

# Operation, Parts

## DutyMax EH/GH675

### Hydraulic Sprayers



3A5369E

EN

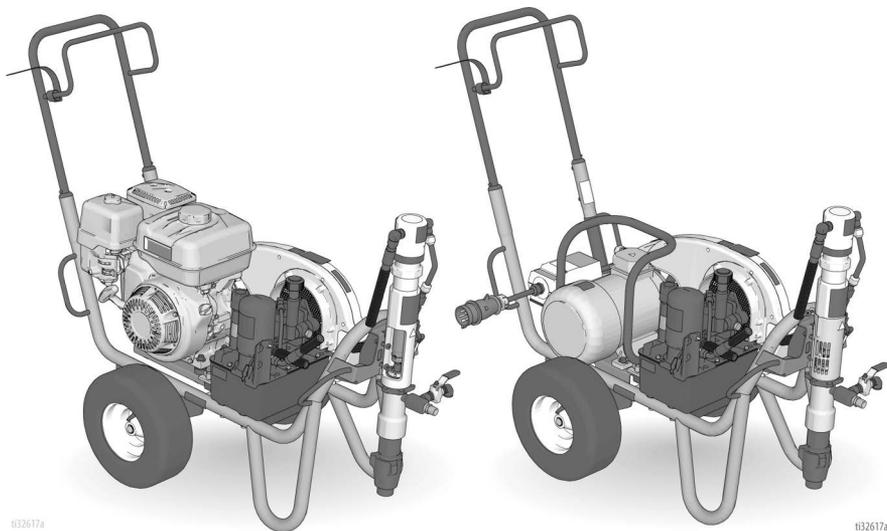
*For professional use only.*

*Not approved for use in explosive atmosphere or hazardous classified locations.*

*For portable airless spraying of Architectural Paints, Coatings, Roof Coatings, and Below Grade Coatings.*

6750 psi (46.5 MPa, 465 bar) Maximum Working Pressure

See **Models - DutyMax Hydraulic Sprayers**, page 3 for model information, including approvals.



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### Important Safety Instructions

Read all warnings and instructions in this manual and in related manuals. Be familiar with the controls and the proper usage of the equipment. Save these instructions.

Use only genuine Graco replacement parts.

The use of non-Graco replacement parts may void warranty.

PROVEN QUALITY. LEADING TECHNOLOGY.

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# Related Manuals

3A5443	Pump Manual
312145	XTR 706 Gun Manual
310812	Electric Motor Kit Manual

## Models - DutyMax Hydraulic Sprayers

	Model	Drive Type	Hose Length	Hopper Included
<b>CE</b>	25D223	9 HP Gasoline (GH)	50 feet	No
	25D224	400 VAC, 50Hz, 11A (EH)	50 feet	No
	25D225	9 HP Gasoline (GH)	150 feet	No
	25D226	9 HP Gasoline (GH)	150 feet	Yes
	25D221	9 HP Gasoline (GH)	N/A	No
	25D221V	10 HP Gasoline (GH)	N/A	No
	25D223V	10 HP Gasoline (GH)	N/A	No
	25D225V	10 HP Gasoline (GH)	N/A	No
	25D226V	10 HP Gasoline (GH)	N/A	Yes

## Optional Kits

Part Number	Description
25D078	25 Gallon Hopper Kit 
17V188	3300 psi Pump Kit 
25D229	7250 psi Jet Roller Kit 

# Warnings

## Warnings

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

## Grounding Warnings

### **WARNING**

#### **GROUNDING**

This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

- Improper installation of the grounding plug is able to result in a risk of electric shock.
- When repair or replacement of the cord or plug is required, do not connect the grounding wire to either flat blade terminal.
- The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire.
- Check with a qualified electrician or serviceman when the grounding instructions are not completely understood, or when in doubt as to whether the product is properly grounded.
- Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.
- This product is for use on a nominal 400V circuit and has a grounding plug similar to the plugs illustrated in the figure below.

400 V



- Only connect the product to an outlet having the same configuration as the plug.
- Do not use an adapter with this product.

#### **Extension Cords:**

- Use only a cord that has a grounding plug and a grounding receptacle that accepts the plug on the product.
- Make sure your extension cord is not damaged. If an extension cord is necessary, use 12 AWG (2.5 mm<sup>2</sup>) minimum to carry the current that the product draws.
- An undersized cord results in a drop in line voltage and loss of power and overheating.

## Electric Motor Warnings

### **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:

- Do not spray or clean with materials having flash points lower than 100°F (38°C). Use only non-flammable or water-based materials, or non-flammable paint thinners. For complete information about your material, request the Safety Data Sheets (SDSs) from the material distributor or retailer.
- Do not spray combustible materials near an open flame or sources of ignition such as cigarettes, motors, and electrical equipment.
- Paint or solvent flowing through the equipment is able to result in static electricity. Static electricity creates a risk of fire or explosion in the presence of paint or solvent fumes. All parts of the spray system, including the pump, hose assembly, spray gun, and objects in and around the spray area shall be properly grounded to protect against static discharge and sparks. Use Graco conductive or grounded high-pressure airless paint sprayer hoses.
- Verify that all containers and collection systems are grounded to prevent static discharge. Do not use pail liners unless they are anti-static or conductive.
- Connect to a grounded outlet and use grounded extensions cords. Do not use a 3-to-2 adapter.
- Do not use a paint or a solvent containing halogenated hydrocarbons.
- Do not spray combustible liquids in a confined area.
- Keep spray area well-ventilated. Keep a good supply of fresh air moving through the area.
- Sprayer generates sparks. Keep pump assembly in a well-ventilated area at least 20 feet (6.1 m) from the spray area when spraying, flushing, cleaning, or servicing. Do not spray pump assembly.
- Do not smoke in the spray area or spray where sparks or flame is present.
- Do not operate light switches, engines, or similar spark producing products in the spray area.
- Keep area clean and free of paint or solvent containers, rags, and other flammable materials.
- Know the contents of the paints and solvents being sprayed. Read all Safety Data Sheets (SDSs) and container labels provided with the paints and solvents. Follow the paint and solvent manufacturer's safety instructions.
- Keep a working fire extinguisher in the work area.

#### **ELECTRIC SHOCK HAZARD**



This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power cord before servicing equipment.
- connect only to grounded electrical outlets.
- Use only 3-wire extension cords.
- Ensure ground prongs are intact on power and extension cords.
- Do not expose to rain. Store indoors.

# Warnings

## Internal Combustion Engine Warnings

### **WARNING**



#### **FIRE AND EXPLOSION HAZARD**

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:



- Use equipment only in well-ventilated area.
- Do not fill fuel tank while engine is running or hot; shut off engine and let it cool. Fuel is flammable and can ignite or explode if spilled on hot surface.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).
- Ground all equipment in the work area. See **Grounding** instructions.
- Never spray or flush solvent at high pressure.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.



#### **CARBON MONOXIDE HAZARD**

Exhaust contains poisonous carbon monoxide, which is colorless and odorless. Breathing carbon monoxide can cause death.

- Do not operate in an enclosed area.



#### **BURN HAZARD**

Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

## Electric Motor/Internal Combustion Engine Warnings

### **WARNING**



#### **SKIN INJECTION HAZARD**

High-pressure spray is able to inject toxins into the body and cause serious bodily injury. In the event that injection occurs, **get immediate surgical treatment.**



- Do not aim the gun at, or spray any person or animal.
- Keep hands and other body parts away from the discharge. For example, do not try to stop leaks with any part of the body.



- Always use the nozzle tip guard. Do not spray without nozzle tip guard in place.
- Use Graco nozzle tips.



- Use caution when cleaning and changing nozzle tips. In the case where the nozzle tip clogs while spraying, follow the **Pressure Relief Procedure** for turning off the unit and relieving the pressure before removing the nozzle tip to clean.



- Equipment maintains pressure after power is shut off. Do not leave the equipment energized or under pressure while unattended. Follow the **Pressure Relief Procedure** when the equipment is unattended or not in use, and before servicing, cleaning, or removing parts.

- Check hoses and parts for signs of damage. Replace any damaged hoses or parts.
- This system is capable of producing 6750 psi (46.5 MPa, 465 bar). Use Graco replacement parts or accessories that are rated a minimum of 6750 psi (46.5 MPa, 465 bar).
- Always engage the trigger lock when not spraying. Verify the trigger lock is functioning properly.
- Verify that all connections are secure before operating the unit.
- Know how to stop the unit and bleed pressure quickly. Be thoroughly familiar with the controls.



#### **EQUIPMENT MISUSE HAZARD**

Misuse can cause death or serious injury.



- Always wear appropriate gloves, eye protection, and a respirator or mask when painting.
- Do not operate or spray near children. Keep children away from equipment at all times.
- Do not overreach or stand on an unstable support. Keep effective footing and balance at all times.
- Stay alert and watch what you are doing.
- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not kink or over-bend the hose.
- Do not expose the hose to temperatures or to pressures in excess of those specified by Graco.
- Do not use the hose as a strength member to pull or lift the equipment.
- Do not spray with a hose shorter than 25 feet.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.

# Warnings

## **WARNING**



### **PRESSURIZED ALUMINUM PARTS HAZARD**

Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.

- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.
- Do not use chlorine bleach.
- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.



### **MOVING PARTS HAZARD**

Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.



### **ENTANGLEMENT HAZARD**

Rotating parts can cause serious injury.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Do not wear loose clothing, jewelry or long hair while operating equipment.
- Equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.



### **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 Safety Data Sheets (SDSs) 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.



### **RECOIL HAZARD**

Gun may recoil when triggered. If you are not standing securely, you could fall and be seriously injured.

