, invert gun and pull trigger (fully open NOT partially) to bleed air from the liner
NOTE: Air only needs to be bled if spraying in the inverted position.

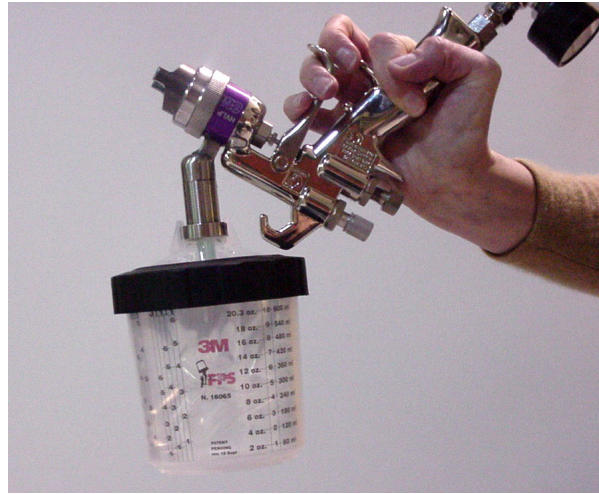


Fig. 7

8. With the air removed from the liner, the gun may be sprayed upside down or in any direction to reach difficult areas.



Fig. 8

Setup

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD

To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 11 whenever you are instructed to relieve pressure.

Positioning the Air Cap

Rotate the air cap as needed to achieve the desired spray pattern direction. To create a round pattern, turn the pattern air off by turning the pattern adjustment knob (25) fully clockwise. Refer to Fig. 11.

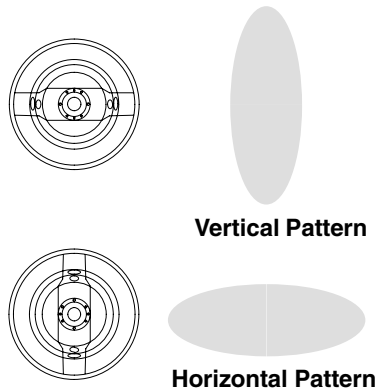


Fig. 9

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Adjusting the Spray Pattern

Follow these steps to establish the correct fluid flow and air flow:

1. Turn the fluid adjustment knob (21) counterclockwise until no restriction of the trigger movement is felt, then turn out another half turn. When the knob is turned far enough, the trigger should be able to touch the gun handle when the gun is triggered.

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD

To avoid injury, never open the fluid adjustment knob (21) beyond the one half turn indicated in **Adjusting the Spray Pattern**. If the red band on the knob stem (21) is visible, the knob is not adjusted correctly and could result in serious injury. Repeat steps in **Adjusting the Spray Pattern**.

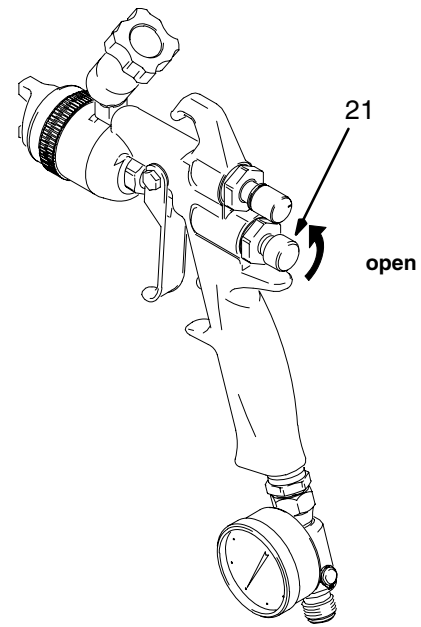


Fig. 10

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2. Turn the pattern adjustment valve (25) fully counterclockwise to achieve the widest fan pattern.

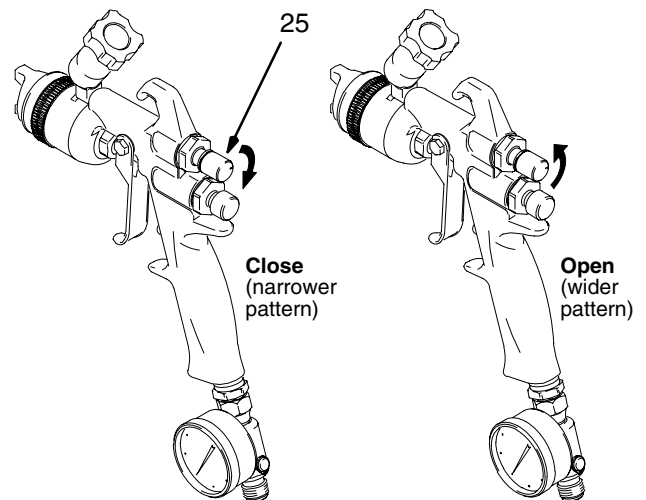


Fig. 11

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Setup

3. Adjust the air supply regulator (F) to about 100 psi.

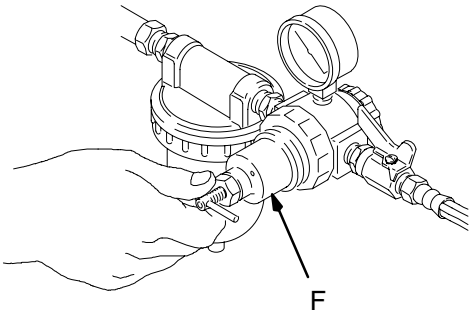


Fig. 12

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4. Trigger the gun and adjust the gun inlet pressure, turning the needle valve at the gun air inlet:
HVLP, Compliant 29 psi
Airspray 50psi
5. Spray a test pattern to evaluate fluid flow and atomization.
6. To reach the desired pattern width, fluid flow rate, and finish, make the following adjustments:
 - For a narrower pattern (25), turn the pattern adjustment valve clockwise.
 - To reduce the fluid flow, turn the fluid adjustment valve (21) clockwise to limit the trigger travel or replace the nozzle with a smaller orifice.
 - To improve atomization, reduce the fluid flow rate. Increasing the air pressure can improve atomization but may result in poor Transfer Efficiency (TE) or non-compliant operation.

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD

To avoid injury, never open the fluid adjustment knob (21) beyond the one half turn indicated in **Adjusting the Spray Pattern**, page 9. If the red band on the knob stem (21) is visible, the knob is not adjusted correctly and could result in serious injury. Repeat steps in **Adjusting the Spray Pattern**, page 9.

