

# RAZOR<sup>®</sup> Siphon Feed Gun

312106D

*A premier gun for the automotive refinish market for use with thin to medium viscosity materials (14-20 seconds Zahn #2 cup). If spraying heavier materials, use a pressure or gravity feed spray gun.*

Includes HVLP, Compliant, and Conventional Series.

See page 2 for **List of Models** and maximum working pressures.

See page 10 for **Parts**.



## Important Safety Instructions

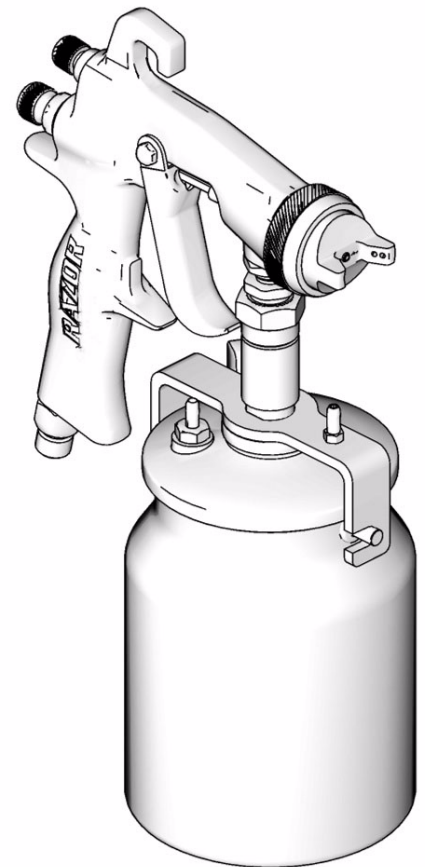
Read all warnings and instructions in this manual. Save these instructions.

This manual is available in the following languages.

English	312106
Spanish	312107
French	312108
German	312109
Italian	312110

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TI8222A





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# Models

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
288588	A	HVLP	30 (0.21, 2.1)	2.2	Clear, Base	253827	253778	253777	234779	289504
288589	A	Compliant	35 (0.24, 2.4)	1.0	Clear, Base	288454	288301	288640	288751	289510
288590	A	Compliant	35 (0.24, 2.4)	1.2	Clear, Base	288454	288302	288641	234778	289510
288591	A	Compliant	35 (0.24, 2.4)	1.3	Clear, Base	288454	288303	288641	234778	289510
288592	A	Compliant	35 (0.24, 2.4)	1.4	Clear, Base	288454	288304	288642	288752	289510
288593	A	Compliant	35 (0.24, 2.4)	1.6	Clear, Base	288454	288305	288642	288752	289510
288594	A	Compliant	35 (0.24, 2.4)	1.8	Primer	288454	288306	288643	253917	289510
288595	A	Conventional	N/A	1.5	Clear, Base	288455	288307	288642	288752	289511
288596	A	Conventional	N/A	1.8	Clear, Base	288455	288308	288642	288752	289511
288597	A	Conventional	N/A	2.0	Primer	288456	288309	253777	234779	289512
288598	A	Conventional	N/A	2.5	Primer	288457	288310	253777	234779	289513

# 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.

 <b>WARNING</b>	
	<p><b>FIRE AND EXPLOSION HAZARD</b></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"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).</li> <li>• Keep work area free of debris, including solvent, rags and gasoline.</li> <li>• Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.</li> <li>• Ground all equipment in the work area. See <b>Grounding</b> instructions.</li> <li>• If there is static sparking or you feel a shock, <b>stop operation immediately</b>. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul>
	<p><b>PRESSURIZED EQUIPMENT HAZARD</b></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"> <li>• Follow <b>Pressure Relief Procedure</b> in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.</li> </ul>
	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Data</b> in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. See <b>Technical Data</b> in all equipment manuals. Read fluid and solvent manufacturer's warnings.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately.</li> <li>• Do not alter or modify equipment.</li> <li>• Use equipment only for its intended purpose. Call your Graco distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or overbend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>

## ⚠ WARNING

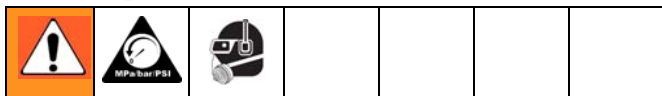


### PERSONAL PROTECTIVE EQUIPMENT

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 Graco Air Adjusting Valve (288744, 234387) or Digi-tell (288652).
  - 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 10.
  3. If this is the first time using the equipment, flush the gun. See page 5.

## 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 shoulder 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 7, 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 5

 Clean air line filters as directed by the manufacturer.