## **WARNING**



### **PERSONAL PROTECTIVE EQUIPMENT**

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

### **CALIFORNIA PROPOSITION 65**

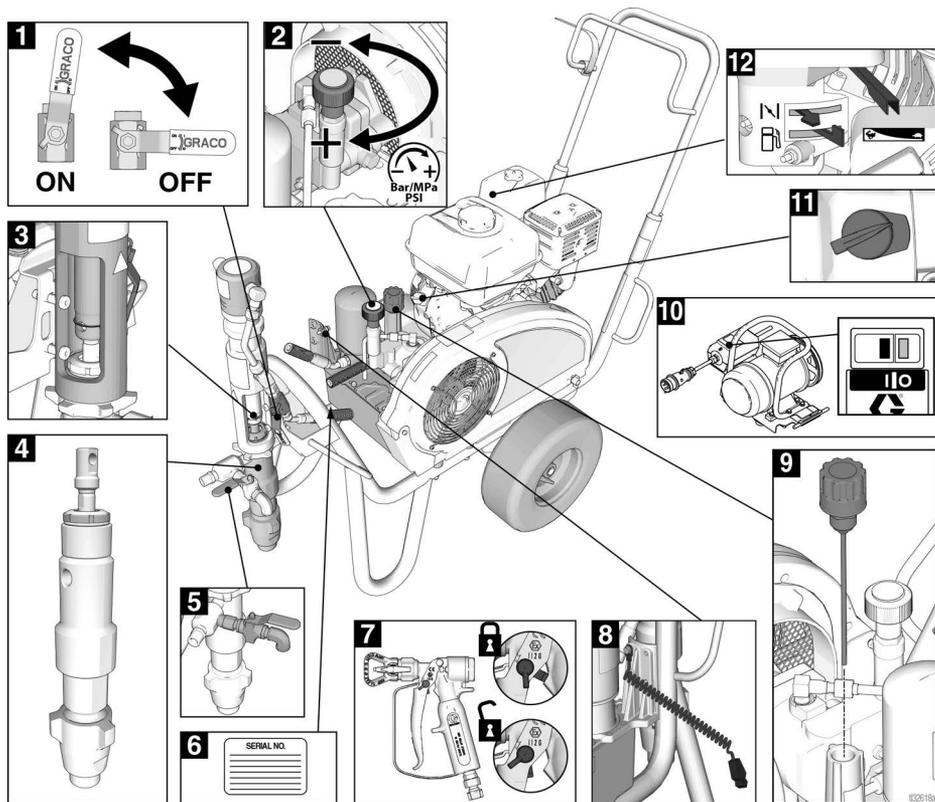
The engine exhaust from this product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

# Component Identification

## Component Identification

Models (EH/GH675)



1	Hydraulic Pump Valve
2	Pressure Control
3	Threaded Pump Connection
4	Displacement Pump
5	Prime/Drain Valve
6	Serial Number Tag
7	Gun Trigger Lock

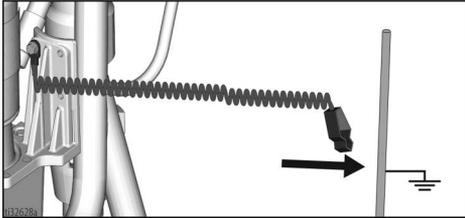
8	Grounding Clamp
9	Hydraulic Oil Cap / Dipstick
10	Electric Motor ON/OFF Switch
11	Engine ON/OFF Switch
12	Engine Controls

## Grounding

### Grounding Procedure for Gas Engine



The equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electric current.



To ground sprayer: Attach sprayer grounding clamp to earth ground.

Air and fluid hoses: Use only electrically conductive hoses with a maximum of 500ft. (150 m) combined hose length to ensure grounding continuity. Check electrical resistance of hoses. If total resistance to ground exceeds 29 megaohms, replace hose immediately.

Spray gun: Ground through connection to a properly grounded fluid hose and pump.

### Grounding Procedure for Electric Motor



The equipment must be grounded to reduce the risk of static sparking and electric shock. Electric or static sparking can cause fumes to ignite or explode. Improper grounding can cause electric shock. Grounding provides an escape wire for the electric current.

This sprayer is equipped with a cord having a ground wire with an appropriate grounding plug.

If using the electric motor, the plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.

### Power Requirements

- 380-400V units require 400 VAC, 50 Hz, 16A, 3 phase, 3P+N+E, 6h power connection
- To operate the EH675 sprayer, the generator needs to be sized for 15 kW output (minimum).

# Grounding

## Extension Cords

Use an extension cord with an undamaged ground contact.

**NOTE:** Smaller gauge or longer extension cords may reduce sprayer performance.

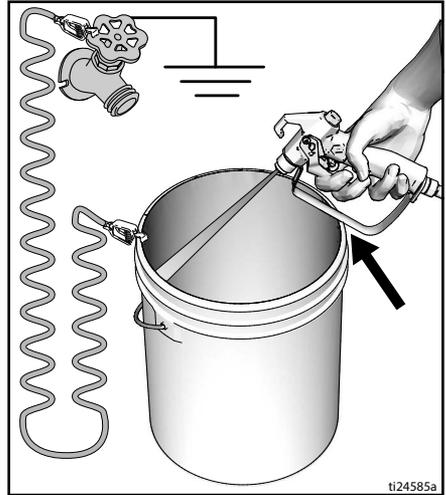
## Grounding of Pails

**Solvent pails used when flushing:** Follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts grounding continuity.



**Always ground a metal pail:** connect a ground wire to the pail. Clamp one end to the pail and the other end to a true earth ground such as a water pipe.

**To maintain ground continuity when sprayer is flushed or pressure is relieved:** hold metal part of spray gun firmly to the side of a grounded metal pail then trigger the gun.



## Circuit Protection

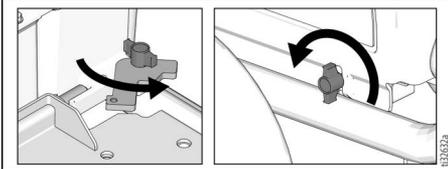
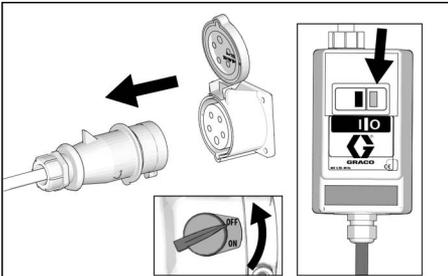
Connect sprayers only to circuits which have the properly sized circuit breaker and/or fuses (for unit power requirements see **DutyMax EH675**, page 43 technical data).

# Setup

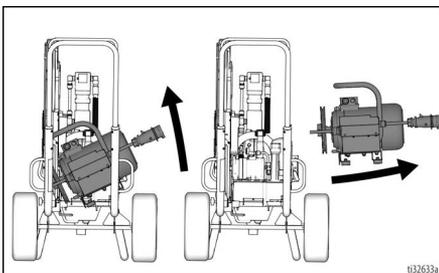
## Change Engine or Motor



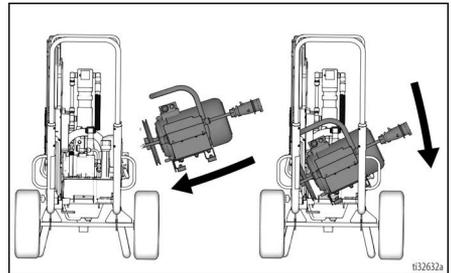
- 1 Turn motor OFF and unplug or turn engine to the OFF/STOP position. Loosen belt guard knob and motor clamp. Perform **Pressure Relief Procedure**, page 15.



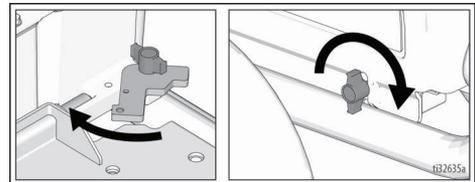
- 2 Lift belt guard. Remove belt. Tilt engine/motor and remove engine/motor.



- 3 Tilt engine/motor. Install engine/motor. Install belt. Lower belt guard.



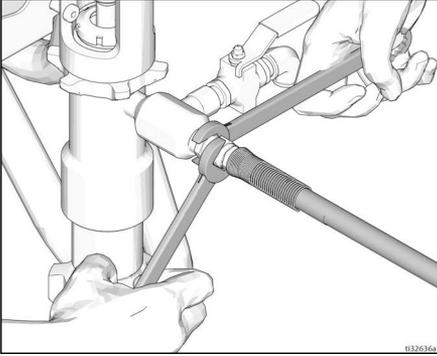
- 4 Swivel motor clamp. Tighten motor clamp and belt guard knob.



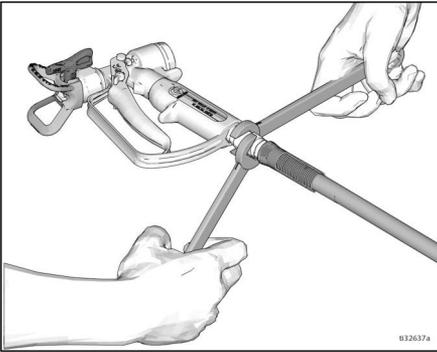
# Setup

## Complete Setup

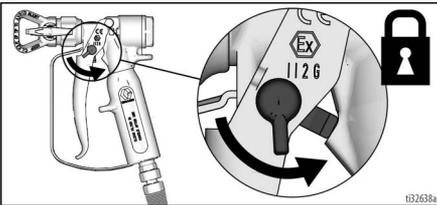
1. Connect appropriate Graco high-pressure hose to sprayer.



2. Install hose to spray gun and tighten securely.

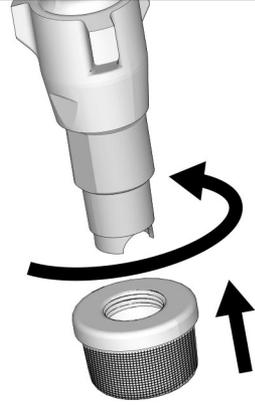


3. Engage gun trigger lock.

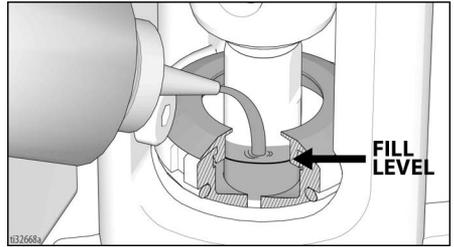


4. Remove Tip Guard.

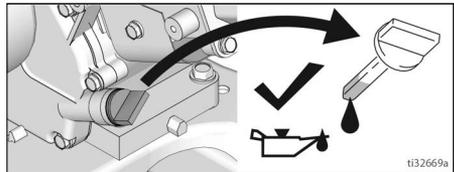
5. Screw inlet strainer to bottom of pump and hand tighten securely.



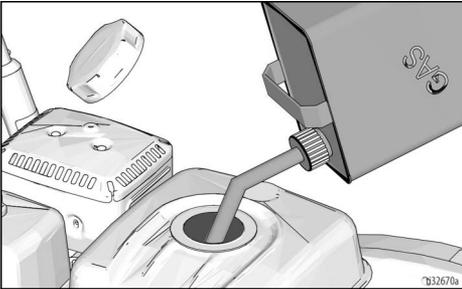
6. Fill throat packing nut with TSL to prevent premature packing wear. Do this each time you spray.



