



INSTRUCTIONS

This manual contains important warnings and information.
READ AND KEEP FOR REFERENCE.

5.5 HORSEPOWER, GASOLINE-POWERED

GM7000 Airless Paint Sprayer

3000 psi (207 bar, 21 MPa) Maximum Working Pressure

Model 231326, Series D

This is a basic sprayer without a hose or a gun.

Model 231327

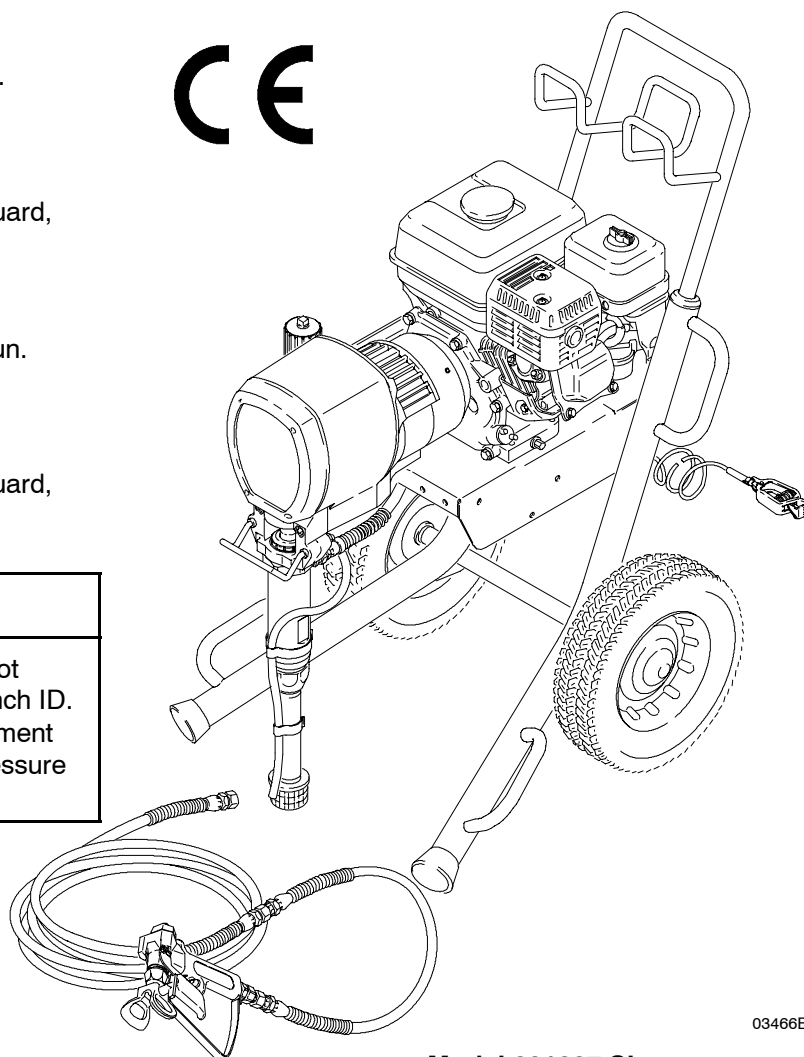
This is a complete sprayer with hoses and a Contractor gun, a RAC IV™ DripLess™ Tip Guard, and a 517 size SwitchTip™

Model 231800, Series B

This is a Lo-Boy sprayer without a hose or a gun.

Model 231382

This is a complete sprayer with hoses and a Contractor gun, a RAC IV™ DripLess™ Tip Guard, and a 517 size SwitchTip™



03466B

Model 231327 Shown

CAUTION

Always use a minimum hose length of 100 foot (30.4 m) 1/4 inch ID or 50 foot (15.2 m) 3/8 inch ID. An undersized hose may result in poor equipment performance and damage to the clutch or pressure control.

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Symbols

Warning Symbol



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

Caution Symbol



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

! WARNING



INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are not sure, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. Refer to the **Technical Data** on page 36 for the maximum working pressure of this equipment.
- Use fluids and solvents compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 82°C (180°F) or below -40°C (-40°F).
- Do not lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.
- Wear hearing protection when operating this equipment.
- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.

WARNING



INJECTION HAZARD

Spray from the gun, leaks or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin may look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the gun at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Always have the tip guard and the trigger guard on the gun when spraying.
- Check the gun diffuser operation weekly. Refer to the gun manual.
- Be sure the gun trigger safety operates before spraying.
- Lock the gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 10 if the spray tip clogs and before cleaning, checking or servicing the equipment.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. Do not repair high pressure couplings; you must replace the entire hose.
- Fluid hoses must have spring guards on both ends, to help protect them from rupture caused by kinks or bends near the couplings.



TOXIC FLUID HAZARD

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.

- Know the specific hazards of the fluid you are using.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.



FUEL HAZARD

The fuel used in this unit is combustible and when spilled on a hot surface can ignite and cause a fire.

- Do not fill the fuel tank while the engine is running or hot.



EXHAUST HAZARD

The exhaust contains poisonous carbon monoxide which is colorless and odorless.

- Do not operate this equipment in a closed building.

⚠ WARNING



FIRE AND EXPLOSION HAZARD

Improper grounding, poor ventilation, open flames or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.



- If there is any static sparking or you feel an electric shock while using this equipment, **stop spraying immediately**. Do not use the equipment until you identify and correct the problem.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid being sprayed.
- Keep the spray area free of debris, including solvent, rags, and gasoline.
- Disconnect all electrical equipment in the spray area.
- Extinguish all open flames or pilot lights in the spray area.
- Do not smoke in the spray area.
- Do not turn on or off any light switch in the spray area while operating or if fumes are present.
- Do not operate a gasoline engine in the spray area.
- Ground the sprayer to a true earth ground with the ground wire and clamp (supplied).
- Use only electrically conductive hoses.



MOVING PARTS HAZARD

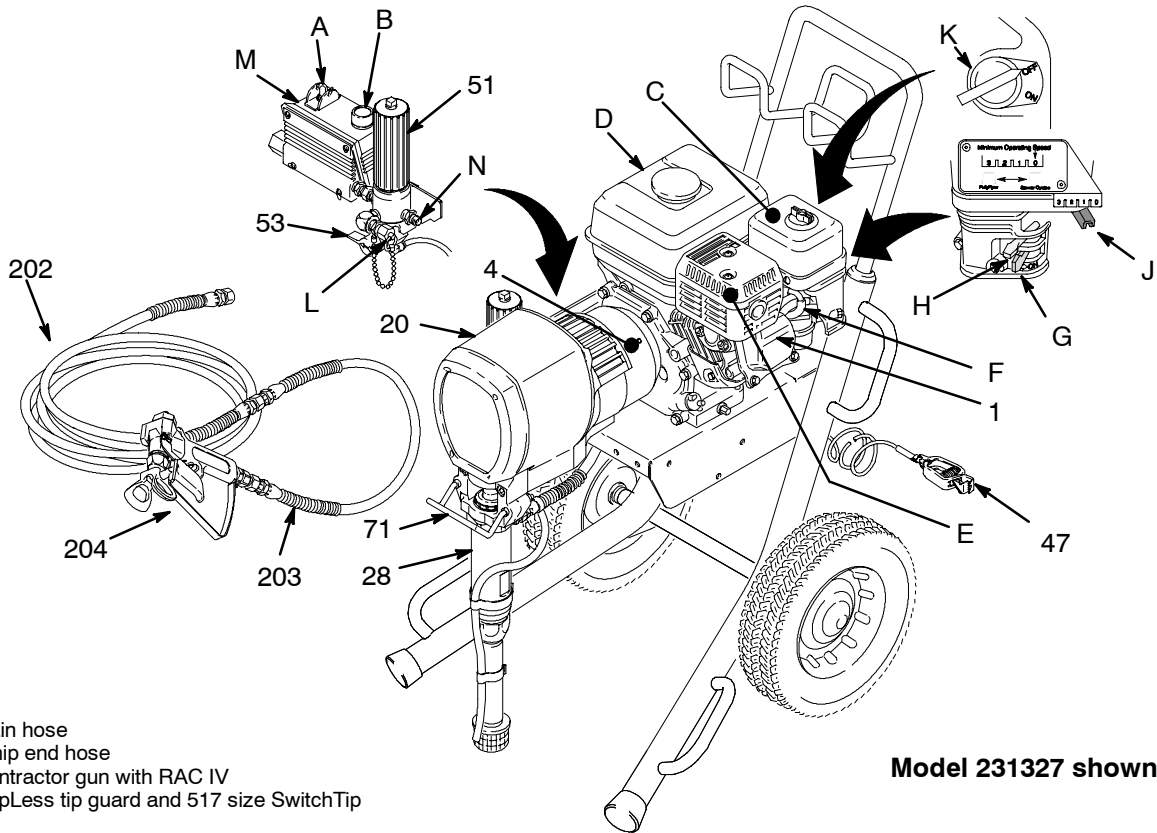
Moving parts can pinch or amputate your fingers.

- Keep clear of all moving parts when starting or operating the pump.
- Before servicing the equipment, follow the **Pressure Relief Procedure** on page 10 to prevent the equipment from starting unexpectedly.

NOTE: This is an example of the DANGER label on your sprayer. This label is available in other languages, free of charge. See page 33 to order.

⚠ DANGER ⚠			
	FIRE AND EXPLOSION HAZARD		SKIN INJECTION HAZARD
<p>Spray painting, flushing or cleaning equipment with flammable liquids in confined areas can result in fire or explosion.</p> <p>Use outdoors or in extremely well ventilated areas. Ground equipment, hoses, containers and objects being sprayed.</p> <p>Avoid all ignition sources such as static electricity from plastic drop cloths, open flames such as pilot lights, hot objects such as cigarettes, arcs from connecting or disconnecting power cords or turning light switches on and off.</p> <p>Failure to follow this warning can result in death or serious injury.</p>	<p>Liquids can be injected into the body by high pressure airless spray or leaks - especially hose leaks.</p> <p>Keep body clear of the nozzle. Never stop leaks with any part of the body. Drain all pressure before removing parts. Avoid accidental triggering of gun by always setting safety latch when not spraying.</p> <p>Never spray without a tip guard.</p> <p>In case of accidental skin injection, seek immediate "Surgical Treatment".</p> <p>Failure to follow this warning can result in amputation or serious injury.</p>	READ AND UNDERSTAND ALL LABELS AND INSTRUCTION MANUALS BEFORE USE	

Component Identification and Function



202 Main hose
 203 Whip end hose
 204 Contractor gun with RAC IV
 DripLess tip guard and 517 size SwitchTip

Model 231327 shown

03467C

Fig. 1

A	Pressure Control Switch	ON/OFF, enables/disables clutch function
B	Pressure Adjusting Knob	Controls fluid outlet pressure
C	Air Cleaner*	Filters air entering the carburetor
D	Fuel Tank*	Holds 0.95 gallons (3.6 liter) of [(R+M)/2]; 86 octane gasoline
E	Muffler*	Reduces noise of internal combustion
F	Spark Plug Cable*	Routes electrical current to spark plug
G	Fuel Shutoff Lever*	On/off lever to regulate fuel flow from gasoline tank to carburetor
H	Choke*	Enriches air/gasoline mixture for cold starting
J	Throttle*	Adjusts engine speed for large or small orifice spray tips
K	Engine Switch*	Enables/disables engine operation
L	Secondary Fluid Outlet	Second hose and spray gun is connected here
M	Pressure Control	Controls clutch cycling to maintain fluid pressure.
N	Primary Fluid Outlet	Hose and spray gun is connected here
1	Engine*	5.5 HP gasoline engine
4	Clutch Housing	Transfers power from engine to drive assembly
20	Drive Assembly	Transfers power from clutch to displacement pumps
28	Displacement Pump	Provides fluid to be sprayed through spray gun
51	Fluid Filter	Filters fluid between source and spray gun
47	Grounding Clamp and Wire	Grounds sprayer system
53	Pressure Drain Valve	Relieves fluid pressure when open
71	Pail Hanger	Provides a hanger for paint pail
*	For more detailed explanations of these controls, refer to the Honda engine manual; supplied	

Setup

NOTE: A 55 gallon (200 liter) suction tube kit, Part No. 236951, is available.

⚠ WARNING

If you are supplying your own hoses and spray gun, be sure the hoses are electrically conductive, that the gun has a tip guard, and that each part is rated for at least *3000 psi (207 bar, 21 MPa) Maximum Working Pressure*. This is to reduce the risk of serious injury caused by static sparking, fluid injection or over-pressurization and rupture of the hose or gun.

⚠ CAUTION

To avoid damaging the pressure control, which may result in poor equipment performance and component damage, follow these precautions.

1. Always use nylon spray hose. Never use a wire braid hose; it is too rigid to act as a pulsation dampener.
2. Always use a minimum hose length of 50 foot (15.2 m) x 3/8 inch ID hose at each outlet.
3. Never install any shutoff device between the filter (51) and main hose (202). See Fig. 2.
4. Always use the main filter outlet (60) for a one gun operation. Never plug this outlet.

1. **Connect hose and gun.** (Refer to Fig. 2.)
 - a. Remove the plastic cap from the 3/8 npsm (m) filter outlet nipple (60). Screw the 50 foot (15.2 m) main fluid hose (202) onto the nipple. Read the CAUTION, above.
 - b. Connect the whip end hose (203) between the main fluid hose and the inlet adapter of the gun (204).
 - c. **DO NOT** use thread sealant, and **DO NOT** install the spray tip yet!

2. **Two gun hookup.** Remove the cap (56) from the secondary hose outlet. Connect the second outlet hoses to the sprayer as explained in Step 1, above.
3. **Fill packing nut/wetcup.** Fill the packing nut/wetcup (416) 1/3 full with Graco Throat Seal Liquid (TSL), supplied. See Fig. 2.
4. **Check the engine oil level.** Refer to the Honda engine manual, supplied. This is a summary of the information: Remove one of the oil fill plugs (P); the oil should be almost overflowing. See Fig. 3. Add oil as necessary.

Recommended lubrication oil: Use a high-quality, detergent oil, SAE 10W-40, classified "FOR SERVICE SE or SF", for regular use and for breaking-in a new engine.

