

RAZOR® Gravity Feed Gun

311684P

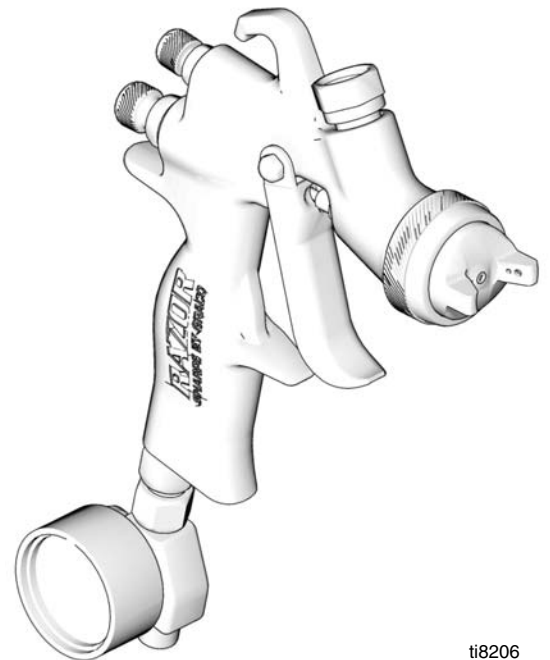
A premier gun for the automotive refinish market

Includes LVLP, HVLP, Compliant, and Conventional Series.



Important Safety Instructions

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



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Models / Modèles / Modelos

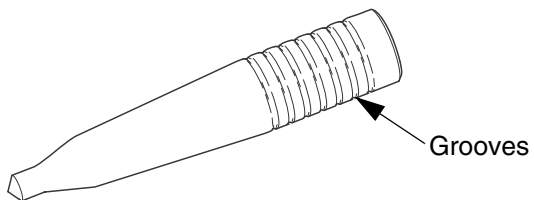
Part Number	Series	Spray Type	Max HVLP/ Comp Pressure psi (MPa, bar)	Nozzle (mm)	Application	Air Cap	Nozzle	Needle Assy	Needle Tip	Air Cap with Retaining Ring
*		LVL P	16 (0.1, 1.1)	1.2	Clear, Base	253823	253802	253771	288752	289500
253427	A	LVL P	16 (0.1, 1.1)	1.3	Clear, Base	253823	253803	253771	288752	289500
253428	A	LVL P	16 (0.1, 1.1)	1.4	Clear, Base	253823	253804	253772	253917	289500
253429	A	LVL P	16 (0.1, 1.1)	1.5	Clear, Base	253823	253805	253772	253917	289500
*		LVL P	16 (0.1, 1.1)	1.6	Clear, Base	253823	253806	253772	253917	289500
*		HVLP	29 (0.2, 2.0)	1.0	Clear, Base	253824	253792	253769	288751	289501
253432	A	HVLP	29 (0.2, 2.0)	1.2	Clear, Base	253824	253793	253771	288752	289501
253433	A	HVLP	29 (0.2, 2.0)	1.3	Clear, Base	253824	253794	253771	288752	289501
253434	A	HVLP	29 (0.2, 2.0)	1.4	Clear, Base	253824	253795	253772	253917	289501
253435	A	HVLP	29 (0.2, 2.0)	1.5	Clear, Base	253824	253796	253772	253917	289501
*		HVLP	29 (0.2, 2.0)	1.7	Clear, Base	253824	253797	253772	253917	289501
289839	A	HVLP	29 (0.2, 2.0)	1.3	Primer	253828	289841	253771	288752	289505
253437	A	HVLP	29 (0.2, 2.0)	1.5	Primer	253828	253789	253772	253917	289505
253438	A	HVLP	29 (0.2, 2.0)	1.8	Primer	253828	253790	253772	253917	289505
253439	A	HVLP	29 (0.2, 2.0)	2.3	Primer	253829	253791	253774	234779	289506
*		HVLP	29 (0.2, 2.0)	2.5	Primer	253829	24B235	253775	234780	289506
24B233	A	HVLP	29 (0.2, 2.0)	2.5	Sprayable Polyester	253829	24B235	253774	234780	289506
*		Compliant	35 (0.24, 2.4)	1.0	Clear, Base, Primer	253825	253816	253769	288751	289502
253441	A	Compliant	35 (0.24, 2.4)	1.2	Clear, Base, Primer	253825	253817	253771	288752	289502
253442	A	Compliant	35 (0.24, 2.4)	1.3	Clear, Base, Primer	253825	253818	253771	288752	289502
253443	A	Compliant	35 (0.24, 2.4)	1.4	Clear, Base, Primer	253825	253819	253771	288752	289502
288654	A	Compliant	35 (0.24, 2.4)	1.5	Clear, Base, Primer	253825	288653	253772	253917	289502
253444	A	Compliant	35 (0.24, 2.4)	1.6	Clear, Base, Primer	253825	253820	253772	253917	289502
*		Compliant	35 (0.24, 2.4)	2.0	Clear, Base, Primer	253826	253821	253774	234779	289503
*		Compliant	35 (0.24, 2.4)	2.5	Clear, Base, Primer	253826	253822	253775	234780	289503
*		Conventional	N/A	1.2	Clear, Base	288451	288295	253772	253917	289507
*		Conventional	N/A	1.3	Clear, Base	288451	288296	253772	253917	289507
288281	A	Conventional	N/A	1.4	Clear, Base	288451	288297	253771	288752	289507
*		Conventional	N/A	1.6	Clear, Base	288451	288298	253772	253917	289507
*		Conventional	N/A	1.8	Primer	288452	288299	253772	253917	289508
*	A	Conventional	N/A	2.5	Primer	288453	288300	253775	234780	289509