7. For HVLP only, to measure the air cap atomizing pressures, use the accessory aircap verification kit.

NOTES:

- If the fluid adjustment knob is turned in clockwise all the way the gun will emit only air.
- For maximum transfer efficiency, always use the lowest air setting needed to achieve the desired finish.
- If available, use the fluid manufacturer's recommendations for this gun model to set the air line pressure.
- *For Compliant guns*, to maintain compliant operation (TE equal to HVLP) the gun inlet pressure must not exceed 29 psi.
- *For HVLP guns*, at 29 psi (200 kPa, 2.0 bar) gun inlet air pressure, the pressure at the aircap will be 10 psi (70 kPa, 0.7 bar).
- *For HVLP guns*, local laws may limit the maximum automatic air pressure to 10 psi (70 kPa, 0.7 bar) at the air cap for HVLP compliance. The accessory Air Cap Verification Kit 16231 is available to measure the atomizing pressure at the air cap.

Operation

WARNING

PRESSURIZED EQUIPMENT HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. To reduce the risk of an injury from accidental spray from the gun, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray nozzle.

Grounding

All conductive equipment is subject to static electricity buildup (read **Warnings**, page 3). To reduce the risk of static sparks, the system must be grounded using appropriate connectors and conductors. Use only electrically conductive hoses.

Pressure Relief Procedure

1. Turn off the air supply to the gun.
2. Disconnect air line from the gun.
3. Invert gun and pull trigger (fully open, not partially) to return mix to gun cap.

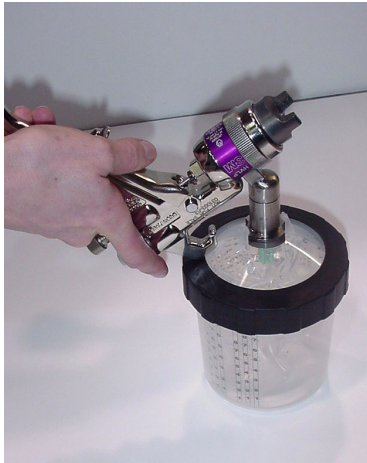


Fig. 13

Operation

Applying the Fluid

1. To achieve the best results when applying fluid, keep the gun perpendicular to the surface and maintain a consistent distance of approximately 6 to 8 inches (150 to 200 mm) from the object being sprayed. See Fig. 14.
2. To obtain an even finish, use smooth, even strokes across the surface to be sprayed with 50% overlap. The PPS gun cup is a sealed system and can be sprayed in any direction without spills on vertical or horizontal surfaces.
3. Paint using parallel strokes. This spray gun applies all coatings evenly without cross coating.

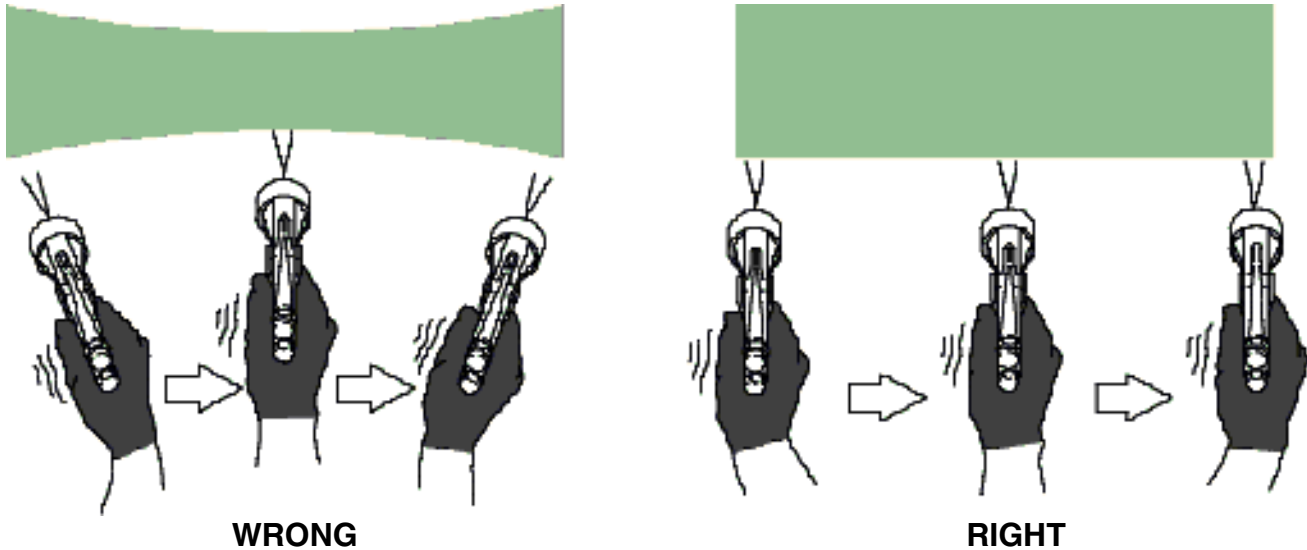


Fig. 14

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Daily Gun Care, Flushing, and Cleaning

⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD

To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 11 whenever you are instructed to relieve pressure.

CAUTION

Solvent left in gun air passages could result in a poor quality paint finish. Do not use any cleaning method which may allow solvent into the gun air passages. **Do not expose needle valve and gauge (30) to solvents or gauge may be damaged.**

Do not point the gun up while cleaning it.



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Do not wipe the gun with a cloth soaked in solvent; ring out the excess.



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Do not immerse the gun in solvent.



07041A

Do not use metal tools to clean the air cap holes as this may scratch them; scratches can distort the spray pattern.



02055

General System Maintenance Check

- ✓ Relieve the pressure.
- ✓ Check for any fluid leakage from the gun and fluid hoses.
- ✓ Clean the fluid and air line filters daily.
- ✓ Flush the gun before changing colors and whenever you are done operating the gun.

Daily Gun Care and Cleaning

Removing the paint supply

WARNING

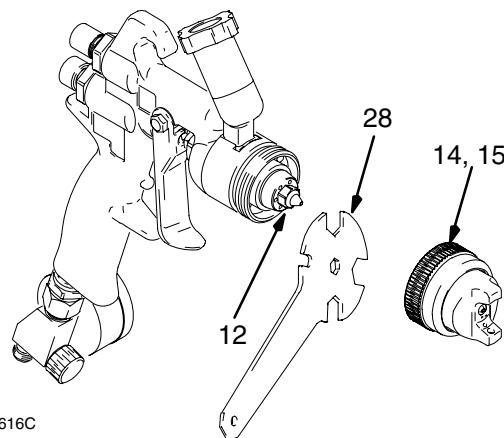
PRESSURIZED EQUIPMENT HAZARD

To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 11 whenever you are instructed to relieve pressure.

1. Relieve the pressure, page 11.
2. Remove PPS cup by inverting the gun. Turn the gun counterclockwise unlocking the gun adapter from the paint cup.
3. Flush the spray gun, page 6.
4. To retain unused paint, seal the lid with the PPS sealing cap, label, and temporarily store mixed material in PPS cup.
5. When the PPS cup is empty the collapsed liner and lid may be disposed. Consult all local, state, and federal regulations or authorities for proper disposal.