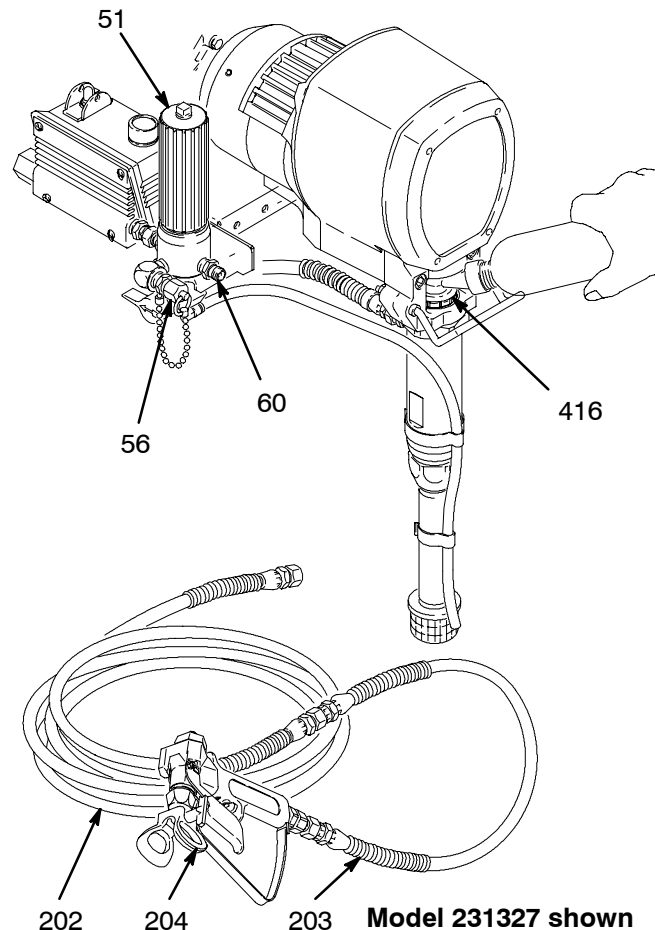


Fig. 2

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Setup

5. **Be sure your system is properly grounded before operating it.** Read and follow the warning section, FIRE OR EXPLOSION HAZARD, on page 4. Use the grounding wire and clamp (47) whenever the sprayer is used as a stationary unit.
6. **Fill the gas tank.** See **Fueling**, page 8.
7. **Flush the pump** to remove the lightweight oil which was left in the pump to protect it from rust.
 - a. Before using water-base paint, flush with mineral spirits, followed by soapy water, and then flush with clean water.
 - b. Before using oil-base paint, flush with mineral spirits, only.
 - c. See Flushing on page 11 for the flushing procedure.
8. **Prepare the paint** according to the manufacturer's recommendations.
 - a. Remove any skin that may have formed.
 - b. Stir the paint to mix the pigments.
 - c. Strain the paint through a fine nylon mesh bag (available at most paint dealers) to remove the particles that could clog the filter or spray tip. This is probably the most important step toward trouble-free spraying.
9. **Keep the sprayer upright and level** during operation and whenever it is being moved. See the last CAUTION on page 9.

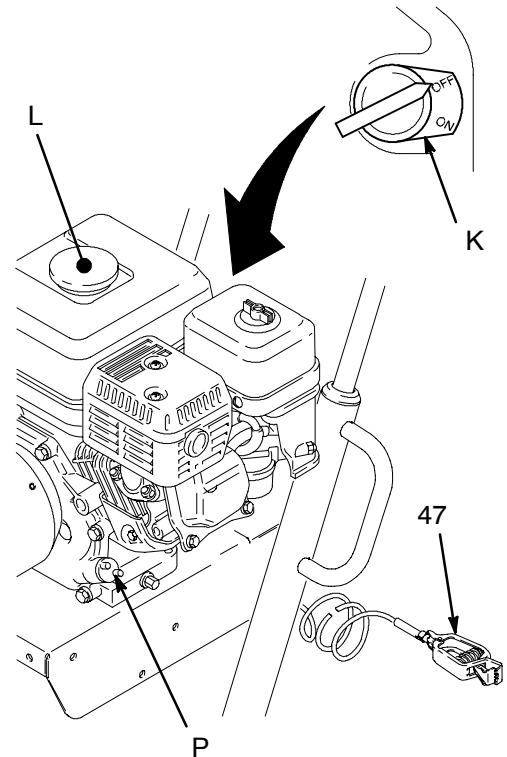


Fig. 3

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Fueling

WARNING

Gasoline is extremely flammable and explosive under certain conditions.

Always turn the engine switch (K) to off before refueling.

Refuel in a well-ventilated area.

Do not smoke or allow flames or sparks in the area where the engine is refueled or where the gasoline is stored.

Do not overfill the tank. Make sure the gas fill cap (L) is securely closed after refueling.

Be careful not to spill fuel when fueling. Fuel vapor or spilled fuel can ignite. If any fuel is spilled, make sure the area is dry before starting the engine.

1. **Fuel specifications.** Use automotive gasoline with a pump octane number $[(R + M)/2]$ of 86 or higher, or a research octane number of 91 or higher. Unleaded fuel minimizes the combustion chamber deposits.

2. **Gasolines containing alcohol (gasohol).** Do not use gasohol which contains methanol, if the gasohol does not contain cosolvents and corrosion inhibitors for methanol. Even if it does contain such additives, do not use the gasohol if it contains more than 5% methanol.

NOTE: The HONDA engine warranty does not cover the damage resulting from the use of gasolines containing alcohol. See the HONDA engine manual for more information.

3. **General.** Do not use any oil and gasoline mixtures or contaminated gasoline. Avoid getting any dirt, dust or water in the fuel tank.
4. **Tank Capacity.** 0.95 gallons (3.6 liter). Always leave at least 1/2 in. at the top of the tank for expansion.
5. **Shut off the engine before refueling.**
6. **After refueling, tighten the fuel tank cap firmly.**

Startup

Before You Start the Sprayer

1. **See Flushing** on page 11 to determine if you should flush the sprayer.
2. **Be sure the gas tank is full.**
3. **Check the engine oil level.**

NOTE: The engine stops automatically, or will not start, if it is low on oil. Refer to the oil fill procedure in the Honda engine manual or to step 4, page 6.

4. **Be sure the spark plug cable is firmly pushed onto the plug.**

Starting the Sprayer

NOTE: Refer to Fig. 1 as you start the sprayer.

1. **When starting a sprayer that IS NOT PRIMED,** remove the spray tip.
2. **If a secondary hose and gun is not installed,** be sure the cap is securely plugging the secondary outlet fitting.
3. **Place the suction tube into the paint, water or solvent container,** depending on whether you are flushing or are ready to spray.

4. **Open the black fuel shutoff lever** by pushing it in the direction of the arrow.

CAUTION

Never try to start the engine unless fluid pressure is relieved and the pressure control switch is OFF. Trying to start the engine when it is pressurized could damage the recoil system.

5. **Turn the pressure control switch to OFF.**
6. **To start the engine:**
 - a. Turn the pressure adjusting knob all the way counterclockwise to the lowest pressure setting.
 - b. Slide the metal throttle lever away from the fuel tank to maximum position (fully left).
 - c. If the engine is cold, close the choke by moving the gray lever.
 - d. If the engine is warm, close the choke by moving the gray lever only half way or not at all.
 - e. Turn the engine switch to ON.

Startup

WARNING

A rope which recoils too quickly may hit someone and cause serious injury. The rope could also jam in recoil assembly.

- f. Hold the frame of the sprayer with one hand and pull the starter rope rapidly and firmly. Continue holding the rope as you let it return. Pull and return the rope until the engine starts.
 - g. Open the choke as soon as the engine starts, except in cold weather. In cold weather, leave the choke closed for 10 to 30 seconds before opening it to keep the engine running.
7. **Unlock the gun trigger safety.**
 8. **To start the pump:**
 - a. Open the pressure drain valve.
 - b. Turn the pressure control switch to ON.
 - c. Turn the pressure control knob about 1/4 turn from minimum pressure. Run the pump until fluid is flowing smoothly from the pressure drain valve, indicating the pump is fully primed.
 - d. Close the pressure drain valve. Hold a metal part of the gun firmly against a grounded metal pail and squeeze the trigger until fluid flows from the gun.
 - e. Release the trigger. Lock the gun trigger safety.
 9. **If you have not primed the sprayer with paint yet,** move the suction tube to the paint container. Unlock the gun trigger safety. Trigger the gun into the water/solvent pail just until paint appears. Release the trigger and lock the trigger safety. Repeat for the second gun if two guns are used.

WARNING

To reduce the risk of serious injury from fluid injection, NEVER operate the spray gun with the tip guard removed.

10. **Install the spray tip in the gun.** See the separate tip instruction manual, 308644, supplied.
11. **Adjust the engine speed and pump pressure.** Unlock the gun trigger safety. Trigger the gun onto a test paper to check the spray pattern and atomization. Turn the pressure adjusting knob until you get a good pattern. Then slowly lower the throttle setting as far as you can without changing the spray pattern.

CAUTION

Always use the lowest needed fluid pressure and the lowest needed throttle setting, to increase the life of the sprayer. Higher settings cause excessive clutch cycling, premature tip wear and premature pump wear.

CAUTION

Close the black fuel shutoff lever whenever you are transporting the sprayer to prevent fuel from flooding the engine.

Keep the sprayer upright and level when operating it and when transporting it. This prevents crankcase oil from leaking into the combustion chamber, which makes startup very difficult.

Maintenance

WARNING



INJECTION HAZARD

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 10.

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

DAILY: Check hose for wear and damage.

DAILY: Check gun safety for proper operation.

DAILY: Check pressure drain valve for proper operation.

DAILY: Check and fill the gas tank.

AFTER THE FIRST 20 HOURS OF OPERATION

Drain the oil and refill with clean oil.

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

Replacement elements can be purchased from your local HONDA dealer.

WEEKLY: Check the level of the TSL in the displacement pump packing nut. Fill the nut, if necessary. Keep TSL in the nut to help prevent fluid buildup on the piston rod and premature wear of the packings.

AFTER EACH 100 HOURS OF OPERATION:

Change the oil.

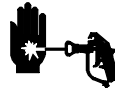
MONTHLY: Oil connecting rod.

SPARK PLUG: Use only an (NGK) BPR6ES or W20 EPR-U (NIPPON DENSO) plug. Gap the plug to 0.028 to 0.031 inch (0.7 to 0.8 mm). Use a spark plug wrench when installing and removing the plug.

CAUTION

For detailed engine maintenance and specifications, refer to the separate engine manual, supplied.

WARNING



INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

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

Pressure Relief Procedure

1. Lock the gun trigger safety.
2. Turn the engine switch to OFF.
3. Move the pressure control switch to OFF.
4. Unlock the trigger safety. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve the pressure. See Fig. 4, A.
5. Lock the gun trigger safety.
6. Open the pressure drain valve. Leave the valve open until you are ready to spray again.
7. Disconnect the spark plug cable.

If you suspect that the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen the tip guard retaining nut or hose end coupling to relieve the pressure gradually, then loosen completely. Now clear the tip or hose.

Flushing

When to Flush

1. New Sprayer. This sprayer was factory tested in lightweight oil, which was left in to protect the pump parts.

Before using water-base paint, flush with mineral spirits, followed by a soapy water flush, and then a clean water flush.

Before using oil-base paint, flush with mineral spirits.

2. Changing Colors. Flush with a compatible solvent such as mineral spirits or water.
3. Changing from water-base to oil-base paint. Flush with warm, soapy water, then mineral spirits.
4. Changing from oil-base to water-base paint. Flush with mineral spirits, followed by warm, soapy water, and then a clean water flush.

CAUTION

To prevent pump corrosion, never leave water or any type of paint in the sprayer when it is not in use. Pump the water or the paint out with mineral spirits.

5. Storage.

Water base paint: flush with water, then mineral spirits and leave the pump, hose and gun filled with mineral spirits. Shut off the sprayer, remove the spark plug cable, and open the pressure drain valve to Relieve the pressure. Leave the drain valve open.

Oil base paint: flush with mineral spirits and leave the pump, hose and gun filled with mineral spirits. Shut off the sprayer, remove the spark plug cable, and open the pressure drain valve to relieve the pressure. Leave the drain valve open.

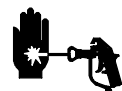
6. Startup after storage.

Before using water-base paint, flush out the mineral spirits with soapy water, and then with clean water.

When using oil-based paint, flush out the mineral spirits with the paint to be sprayed.

How to Flush

WARNING



INJECTION HAZARD

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 10.

NOTE: The word solvent refers to water or oil-based solvent.

1. Relieve pressure.
2. Remove the filter bowl (A) and screen (B); see instruction manual 307273, supplied. Install the bowl and support (C), without the screen, to flush. Clean the screen separately. See Fig. 5.
3. Close the pressure drain valve.
4. Put the suction tube in a grounded pail of solvent.
5. Remove the spray tip from the gun(s).

WARNING

To reduce the risk of static sparking and splashing when flushing, always remove the spray tip from the gun, and hold a metal part of the gun firmly to the side of, and aimed into, a grounded metal pail. See Ref. A in Fig. 4.

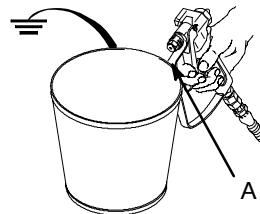


Fig. 4

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Flushing

6. Follow **Startup** on page 8. Keep the gun triggered until clean solvent comes from the nozzle. Release the trigger and lock the gun trigger safety.

NOTE: For two guns, unlock the gun trigger safety on the second gun and trigger that gun until clean solvent comes from the nozzle. Flush the first gun and then the second gun at least one more time.

7. Check all fluid connections for leaks. Relieve the pressure before tightening any connections. Start the sprayer. Recheck the connections for leaks.
8. Remove the suction tube from the solvent pail. Unlock the gun trigger safety. Trigger the gun to force solvent from the hose. Do not let the pump run dry for more than 30 seconds, to avoid damaging the pump packings. Relieve the pressure.
9. Remove the strainer, suction tube and suction hose and clean them separately to be sure all paint sediment is removed. Dried paint can build up in these parts and later cause performance problems.