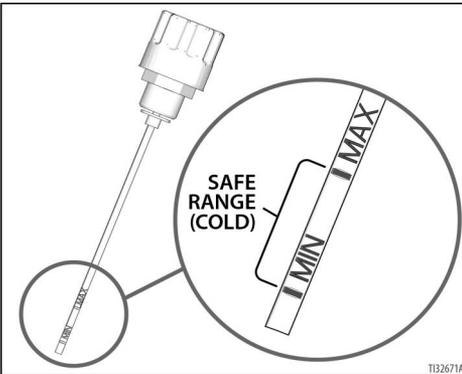
7. Check engine oil level.  
GASOLINE ENGINE



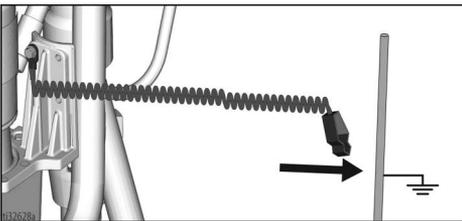
## 8. Fill fuel tank. GASOLINE ENGINE



9. Check hydraulic oil level. Add only Graco Synthetic Hydraulic Oil, ISO Grade 46, 169236 (5 gallon/18.9 liter) or 207428 (1 gallon/3.8 liter). Hydraulic tank capacity is 1.25 gallon (4.75 liters).



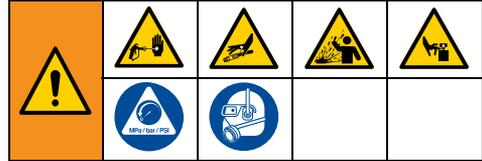
10. Attach sprayer grounding clamp to earth ground.



## Pressure Relief Procedure



Follow the **Pressure Relief Procedure** whenever you see this symbol.

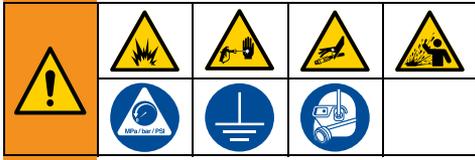


This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing the equipment.

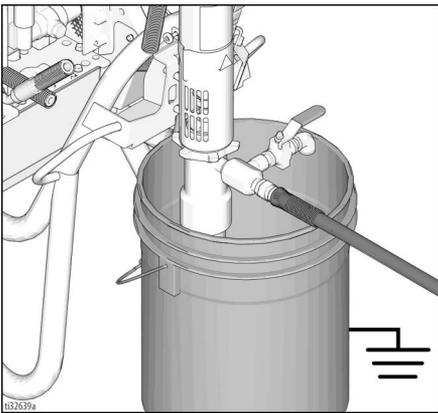
- Engage trigger lock.
- Turn sprayer OFF:
  - Turn gas engine or electric motor ON/OFF switch to OFF.
- OR
  - Unplug power cord to electric motor.
- Move pump valve to OFF and turn pressure control knob fully counter-clockwise to lowest setting.
- Disengage trigger lock. Hold metal part of gun firmly to side of grounded metal pail, and trigger gun to relieve pressure.
- Engage gun trigger lock.
- Turn prime valve down to DRAIN position. Leave prime valve open until ready to spray again.
- If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved:
  - VERY SLOWLY loosen tip guard retaining nut or hose end coupling to relieve pressure gradually.
  - Loosen nut or coupling completely.
  - Clear the obstruction in the hose or tip.

# Startup (Gasoline Model)

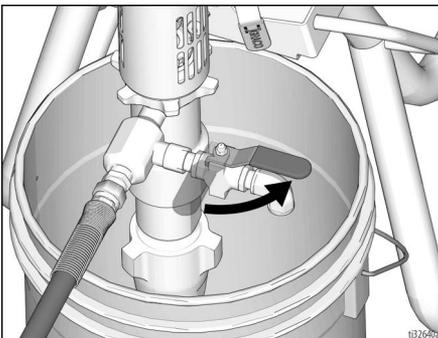
## Startup (Gasoline Model)



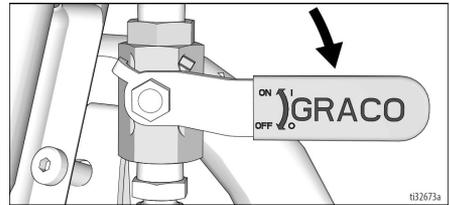
1. Place displacement pump in grounded metal pail partially filled with flushing fluid. Attach ground wire to pail and to earth ground.



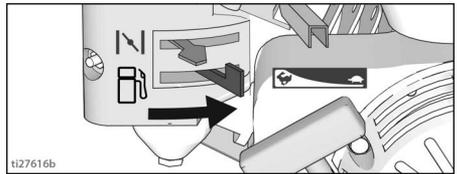
2. Turn prime valve to Drain position. Turn pressure control counterclockwise to lowest pressure.



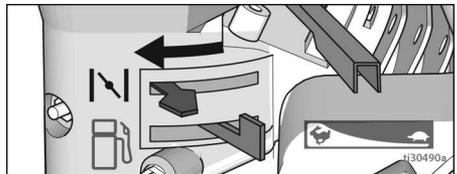
3. Set hydraulic pump valve OFF.



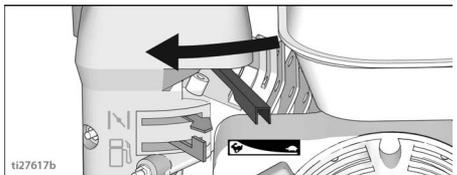
4. Start gasoline engine:
  - a. Move fuel valve to open.



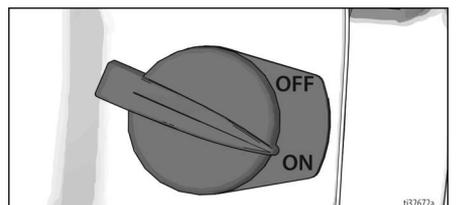
- b. Move choke to closed.



- c. Set throttle to fast.

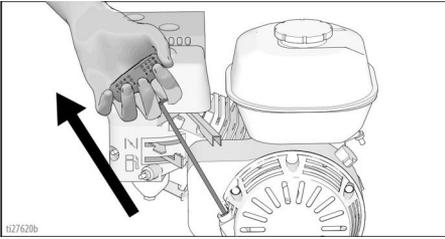


- d. Set engine switch to ON.

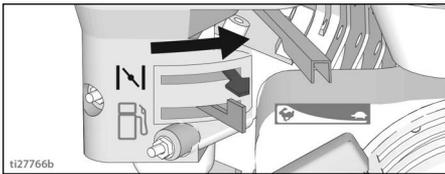


# Startup (Gasoline Model)

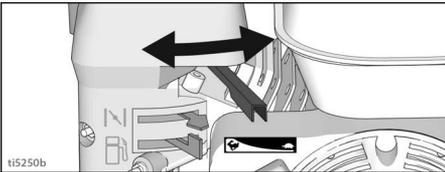
- e. Pull starter rope.



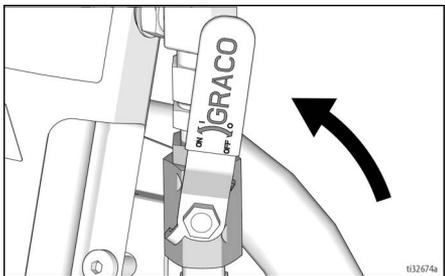
- f. After engine starts, move choke to open.



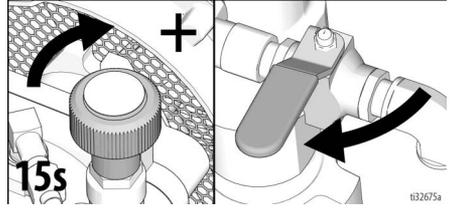
- g. Set throttle to desired setting.



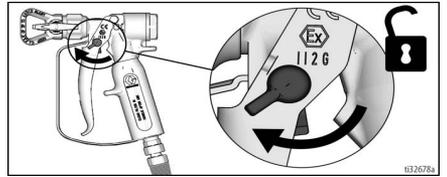
5. Set hydraulic pump valve ON (hydraulic motor is now active).



6. Increase pressure enough to start hydraulic motor stroking and allow fluid to circulate for 15 seconds; turn pressure down, turn prime valve to closed.

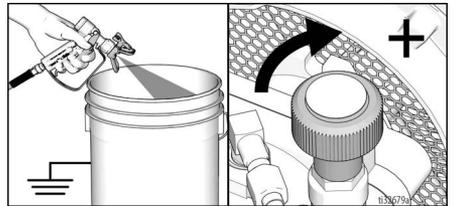


7. Disengage spray gun trigger lock.



8. Hold gun against grounded metal flushing pail. Trigger gun and increase fluid pressure slowly until pump runs smoothly. Release trigger and allow sprayer to build pressure. Engage trigger lock.

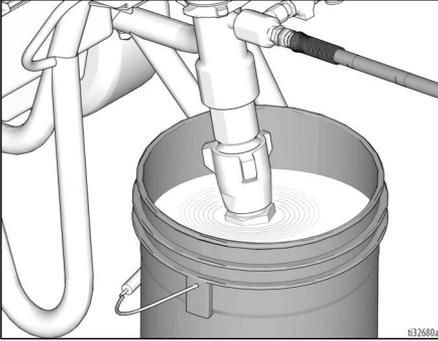
				
High-pressure spray is able to inject toxins into the body and cause serious bodily injury. Do not stop leaks with hand or rag.				



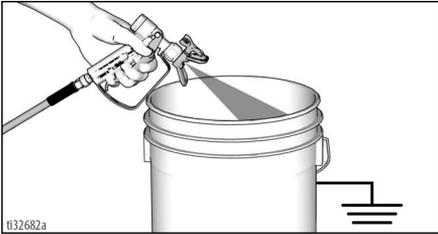
9. Inspect for leaks. If leaks occur, turn sprayer OFF immediately. Perform **Pressure Relief Procedure**, page 15. Tighten leaky fittings. Repeat **Startup** procedure steps 2-8. If no leaks, continue to trigger gun until system is thoroughly flushed.