Part Number	Series	Spray Type	Max HVLP/ Comp Pressure psi (MPa, bar)	Nozzle (mm)	Application	Air Cap	Nozzle	Needle Assy	Needle Tip	Air Cap with Retaining Ring
289214	A	HVLP	29 (0.2, 2.0)	1.3	Metallic	289212	253794	253771	288752	289514
289215	A	HVLP	29 (0.2, 2.0)	1.4	Metallic	289212	253795	253772	253917	289514
289216	A	HVLP	29 (0.2, 2.0)	1.5	Metallic	289212	253796	253772	253917	289514
289388	A	HVLP	26 (0.18, 1.8)	1.2	Waterborne	289374	289380	253771	288752	289599
289389	A	HVLP	26 (0.18, 1.8)	1.3	Waterborne	289375	289381	253771	288752	289600
289571	A	HVLP	26 (0.18, 1.8)	1.4	Waterborne	289375	289561	253771	288752	289600
289390	A	Compliant	35 (0.24, 2.4)	1.2	Waterborne	289376	289382	253771	288752	289601
289391	A	Compliant	35 (0.24, 2.4)	1.3	Waterborne	289377	289383	253771	288752	289602
289572	A	Compliant	35 (0.24, 2.4)	1.4	Waterborne	289377	289562	253771	288752	289602

* Gun not available. Table shows kits/parts available.





Needle tips

Grooves	Needle Tip
0	234779 or 234780
3	288751
4	288752
7	253917



Warnings

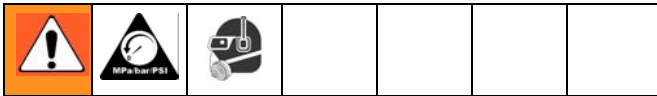
The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

 WARNING	
	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • 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 all equipment in the work area. See Grounding instructions. • If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>PRESSURIZED EQUIPMENT HAZARD</p> <p>Fluid from the gun/dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.</p> <ul style="list-style-type: none"> • Follow Pressure Relief Procedure in this manual, when you stop spraying and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.
	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • 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. Call your Graco distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or overbend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations.