## Maintenance



- Frequently lubricate the gun moving parts with a drop of non-silicone oil.
- Do not disassemble the spray gun if you are having a spray pattern problem. See Troubleshooting, page 7, 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 5, to comply with air quality laws if applicable.


1. Relieve pressure, page 4.
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 4.

## 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 5.
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 5.

 See Compliant Cleaning Methods, page 5, to comply with air quality laws if applicable.

## Cleaning Nozzle and Air Cap

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.

## 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 10, 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 5.
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).

# Troubleshooting



Problem	Cause	Solution
 <b>Right</b>	Normal pattern.	No action necessary.
 <b>Wrong</b> 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>
 <b>Wrong</b> 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).
 <b>Wrong</b>	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.
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

<b>Maximum Air Inlet Pressure</b> .....	100 psi (0.7 MPa, 7 bar)
<b>Maximum HVLP/Compliant Inbound Air Pressure</b>	
HVLP .....	30 psi (0.21 MPa, 2.1 bar)
Compliant .....	35 psi (0.24 MPa, 2.4 bar)
<b>Air Consumption</b>	
HVLP .....	11.2 CFM at 30 psi (0.21 MPa, 2.1 bar)
Compliant .....	10.4 CFM at 35 psi (0.24 MPa, 2.4 bar)
Conventional .....	12.2 CFM at 43 psi (0.3 MPa, 3.0 bar)
<b>Fluid and Air Operating Temperature Range</b> .....	32°F to 109°F (0°C to 43°C)
<b>Spray Gun:</b>	
Air Inlet .....	1/4 npsm (R1/4-19)
Fluid Inlet .....	3/8 npsm (R3/8-19)
Weight with cup .....	2.1 lbs (1.0 kg)
<b>Sound Data:</b>	
HVLP sound pressure at 30 psi (0.21 MPa, 2.1 bar) . . . .	81.8 dB(A)**
HVLP sound power at 30 psi (0.21 MPa, 2.1 bar) . . . . .	88.7 dB(A)**
Compliant sound pressure at 35 psi (0.24 MPa, 2.4 bar)	74.68 dB(A)**
Compliant sound power at 35 psi (0.24 MPa, 2.4 bar) . .	83.07 dB(A)**
Conventional sound pressure at 43 psi (0.3 MPa, 3.0 bar)	78.22 dB(A)**
Conventional sound power at 43 psi (0.3 MPa, 3.0 bar) .	86.68 dB(A)**
<b>Siphon Cup Size</b> .....	1 qt. (0.95 liter)
<b>Wetted Parts</b> .....	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

<b>Part No.</b>	<b>Description</b>
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