# Startup (Gasoline Model)

10. Place siphon tube in paint pail.

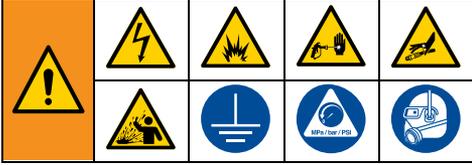


11. Trigger gun again into flushing fluid pail until paint appears.

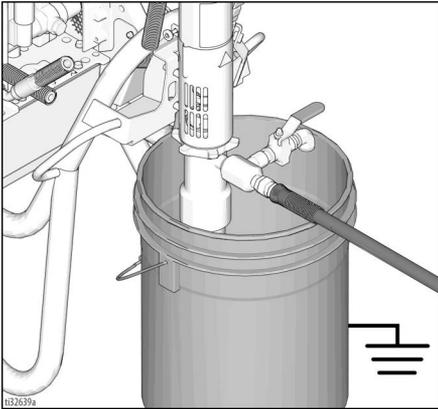


12. **How to Spray**, page 21.

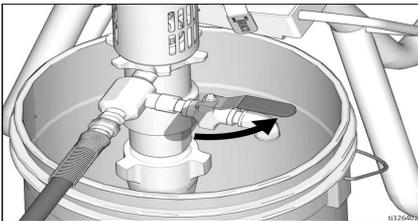
## Startup (Electric Model)



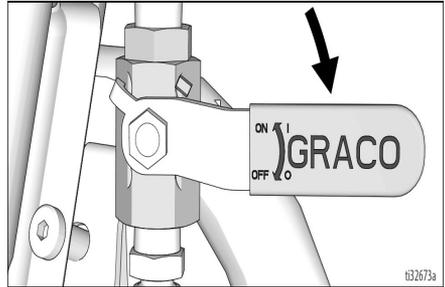
1. Place displacement pump in grounded metal pail partially filled with flushing fluid. Attach ground wire to pail and to earth ground.



2. Turn prime valve to Drain position. Turn pressure control counterclockwise to lowest pressure.

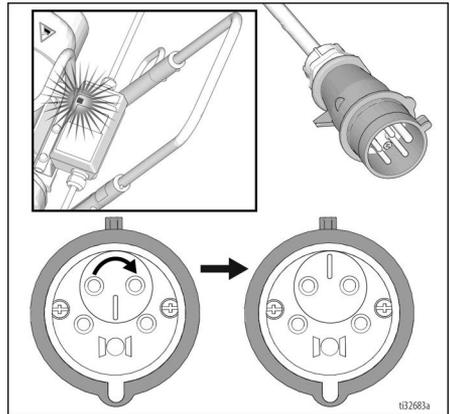


3. Set hydraulic pump valve OFF.

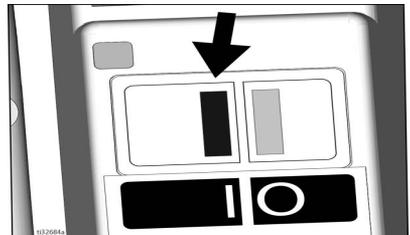


4. Plug cord into outlet.

**For three phase electric motors:** If red phase sequence light is on, remove plug from outlet and turn phase sequence screw 180°.

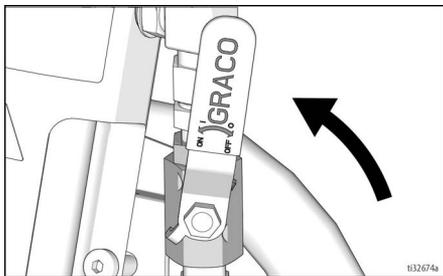


5. Turn motor ON.

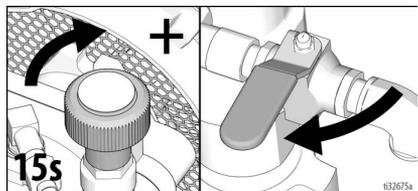


# Startup (Electric Model)

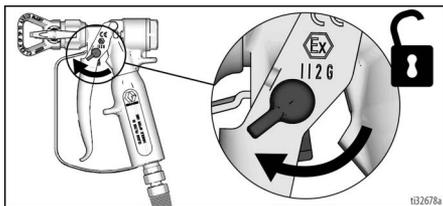
- Set hydraulic pump valve ON (hydraulic motor is now active).



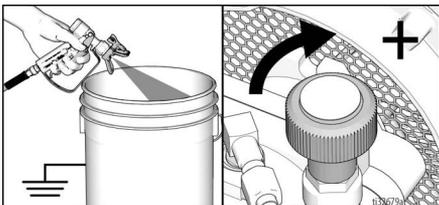
- Increase pressure enough to start hydraulic motor stroking and allow fluid to circulate for 15 seconds; turn pressure down, turn prime valve to closed.



- Disengage gun trigger lock.

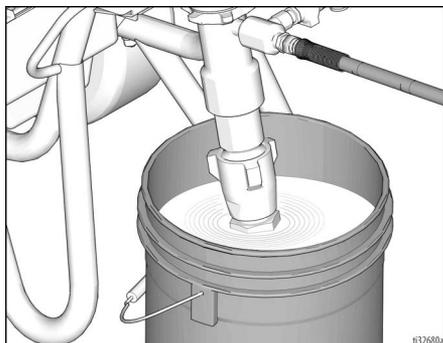


- Hold gun against grounded metal flushing pail. Trigger gun and increase fluid pressure slowly until pump runs smoothly.

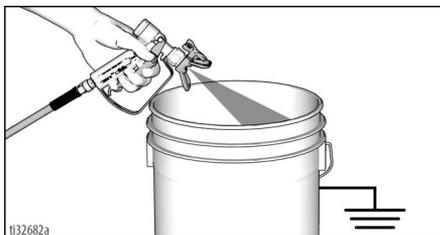


High-pressure spray is able to inject toxins into the body and cause serious bodily injury. Do not stop leaks with hand or rag.

- Inspect fittings for leaks. If leaks occur, turn sprayer OFF immediately. Perform **Pressure Relief Procedure**, page 15. Tighten leaky fittings. Repeat **Startup** procedure steps 2-8. If no leaks, continue to trigger gun until system is thoroughly flushed.
- Place displacement pump in paint pail.



- Trigger gun again into flushing fluid pail until paint appears.



- How to Spray**, page 21.

## How to Spray

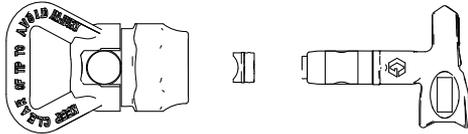
### Switch Tip™ and Guard Assembly



To avoid serious injury from skin injection do not put your hand in front of the spray tip when installing or removing the spray tip and tip guard.

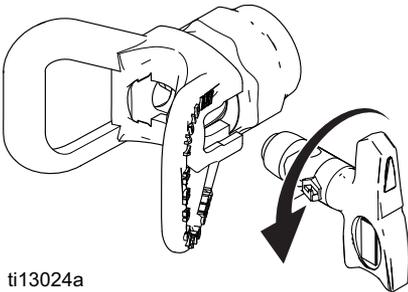
To prevent spray tip leaks make certain spray tip and tip guard are installed properly.

1. Perform **Pressure Relief Procedure**, page 15.
2. Engage gun trigger lock. Insert Switch Tip. Insert seat and OneSeal™.



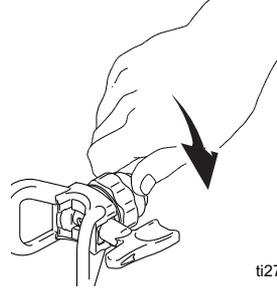
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3. Insert Switch Tip and face forward.



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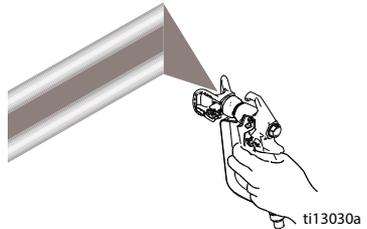
4. Screw assembly onto gun. Tighten.



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### Spray

1. Spray test pattern. Increase pressure to eliminate heavy edges. Use smaller tip size if pressure adjustment can not eliminate heavy edges.

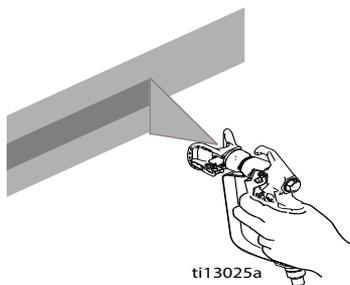


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2. Hold gun perpendicular, 10-12 in. (25-30 cm) from surface. Spray back and forth. Overlap by 50%. Trigger gun

# How to Spray

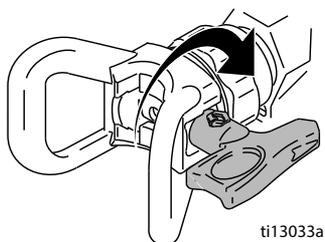
after moving and release before stopping.



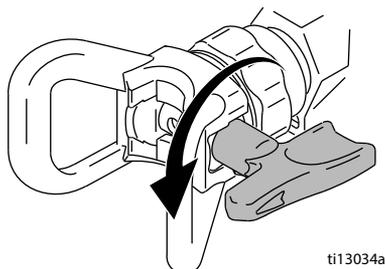
## Clear Tip Clogs



1. Release trigger. Engage trigger lock. Rotate Switch Tip. Disengage trigger lock. Trigger gun to clear clog.



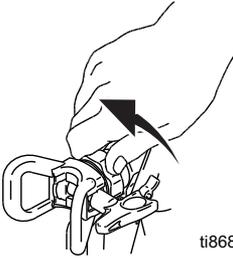
2. Engage trigger lock. Return Switch Tip to original position. Disengage trigger lock and continue spraying.



## Clean Up

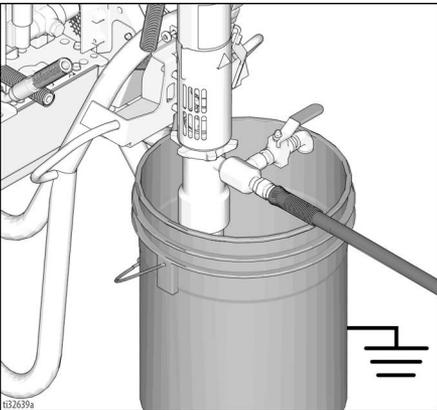


1. Perform **Pressure Relief Procedure**, page 15.
2. Remove Guard and SwitchTip.



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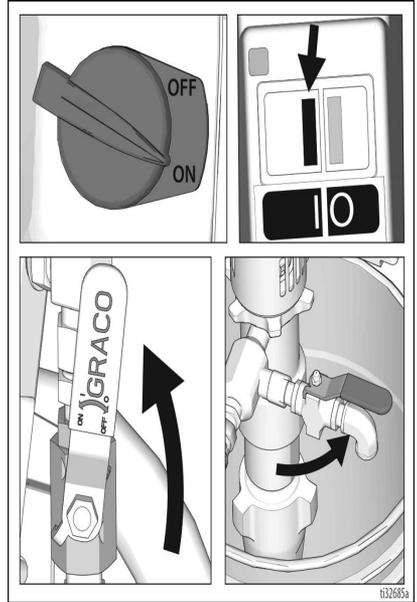
3. Remove displacement pump from paint and place in flushing fluid. Use water for water-based paint and mineral spirits for oil based paint.