 **WARNING**
**PERSONAL PROTECTIVE EQUIPMENT**

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:

- Protective eyewear
- Clothing and respirator as recommended by the fluid and solvent manufacturer
- Gloves
- Hearing protection

Setup

- Check that your shop air provides adequate air flow.
- Use a minimum 3/8 in. (10 mm) ID air hose.
- Set shop air pressure regulator (not supplied) according to paint manufacturer's recommendation. See maximum pressures and compliant air pressures on page 2.
- Make sure no air restrictions, such as low-volume cheater-valves, obstruct the air flow. If an air adjusting valve is desired, use a SHARPE Air Adjusting Valve (part nos. 2210, 3310, U04410) or Digi-tell (part no. U05510).
- Install a shutoff valve (not supplied) downstream of the air regulator to shut off gun air.
- Install an inline air filter (not supplied) to clean and dry the gun air supply.

1. Shut off the air supply.
2. Connect a clean, dry, filtered air supply to the air inlet fitting (25). See page 26.
3. Every Razor gun is spray tested with blue paint to ensure quality prior to shipment. If this is the first time using the equipment, flush the gun. See page 6.

Operation**Pressure Relief Procedure**

1. Turn off the gun air supply.
2. Trigger the gun to relieve pressure.

Spraying**CAUTION**

Excessive atomizing air pressure can increase over-spray, reduce transfer efficiency, and result in a poor quality finish. Regulatory agencies in certain states prohibit the operation of a spray gun above 10 psi (69 kPa, 0.7 bar) atomizing air cap pressure.

1. Fill the cup with material. Do not fill past the full markings on cup.
2. Turn on the shop air to the gun and set atomizing pressure with the gun fully triggered.
3. Adjust the pattern size and shape with the fluid adjust knob (8). Fluid adjust knob (8) is factory set for maximum needle trigger travel and material flow. Turn knob clockwise to reduce pattern size/ fluid flow and counterclockwise to increase it.



See Troubleshooting, page 9, if you experience an irregular pattern.

Volatile Organic Compounds (VOC) Regulation

In certain states, spraying solvents that release VOCs into the atmosphere when cleaning a spray gun is prohibited. To comply with these air quality laws, you must use a cleaning method that prevents the escape of VOC vapors into the atmosphere. See Compliant Cleaning Methods, page 7.

 Clean air line filters as directed by the manufacturer.


Maintenance



- Frequently lubricate the gun moving parts with a drop of non-silicone oil (part no. 8255).
- Do not disassemble the spray gun if you are having a spray pattern problem. See Troubleshooting, page 9, for information on how to correct the problem.
- Check for fluid leakage. Tighten fittings or replace equipment as needed.

Flush

Flush before using the equipment, before changing colors, and when you are done spraying. Use solvent that is compatible with gun wetted parts and fluid that will be sprayed.

 See Compliant Cleaning Methods, page 7, to comply with air quality laws if applicable.


1. Relieve pressure, page 5.
2. Dispose of any paint in the cup.
3. Fill the cup with a small amount of solvent.
4. Spray into a grounded metal waste container until the equipment is clean.
5. Relieve pressure, page 5.

Cleaning Gun and Cup


CAUTION

- Do not submerge gun in solvent. Solvent dissolves lubricant, dries out packings, and clogs air passages.
- Do not use metal tools to clean air cap holes as this may scratch them and distort the spray pattern.
- Use a compatible solvent.


1. Flush, page 6.
2. Use a rag moistened in solvent to wipe outside of gun and cup.
3. Make sure cup lid vent hole is clear.
4. Blow dry gun inside and out. Lubricate, see Maintenance, page 6.

 See Compliant Cleaning Methods, page 7, to comply with air quality laws if applicable.