Cleaning the gun

1. Remove the air cap retaining ring (15) and air cap (14).
2. Trigger the gun while you remove the fluid nozzle (12) from the gun with the gun tool (28).



TI3616C

Fig. 15

CAUTION

Trigger the gun whenever you tighten or remove the nozzle. This keeps the needle seat away from the nozzle seating surface and prevents the seat from being damaged.

3. Clean the air cap retaining ring, air cap, and fluid nozzle with solvent.
4. Dip the end of a soft-bristle brush into a compatible solvent. Do not continuously soak the brush's bristles with solvent and do not use a wire brush.



Fig. 16

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Daily Gun Care and Cleaning

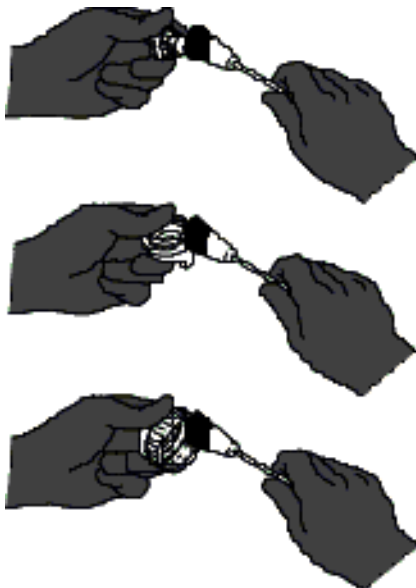
5. With the gun pointed down, clean the front of the gun, using the soft-bristle brush and solvent.



TI13624a

Fig. 17

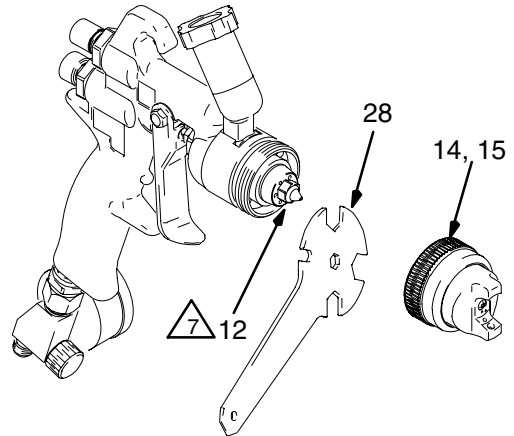
6. Scrub the air cap retaining ring, air cap, and fluid nozzle with the soft-bristle brush. To clean out air cap holes, use the small brush provided. Clean the air cap and fluid nozzle daily, minimum. Some applications require more frequent cleaning. Do not soak the air cap retaining ring in solvent for prolonged periods of time.



02011

Fig. 18

7. To avoid galling of the fluid nozzle in the spray housing (2a) apply a thin film of lubricant to the back surface of the nozzle taper where it seats and also to the nozzle threads. Trigger the gun while you install the fluid nozzle (12) with the gun tool (28). Tighten the nozzle securely to 40 in-lb (4.5 N•m) to obtain a good seal. **Do not over torque.**
8. Install the air cap retaining ring (15) and air cap (14).

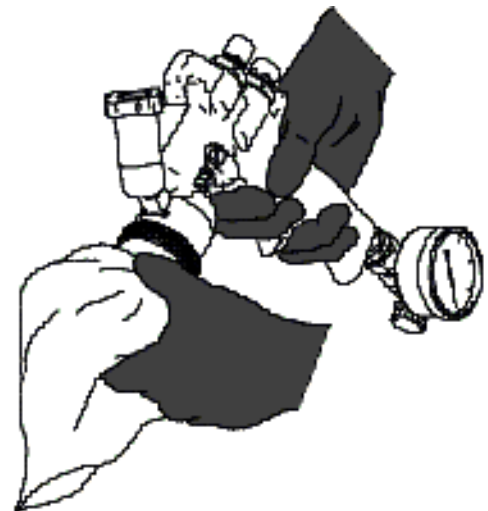


 Torque to 40 in-lb (4.5 N•m)

TI3616C

Fig. 19

9. Dampen a soft cloth with solvent and wring-out the excess. Point the gun down and wipe off the outside of the gun.



TI3617a

Fig. 20

Troubleshooting

WARNING

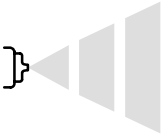




PRESSURIZED EQUIPMENT HAZARD

To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 11 whenever you are instructed to relieve pressure.