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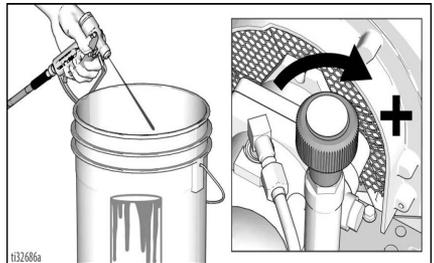
4. Turn motor switch ON or turn engine ON and start engine. Turn hydraulic

pump valve ON. Turn prime valve to SPRAY position.



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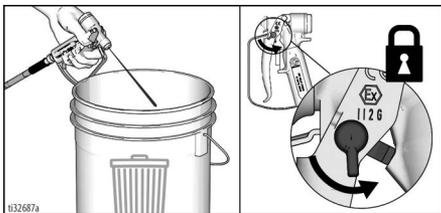
5. Hold gun against pail. Disengage trigger lock. Turn pressure control up until motor begins to drive pump. Trigger gun until flushing fluid appears.



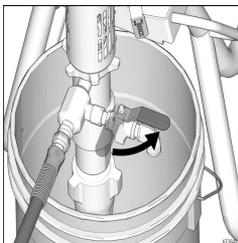
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# Clean Up

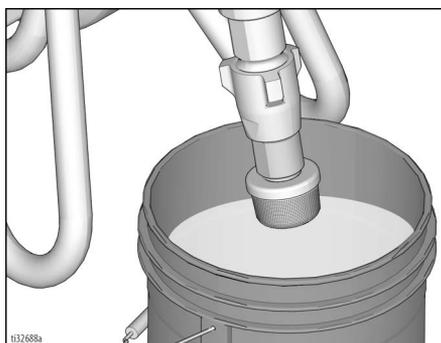
6. Move gun to waste pail, hold gun against pail, trigger gun to thoroughly flush system.



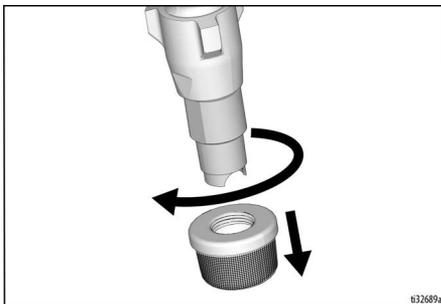
7. While continuing to trigger gun, turn prime valve to open. Then release gun trigger and engage trigger lock. Allow flushing fluid to circulate until fluid comes out of drain tube clear.



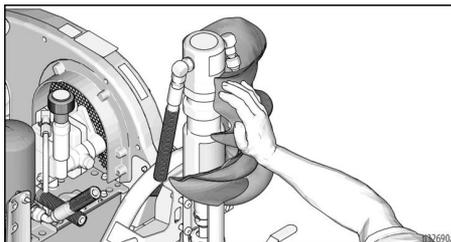
8. Raise displacement pump above flushing fluid and run sprayer for 15 to 30 seconds to drain fluid. Turn hydraulic valve OFF. Turn engine OFF or turn electric motor OFF and unplug.



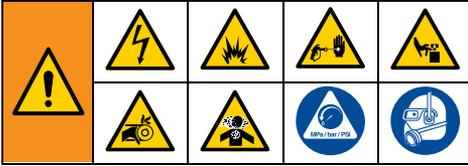
9. Unscrew and remove inlet strainer. Clean and replace strainer if necessary.



10. If flushing with water, flush again with mineral spirits, or Pump Armor™, to leave a protective coating to prevent freezing or corrosion.
11. Wipe sprayer, hose and gun with a rag soaked in water or mineral spirits.



# Maintenance



**NOTE:** For detailed engine maintenance and specifications, refer to separate Honda Engine Owner's Manual, supplied.

**DAILY:** Check engine oil level and fill as necessary.

**DAILY:** Check hydraulic oil level and fill as necessary.

**DAILY:** Check hose for wear and damage.

**DAILY:** Check gun trigger lock for proper operation.

**DAILY:** Check prime/drain valve for proper operation.

**DAILY:** Check and fill the fuel tank.

**DAILY:** Check that displacement pump is tight.

**DAILY:** Check level of Throat Seal Liquid (TSL) in displacement pump packing nut. Fill nut, if necessary. Keep TSL in nut to help prevent fluid buildup on piston rod and premature wear of packings and pump corrosion.

**GASOLINE ENGINE, AFTER THE FIRST 20 HOURS OF OPERATION:** Drain engine oil and refill with clean oil. Reference Honda Engine Owner's Manual for correct oil grade.

**WEEKLY:** Remove engine air filter cover and clean element. Replace element, if necessary. If operating in an unusually dusty environment: check filter daily and replace, if necessary.

Replacement elements can be purchased from your local HONDA dealer.

**WEEKLY/DAILY:** Remove any debris or media from hydraulic rod.

**AFTER EACH 100 HOURS OF OPERATION:** Change engine oil. Reference Honda Engines Owner's Manual for correct oil viscosity.

**SEMI-ANNUALLY:** Check belt wear. Replace if necessary.

**AFTER EACH 500 HOURS OR 3 MONTHS OF OPERATION:** Replace hydraulic oil and filter with Graco hydraulic oil 169236 (5 gallon/20 liter) or 207428 (1 gallon/3.8 liter) and filter 246173. Oil change interval dependent on environmental conditions.

**YEARLY OR 2000 HOURS:** Replace belt.

**SPARK PLUG:** Use only BPR6ES (NGK) or W20EPR-U (NIPPONDENSO) plug. Gap plug to 0.028 to 0.031 in. (0.7 to 0.8 mm). use spark plug wrench when installing and removing plug.

## Troubleshooting



Problem	Cause	Solution
Internal combustion engine pulls hard (won't start)	Hydraulic pressure is too high	Turn hydraulic pressure knob counterclockwise to lowest setting
Gasoline engine does not start	Switch OFF, low oil, no gasoline	Consult engine manual
	Fuel shut off valve closed	Open fuel shut off valve
Gasoline engine does not work properly	Faulty engine	Consult engine manual
	Elevation	Refer to Engine Repair Kit, 9.0 hp - 248945
Internal combustion engine operates, but displacement pump does not operate	Hydraulic pump valve is OFF	Set hydraulic pump valve ON
	Pressure setting too low	Increase pressure, page 18
	Tip or tip filter (if used) is clogged	Remove tip and/or filter and clean
	Hydraulic fluid too low	Shut off sprayer. Add fluid*. See page 16
	Belt worn or broken or off	Replace.
	Hydraulic pump worn or damaged	Bring sprayer to Graco distributor for repair
	Dried paint seized paint pump rod	Service pump. See manual 3A5443
Displacement pump operates, but output is low on upstroke	Hydraulic motor not shifting	Set pump valve OFF. Turn pressure down. Turn engine OFF. Pry rod up or down until hydraulic motor shifts.
	Piston ball check not seating properly	Service piston ball check. See manual 3A5443
	Piston packings worn or damaged	Replace packings. See manual 3A5443

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Displacement pump operates, but output is low on down stroke and/or on both strokes	Piston packings worn or damaged	Tighten packing nut or replace packings. See manual 3A5443
	Intake valve ball check not seating properly	Service intake valve ball check. See manual 3A5443
	Suction tube air leak	
	Hydraulic oil filter is dirty	Replace filter.
Paint leaks and runs over side of wet cup	Loose wet cup	Tighten wet cup enough to stop leakage
	Throat packings worn or damaged	Replace packings. See manual 3A5443
Excessive leakage around hydraulic motor piston rod wiper	Piston rod seal worn or damaged	Replace these parts. See manual 3A5443
Fluid delivery is low	Pressure setting too low	Increase pressure, page 18
	Displacement pump outlet filter (if used) is dirty or clogged	Clean or replace.
	Contractor gun filter (if used) is dirty or clogged	Clean or replace.
	Intake line to pump inlet is not tight	Tighten.
	Hydraulic motor is worn or damaged	Bring sprayer to Graco distributor for repair.
	Large pressure drop in fluid hose	Reduce length or increase diameter.
The sprayer overheats	Paint buildup on hydraulic components	Clean
	Oil level is low	Fill with oil. See page 16
Spitting from gun	Air in fluid pump or hose	Check for loose connections on siphon assembly, tighten, then reprime pump
	Loose intake suction	Tighten
	Fluid supply is low or empty	Refill supply container
Pump noise	Low hydraulic fluid level	Turn sprayer OFF. Add fluid*. See page 16
Electric motor does not operate	Power switch is not ON	Turn power switch ON

# Troubleshooting

Problem	Cause	Solution
	Tripped circuit breaker	Check circuit breaker at power source. Reset motor switch
*Check hydraulic fluid level often. Do not allow it to become too low. Use only Graco hydraulic fluid, page 16.		

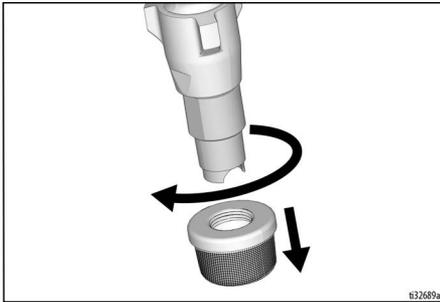
## Pump Removal and Installation

### Removal

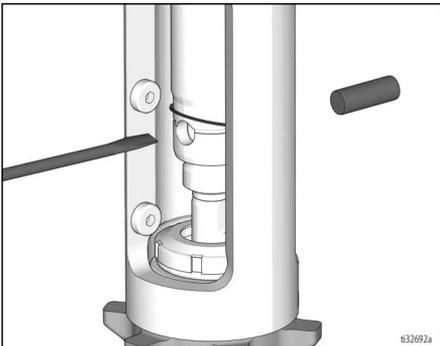


See pump manual 3A5443 for pump repair.