10. Unscrew the filter bowl and reinstall the clean screen. Reinstall the bowl, hand tight only.

11. Follow **Storage or Changing Colors**, to the left. Relieve the pressure.

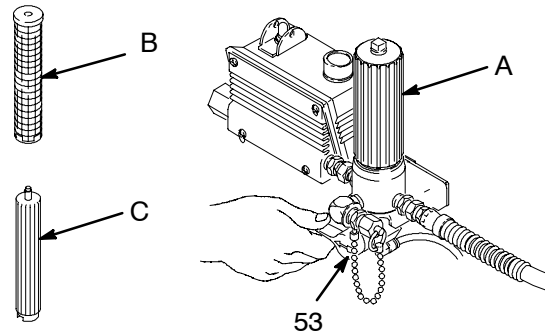


Fig. 5 Model 231326 shown

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Suction Tube Storage

Place the suction tube in the receptacle on the cart frame as shown in Fig. 6.

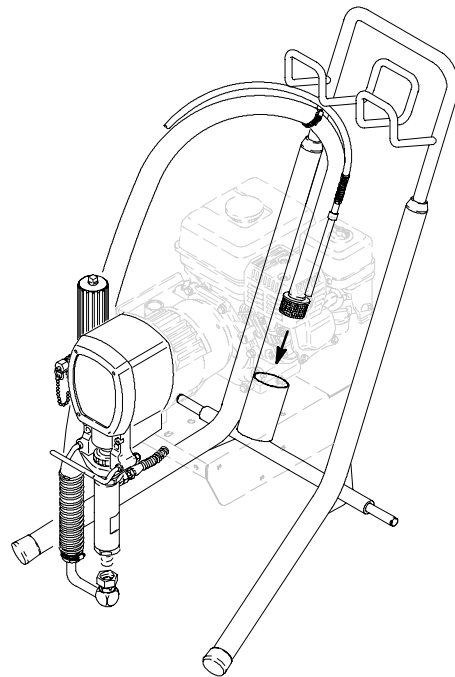
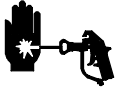


Fig. 6

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Troubleshooting

⚠ WARNING



INJECTION HAZARD

To reduce the risk of serious injury, including fluid injection or splashing in the eyes or on the skin, or injury from moving parts, always follow the **Pressure Relief Procedure Warning**, page 10, before checking, adjusting, cleaning or shutting down the sprayer. *Disconnect the spark plug!*

Check everything in the chart before disassembling the sprayer.

PROBLEM	CAUSE	SOLUTION
The engine or sprayer won't start.	The engine switch is not on.	Turn on the switch.
	The engine is out of gas.	Refill the gas tank. See page 8.
	The engine oil level is low.	Try to start the engine. Replenish the oil, if necessary. See Step 4, page 6.
	The spark plug cable is disconnected or it is damaged	Reconnect the spark plug cable or replace the spark plug.
	There is frozen water in the pressure control.	Allow the sprayer to thaw completely before starting it.
The engine won't "pull over".	There is oil seeping into the combustion chamber.	Remove the spark plug. Pull the starter rope 3 or 4 times. Clean or replace the plug. Try to start the engine. Keep the sprayer upright to avoid oil seepage.
The engine operates, but the displacement pump does not operate.	The pressure control switch is turned off.	Turn on the switch.
	The pressure setting is too low.	Turn the pressure adjusting knob clockwise to increase pressure.
	The fluid filter (51) is dirty.	Clean the filter. See page 12.
	The tip or the tip filter is clogged.	Clean the tip or the tip filter. See the gun instruction manual.
	The displacement-pump rod is stuck due to dried paint.	Repair the pump. See manual 307806.
	The connecting rod is worn or damaged.	Replace the connecting rod. See page 15.
	The drive housing is worn or damaged.	Replace the drive housing. See page 16.
	The electrical power is not energizing the field.	Check the wiring connections. See page 23. With the pressure control switch turned on and the pressure turned to maximum, use a test light to check the power at the black and white wires from the pressure control. Have the pressure control checked by an authorized Graco dealer.
	The clutch is worn, damaged, or incorrectly positioned.	Replace the clutch. See page 20.
The pinion assembly is worn or damaged.	Repair or replace the pinion assembly. See page 18.	

PROBLEM	CAUSE	SOLUTION
The pump output is low on the upstroke.	The inlet screen (31 or 23a) is clogged.	Clean the screen.
	The piston ball (425) is not seating.	Service the piston ball-check. See manual 307806.
	The piston packings are worn or damaged.	Replace the packings. See manual 307806.
	The gasket (417) in the displacement pump is worn or damaged.	Replace the gasket. See manual 307806.
The pump output is low on the downstroke or on both of the strokes.	The inlet screen (31 or 23a) is clogged.	Clean the screen.
	The piston packings are worn or damaged.	Replace the packings. See manual 307806.
	The intake valve ball is not seating properly.	Clean the intake valve. See manual 307806.
	The engine speed is too low.	Increase the throttle setting. See Step 11, page 9.
	The clutch is worn or damaged.	Replace the clutch. See page 20.
The paint leaks into the wetcup.	The wetcup is loose.	Tighten the wetcup just enough to stop leakage.
	The throat packings are worn or damaged.	Replace the packings. See manual 307806.
	The displacement rod is worn or damaged.	Replace the rod. See manual 307806.
The fluid delivery is low.	The inlet screen is clogged.	Clean the inlet screen.
	The pressure setting is too low.	Increase the pressure. See Step 11, page 9.
	The engine speed is too low.	Increase the throttle setting. See Step 11, page 9.
	The fluid filter (51), the tip filter or the tip is clogged or dirty.	Clean the filter. See page 12. Or, see the gun instruction manual.
	There is a large pressure drop in the hose with heavy materials.	Use a larger diameter hose and/or reduce the overall length of hose. Use of more than 100 ft of 1/4 in. hose significantly reduces the performance of the sprayer. Use 3/8 in. hose for optimum performance (50 ft minimum).
Fluid is spitting from the gun.	There is air in the pump or the hose.	Check and tighten all the fluid connections. Reprime the pump. See page 13.
	The tip is partially clogged.	Clear the tip. See the gun instruction manual.
	The fluid supply is low or empty.	Refill the fluid supply. Prime the pump. See page 8. Check the fluid supply often to prevent running the pump dry.
The pump is difficult to prime.	There is air in the pump or the hose.	Check and tighten all the fluid connections. Reduce the engine speed and cycle the pump as slowly as possible during priming.
	The intake valve is leaking.	Clean the intake valve. Be sure ball seat is not nicked or worn and that the ball seats well. Reassemble the valve.
	The pump packings are worn.	Replace the pump packings. See manual 307806.
	The paint is too thick.	Thin the paint according to the supplier's recommendations.
	The engine speed is too high.	Decrease the throttle setting before priming the pump. See Step 11, page 9.

Bearing Housing & Connecting Rod

⚠ WARNING



INJECTION HAZARD

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 10.

NOTE: Steps 1 to 13 refer to Fig. 7.

1. Relieve pressure.
2. Remove the screws (68) and the front cover (23).
3. Remove the spring clips (112, 114) and the drain hose (113). Unscrew the suction tube (30) from the pump, holding a wrench on the pump intake valve (B) to keep the pump from loosening.
4. Disconnect the pump outlet hose (59) from the displacement pump outlet nipple (87).
5. Use a screwdriver to push up the retaining spring (26) at the top of the pump. Push the pin (25) out the rear.
6. Loosen the jam nut (27) with an adjustable wrench. Unscrew and remove the displacement pump.
7. Use a hex key wrench to remove the four screws (73) and lockwashers (74) from the bearing housing (21).
8. While pulling the connecting rod (22) with one hand, lightly tap the lower rear of the bearing housing (21) with a plastic mallet to loosen it from the drive housing (20). Pull the bearing housing and the connecting rod assembly (22) off the drive housing.
9. Inspect the crank (A) for excessive wear and replace parts as needed.
10. Evenly lubricate the inside of the bronze bearing (C) in the bearing housing (21), and the inside of the connecting rod link (D), with high-quality motor oil (**do not use grease**). Liberally pack the roller bearing (E) in the connecting rod assembly (22) with bearing grease.
11. Assemble the connecting rod (22) and bearing housing (21).
12. Clean the mating surfaces of the bearing and drive housings.

13. Align the connecting rod with the crank (A) and carefully align the locating pins (F) in the drive housing (20) with the holes in the bearing housing (21). Push the bearing housing onto the drive housing or tap it into place with a plastic mallet.

⚠ CAUTION

DO NOT use the bearing housing screws (73) to align or seat the bearing housing with the drive housing. These parts must be aligned using the locating pins (F), to help avoid premature bearing wear.

14. Install the screws (73) and lockwashers (74) on the bearing housing. Tighten evenly to 40 ± 5 ft-lbs (54 ± 7 N·m).
15. Refer to Installing the Pump on page 31.

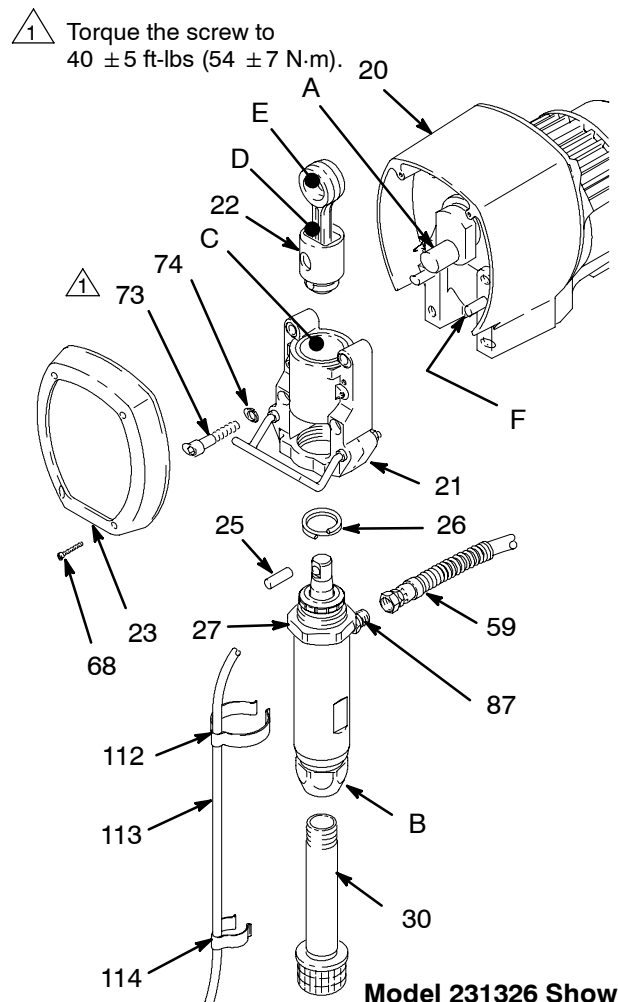


Fig. 7

03472

Drive Housing

WARNING



INJECTION HAZARD

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 10.

NOTE: Refer to Fig. 8 for this procedure.

1. Relieve pressure.
2. Remove the bearing housing. Follow Steps 1 to 8 on page 15.
3. Remove the two screws (24) and lockwashers (29) from the drive housing (20).
4. Remove the four screws (17) and lockwashers (29) from the pinion housing (19).
5. Lightly tap around the drive housing (20) to loosen the drive housing. Pull the drive housing straight off the pinion housing. Be prepared to support the gear cluster (18), which may also come out.

CAUTION

DO NOT drop the gear cluster (18) when removing the drive housing (20). The gear cluster is easily damaged. The gear may stay locked in the drive housing or pinion housing.

DO NOT lose the thrust balls (20b or 19d) located at each end of the gear cluster, or allow them to fall between the gears. The ball, which is heavily covered with grease, usually stays in the shaft recesses, but could be dislodged. If the balls are caught between the gears and not removed, they will seriously damage the drive housing. If the balls are not in place, the bearings will wear prematurely.

6. Liberally apply bearing grease to the gear cluster (18). A tube of grease is supplied with each replacement gear cluster. Use a full 7 ounces (190 grams) of grease. Be sure the thrust balls (20b and 19d) are in place.
7. Place the washer (20a) on the shaft protruding from the large shaft of the drive housing (20). Align the gears and push the new drive housing straight onto the pinion housing and locating pins (B).
8. Starting at Step 4, work backwards to reassemble the sprayer. Or, move ahead to the next section in this manual if further service is needed.

Drive Housing

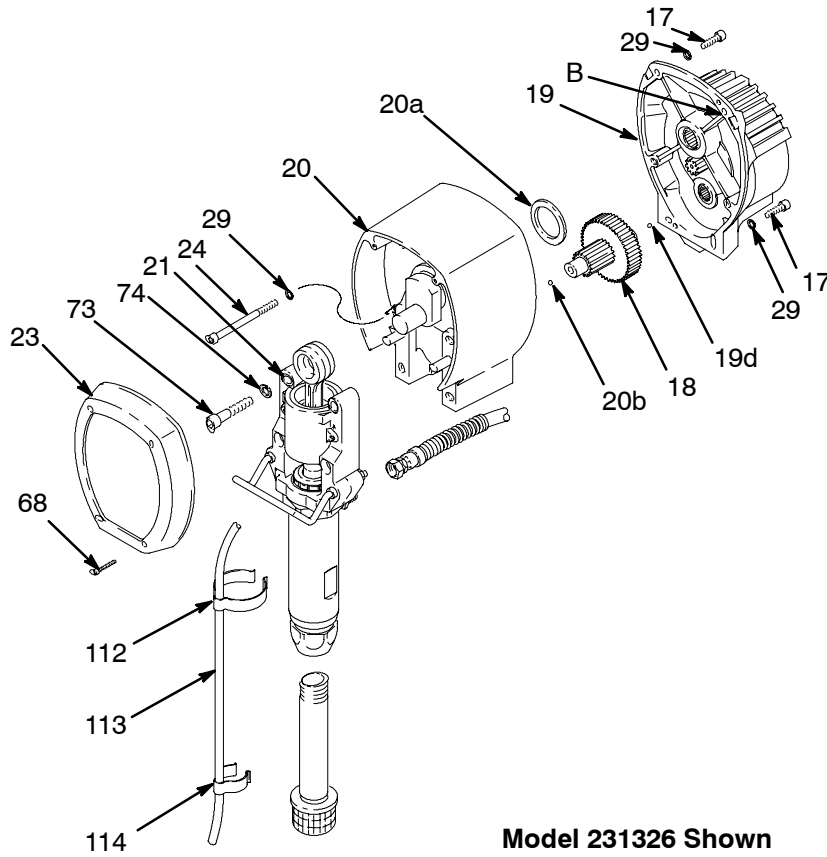


Fig. 8

03473

Pinion, Clutch, Clamp, Field, & Engine

Disassembling these parts can start from the pinion housing, or from the clutch if no pinion service is needed.