Cleaning Nozzle and Air Cap

 Maintenance Kit 8260 is available. Kit includes cleaning brushes and pen oiler.

1. Remove air cap (13), trigger gun, remove nozzle (11), and soak both in a compatible cleaning solution.
2. Clean them and the front of the gun with a soft-bristle brush dipped into compatible solvent. Do not use a wire brush or metal tools.
3. Use a soft implement, such as a toothpick to clean out air cap holes.

 When reassembling, make sure the air cap matches the color etched onto the side of the nozzle (gold, brown, grey, blue, etc.).

Compliant Cleaning Methods

1. Place spray gun in a gun washer that completely encloses the gun and components during cleaning, rinsing, and draining.
2. Spray solvent through the spray gun into a closed gun cleaning station.

Repair

See Parts, page 26, for callout references.

Needle Replacement

1. Remove knob (8), spring (29), and needle (9). Inspect. Replace tip (9a) or needle (9) as necessary. See page 2.
2. Insert needle (9), spring (29), and knob (8).

Nozzle Replacement

1. Unscrew retaining ring (14) to remove air cap assembly (13).
2. Trigger gun while unscrewing nozzle (11) to prevent needle damage.
3. Check o-ring (21) and replace if necessary.
4. Trigger gun while replacing nozzle (11).
5. Insert air cap assembly (13) into gun.
6. Screw retaining ring (14) into place.

Air Control Valve Replacement

1. Remove air control valve assembly (5).
2. Insert replacement assembly (5) into gun.




Air Valve Replacement

1. Remove trigger nut (24), trigger pin (23), wave washer (18), and trigger (10).
2. Remove knob (8), spring (29), needle (9) and nut (7).
3. Remove spring (31) and push the air valve assembly (6) out the back of the gun.
4. Inspect u-cup seals (22) and replace if necessary.
5. Lubricate gun as described in Maintenance, page 6.
6. Insert replacement air valve assembly (6). Replace spring (31) and nut (7).
7. Replace trigger (10), wave washer (18), trigger pin (23), trigger nut (24), needle (9), spring (29), and knob (8).

Needle Packing Replacement

1. Remove trigger nut (24), trigger pin (23), wave washer (18), and trigger (10).
2. Remove knob (8), spring (29), and needle (9).
3. Unscrew nut (17) and remove u-cup (16) and spreader (15).
4. Insert replacement spreader (15) *facing back of gun*, u-cup (16) *facing front of gun*, and nut (17).
5. Replace trigger (10), wave washer (18), trigger pin (23), trigger nut (24), needle (9), spring (29), and knob (8).





Fluid Inlet Fitting Replacement

						
PRESSURIZED EQUIPMENT HAZARD <ul style="list-style-type: none">• Fluid inlet gasket (3) must be replaced if fluid inlet fitting (4) is removed from spray gun.• Failure to replace gasket (3) may result in air leakage into the fluid section causing a non-vented gravity cup to become pressurized.						

1. Remove fluid inlet fitting (4).
2. Remove fluid inlet gasket (3) from gun body and discard.
3. Apply thread sealant to replacement fluid inlet fitting (4) threads.
4. Snap the fluid inlet gasket (3) securely onto the fluid inlet fitting (4).
5. Screw in fluid inlet fitting (4) and torque to 155-165 in.-lb (17.5-18.6 N•m).
6. Replace washer (28) as required.