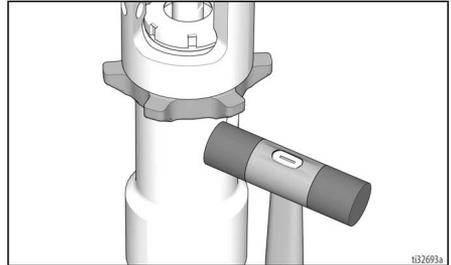
1. Flush pump.
2. Perform **Pressure Relief Procedure**, page 15.
3. Remove strainer and paint hose.



4. Push retaining ring up; push out pin.



5. Loosen jam nut. Unscrew pump.



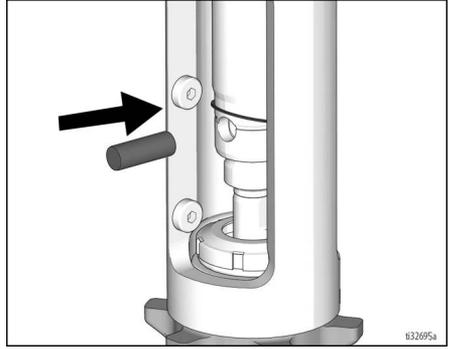
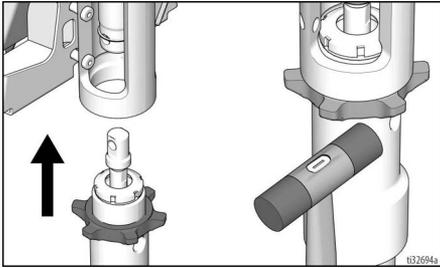
# Pump Removal and Installation

## Installation

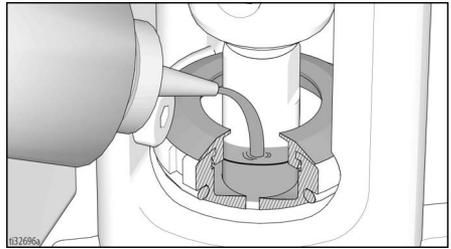
### NOTICE

If pump jam nut loosens during operation, the threads of the bearing housing and drive train will be damaged. Tighten jam nut as specified.

1. Screw jam nut to bottom of pump threads. Screw pump completely into manifold. Unscrew pump from manifold until pump outlet aligns with hose. Hand tighten jam nut, then tap 1/8 to 1/4 turn with hammer.



3. Fill packing nut with Graco TSL.

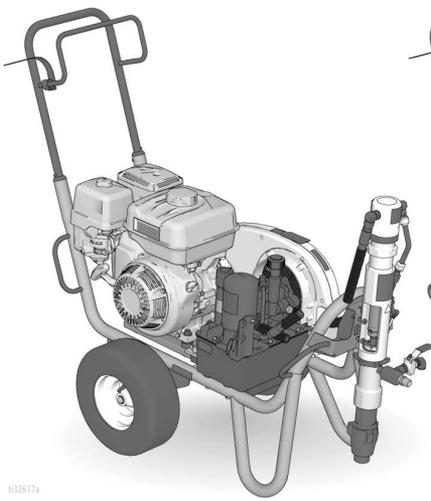


<p>If pin is loose, parts could break off and project through the air, resulting in serious injury or property damage. Make sure pin is properly installed.</p>				

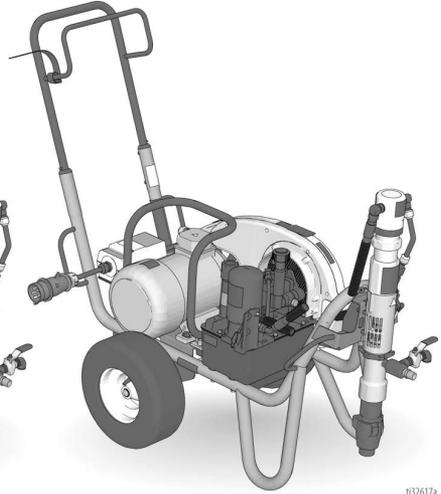
2. Slowly pull engine starter rope until pump rod pin hole is aligned with hydraulic rod hole. Push pin into hole. Push retaining ring into groove.

# *DutyMax EH/GH675 Standard Series Parts*

## **DutyMax EH/GH675 Standard Series Parts**



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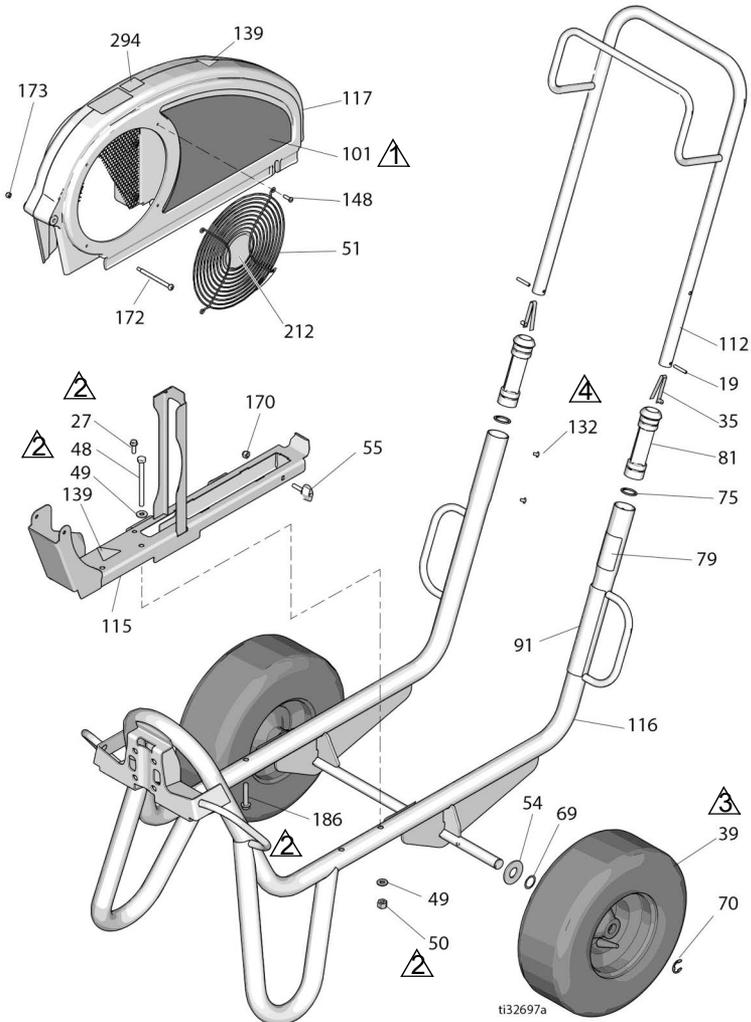


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# GH/EH675 Standard Series Frame and Belt

## GH/EH675 Standard Series Frame and Belt Guard Parts List

Ref.	Torque	Ref.	Torque
	25-35 in-lbs		Inflate tires to 25-35 psi (1.7-2.4 bar)
	125 ± 5 in-lbs		25-32 in-lbs



# GH/EH675 Standard Series Frame and Belt

## Parts List

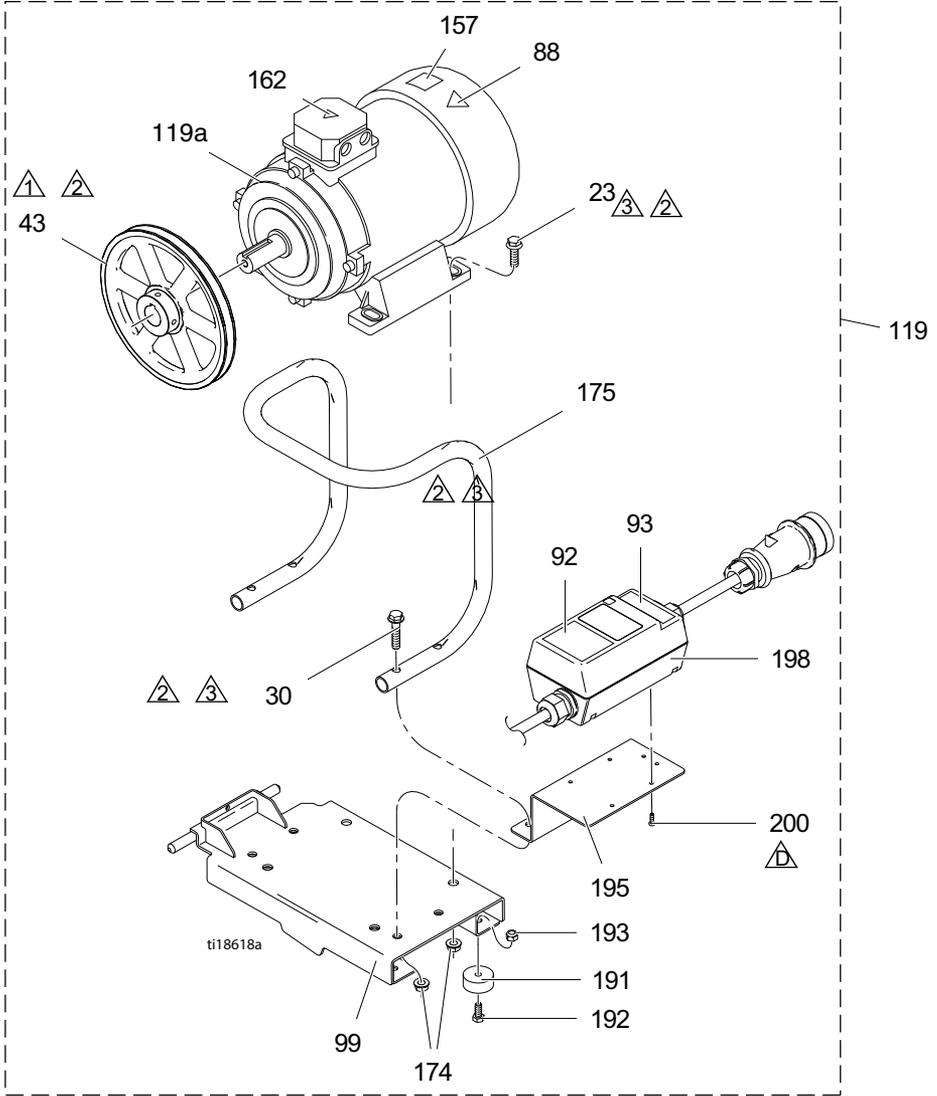
Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
				170	102040	NUT, lock, hex	1
				172	119434	SCRWE, shoulder, skt hd	1
19	101354	PIN, spring, straight	2	173	116969	NUT, lock	1
27	260212	SCREW, hex washer hd, thd form	1	212	16N398	LABEL, direction (EH/GH300DI)	1
35	112827	BUTTON, snap	2	294	16D576	LABEL, made in USA	1
38	114271	STRAP, retaining	1	295	16X983	LABEL, standard series	1
39	119509	WHEEL, pneumatic	2				
48	867539	SCREW, cap, hex hd	2				
49	100527	WASHER, plain	4				
50	110838	NUT, lock	2				
51	117284	GRILL, fan guard	1				
54	156306	WASHER, flat	2				
55	17D813	NUT, hand	2				
69	116038	WASHER, wave spring	2				
70	120211	RING, retaining, e-ring	2				
75	15J645	WASHER	2				
79▲	189246	LABEL, warning	1				
	17D947	LABEL, warning, multi-languages	1				
81	192027	SLEEVE, cart	2				
91▲	194317	LABEL, warning	1				
	16N948	LABEL, warning, ISO	1				
	17D947	LABEL, warning, multi-languages	1				
101	17D042	LABEL, brand, side (EH230DI)	1				
	17D044	LABEL, brand, side (GH230DI)	1				
	17D046	LABEL, brand, side (EH300DI)	1				
	17D048	LABEL, brand, side (GH300DI)	1				
112	24M397	HANDLE, cart	1				
115	24M086	RAIL, belt guard, assy	1				
116	24M085	FRAME, cart, weldment	1				
117	248973	GUARD, belt assembly, painted (includes 51, 148, 172, 173)	1				
132	109032	SCREW, mach, pnh	4				
139	16M768	LABEL, warning	2				
▲							
141	15Y963	LABEL, read instructions	1				
▲							
148	115477	SCREW, mach, torx pan hd	4				