If starting from the pinion housing, first follow Steps 3 to 5 of **DRIVE HOUSING**, on page 16, and then continue with the procedure below.

If starting from the clutch, see page 20.

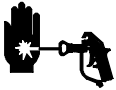
⚠ CAUTION

Do not lose the thrust ball (19d). Refer to the **CAUTION** on page 16 for more information.

NOTE: To disassemble the pinion, go to page 19. To disassemble more of the sprayer, go to page 20. To reassemble the sprayer from this point, skip ahead to **Reassembly**, page 25, step 7.

Pinion Housing Removal

⚠ WARNING



INJECTION HAZARD

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 10.

NOTE: Refer to Fig. 9 for Steps 1 to 3.

1. Relieve pressure.
2. Remove the two bottom screws (10) and lockwashers (11) first, then remove the two side screws (10) and lockwashers (11), and last remove the top screw (10) and lockwasher (11).
3. Pull the pinion housing (19) away from the clutch housing. The armature (4a) will come with it.
4. Pull the armature (4a) off the hub (19j) of the pinion housing. Also see Fig. 10.

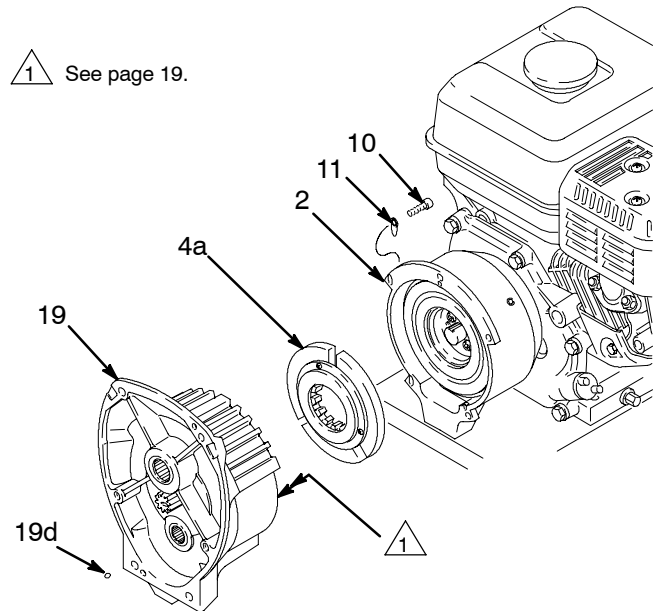


Fig. 9

03474

Pinion Housing

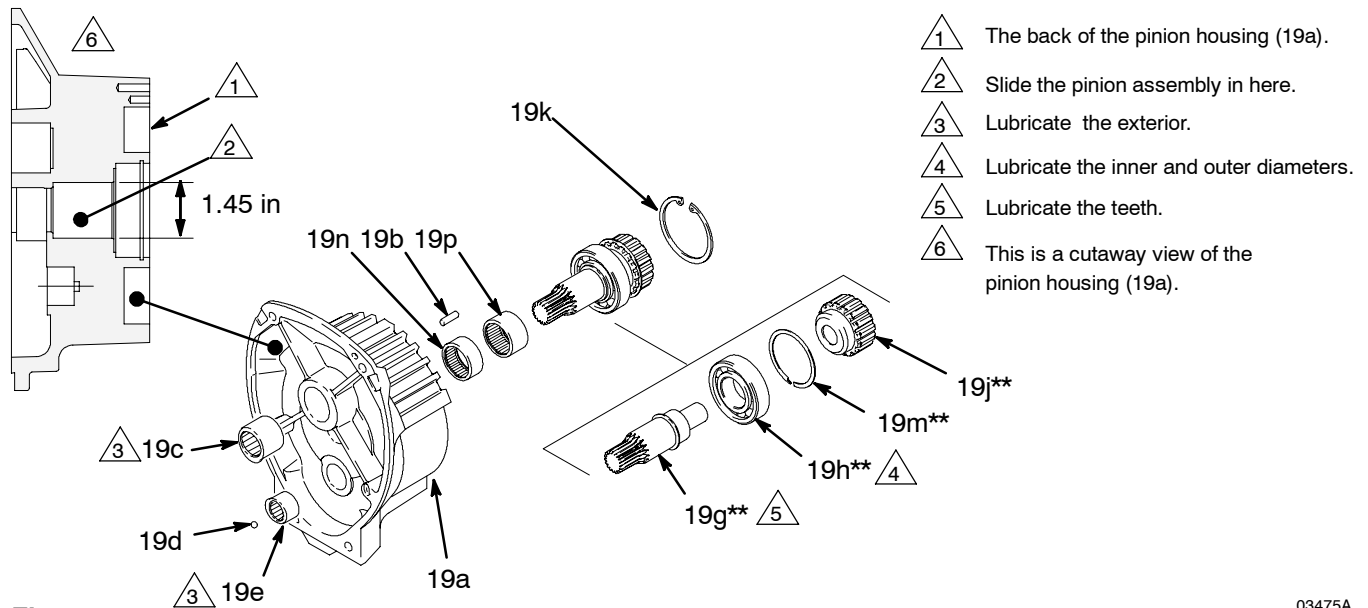


Fig. 10

03475A

Repairing the Pinion

NOTE: Refer to Fig. 10 except where noted.

NOTE: A hydraulic press is required if you purchase the pinion parts individually. Otherwise, use Repair Kit No. 240162, which includes the shaft and bearings pre-assembled and lubricated.

If using Repair Kit 240162, follow Steps 1 to 5, below.

1. Remove the small ring (19m**) from the hub (19j) and the large ring (19k) from the bearing recess of the pinion housing (19a).
2. Push on the front of the shaft (19g**) to force the bearing and hub assembly out of the housing (19a).
3. Install the new shaft assembly into the pinion housing; push it to the shoulder of housing (19a).
4. Install the ring (19k) and then the ring (19m**).
5. Go to **Reassembly**, page 25, step 7., or continue on page 20.

- A Place the steel blocks as shown to press off the large bearing (19h).
- B Hydraulic press
- C Use a round steel bar to push on the shaft (19g)
- D Position two steel bars as shown (front bar not shown).
- E Position two steel bars as shown.
- F Platform of hydraulic press

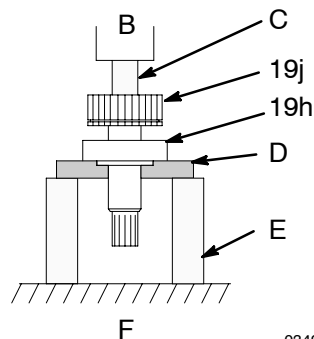


Fig. 11

03499F

If purchasing parts separately, use these instructions. Disassemble as far as needed for the parts being replaced.

NOTE: The old bearing (19h) will be damaged when removed. Have an extra bearing on hand if you need to remove it for any reason.

1. Remove the small ring (19m) from the hub (19j).
2. Remove the snap ring (19k) from the bearing recess of the pinion housing (19a).
3. Push on the front of the shaft (19g) to force the bearing (19h) and hub (19j) assembly out of the housing.
4. **Using a hydraulic press**, place pieces of steel bar stock on the inner race of the large bearing (19h) and press the shaft through the hub and bearing. See Fig. 11.
5. Apply lubricant to the parts as shown in Fig. 10.
6. Press fit the following parts: Large bearing (19h) to the large shoulder of the shaft (19g). Hub (19j) onto the shaft (19g) all the way to the large bearing (19h).
7. Install the shaft assembly, pushing it to the shoulder of the housing (19a).
8. Install the snap ring (19k). Install the small ring (19m).
9. Go to **Reassembly**, page 25, step 7., or continue on page 20.

Clutch

⚠ WARNING



INJECTION HAZARD

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 10.

NOTE: The clutch assembly (4) includes the armature (4a) and rotor (4b). The armature and rotor must be replaced together so they wear evenly.

NOTE: If the pinion assembly (19) is not yet separated from the clutch housing (2), follow Steps 1 to 4. Otherwise, start at Step 5.

NOTE: Refer to Fig. 12 for this procedure.

1. Relieve pressure.
2. Disconnect the hose (59) from the displacement pump. Remove the spring clips and drain hose (113) from the displacement pump.
3. Remove the two bottom screws (10) and lockwashers (11) first, then remove the two side screws (10) and lockwashers (11), and last remove the top screw (10) and lockwasher (11).
4. Tap lightly on the back of the bearing housing (21) with a plastic mallet to loosen the assembly (D) from the clutch housing. Pull the assembly away.
5. The armature (4a) was removed with the pinion housing. Remove the armature from the pinion hub.
6. There are two procedures to remove the rotor (4b).
 - a. Remove the four socket head capscrews (16) and lockwashers (11). Install two of the screws in the threaded holes (E) in the rotor. Alternately tighten the screws until the rotor comes off. See Fig. 12. If the rotor is difficult to remove, use procedure b.
 - b. You can use a standard steering wheel puller (A). However, two 1/4-22- x 3 or 4 in. long screws (B) are also needed. Replace the short screws of the steering wheel puller with the longer screws (B). Turn the screws (B) into the threaded holes (E) of the rotor (4b). Tighten the capscrew (C) of the tool until the rotor comes off. See the Detail in Fig. 12.
7. Skip ahead to **Reassembly**, page 25, step 6., or continue on the next page.

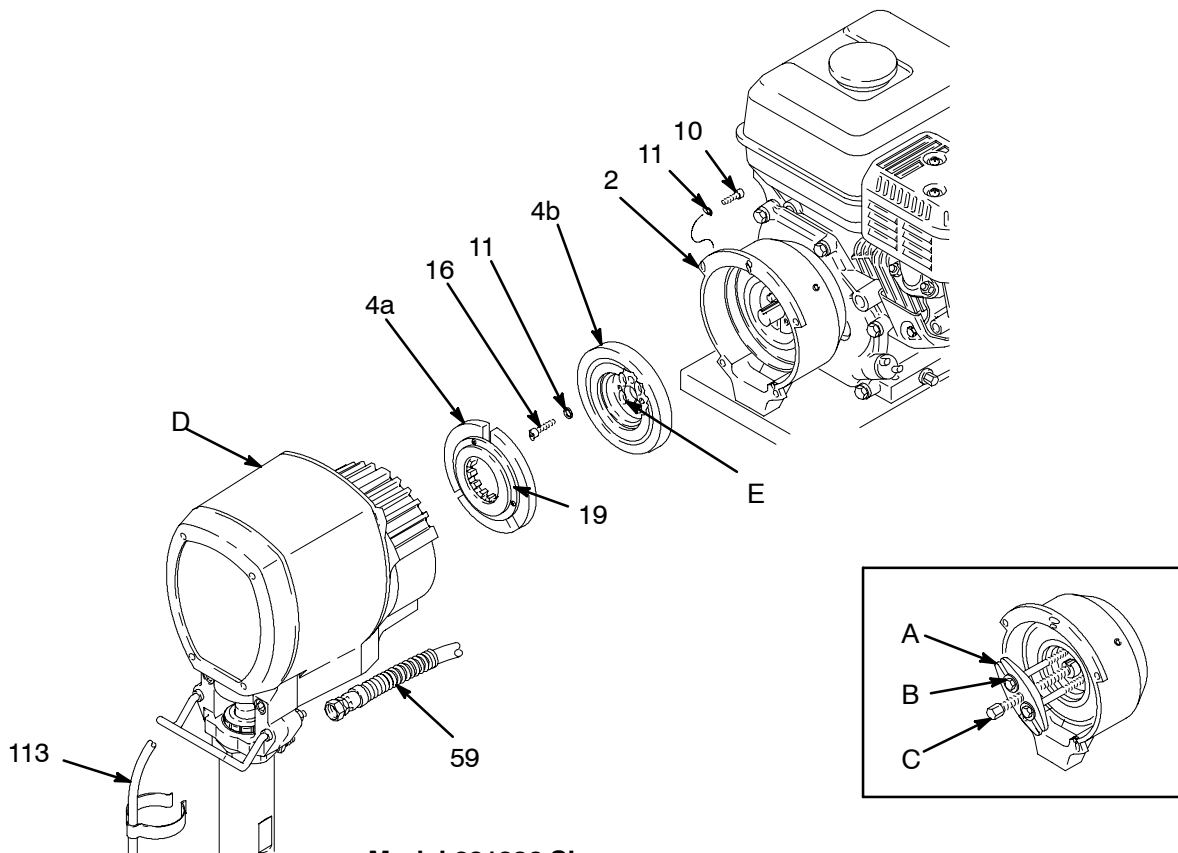


Fig. 12

Model 231326 Shown

05798A

Field & Wiring Harness

NOTE: Refer to Fig. 13.

1. Loosen the four setscrews (12) holding the field (6) to the clutch housing (2).
2. Pull off the field.
3. Pull the plastic caps (B) off the wire screws (98) in both places on the field. Loosen the screws and release the wires (96).
4. Skip ahead to **Reassembly**, page 24, step 4. or continue on page 21.