Troubleshooting



Problem	Cause	Solution
 Right	Normal pattern.	No action necessary.
 Wrong Heavy top or bottom pattern	Dirty or damaged air cap or fluid nozzle.	Rotate air cap 180°. <i>If pattern follows air cap, problem is in air cap (13). Clean and inspect. If pattern is not corrected, replace air cap.</i> <i>If pattern does not follow the air cap, the problem is with the fluid nozzle. Clean and inspect the nozzle. If the pattern is not corrected, replace nozzle.</i>
 Wrong Split pattern	Pressure too high for viscosity of material being sprayed.	Reduce air pressure and increase material viscosity. Correct pattern by narrowing fan size with spray width adjustment knob (8).
 Wrong	Dirty or distorted air horn holes.	Clean and inspect air cap. If pattern is not corrected, replace air cap.
Gun spitting	Air getting into paint stream.	Check if cup is empty and fill. Tighten fluid nozzle (11). Check and tighten needle packing nut (17). Check fluid nozzle (11) for damage. Replace fluid inlet gasket (3).
	Damaged fluid nozzle seal (21).	Replace seal (21).
Will not spray	Cup is empty.	Fill cup.
	Fluid adjustment knob (8) turned too far clockwise.	Adjust knob (8) counterclockwise.
Excessive air blowing back	Loose fluid nozzle (11).	Tighten fluid nozzle (11).
	Damaged fluid nozzle seal (21).	Replace seal (21).

Technical Data

Maximum Air Inlet Pressure	100 psi (0.7 MPa, 7 bar)
Maximum HVLP/Compliant Inbound Air Pressure:	
LVLP gravity feed	16 psi (0.1MPa, 1.1 bar)*
HVLP gravity feed	29 psi (0.2 MPa, 2.0 bar)*
Compliant gravity feed	35 psi (0.24 MPa, 2.4 bar)*
Air Consumption:	
LVLP Gun	8.8 CFM at 16 psi (0.1 MPa, 1.1 bar)
HVLP Gun	14.4 CFM at 29 psi (0.2 MPa, 2.0 bar)
Compliant Gun	11.2 CFM at 35 psi (0.24 MPa, 2.4 bar)
Conventional Gun	13.3 CFM at 43 psi (0.3 MPa, 3.0 bar)
Fluid and Air Operating Temperature Range	32°F to 109°F (0°C to 43°C)
Spray Gun:	
Air Inlet	1/4 npsm (R1/4-19)
Weight with cup	1.3 lbs (0.6 kg)
Sound Data:	
LVLP sound pressure at 16 psi (0.1 MPa, 1.1 bar)	80.8 dB(A)**
LVLP sound power at 16 psi (0.1 MPa, 1.1 bar)	87.6 dB(A)**
HVLP sound pressure at 29 psi (0.2 MPa, 2.0 bar)	83.9 dB(A)**
HVLP sound power at 29 psi (0.2 MPa, 2.0 bar)	90.8 dB(A)**
Compliant sound pressure at 35 psi (0.24 MPa, 2.4 bar)	81.8 dB(A)**
Compliant sound power at 35 psi (0.24 MPa, 2.4 bar)	88.7 dB(A)**
Conventional sound pressure at 43 psi (0.3 MPa, 3.0 bar)	79.52 dB(A)**
Conventional sound power at 43 psi (0.3 MPa, 3.0 bar)	88.05 dB(A)**
Gravity Cup Size	23 oz. (0.68 liter) cup
Wetted Parts	303 SST, 17-4 PH SST, PEEK, acetal, UHMWPE

* Produces 10 psi (0.07 MPa, 0.7 bar) spraying pressure at air cap.

** All readings were taken with the fan valve fully open (fan full size) at the assumed operator position. Sound power was tested per ISO 9614-2.

Accessories

Repair Kits

Part No. Description

253748	Needle Packing Repair Kit
253783	Gun Repair Kit
253784	Air Cap Seal Kit
253785	Trigger Repair Kit
253933	Air Inlet Fitting Repair Kit
253934	Air Valve Repair Kit
289213	Cup Gasket 10 Pack Kit
24A560	Fluid Inlet Gasket 5 Pack Kit
24C310	Nozzle O-Ring Kit, 5-Pack

Air Valves

Part No. Description

2210	Air Adjusting Valve with Gauge
3310	High Volume Air Adjusting Valve with Gauge
U04410	High Output Precision Air Valve
U05510	Digi-tell digital air adjusting valve