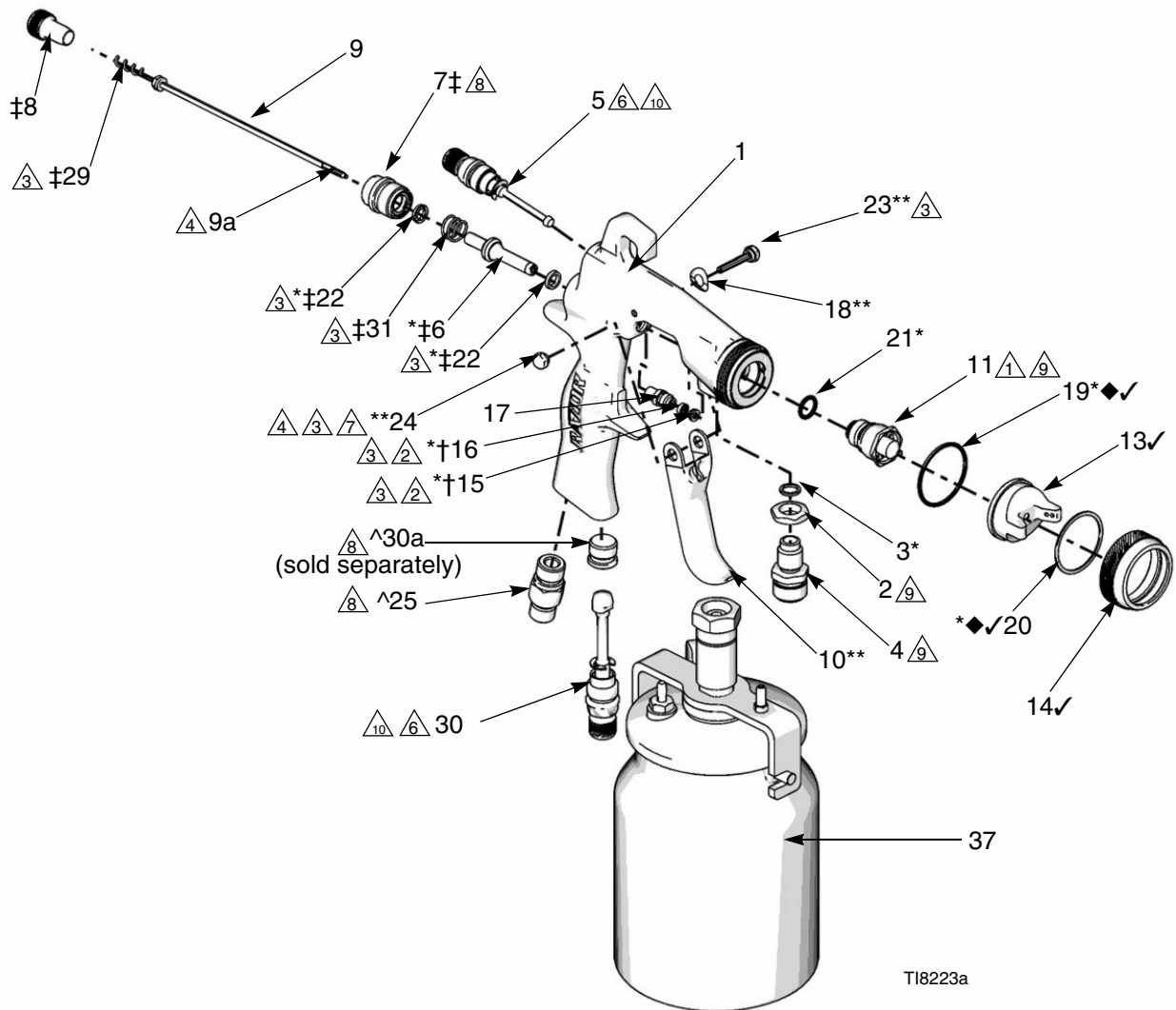
## Air Valves

<b>Part No.</b>	<b>Description</b>
288744	High Volume Air Adjusting Valve with Gauge
234387	High Output Precision Air Valve
288652	Digi-tell digital air adjusting valve

## Test Gauges

<b>Part No.</b>	<b>Description</b>
253747	HVLP Verification

# Parts



- △1 Pull trigger before installing nozzle (11).
- △2 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 (9.6-10.2 N•m).
- △7 Torque to 15-20 in-lbs (1.7-2.2 N•m).
- △8 Torque to 175-185 in-lbs (19.8-20.9 N•m).
- △9 Torque to 155-165 in-lbs (17.5-18.6 N•m).
- △10 Install with valve assembly turned fully CCW to outermost position.

Ref. No.	Part No.	Description	Qty.	
1		BODY, gun	1	
2	289197	LOCK NUT, fluid inlet	1	* Included in Gun Repair Kit 253783 (purchase separately).
3*		GASKET, fluid inlet	1	** Included in Trigger Repair Kit 253785 (purchase separately).
4	289196	FITTING, fluid inlet	1	
5	253976	VALVE, air control, assy	1	† Included in Needle Packing Repair Kit 253748 (purchase separately).
6*‡		VALVE, air, assy	1	‡ Included in Air Valve Repair Kit 253934 (purchase separately).
7‡		NUT	1	
8‡		KNOB, fluid adjust	1	◆ Included in Air Cap Seal Kit 253784 (purchase separately).
9	page 2	NEEDLE (includes 9a)	1	
9a	page 2	TIP, needle	1	
10**		TRIGGER	1	^ Included in Air Inlet Fitting Repair Kit 253933 (purchase separately).
11	page 2	NOZZLE (includes 21)	1	
13✓	page 2	AIR CAP	1	✓ Included in Air Cap with Retaining Kit (purchase separately). See page 2.
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 shown)	1	
29‡		SPRING, fluid	1	
30	253979	VALVE, air inlet adjustment	1	
30a^		PLUG, air inlet (sold separately)	1	
31‡		SPRING, air valve	1	
32	253974	TOOL, gun (not shown)	1	
36*‡		TOOL, seal installation (not shown)	1	
37	244130	CUP, siphon, aluminum	1	

# 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.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

**GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO.** These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

## **FOR GRACO CANADA CUSTOMERS**

The Parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés, à la suite de ou en rapport, directement ou indirectement, avec les procédures concernées.

# Graco Information

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

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

*All written and visual data contained in this document reflects the latest product information available at the time of publication.  
Graco reserves the right to make changes at any time without notice.*

*This manual contains English MM 312106*

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