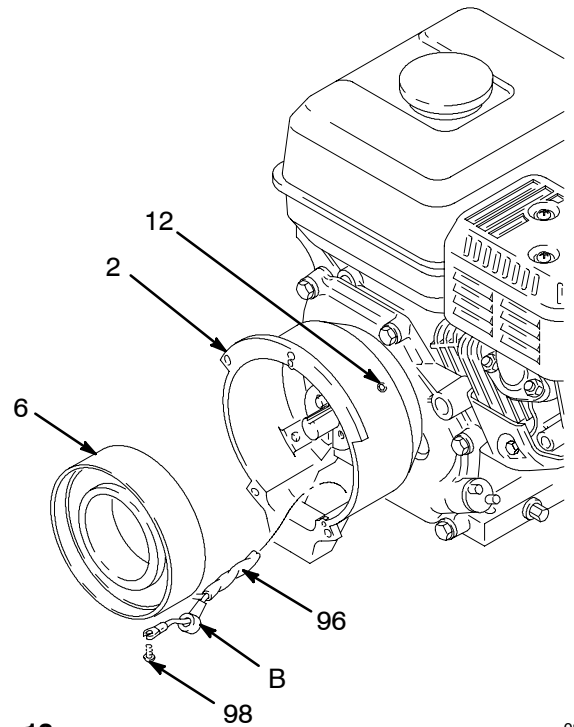


Fig. 13

03479

Clamp

NOTE: A standard steering wheel puller and two 1/4-28 x 3 or 4 in. long screws are required to remove the clamp.

NOTE: Refer to Fig. 14.

1. Loosen the two screws (16) on the clamp (3), working through the slot at the bottom of the clutch housing (2).
2. Install two screws (B) of the tool (A) in two of the threaded holes in the clamp (3). Tighten the screw (C) until the clamp comes off.
3. Skip ahead to **Reassembly**, page 24, step 3., or continue to the right.

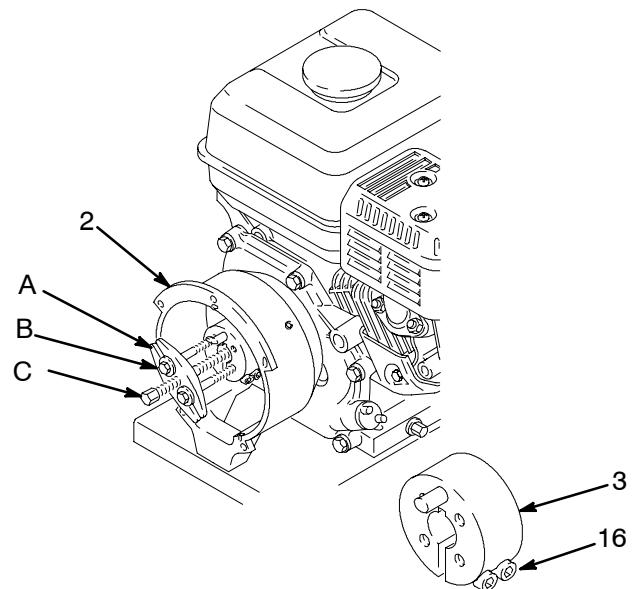


Fig. 14

03480

Clutch Housing

NOTE: Refer to Fig. 15.

1. Remove the four capscrews (8) and lockwashers (9) which hold the clutch housing (2) to the engine.
2. Remove the capscrew (15), lockwasher (80) and washer (99) from beneath the mounting plate (D).
3. Remove the engine key (13).
4. Pull off the clutch housing (2).
5. Skip ahead to **Reassembly**, page 24, step 1.

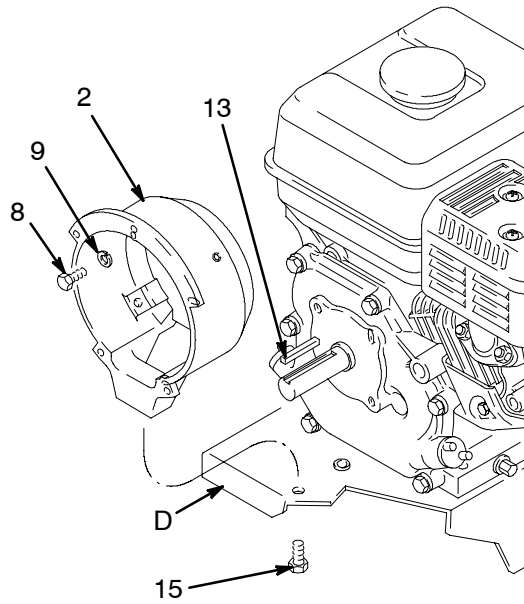


Fig. 15

03481A

Engine

1. Remove the **Pinion Housing, Clutch, Field and Wiring Harness, Clamp** and **Clutch Housing**, as instructed on pages 18 and 20 through 22.
2. See Fig. 16 and 17. Disconnect the red wire from the engine lead (B). Disconnect the black and white wires from the field. Loosen the clamp (97). Pull the wires carefully through the grommets (66) before removing the engine. Remove the two locknuts (111) and then pull the screws (14) out of the base of the engine.
3. Lift the engine carefully and place it on a work bench.
4. Skip ahead to **Reassembly**, page 24, step 1.

NOTE: All service to the engine must be performed by an authorized HONDA dealer.

- △1 To the field.
- △2 To the engine.

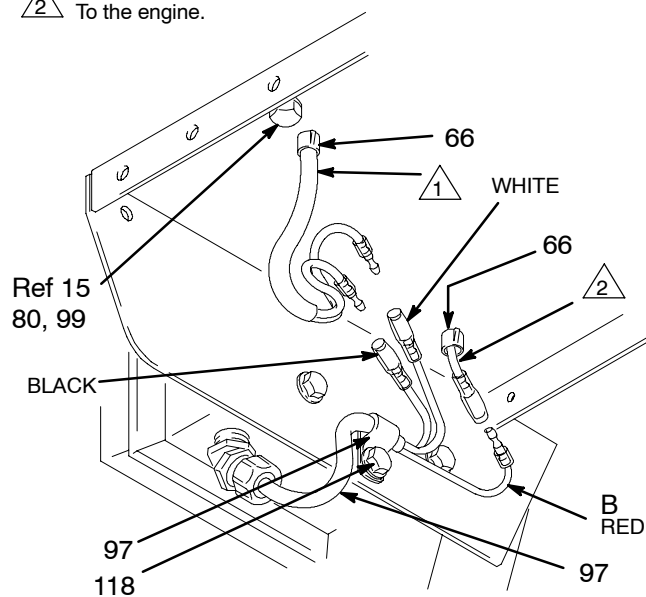


Fig. 16

03478A

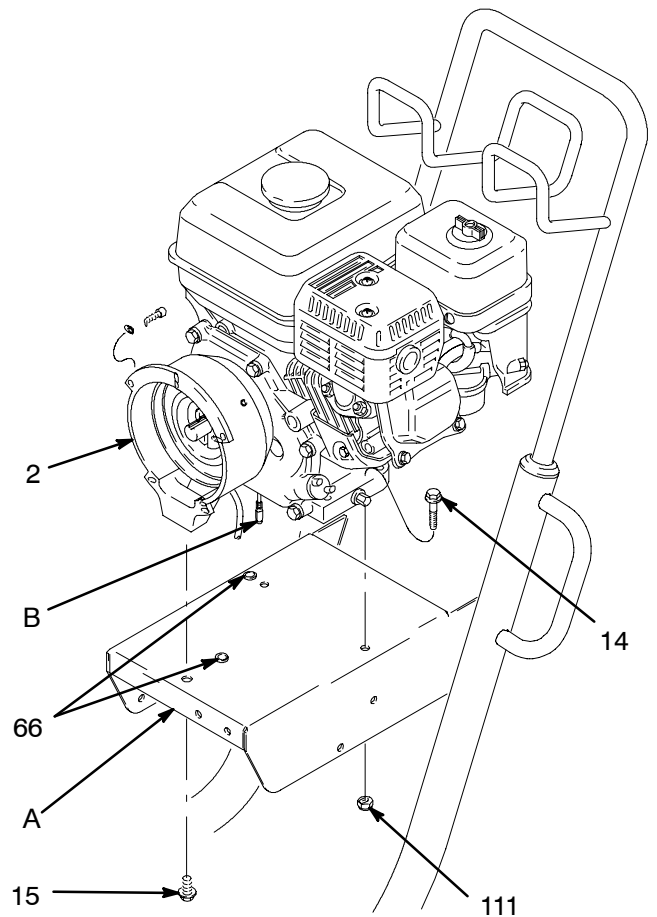


Fig. 17




03477C

Reassembly

1. Install the **clutch housing (2)**, capscrews (8) and lockwashers (9) on the engine. See Fig. 18.
2. Install the engine shaft **key (13)**. See Fig. 18.
3. Press the **clamp (3)** onto the engine shaft (A). Maintain the 1.99 ± 0.01 in. (50.55 ± 0.25 mm) dimension shown in Fig. 19.

To check the dimension, place a rigid, straight steel bar (B) across the face of the clutch housing (2). Use an accurate measuring device to measure the distance between the bar and the face of the clamp. Adjust the clamp as necessary. Torque the two screws (16) to 125 ± 10 in-lb (14 ± 1.1 N·m).

4. Connect the wires of the wire harness (96) to the screws (98) in both places on the field (wires can be attached to either connection). Pull the plastic caps (C) up and snap them over the screws. Install the **field (6)** in the clutch housing (2). Work the wire harness through the slot in the clutch housing. With the setscrew holes in the field and the clutch housing (2) aligned, tighten the setscrews (12) oppositely and evenly, to 27 ± 3 in-lb (3.1 ± 0.3 N·m). See Fig. 18.

-  The face of the housing.
-  1.99 ± 0.01 in. (50.55 ± 0.25 mm).
-  Torque the screws to 125 ± 10 in-lb (14 ± 1.1 N·m)

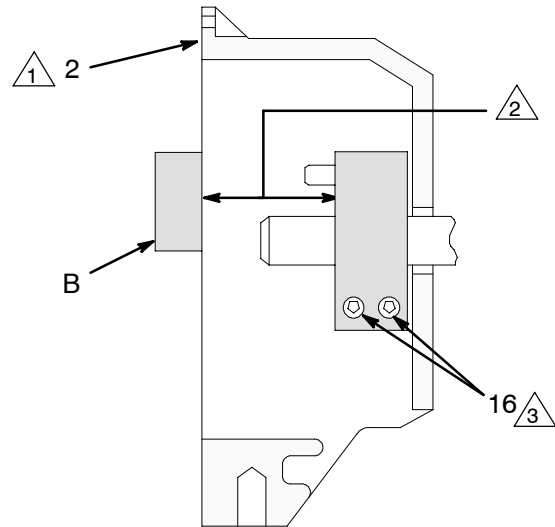




Fig. 19

03483

5. Place the **engine (1)** assembly on the cart. Align the mounting holes. Carefully guide the engine wire (D) and wiring harness (96) from the field, through the appropriate grommets (66) in the mounting plate (E). Install the flange screws (14) and locknuts (111). Torque to 15 ft-lb (20.4 N·m). Install the capscrew (15), lockwasher (80) and washer (99) from under the engine mounting plate to the clutch housing (2). Connect the engine wire (D) to the red wire, and connect the black and white wires as shown in the Detail drawing in Fig. 20.

-  Torque the screws oppositely and evenly to 27 ± 3 in-lb (3.1 ± 0.3 N·m).
-  Slot.

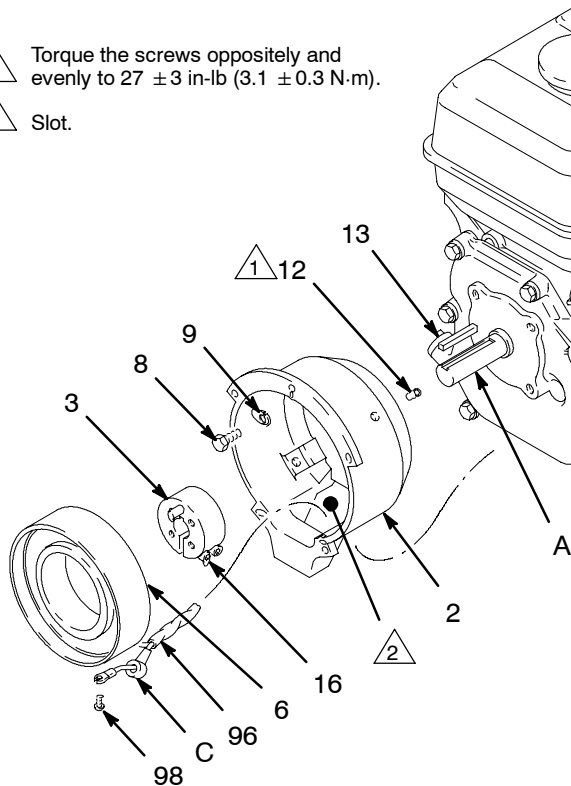


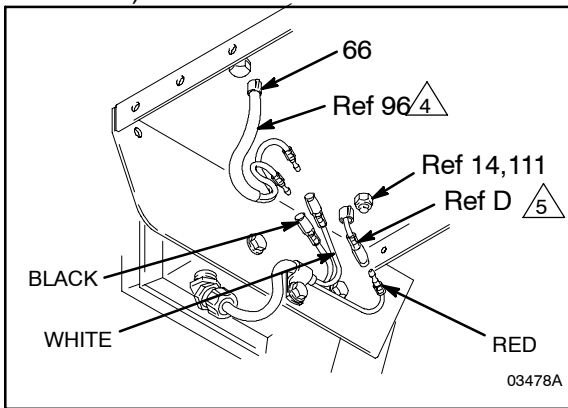
Fig. 18

03482

Reassembly

6. Be sure the face of the **rotor (4b)** and the field are free of all oil and contaminants. Remove any burrs on the outside edge of the rotor. Install the rotor, lockwashers (11) and capscrews (16). Torque the capscrews to 125 ± 10 in-lb (14 ± 1.1 N.m). See Fig. 20.

After installing the **rotor (4b)**, check the clearance between the outside diameter of the rotor and the inside diameter of the field. The clearance must be at least 0.010 in. (0.25 mm) all the way around. Use shim stock or feeler gauge. If necessary, loosen the setscrews (12) and reposition the field. Tighten the setscrews evenly to 27 ± 3 in-lb (3.1 ± 0.3 N.m).