PPS Adaptors

Part No. Description

253975	PPS Adaptor
253969	PPS Adaptor for Razor Primer Gun (only)

Cups

Part No. Description

253977	Aluminum Gravity Feed Cup 23 oz (650 cc)
253978	Aluminum Gravity Feed Cup 34 oz (1 liter)
6685	Aluminum Gravity Feed Cup 23 oz (650cc), for 253437-39 guns only
288661	Plastic Gravity Feed Cup 23 oz (650 cc), for 289388-91 and 289571-72 guns only

Cleaning Kit

Part No. Description

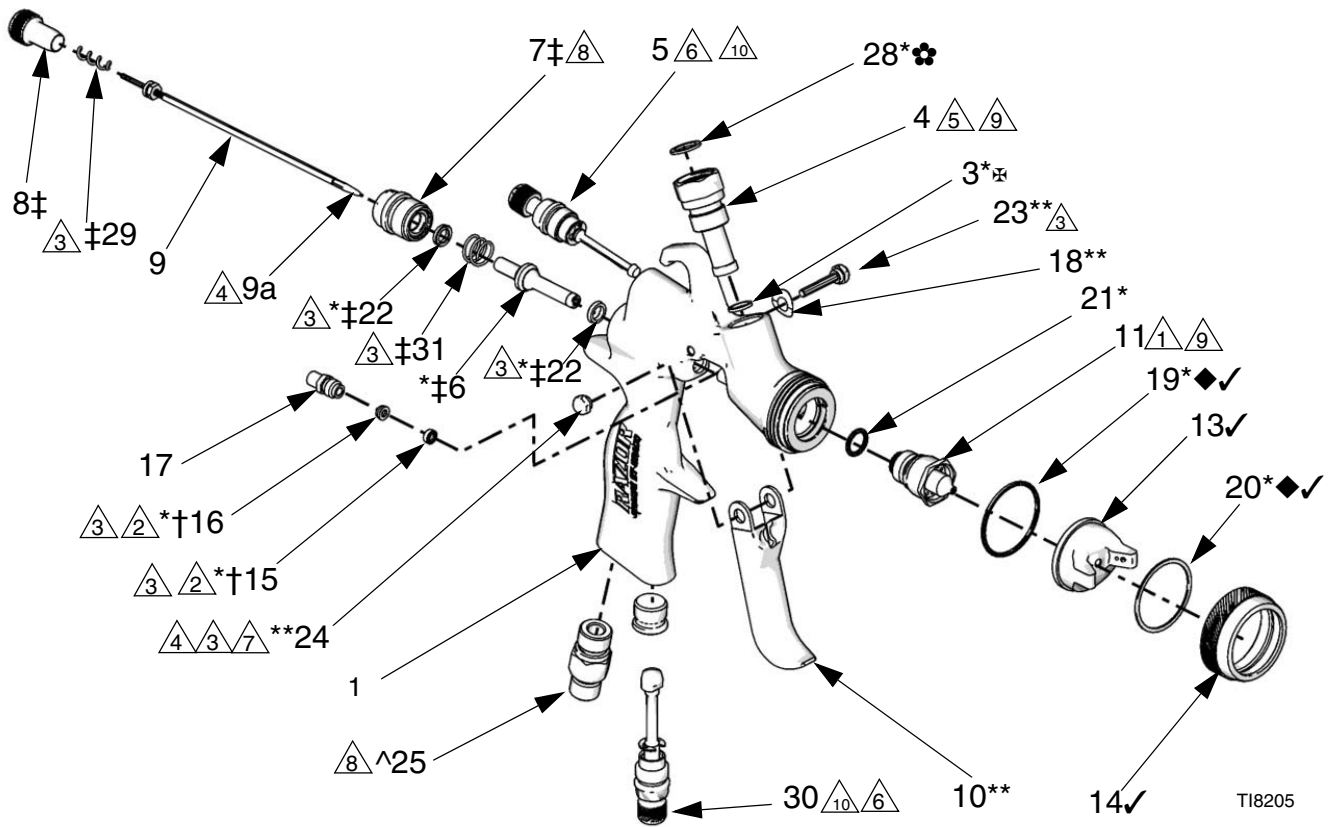
8260	12 Piece Spray Gun Brush Kit
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Test Gauges