Correct fan pattern

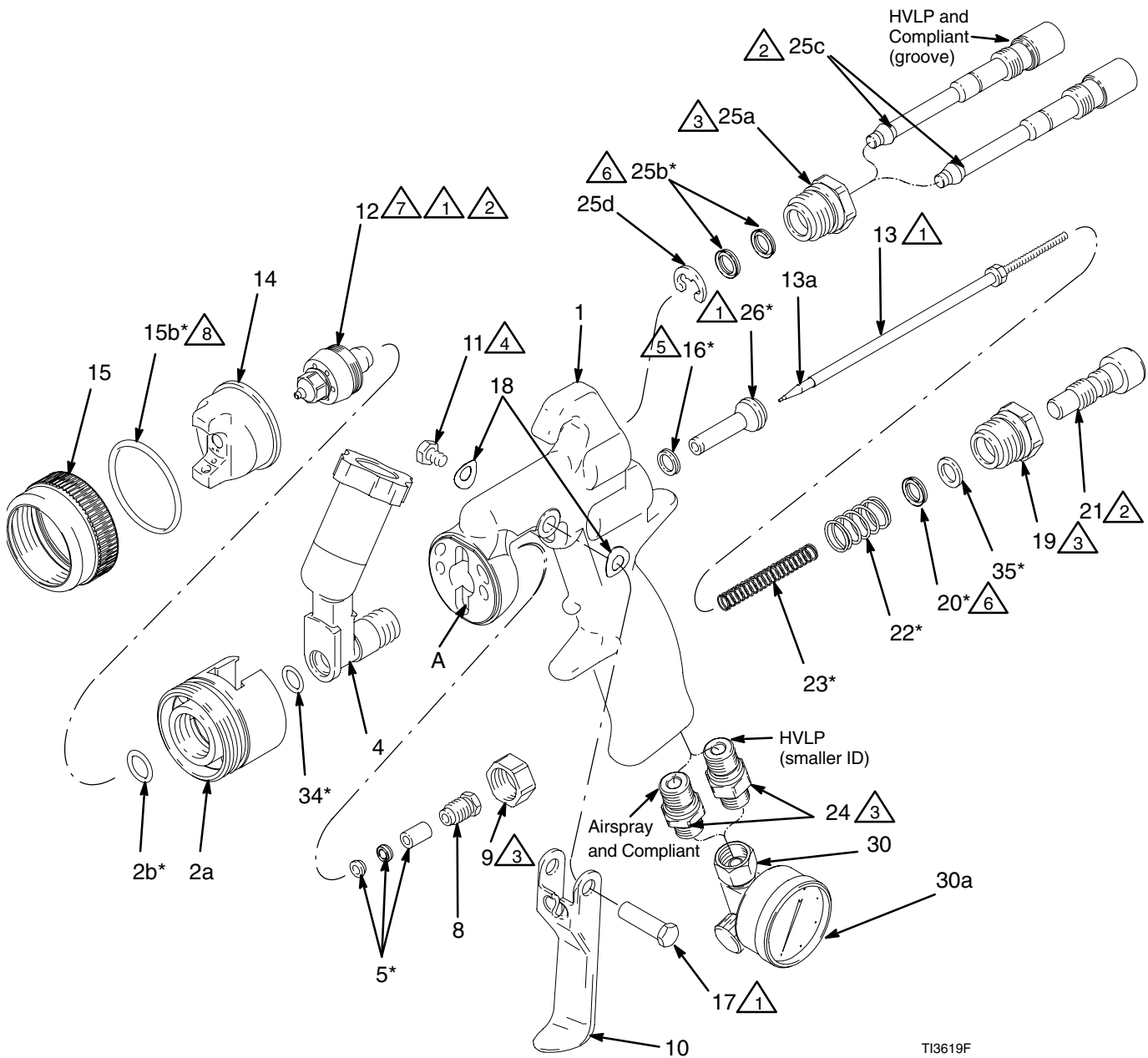


Follow all **Setup** procedures, starting on page 6. Hang some 3M masking paper. Hold spray gun with Air Cap perpendicular and 8 in. from masking paper. Spray for two seconds and check what you get for fan pattern outline on the paper. See troubleshooting chart for how to adjust/service spray gun to correct Fan Pattern defects.

PROBLEM	CAUSE AND SOLUTION
Fluttering or spitting spray 	<p>Loose or damaged fluid tip/seat (Tighten or replace).</p> <p>Material level too low in cup (Refill cup)</p> <p>Gun cup tilted too far over or upside down while spraying (Purge Air out of PPS cup).</p> <p>PPS 200–micron strainer too fine for mix (Use PPS 300 micron strainer or thin/reduce mix).</p> <p>Partial obstruction in fluid passage (Flush with solvent).</p> <p>Dry or loose fluid needle packing nut (Lubricate or tighten).</p>
Pattern is curved. 	<p>Air Cap or Fluid Tip Defective. Determine if defect is in the Air Cap or Fluid Tip. Rotate Air Cap one–half turn and spray another test pattern. If defect is inverted/reverse of previous fan pattern, then defect is in the Air Cap. Clean air Cap.</p> <p>If defect is not inverted/reverse of previous Fan Pattern, defect is in the Fluid Tip. Check Fluid Tip for damage or partial blockage with dried material. Check Fluid Needle Tip for damage. Replace as necessary.</p>
Pattern is off–set or heavy on one end. 	<p>One or more Air Horn Holes Plugged (Clean Air Cap)</p> <p>Fluid Needle Tip Damaged (Replace Fluid Needle Tip)</p> <p>Fluid Nozzle Damaged or partially blocked.(Clean and or replace Fluid Nozzle)</p>
Pattern is heavy in the center. 	<p>Air Pressure too low (Increase Air Pressure).</p> <p>Fan Pattern set too narrow (Open Fan Pattern).</p> <p>Material is too thick (Reduce/Thin the Mix).</p>
Pattern is split. 	<p>Air Pressure too high (Reduce Air Pressure).</p> <p>Fan Pattern set wide open (Close down Fan Pattern).</p>

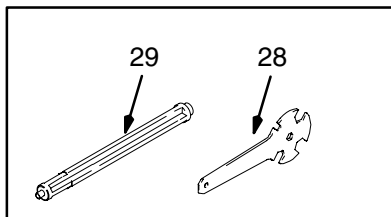
PROBLEM	SOLUTION
Starving Fan Pattern. Fan pattern begins to narrow down.	PPS liner bottomed out on top of strainer or collapsed around strainer, blocking flow (Disconnect air, with PPS cup below gun, pull trigger to re-open liner, re-connect air and spray mix without purging air from liner). PPS 200-micron strainer too fine for mix (Use PPS 300 micron strainer or thin/ reduce mix). Air supply pressure drops due to air supply defects such as other air tools being used draws down system pressure & CFM flow.
Will not spray.	Not enough flow/air pressure at gun (Check air supply source and hose). Fluid needle not open enough (Open fluid needle more). Mix is too thick for fluid tip size (Change to larger size).
Fluid leaking/dripping from PPS cup.	PPS cup lid loose (Tighten PPS Locking Collar). Crack in PPS Lid or Liner (Replace). PPS lid spout not fully engaged with PPS Adapter.
Fluid leaking/dripping from gun.	Check for missing or damaged O-ring (34) at base of Fluid Nozzle on the Fluid/Adapter Housing Fluid needle packing nut too tight or binding (Loosen nut or lubricate needle shaft). Needle tip damaged (Replace). Fluid Nozzle nicked or damaged (Replace). Mix residue dried in gun (Clean & Lube gun).
Excessive overspray.	Too much air pressure (Reduce air pressure). Gun too far from work surface (Move in and keep the fan pattern perpendicular to the surface to be sprayed).

Service



TI3619F

Item 2 includes 2a–2b
Item 13 includes item 13a
Item 25 includes 25a–25d



- △1 Lightly lubricate
- △2 Lightly lubricate threads
- △3 Torque to 125–135 in-lb (14–15 N•m)
- △4 Torque to 20–30 in-lb (2.3–3.4 N•m)
- △5 U-cup lips face air valve assembly (26)
- △6 U-cup lips face away from nut (19/25a)
- △7 Torque to 40 in-lb (4.5 N•m)
- △8 U-cup lips face towards the front of the gun (15b)

*Parts included in Rebuild Kit 16230

Fig. 21

Service

Replacing the air and fluid packings with gun rebuild kit 16230

Tools Needed:

- Wrench 5/16 in. (8 mm)
- Wrench 3/4 in. (19 mm)
- Gun Tool (28) supplied with gun
- Packing Installation Tool (29) supplied with gun
- Mechanics O-ring pick
- Needle nose plier
- Gun Lube Part No. 16232

WARNING

PRESSURIZED EQUIPMENT HAZARD

To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 11 whenever you are instructed to relieve pressure.