- 1 Torque the screw to 125 ± 10 in-lb (14 ± 1.1 N.m).
- 2 Torque the screw to 15 ft-lb (20.4 N.m).
- 3 The face must be clean.
- 4 To the field.
- 5 To the engine.
- 6 Spline

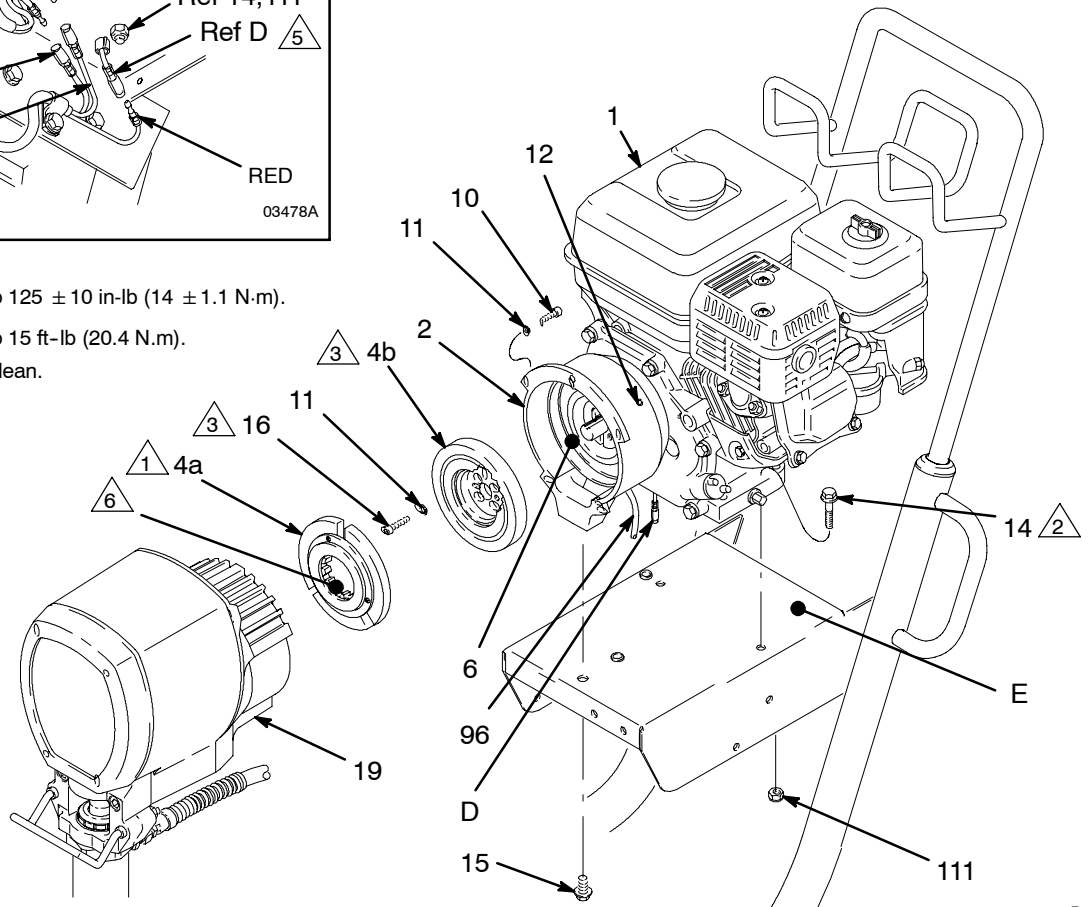
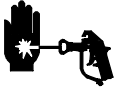


Fig. 20

03484B

Pressure Control Replacement

! WARNING



INJECTION HAZARD

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 10.

1. Relieve pressure.
2. Disconnect both hoses at the pressure control while holding the fitting or elbow (A) firmly. See the **CAUTION**, below. Note the original location of each hose to be sure you reassemble them correctly at the end of this procedure. See Fig. 21.

! CAUTION

Do not allow the elbow (A) to turn when removing or connecting the hoses. Turning the fitting or elbow can shift the calibration of the pressure control.

3. Remove the four mounting screws and washers (302, 303, 304) from the pressure control cover (76). See Fig. 22.
4. Carefully remove the pressure control cover (76) so as not to stress the cables.
5. Disconnect the black and white wires of the pressure control cable (314) from the pressure control cover.
6. Disconnect the potentiometer cable assembly (310) from the pressure control cover.
7. Disconnect the red power lead (B) from the ON/OFF switch.
8. Loosen the ground terminal screw (317) and disconnect the ground lead (C).
9. Pull off the pressure control cover.

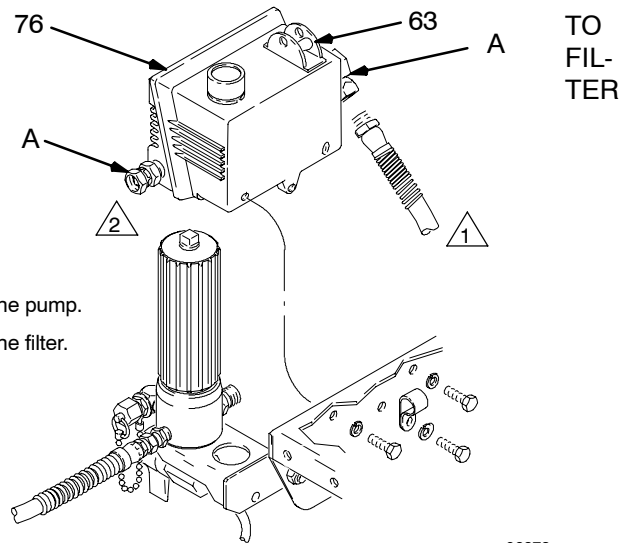


Fig. 21

06873

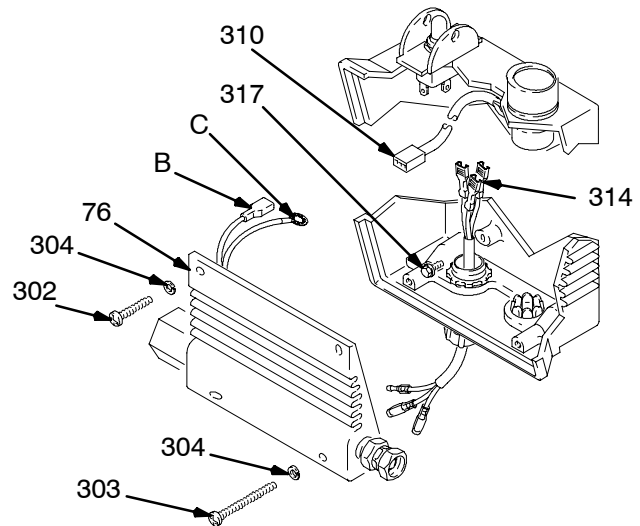


Fig. 22

06872A

! WARNING

Do not attempt to adjust or calibrate the pressure control. If the pressure control is faulty, replace it.

10. Reassemble in the reverse order; attach ground wire (C), power lead (B), and the black and white connectors. Attach the pressure control cover (76) using the four mounting screws and washers (302, 303, 304).

Displacement Pump

⚠ WARNING



INJECTION HAZARD

To reduce the risk of serious injury, whenever you are instructed to relieve pressure, follow the **Pressure Relief Procedure** on page 10.

Removing the pump. (See Fig. 23.)

1. Relieve pressure.
2. Flush the pump. See page 11
3. Hold the intake valve (423) with a wrench and unscrew the suction tube (30). Remove the hose (59). Remove the spring clips (112,114) and drain hose (113).
4. Push the retaining spring (26) up. Push the pin (25) out the rear.
5. Loosen the locknut (27). Unscrew the pump.

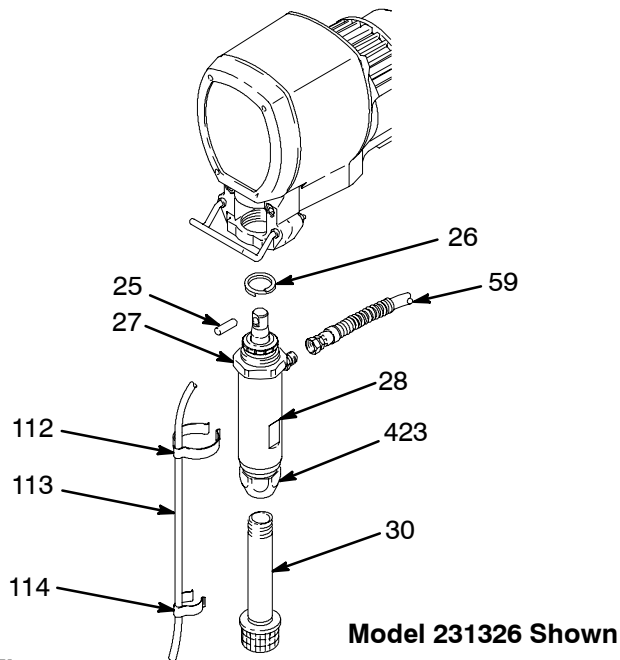


Fig. 23

03486

Repairing the pump.

See manual 307806 for displacement pump repair.

Installing the pump. (See Fig. 24.)

1. Screw the pump about 3/4 of the way into the bearing housing (21). Hold the pin (25) up to the pin hole on the connecting rod (22) and continue screwing in the pump until the pin slides easily into the hole.
2. Back off the pump until the top threads of the pump cylinder are flush with the face of the bearing housing and the outlet nipple faces back.
3. Push the retaining spring (26) into the groove all the way around the connecting rod. Tighten the locknut (27) to 145 ± 5 in-lb (197 ± 7 N·m) using a wrench and a light hammer.
4. Connect the pump outlet hose. Install the suction tube parts. Install the spring clips and drain hose.

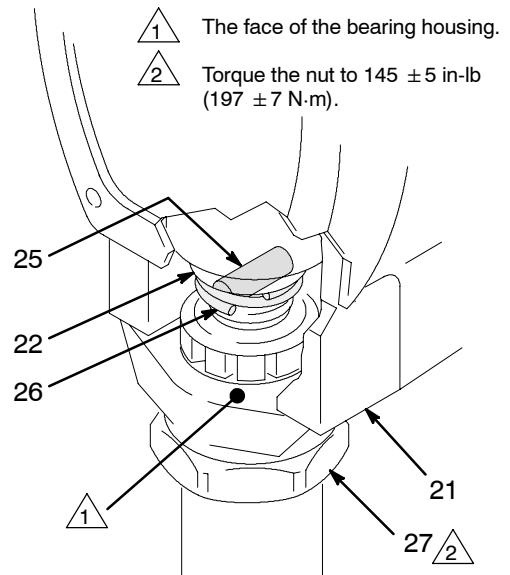


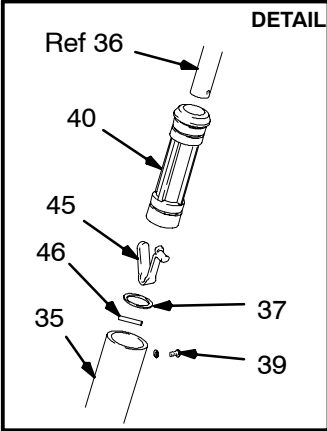
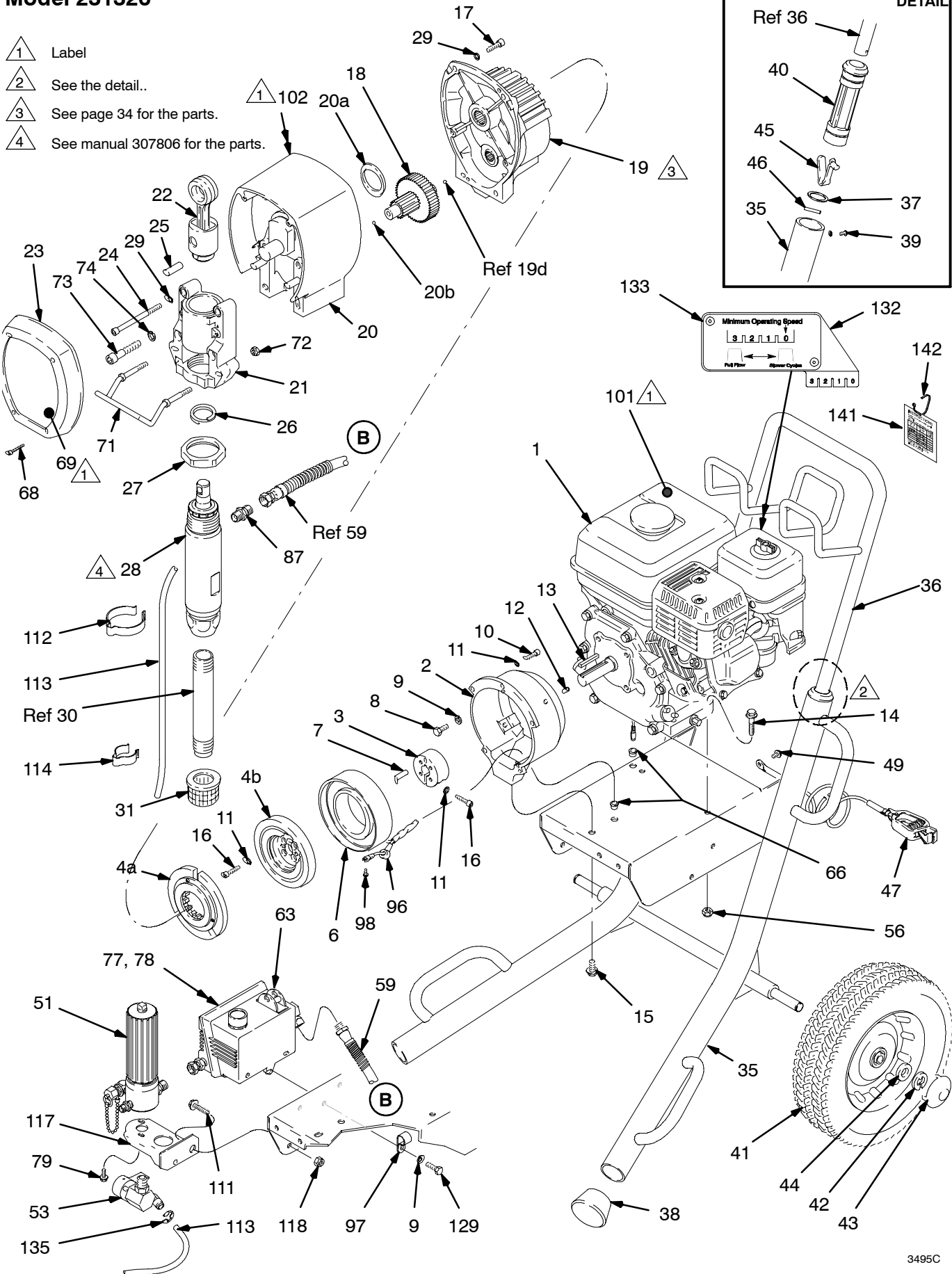
Fig. 24

0031

Parts Drawing - Basic Sprayer

Model 231326

- △ 1 Label
- △ 2 See the detail..
- △ 3 See page 34 for the parts.
- △ 4 See manual 307806 for the parts.