Part No. Description

253447	LVLP Verification
253746	HVLP Primer 1.5/1.8 Verification
287985	HVLP Verification
287986	HVLP Primer 2.3 Verification
289962	HVLP Waterborne 1.2 Verification
289963	HVLP Waterborne 1.3/1.4 Verification

Parts



T18205

- △ Pull trigger before installing nozzle (11).
- △ Insert spreader (15) with tapered end facing rear of gun. Insert u-cup (16) with open end facing front of gun.
- ③ Apply lubricant.
- ④ Apply low strength thread retainer.
- ⑤ Apply thread sealant.
- ⑥ Torque to 85-90 in-lbs.
- ⑦ Torque to 15-20 in-lbs.
- ⑧ Torque to 175-185 in-lbs.
- ⑨ Torque to 155-165 in-lbs.
- ⑩ Install with valve assembly turned fully CCW to outermost position.

Ref. No.	Part No.	Description	Qty.
1		BODY, gun	1
3*⊠		GASKET, fluid inlet	1
4	253971	FITTING, fluid inlet, includes gasket (item 3)	1
	253973	FITTING, fluid inlet, (253437-39 only), includes gasket (item 3)	1
5	253976	VALVE, air control, assy	1
6*‡		VALVE, air, assy	1
7‡		NUT	1
8‡		KNOB, fluid adjust	1
9	page 2	NEEDLE (includes 9a)	1
9a	page 2	TIP, needle	1
10**		TRIGGER	1
11	page 2	NOZZLE (includes 21)	1
13✓	page 2	AIR CAP	1
14✓	253970	RING, retaining	1
15*†		SPREADER, needle packing	1
16*†		U-CUP, needle packing	1
17	253972	NUT, needle packing	1
18**		WASHER, wave	1
19*◆✓		O-RING, PTFE	1
20*◆✓		WASHER, UHMWPE	1
21*		O-RING, PTFE	1
22*‡		PACKING, u-cup	2
23**		PIN, trigger	1
24**		NUT, trigger	1
25^		FITTING, air inlet	1
28*♣		WASHER, UHMWPE (not included on 253437-39)	1
29‡		SPRING, fluid	1
30^		PLUG, air inlet	1
30a	253979	VALVE, air inlet adjustment (sold separately)	1
31‡		SPRING, air valve	1
32	253974	TOOL, gun (not shown)	1
36*‡		TOOL, seal installation (not shown)	1
37	253977	CUP, gravity, 650cc (not shown)	1
	6685	CUP, gravity, 650cc (not shown, 253437-39 only)	1
	288661	CUP, gravity, 650 cc (not shown, 289388-91 and 289571-72 only)	1
37a	21719	FILTER, cup (not shown)	1

* Included in Gun Repair Kit 253783 (purchase separately).
 ** Included in Trigger Repair Kit 253785 (purchase separately).
 † Included in Needle Packing Repair Kit 253748 (purchase separately).
 ‡ Included in Air Valve Repair Kit 253934 (purchase separately).
 ◆ Included in Air Cap Seal Kit 253784 (purchase separately).
 ^ Included in Air Inlet Fitting Repair Kit 253933 (purchase separately).
 ♣ Included in Gasket Kit 289213 (purchase separately).
 ✓ Included in Air Cap with Retaining Ring Kit (purchase separately). See page 2.
 ⊠ Included in Fluid Inlet Gasket Kit 24A560, package of 5 (purchase separately).