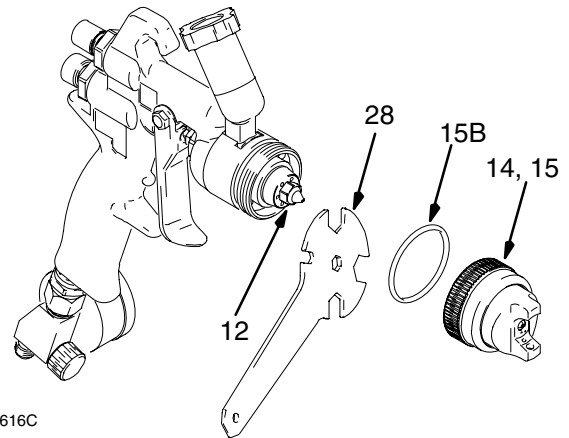
NOTE:

- Gun Repair Kit 16230 comes complete with all air and fluid seals required to rebuild the spray gun.
- Clean parts with a solvent that is compatible with the parts and the fluid being sprayed.
- Lightly lubricate the parts indicated in Fig. 21 with lubricant 16232. This item is not included with gun.

Disassembling the gun

1. Relieve the pressure.
2. Flush the spray gun, page 6.

3. Remove the air cap retaining ring (15) and air cap (14). Remove and replace the seal (15B). The U-cup lips must face towards the air cap. See Fig. 22.



TI3616C

Fig. 22

4. Trigger the gun while you remove the fluid nozzle (12) with the gun tool (28).

CAUTION

Trigger the gun whenever you tighten or remove the nozzle. This keeps the needle seat away from the nozzle seating surface and prevents the seat from being scratched.

5. Remove the fluid adjustment knob (21) and fluid spring (23). See Fig. 21, page 18.
6. Pull the fluid needle (13) out the back of the gun.
7. Remove the screw (11), pin (17), wave washer (18), and trigger (10).
8. Remove the hex nut (9) with the gun tool (28).
9. Remove the spray housing (2a) and adapter (4).

Service

Replacing the spray housing o-rings and packings

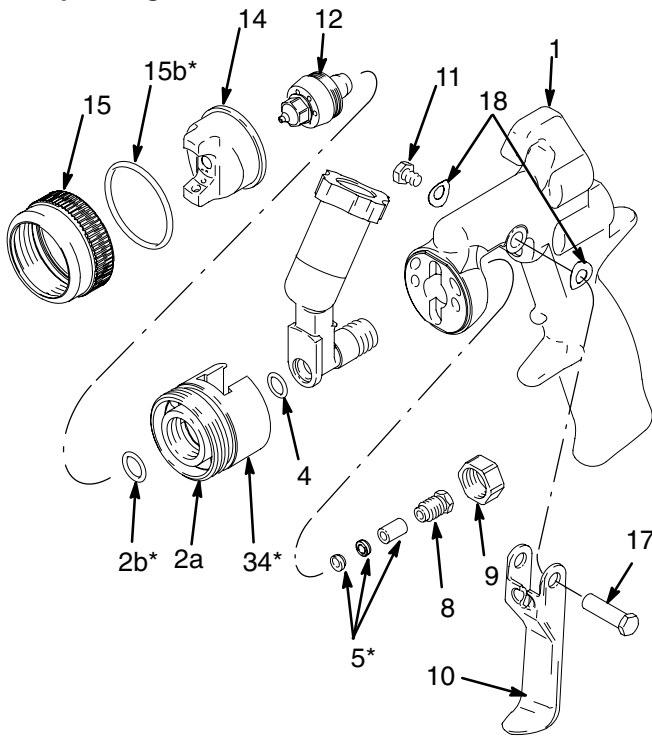


Fig. 23

1. With the spray housing (2a) removed from the adapter (4), use a mechanical pick to remove the o-ring (2b) from the housing (2a).
2. Remove o-ring (34) from the adapter (4). See Fig. 23.
NOTE: O-ring (2b) is slightly larger than o-ring (34).

3. Install a new o-ring (34) into the adapter (4). Install a new o-ring (2b) into the housing (2a).
NOTE: To ease o-ring installation, place the adapter (4) into the spray housing (2a) to plug the end. Install one end of the o-ring into the groove in the housing, then press the rest of the o-ring into place.
4. Unscrew the packing screw (8) from the adapter (4) with the gun tool (28).
5. Using a mechanical pick, push the three fluid packings (5) out of the adapter (4). Be careful not to damage the adapter. Discard the old fluid packings.
6. Place the new fluid packings (5) and packing screw (8) onto the needle (13). See Fig. 24 for the orientation of the parts.

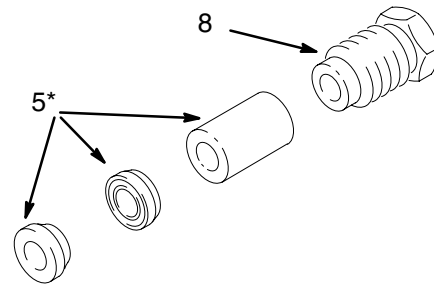


Fig. 24

7. Insert the fluid needle (13) into the back of the adapter (4) to install the fluid packings (5).
8. Tighten the packing screw (8) just enough to hold the packings (5) in the adapter (4). The needle (13) must move freely. Remove the needle.

Service

Replacing the pattern adjustment valve packings

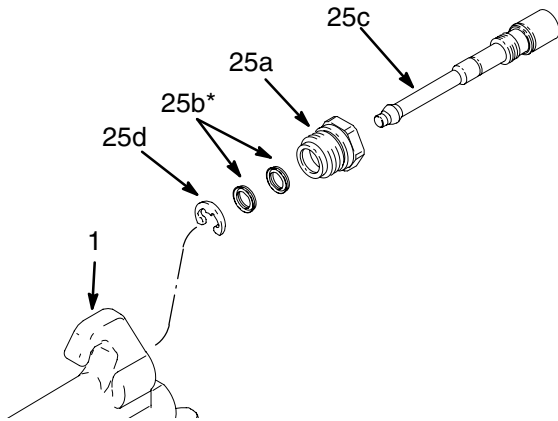


Fig. 25

1. Unscrew the pattern adjustment valve assembly (25). See Fig. 25.
2. Using a needle nose pliers, remove the retaining ring (25d) and unscrew the pattern adjustment valve (25c).
3. Using a mechanical pick, remove the u-cup packings (25b) from the pattern adjustment nut (25a). Be careful not to damage the seal surface or the nut's internal threads.
4. One at a time, install the new u-cup packings (25b) with the packing installation tool (29); the u-cup lips must face toward the tool as shown in Fig. 28.
5. Push each u-cup packing(25b) into the pattern adjustment nut (25a) until a definite snap is felt.
6. Lubricate the pattern adjustment valve (25c) threads and install the valve into the nut (25a). Install the retaining ring (25d), then back out the pattern adjustment valve as far as the retaining ring allows it to go.