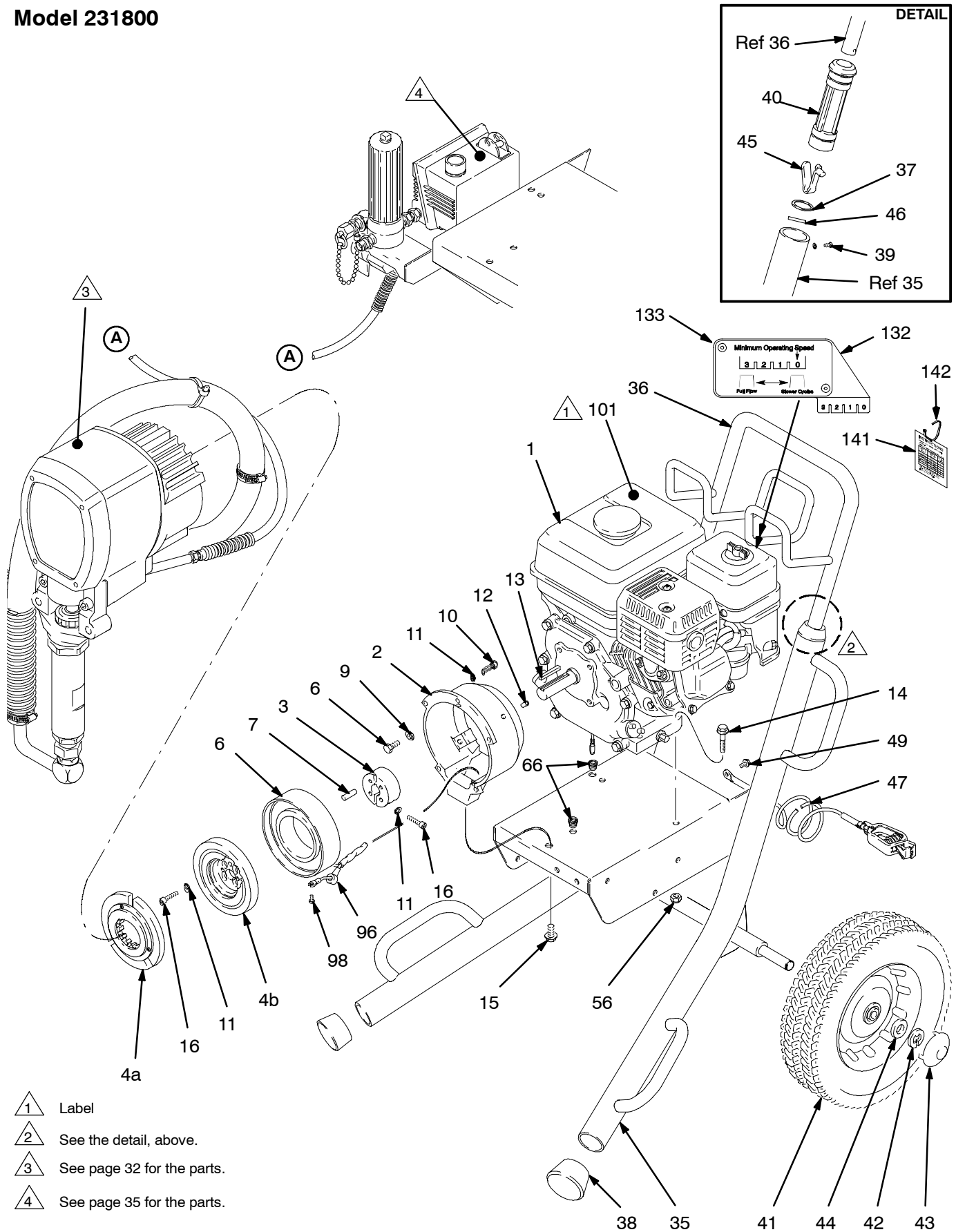
Parts List - Basic Sprayer

Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
1	108802	ENGINE	1	43	104811	HUBCAP	2
2	183397	CLUTCH HOUSING	1	44	154636	WASHER, 5/8 inch	2
3	183517	CLAMP, mounting, rotor	1	45	112827	BUTTON, snap	2
4	236568	CLUTCH ASSEMBLY	1	46	108068	PIN, spring, straight, 3/16 x 1-1/4 inch	2
4a		.ARMATURE	1	47	237686	GROUNDING CLAMP & WIRE	1
4b		.ROTOR	1	49	112798	SCREW, hex head, thread frmg, 1/4-20 x 3/8 inch	1
6	183400	FIELD	1	51	237481	FLUID FILTER	1
7	108800	PIN, dowel, spring, 5/16 x 1 inch	1			See 307273 for parts	1
8	108842	CAPSCREW, hex head, 5/16-24 x 3/4 inch	4	53	237677	PRESSURE DRAIN VALVE	1
9	100214	LOCKWASHER, 5/16 inch	7	56	110838	LOCKNUT, heavy hex, 5/16-18	3
10	100644	CAPSCREW, socket head, 1/4-20 x 3/4 inch	5	59	222516	HOSE, 3/8 inch ID, 29 inch (737 mm), cpld 3/8 npt(m) x 3/8 npsm(f); spring guard both ends	2
11	105510	LOCKWASHER, spring, 1/4 inch	11	63	239266	CONTROL, pressure	1
12	108801	SETSCREW, 1/4-20	4			See page 35 for parts	1
13	183401	KEY, parallel, 3/16 inch sq x 7/8 inch	1	66	109099	BUSHING, snap	2
14	110837	FLANGE SCREW, hex head, 5/16-18 x 1-1/2 inch	2	68	108850	SCREW, filh, 10-24 x 2 inch	4
15	113802	SCREW, hex head, flanged, 3/8-16 x 5/8 inch	1	69	290371	LABEL, identification	1
16	108803	CAPSCREW, socket head, 1/4-28 x 1 inch	6	71	189672	HANGER, pail	1
17	101864	CAPSCREW, socket head, 5/16-18 x 1 inch	4	72	112746	LOCKNUT, 5/15-18	2
18	236571	GEAR REDUCER	1	73	112599	CAPSCREW, socket head, 7/16-14 x 2.25 inch	4
19	236572	PINION HOUSING ASSEMBLY	1	74	112600	LOCKWASHER, spring, 7/16 inch	4
20	236962	DRIVE HOUSING	1	77	290375	LABEL, identification, control, top	1
20a	106227	.WASHER, bronze	1	78	290372	LABEL, identification, control, bottom	1
20b	100069	.BALL, sst	1	79	110997	FLANGE SCREW, hex head, 1/4-20 x 5/8 inch	2
20c	110293	.TUBE, grease	1	86	206994	THROAT SEAL LIQUID, 8 ounce (0.27 liter)	1
21	236570	BEARING HOUSING	1	87	162485	NIPPLE, pipe, 3/8 npt(m) x 3/8 npsm(m)	2
22	236569	CONNECTING ROD	1	96	220980	HARNESS, wiring	1
23	236573	COVER, HOUSING	1	97	108868	CLAMP, wire	1
24	112603	CAPSCREW, socket head, 5/16-18 x 4 inch	2	98	108860	SCREW, mach, bdgh, 8-32 x 1/4 inch	2
25	189664	PIN, straight, 3/8 x 1/8 inch	1	101▲	181867	LABEL, Warning	1
26	189665	SPRING, retaining	1	102▲	185953	LABEL, Danger	1
27	189583	NUT, hex, 2-5/8 - 16	1	111	112818	CAPSCREW, hex head, flanged, 5/16-18 x 3/4 inch	1
28	236533	DISPLACEMENT PUMP	1	112	189673	CLIP, spring	1
29	104008	LOCKWASHER, 5/16	6	113	191889	TUBE, bypass	1
30	189674	TUBE, intake	1	114	181102	CLIP, spring	1
31	189920	STRAINER	1	117	237831	BRACKET, filter mounting	1
35	239051	CART FRAME	1	129	101344	CAPSCREW, hex hd, 5/16-18 x 7/8 inch	3
36	238187	CART HANDLE & HOSE RACK	1	132	192014	PLATE, indicator	1
37	183350	WASHER, plain	2	133	113084	RIVET, blind	2
38	112125	PLUG, tubing	2	135	113983	RING, retaining	1
39	108795	SCREW, mach, pan head, 10-32 x 5/16 inch	4	141	194498	TAG, throttle	1
40	187604	SLEEVE	2	142	102478	TIE, wire	1
41	179811	WHEEL, semi-pneumatic	2				
42	101242	RING, retaining	2				

▲ Replacement Danger and Warning labels, tags, and cards are available free.

Parts Drawing - Lo-Boy Sprayer

Model 231800



- 1 Label
- 2 See the detail, above.
- 3 See page 32 for the parts.
- 4 See page 35 for the parts.

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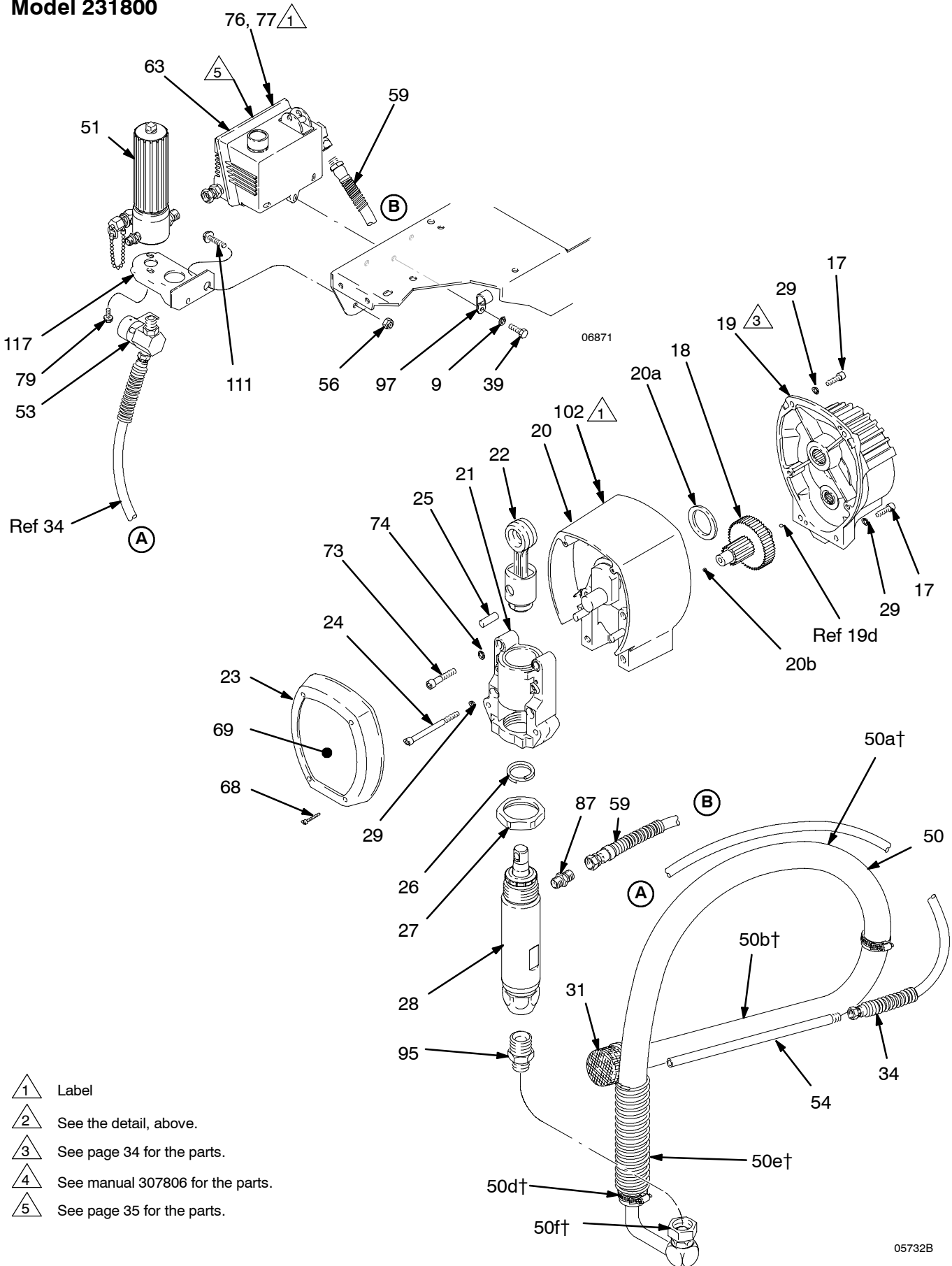
Parts List - Lo-Boy Sprayer

Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
1	108802	ENGINE	1	39	108795	SCREW, mach, pan head,	
2	183397	CLUTCH HOUSING	1			10-32 x 5/16 inch	4
3	183517	CLAMP, mounting, rotor	1	40	187604	SLEEVE	2
4	236568	KIT, repair, clutch; <i>Includes 4a & 4b</i>	1	41	179811	WHEEL, semi-pneumatic	2
4a		ARMATURE	1	42	154636	WASHER, 5/8 inch	2
4b		ROTOR	1	43	104811	HUBCAP	2
6	183400	FIELD	1	44	101242	RING, retaining	2
7	108800	PIN, dowel, spring, 5/16 x 1 inch	1	45	112827	BUTTON, snap	2
8	108842	CAPSCREW, hex head, 5/16-24 x 3/4 inch	4	46	108068	PIN, spring, straight, 3/16 x 1-1/4 inch	2
9	100214	LOCKWASHER, 5/16 inch	7	47	237686	GROUNDING CLAMP & WIRE	1
10	100644	CAPSCREW, socket head, 1/4-20 x 3/4 inch	5	49	112798	SCREW, hex head, thread frmg, 1/4-20 x 3/8 inch	1
11	105510	LOCKWASHER, spring, 1/4 inch	11	66	109099	BUSHING, snap	2
12	108801	SETSCREW, 1/4-20	4	96	220980	HARNESS, wiring	1
13	183401	KEY, parallel, 3/16 inch sq x 7/8 inch	1	98	108860	SCREW, mach, bdgh, 8-32 x 1/4 inch	2
14	110837	SCREW, hex head, flange, 5/16-18 x 7/8 inch	2	101▲	181867	LABEL, Warning	1
16	108803	CAPSCREW, socket head, 1/4-28 x 1 inch	6	132	192014	PLATE, indicator	1
56	110838	LOCKNUT, heavy hex, 5/16-18	3	133	113084	RIVET, blind	2
35	239055	CART FRAME	1	141	194498	TAG, throttle	1
36	238187	CART HANDLE & HOSE RACK	1	142	102478	TIE, wire	1
37	183350	WASHER, plain	2				
38	112125	PLUG, tubing	2				

▲ Replacement Danger and Warning labels, tags, and cards are available free.