▲*Danger and Warning labels are available at no cost.*

# DutyMax EH675 Electric Motor Parts List

## DutyMax EH675 Electric Motor Parts List

Ref.	Torque	Ref.	Torque
1	58-62 in-lb	3	225 ± 10 in-lbs
2	Apply Loctite 242	4	14-18 in-lbs



# DutyMax EH675 Electric Motor Parts List

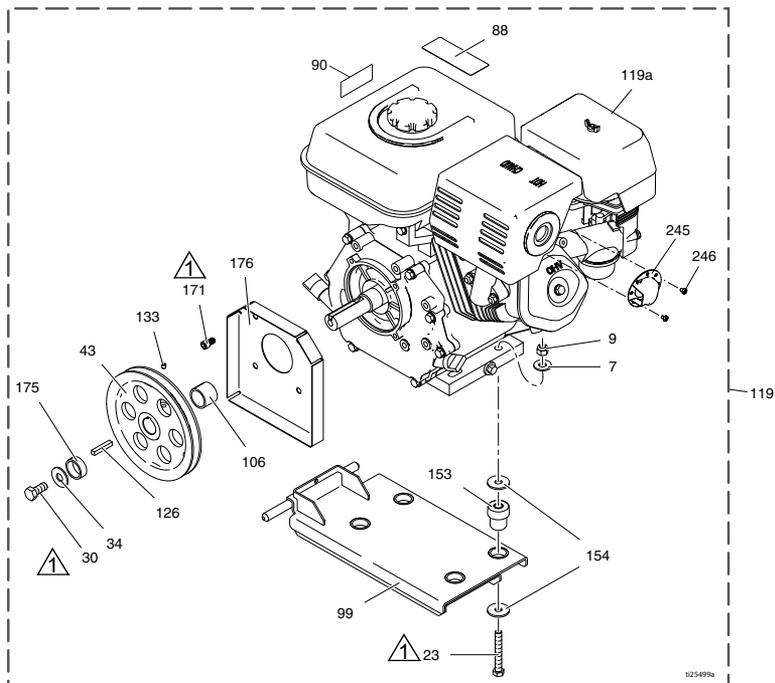
Ref.	Part	Description	Qty.
23	111193	SCREW, cap, flange head	4
30	116780	SCREW, hex, hd, flanged	4
43	125811	PULLEY, cast iron, 8.75 in	1
88▲	15K61	LABEL, caution	1
	6		
92	16N39	LABEL, motor switch box on-off	1
93	16N40	LABEL, red light indicator	1
99	16M46	BRACKET, mounting, motor, EH300	1
119	24M66	KIT, motor (includes all parts listed on this page)	1
	9		
119	24N01	MOTOR, elec., 400 VAC, 50 Hz, 7.3 hp	1
a	9		
162	189930	LABEL, caution	1
▲			
174	112958	NUT, hex, flanged	8
175	16M47	TUBE, handle, conversion	1
	3		
191	113817	BUMPER	4
192	100057	SCREW, cap, hex hd	4
193	111040	NUT, lock, insert, nylock, 5/16	4
195	16M47	BRACKET, motor starter	1
	4		
198	24N06	STARTER, motor assembly	1
	4		
200	119236	SCREW, plastite	4

▲Danger and Warning labels are available at no cost

# DutyMax GH675 Gasoline Engine Parts List

## DutyMax GH675 Gasoline Engine Parts List

Ref.	Torque
	125 ± 5 in-lbs



Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
7	100132	WASHER, flat	4	106	15E586	SLEEVE, shaft, engine	1
9	101566	NUT, lock	4	119	248945	KIT, gas engine 9.0 hp (includes all parts listed on this page)	2
23	106212	SCREW, cap, hex hd	4	119a	803900	ENGINE, gasoline, 9.0 hp (Honda)	1
30	116645	SCREW, cap, hex head	1	126	119484	KEY, parallel, square	1
34	100696	WASHER, wrought	1	133	100002	SCREW, set	1
43	119401	PULLEY	1	153	195515	DAMPENER, motor mount	4
44	119432	BELT, V-Grip-notch (not shown)	1	154	108851	WASHER, plain	8
88▲	194126	LABEL, warning	1	171	C20010	SCREW, cap, socket head	4
90▲	16Y720	LABEL, warning, ISO engine	1				
99	15E583	BRACKET, mounting, engine	1				

# *DutyMax GH675 Gasoline Engine Parts List*

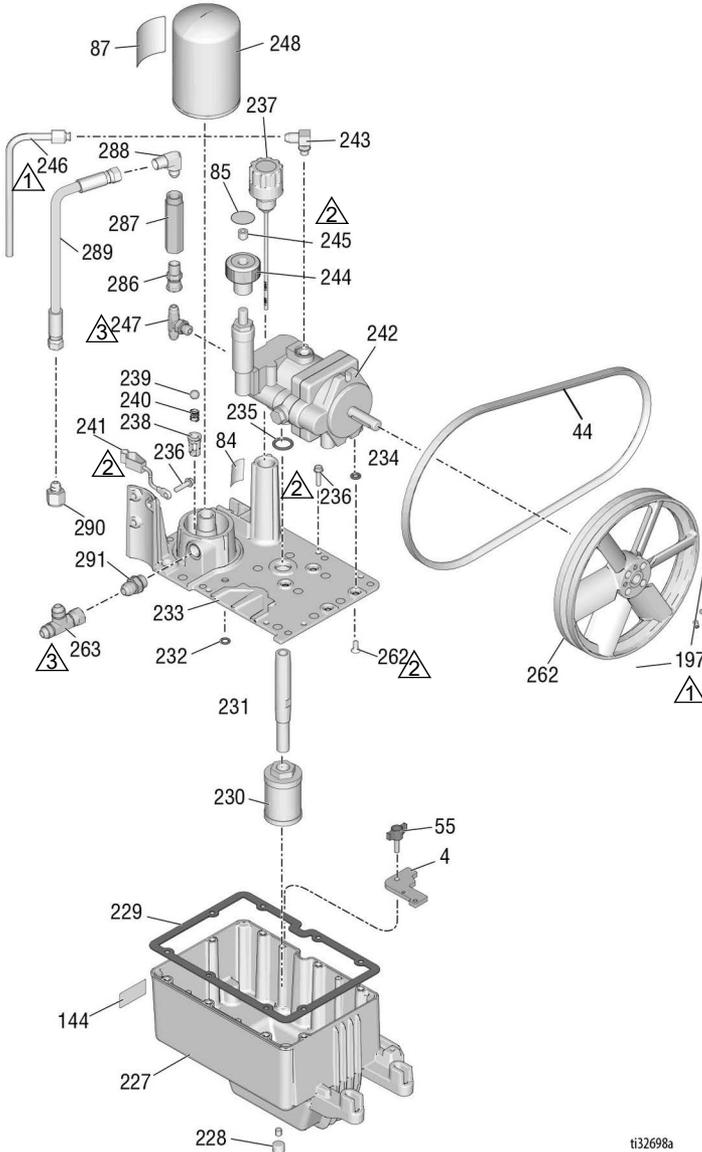
<b>Ref.</b>	<b>Part</b>	<b>Description</b>	<b>Qty.</b>
175	15E764	SPACER, shaft, engine	1
176	15E973	SHIELD, engine shaft	1
245	124145	DEFLECTOR, exhaust	1
246	128101	SCREW, tapping	3

*▲Danger and Warning labels are available  
at no cost*

# Reservoir and Filter Parts List

## Reservoir and Filter Parts List

Ref.	Torque	Ref.	Torque
	15 ft-lbs		25 ft-lbs
	115 ± 5 in-lbs		



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# Standard Series Reservoir and Filter Parts List