Service

Replacing the fluid valve packings

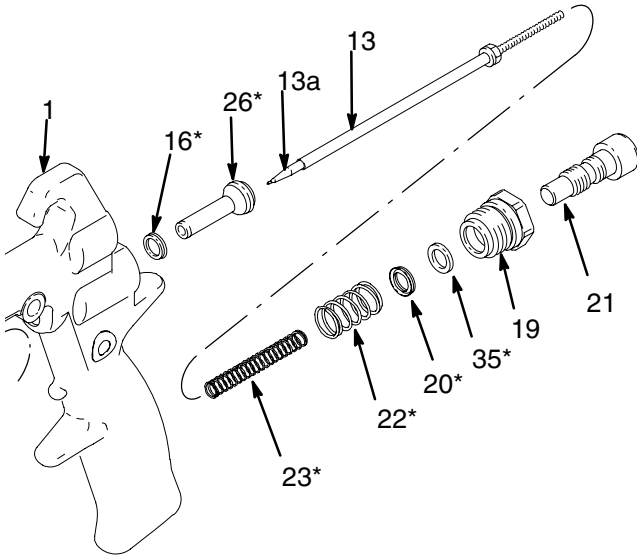


Fig. 26

1. Remove the fluid valve nut (19), air valve spring (22), and air valve assembly (26). Discard the air valve assembly. See Fig. 26
2. Using a mechanical pick, remove the u-cup packing (16) from the gun body.
3. Place the new u-cup packing (16) on the packing installation tool (29), with the u-cup lips facing the tool as shown in Fig. 27.
4. Push the packing (16) into the back of the gun until a definite snap is felt.
5. Using a mechanical pick, remove the u-cup packing (20) and spacer (35) from the fluid valve nut (19). Be careful not to damage the seal surface or the nut's internal threads.

6. Install a new u-cup packing (20) with the packing installation tool (29); the u-cup lips must face toward the tool as shown in Fig. 28. This will help apply even pressure to the u-cup lips and avoid damaging them.
7. Push the u-cup packing (20) and spacer (35) into the fluid valve nut (19) until a definite snap is felt.

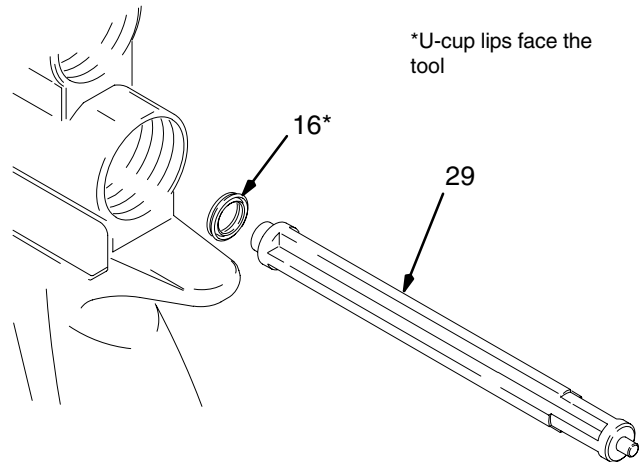


Fig. 27

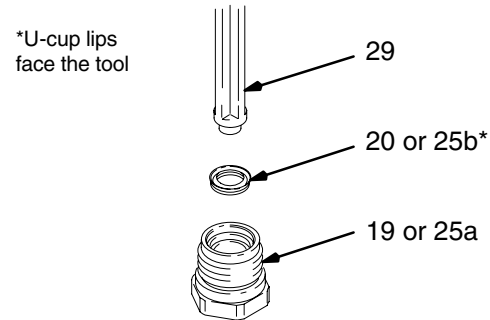


Fig. 28

Service

Reassembling the gun

NOTE: To ensure proper alignment of the parts, follow the next steps in the order they are given.

1. Slide the adapter (4) into the spray housing (2a), and install them onto the gun body (1). Align the housing with the slot and lip (A) on the gun body (1). See Fig. 21 page 18.
2. Tighten the hex nut (9) onto the adapter (4) hand-tight, then loosen the nut about one turn so the adapter (4) and spray housing sit loosely in the gun body.
3. Check the fluid needle (13) for damage or excessive wear. Replace needle tip or entire needle if necessary. If replacing needle tip, use low strength thread locker on needle tip threads.
4. Lubricate the outside of the new air valve assembly (26) and place it on the fluid needle (13), against the nut (B). See Fig. 29. This helps align the entrance of the air valve stem into the inside diameter of the u-cup (16) without damaging the u-cup lip.
5. Install the fluid needle (13) and the air valve assembly (26) into the back of the gun.

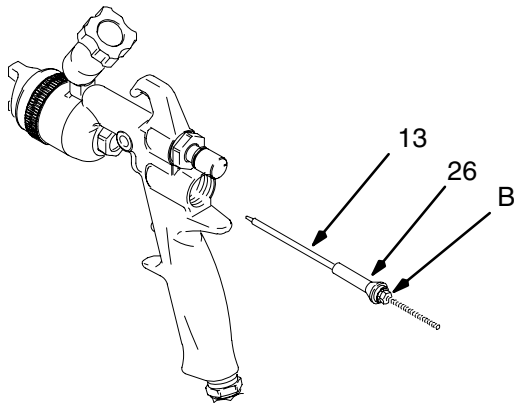


Fig. 29

T13626a

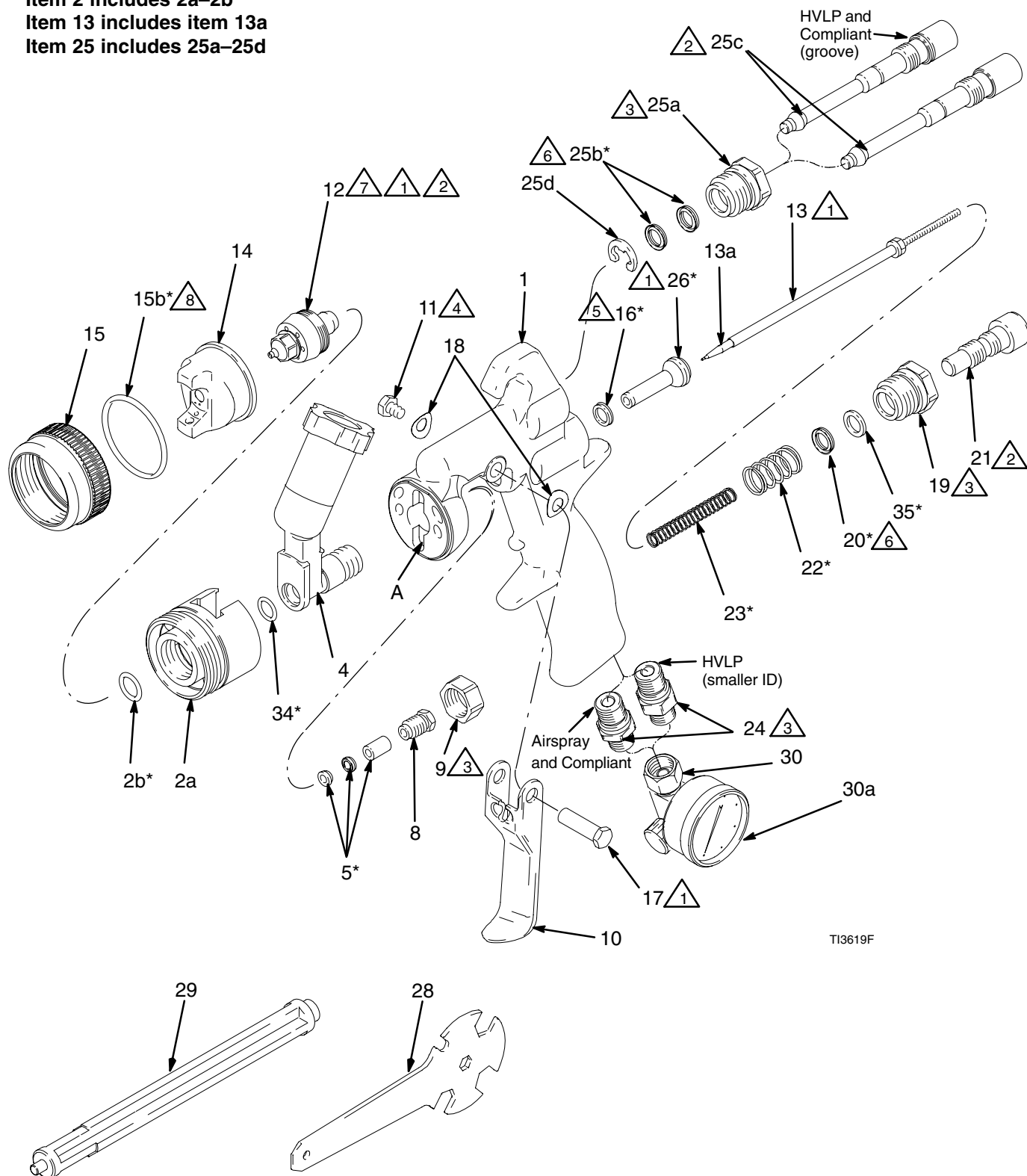
6. Install a new air valve spring (22). Point the gun down to center the spring (22) and tighten the fluid nut (19) to 125–135 in-lb (14–15 N•m).

7. Replace and Install a new needle spring (23). Install fluid adjustment knob (21).
8. Install the trigger (10), pivot pin (17), wave washer (18), and screw (11). Torque the screw to 20–30 in-lb (2.3–3.4 N•m).
9. To avoid galling of the fluid nozzle in the spray housing (2a) apply a thin film of lubricant to the back surface of the nozzle taper where it seats and also to the nozzle threads. Trigger the gun while you install the fluid nozzle (12) with the gun tool (28). Tighten the nozzle securely to 40 in-lb (4.5 N•m) to obtain a good seal. **Do not over torque.**
10. Tighten the hex nut (9) securely to 125–135 in-lb (14–15 N•m).
11. Install the pattern adjustment valve assembly (25). Torque the nut (25a) to 125–135 in-lb (14–15 N•m).
12. To tighten the packing screw (8), turn the screw in until it touches the fluid packings (5), then tighten one full turn to pre-set the packings. Loosen the screw, then turn it in until it touches the packings again. Tighten the screw 1/12 turn more (equal to half the distance between points on the hex head).
13. Trigger the gun to test the needle movement. If the needle does not return after the trigger is released or is slow in returning, loosen the packing screw (8) until the needle returns freely.
14. Install the air cap (14) and air cap retaining ring (15). Hand-tighten the ring.
15. Make sure the gun fluid packings are sealing properly by spraying solvent at low pressure before fully pressurizing the gun with the fluid to be sprayed.

If the fluid packings leak, tighten the packing screw (8) slightly and retest until the packings and fluid needle seal completely.

Parts

Item 2 includes 2a–2b
Item 13 includes item 13a
Item 25 includes 25a–25d



Parts

HVLP, Compliant, and Airspray Guns

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
				19		NUT, fluid valve	1
1		BODY, gun	1	20*		U-CUP	1
2		SPRAY HOUSING ASSY.; Includes 2a–2b	1	21		KNOB, fluid adjustment	1
2a		•HOUSING, spray	1	22*		SPRING, air valve	1
2b*		• O-RING, CV75	1	23*		SPRING, needle	1
4		ADAPTER, gun	1	24		FITTING, air inlet	1
5*		PACKINGS, fluid	1	25		PATTERN ADJUSTMENT VALVE ASSY.; Includes items 25a–25d	1
8		SCREW, packing	1	25a		• NUT, pattern adjustment	1
9		NUT, hex; 1/2–20 UNF	1	25b*		• U-CUP	2
10		TRIGGER	1	25c		• VALVE, pattern adjustment	1
11		SCREW, trigger lock	1	25d		• RING, retaining	1
12☆		NOZZLE, fluid	1	26*		AIR VALVE ASSY.	1
13☆		NEEDLE ASSY.; Includes replaceable item 13a	1	28◆		TOOL, gun	1
13a☆	16222	• TIP, needle	1	29◆		TOOL, packing installation	1
14	16228	AIR CAP, HVLP	1	30	16229	VALVE, needle assy. includes item 30a	1
	16227	AIR CAP, Compliant					
	16226	AIR CAP, Airspray					
15	16221	RING, air cap retaining	1	30a		• GAUGE, pressure	1
15b*		SEAL, air cap retaining ring	1	32**	16232	LUBRICANT, 1oz.tube	1
16*		U-CUP	1	33	16234	BRUSH KIT	1
17		PIN, pivot	1	34	16233	O-RING	1
18		WASHER, wave	2	35*		SPACER, u-cup	1

☆ See chart for part number.

* These parts are included in Rebuild Kit 16230, which may be purchased separately.

◆ Included in tool kit 16224.