## Standard Series Reservoir and Filter Parts List

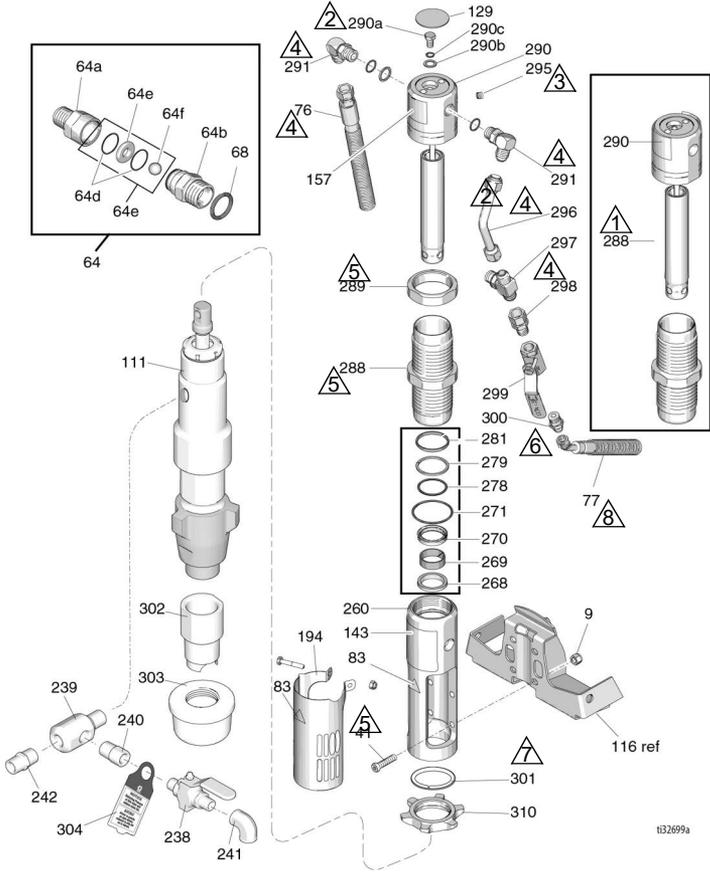
Ref. Part	Description	Qty.
4	15E476 BRACKET, retainer, motor	1
44	125834 BELT, V, AX48 (EH300DI)	1
	119432 BELT, V, AX44 (GH300DI)	1
55	17D813 NUT, hand	2
84	198585 LABEL, hydraulic fluid, GH	1
85	15A464 LABEL, control	1
87	189892 LABEL, Graco	1
96	15E410 PULLEY, fan	1
144	15K440 LABEL, brand, GH/EH cooling	1
197	120087 SCREW, set, 1/4 x 1/2	2
227	15J513 TANK, reservoir, blue	1
228	101754 PLUG, pipe	1
229	120604 GASKET, reservoir	1
230	116919 FILTER	1
231	15E587 TUBE, suction	1
232	154594 PACKING, o-ring	1
233	15M056 COVER, reservoir	1
234	107188 PACKING, o-ring	4
235	156401 PACKING, o-ring	1
236	119426 SCREW, mach, hex washer hd	11
237	120726 CAP, breather, filter	1
238	198841 RETAINER, ball, pressure bypass	1
239	100084 BALL, metallic	1
240	116967 SPRING, compression	1
241	237686 WIRE, ground assembly w clamp	1
242	249003 PUMP, hydraulic (EH/GH230DI)	1
243	110792 FITTING, elbow, male, 90°	1
244	15B438 KNOB, pressure	1
245	117560 SCREW, set, socket head	1
246	246167 TUBE, hydraulic, case drain	1
247	17V730 FITTING, elbow, hydraulic w/o rings	1
248	246173 FILTER, oil, spin on	1
262	117471 SCREW, mach, hex, flat head	4
263	124770 FITTING, hydraulic	1
267	243683 UNION, swivel	1
285	116618 MAGNET	1
286	17V731 FITTING, 37 degree flare	1
287	17V732 VALVE, relief, direct acting, 3000	1
288	261840 FITTING, elbow, male	1
289	17V734 HOSE, hydraulic, 3000 psi	1
290	122398 FITTING, reducer 6x8 (JIC)	1
291	120184 FITTING, hydraulic	1

\* Included in Drain Valve Kit 245103

# Hydraulic Motor and Displacement Pump Parts

## Hydraulic Motor and Displacement Pump Parts List

Ref.	Torque	Ref.	Torque
1	42 ± 2 ft-lbs	5	150 in-lb
2	15 ft-lbs	6	85 ± 4 in-lb
3	90-110 in-lbs	7	75 ft-lbs
4	40 ft-lbs	8	25 ft-lbs



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# Hydraulic Motor and Displacement Pump Parts

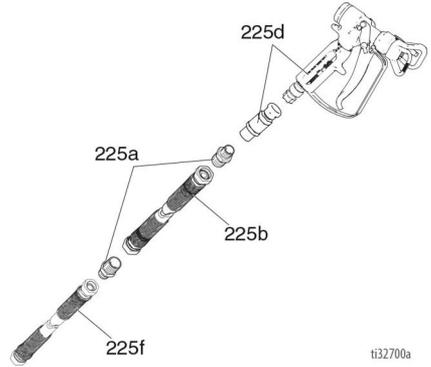
## Hydraulic Motor and Displacement Pump Parts List

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
9	101566	NUT, lock	4	299	117441	VALVE, ball	1
41◆	107210	SCREW	4	300	116813	FITTING, nipple, hydraulic	1
64b	16N462	HOUSING, ball, check valve	1	301	116551	RING, retaining	1
64c	24M725	KIT, repair, check valve (includes 64d, 64e, 64f, 68)	1	302	17S992	TUBE, inlet, suction	1
64d*	15B112	O-RING	2	303	237840	STRAINER	1
64e*	15A968	SEAT, valve	1	304	18B051	TAG, notice	1
64f*	119260	BALL, ceramic	1	310	193394	NUT, retaining	1
65	109450	PACKING, o-ring	1	<p>▲ <i>Danger and Warning labels are available at no cost</i></p> <p>◆ <i>Included in Hydraulic Motor Repair Kit 248977 (EH/GH300).</i></p> <p>+ <i>Included in Seal Kit 246174</i></p> <p>* <i>Included in Check Valve Repair Kit 24M725</i></p>			
68*	C20195	PACKING, o-ring	1				
76	15K642	HOSE, hydraulic, return	1				
77	15K641	HOSE, hydraulic, supply	1				
83▲◆	15H108	LABEL, warning	1				
86	193394	NUT, retaining, GH230/300	1				
111	17U996	PUMP, displacement	1				
129◆	15B063	LABEL, warning	1				
143	17V145	LABEL, brand, front (EH230DI)	1				
	17V147	LABEL, brand, front (GH230DI)	1				
157◆	15B804	LABEL, Graco	2				
194	24X474	COVER, shield	1				
238	237304	VALVE, ball	1				
239	15R873	FITTING, tee	1				
240	121433	FITTING, bushing	1				
241	165472	ELBOW, pipe	1				
242	158491	FITTING, nipple	1				
260◆	15E243	MANIFOLD, adapter	1				
268◆+	117739	WIPER, rod	1				
269◆+	112342	BEARING, rod	1				
270◆+	112561	PACKING, block	1				
271◆+	117283	PACKING, o-ring	1				
278◆+	108014	PACKING, o-ring	1				
279◆+	178226	SEAL, piston	1				
281◆+	178207	BEARING, piston	1				
288◆	248991	SLEEVE, hydraulic	1				
289◆	15A726	NUT, jam	1				
290◆	288755	KIT, repair, trip rod (includes 129, 278, 279, 281, 282, 295)	1				
290a◆	106276	SCREW, cap, hex head	1				
290b◆	155685	PACKING, o-ring	1				
290c◆	178179	WASHER, sealing	1				
291◆	117607	FITTING, elbow std thd	2				
295◆	100139	PLUG, pipe	1				
296◆	15E596	TUBE, hydraulic, supply	1				
297◆	117609	FITTING, tee, branch, str thd	1				
298	117328	FITTING, nipple, straight	1				

# DutyMax EH/GH675 Spray Gun and Hose

## DutyMax EH/GH675 Spray Gun and Hose Parts List

Ref.	Part No.	Description	Qty.
225a	159239	FITTING, nipple, pipe, rdcg	2
225b	H73810	HOSE, cpld, 3/8 in. x 10ft 7250 wp	1
225d	17V677	KIT, accessory, gun	1
	17G980	SWIVEL, straight	1
225f	H75050	HOSE, cpld, 1/2 in. x 50 ft, 7250 wp	1



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## EH Technical Data

<b>DutyMax EH675</b>		
	US	Metric
Maximum fluid working pressure	6750 psi	46.5 MPa, 465 bar
Hydraulic reservoir capacity	1.25 gallons	4.75 liters
Motor	7.5 HP	5.5 kW
Voltage, Amperage Frequency Phase	400 VAC, 11.0 A, 50 Hz, 3 phase	400 VAC, 11.0 A 50 Hz, 3 phase
Maximum tip size	0.41	
Maximum free-flow delivery	1.5 gpm	5.7 l/min
Hose connection	1/2 npsm (f)	
Cycles per gallon/liter	101 cpg	26.6 cpl
<b>Sound Levels</b> (Measured at maximum normal load conditions)		
Sound pressure (per ISO9614)	80 dBa	
Sound power (per ISO9614)	95 dBa	
<b>Inlet/Outlet Sizes</b>		
Fluid inlet size in.	1 1/4 - 1 1/2 NPT (m)	
Fluid outlet size in.	1/2 npt (m)	
<b>Weight</b>		
	230 lb.	104 kg
<b>Width</b>		
	26.5 in.	67 cm
<b>Length (Handle bar retracted)</b>		
	47.7 in.	121 cm
<b>Height (Handle bar retracted)</b>		
	35.5 in.	90 cm

**NOTE:** Under voltage release coil in motor starter for EH675 will not energize if voltage is less than 85% of listed voltage in Technical Data table.

Under voltage release coil in motor starter for EH675 will de-energize and sprayer will stop if voltage drops to 85% of rated nominal voltage. Voltage will need to be increased and sprayer will need to be restarted.

**NOTE:** To operate the EH675 sprayer with a generator, the generator must be sized for 5 kW output (minimum).

## GH Technical Data

<b>DutyMax GH675</b>		
	US	Metric
Maximum fluid working pressure	6750 psi	46.5 MPa, 465 bar
Hydraulic reservoir capacity	1.25 gallons	4.75 liters
Maximum hydraulic pressure	1855 psi	12.8 MPa, 128 bar
Engine	270 cc (9.0 HP)	
Maximum tip size	.041	
Maximum free-flow delivery	1.5 gpm	5.7 l/min
Hose connection	1/2 npsm (m)	
Sound Levels (Measured at maximum normal load conditions)		
Maximum sound pressure (per ISO9614)	96 dBa	
Maximum sound power (per ISO9614)	110 dBa	
Inlet/Outlet Sizes		
Fluid inlet size	1 1/4 - 1 1/2 NPT	
Fluid outlet size	1/2 NPT (f)	
Weight		
	207lbs	94 kg
Width		
	26.5 in.	67 cm
Length		
	47.7 in.	121 cm
Height (Handle bar retracted)		
	35.5 in.	90 cm

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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.

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**Graco Headquarters:** Minneapolis

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