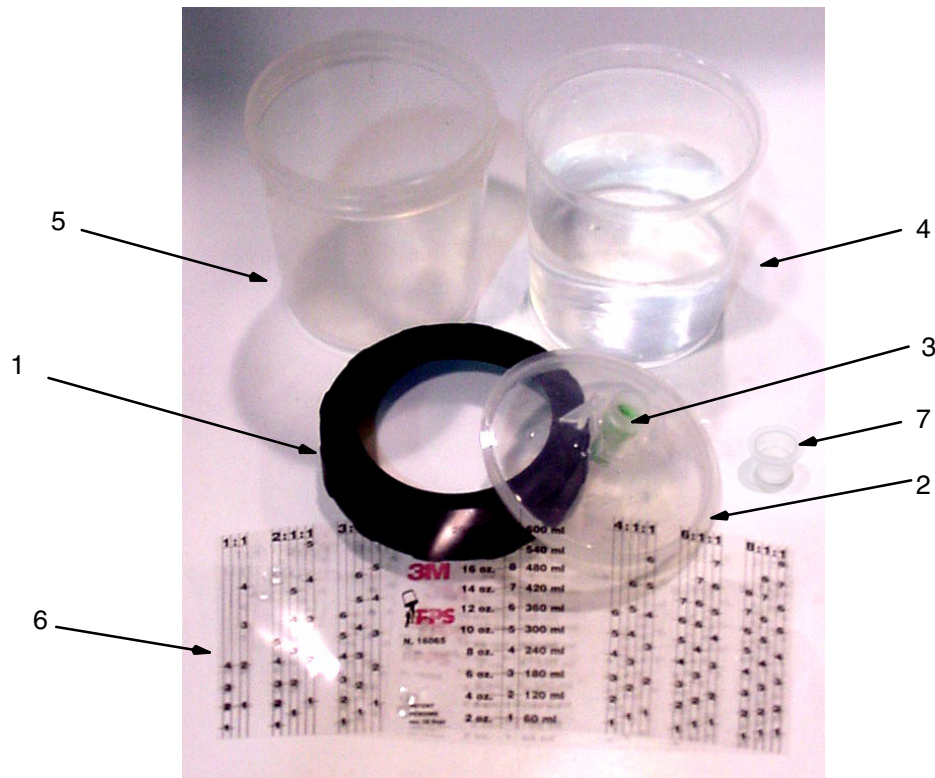
** Item not included with gun.

Needle/Nozzle Kits for HVLP, Compliant, and Airspray Guns

Item 12 Nozzle	Item 13 Needle Assy. <i>Includes item 13a</i>	Orifice Size in. (mm)
16217	16216	.051 (1.3)
16218	16216	.055 (1.4)
16219	16216	.059 (1.5)
16220	16216	.070 (1.8)

Parts

PPS Paint Cup Assembly



Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1		COLLAR, locking	1	4		LINER	1
2		LID, paint cup	1	5		CUP	1
3		STRAINER, 200 micron	1	6		FILM, mix ratio (optional)	1
				7		CAP, sealing	1

Accessories

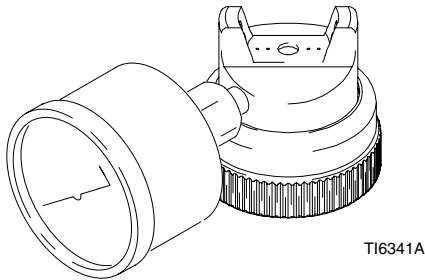
HVLP Models

Air Pressure Verification Kit 16231

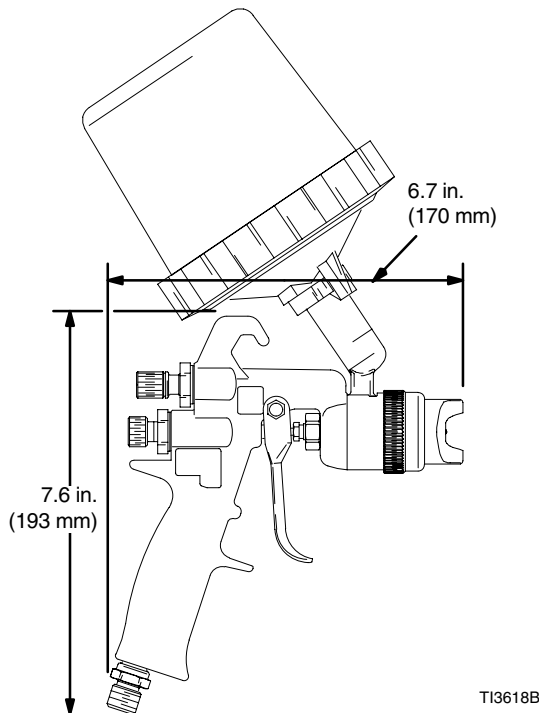
For use in checking air cap atomizing air pressure. **Not to be used for actual spraying.**

Install the kit air cap on the gun. Turn on the air to the gun, then trigger the gun and read the air pressure on the gauge.

NOTE: To be “HVLP compliant”, the atomizing air pressure must not exceed 10 psi (70 kPa, 0.7 bar).



Dimensions



Technical Data

Category	Data
Maximum Working Air Pressure	100 psi (0.7 MPa, 7 bar)
<i>HVLP and Compliant</i> Maximum Compliant Inbound Air Pressure	29 psi (200 kPa, 2.0 bar) <i>HVLP</i> at 10 psi (70 kPa, 0.7 bar) max at air cap
Air Consumption	<i>HVLP</i> at 29 psi (200 kPa, 2.0 bar) = 15.5 scfm <i>Compliant</i> at 29 psi (200 kPa, 2.0 bar) = 11.2 scfm <i>Airspray</i> at 50 psi (345 kPa, 3.4 bar) = 14.1 scfm
Fluid and Air Operating Temperature Range	32° F to 109° F (0° C to 43° C)
Weight	22.3 oz. (632 g)
Air Inlet	1/4–18 npsm
Wetted Parts	304 and 303 Stainless Steel, PEEK, Acetal, Ultra High Molecular Weight Polyethylene
Noise Data*	
Sound Pressure	84.4 Db(A)
Sound Power	94.0 Db(A)

* All readings were taken with the gun controls fully open and with 40 psi (280 kPa, 2.8 bar). Sound pressure was tested to CAGI-PNUEROP-1969. Sound power was tested to ISO 3744-1981.

3M

Paint Preparation System Spray Gun Warranty and Limited Remedy

3M warrants to the original purchaser that, when used in accordance with 3M's written instructions, 3M PPS™ Spray Guns will be free of defects in materials and manufacture for one year from the date of purchase. This warranty does not apply to damage or malfunction caused by normal wear, failure to maintain, or by any abuse, accident, tampering, alteration, or misuse of the Spray Gun.

To make a claim under the warranty, you must first contact the 3M Spray Gun Service Center at 1-877-MMM-CARS to receive a return authorization number. Spray Guns must be returned, freight prepaid by the purchaser, to the service location address given by the 3M Spray Gun Service Center. Upon validation of the Warranty claim, 3M will replace or repair the Spray Gun, at 3M's option, and return it to the purchaser at 3M's expense, including parts, labor and return shipping charges. If it is determined that the claim is not covered by the warranty, the purchaser will be given the option to have the Spray Gun repaired outside of the warranty. An estimate of parts and labor will be provided by 3M and must be approved by the purchaser in advance.

Except as written above, 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The purchaser is responsible for determining whether the 3M Spray Gun is fit for any particular purpose intended.

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1-877-MMM-CARS

(1-877-666-2277)

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