Parts Drawing - Lo-Boy Sprayer

Model 231800



- 1 Label
- 2 See the detail, above.
- 3 See page 34 for the parts.
- 4 See manual 307806 for the parts.
- 5 See page 35 for the parts.

05732B

Parts List - Lo-Boy Sprayer

Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
9	100214	LOCKWASHER, 5/16 inch	7	73	112599	CAPSCREW, socket head, 7/16-14 x 2.25 inch	4
17	101864	CAPSCREW, socket head, 5/16-18 x 1 inch	4	74	112600	LOCKWASHER, 7/16	4
18	236571	GEAR REDUCER	1	76	290372	LABEL, identification, control, bottom	1
19	236572	PINION HOUSING ASSEMBLY	1	77	290375	LABEL, identification, control, top	1
20	236962	See parts on page 34 DRIVE HOUSING	1	78	206994	THROAT SEAL LIQUID, 8 ounce (0.27 liter)	1
20a	106227	.WASHER, bronze	1	79	110997	FLANGE SCREW, hex head, 1/4-20 x 5/8 inch	2
20b	100069	.BALL, sst	1	87	162485	NIPPLE, hex, 3/8 npt x 3/8 npsm	3
20c	110293	.TUBE, grease	1	95	158555	NIPPLE, reducing, 1 in. to 3/4 in.	1
21	236570	BEARING HOUSING	1	97	108868	CLAMP, wire	1
22	236538	CONNECTING ROD	1	102▲	185953	LABEL, Danger	1
23	236573	COVER, HOUSING	1	111	112818	CAPSCREW, hex hd, flange 5/16-18 x 3/4	1
24	112603	CAPSCREW, socket head, 5/16-18 x 4 inch	2	117	237831	BRACKET, filter mounting	1
25	189664	PIN, straight, 3/8 x 1/8 inch	1				
26	189665	SPRING, retaining	1				
27	189583	NUT, hex, 2-5/8 -16	1				
28	236533	DISPLACEMENT PUMP	1				
		See manual 307806 for parts	1				
29	104008	LOCKWASHER, spring, 5/16 inch	6				
31	189920	STRAINER	1				
34	190963	HOSE, drain	1				
39	101344	CAPSCREW, hex head, 5/16-18, .875 inch	3				
50	239059	KIT, tube, suction, 20 gallon	1				
		Includes 50a through 50g	1				
50a†	192160	HOSE, nylon 1 in. x 41 in.	1				
50b†	239296	TUBE, suction, 20 gal.	1				
50d†	101818	CLAMP, hose	2				
50e†	176450	GUARD, hose	1				
50f†	110194	UNION, swivel, 180°	1				
51	237481	FLUID FILTER	1				
		See manual 307273 for parts	1				
53	239267	VALVE, drain, pressure	1				
54	192013	TUBE, drain	1				
56	110838	LOCKNUT, 5/16-18	1				
59	222516	HOSE, 3/8 inch ID, 29 inch (737 mm), cpld 3/8 npt(m) x 3/8 npsm(f); spring guard both ends	1				
63	239266	CONTROL, pressure	1				
		See page 35 for parts	1				
68	108850	SCREW, filh, 10-24 x 2 inch	4				
69	290371	LABEL, cover	1				

▲ Replacement Danger and Warning labels, tags, and cards are available free.

† Included in 239059

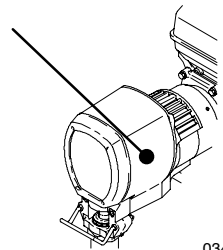
DANGER LABELS

The English language DANGER label shown on page 4 is also on your sprayer. If you have painters who do not read English, order one of the following labels to apply to your sprayer. The drawing below shows the best placement of these labels for good visibility.

Order the labels directly from Graco, free of charge. Toll Free: 1-800-609-2894

Apply other language here

French 185956
Spanish 185961
German 186041
Greek 186045
Korean 186049
English 185593



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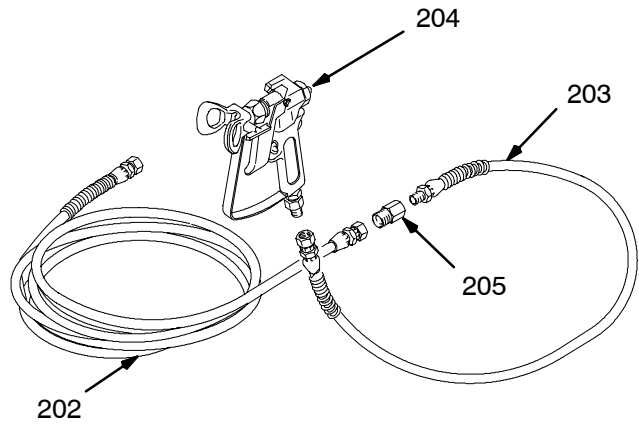
Parts List & Drawing - Complete Sprayer

Models 231327 and 231382

GM7000 Airless Paint Sprayer

Includes items 201 to 205

Ref No.	Part No.	Description	Qty
201	231326	GM7000 Basic Sprayer See parts list on page 29	1
	231800	GM7000 Lo-Boy Sprayer See parts list on pages 31 and 33	1
202	238041	HOSE, grounded, nylon; 3/8 inch ID; cpld 3/8 npsm(fbe); 50 foot (15 m); spring guards both ends	1
203	214701	HOSE, grounded, nylon; 3/16 inch ID; cpld 1/4 npsm(m) x 1/4 npsm(f) swivel; 3 foot (0.9 m); spring guards both ends	1
204	220955	CONTRACTOR SPRAY GUN Includes RAC IV™ DripLess™ Tip Guard and 517-size SwitchTip™ See 307614 for parts	1
205	159841	ADAPTER, 1/4-18 npt(f) x 3/8-18 npt(m)	1



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Parts List & Drawing - Pinion Assembly

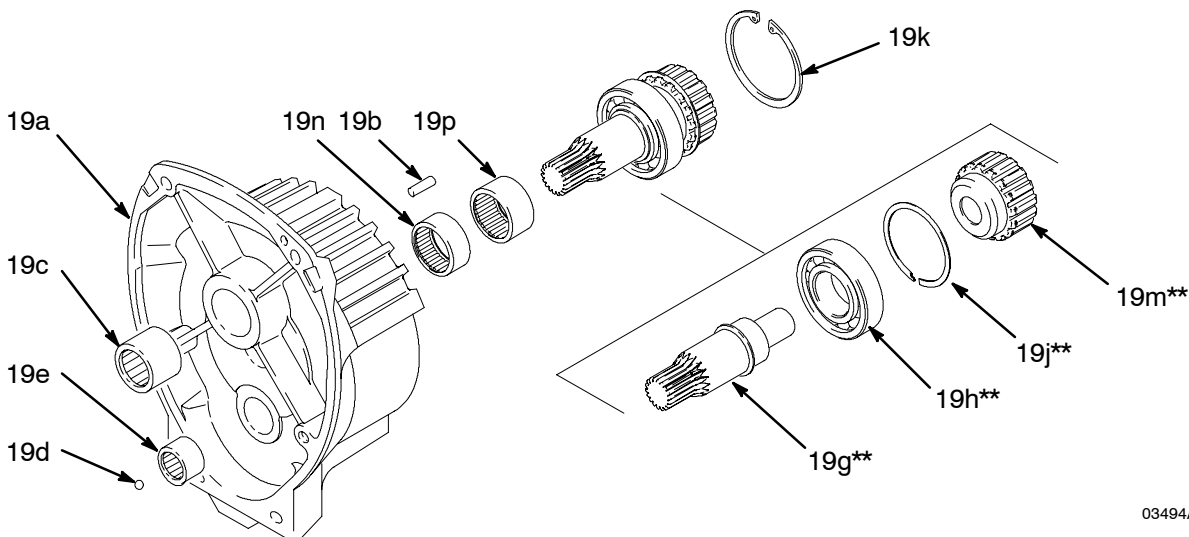
Ref No. 19

Pinion Housing Assembly 236572

Includes items 19a to 19p

Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
19a	189620	.PINION HOUSING	1	19j**	183396	.HUB, armature	1
19b	105489	.PIN	2	19k	108799	.RETAINING RING, large	1
19c	112596	.BEARING	1	19m**	108796	.RETAINING RING small	1
19d	100069	.BALL	1	19n	114044	.BEARING, needle	1
19e	107088	.BEARING	1	19p	114043	.CLUTCH, roller	1
19g**	193062	.PINION SHAFT	1				
19h**	108798	.BALL BEARING, large	1				

**Included in Repair Kit No. 240162.



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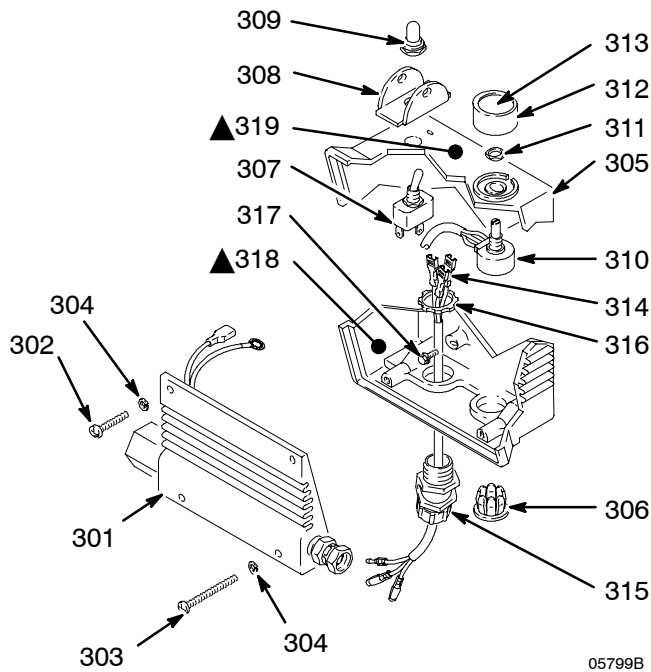
Parts List - Pressure Control

Basic Pressure Control for the GM7000 Sprayers

Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
301	239056	ENGINE CONTROL BOARD	1	312	112373	KNOB	1
302	107251	SCREW, panhead, 10-24 x 1 inch	2	313	185565	LABEL	1
303	112610	SCREW, panhead, 10-24 x 2 inch	2	314	231817	CONDUCTOR	1
304	100020	LOCKWASHER, No. 10	4	315	108852	CONNECTOR	1
305	189095	HOUSING,	1	316	112376	LOCKNUT	1
306	112614	PLUG	1	317	100078	SCREW, hex head, 8-24 x .375 inch	1
307	105679	TOGGLE SWITCH	1	318▲	189286	LABEL, warning	1
308	107255	GUARD	1	319▲	189246	LABEL, warning	1
309	105659	BOOT	1				
310	236352	POTENTIOMETER, pressure adjustment	1				
311	108358	SEAL	1				

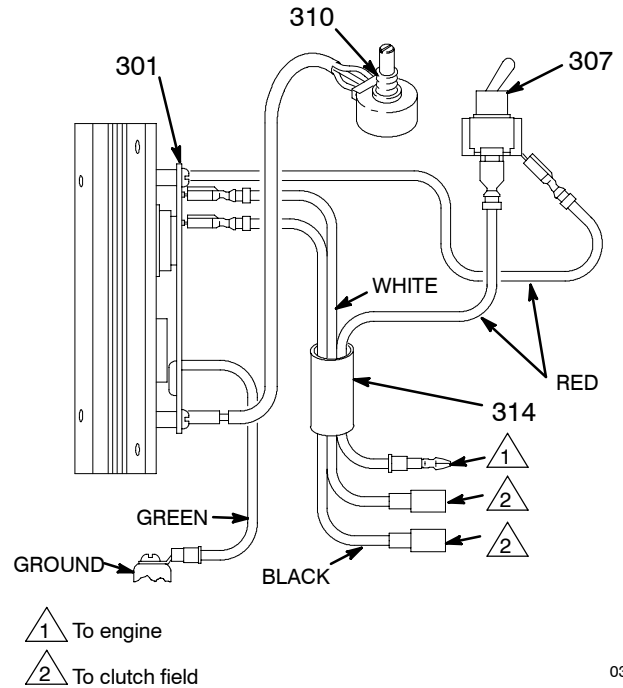
▲ Replacement Danger and Warning labels, tags, and cards are available free.

Parts Drawing - Pressure Control



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Wiring Schematic - Pressure Control



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Dimensions

Weight (dry, without packaging) 150 lb (68 kg)
 Height 31.6 inch (803 mm)

Length 31.5 inch (800 mm)
 Width 22.5 inch (572 mm)

Graco Phone Number

TO PLACE AN ORDER, contact your Graco distributor, or call this number to identify the distributor closest to you:
1-800-690-2894 Toll Free

Technical Data

Engine 5.5 horsepower, Honda
Maximum working pressure 3000 psi (207 bar, 21 MPa)
Noise Level
Sound power 105 dBa
per ISO 3744
Sound pressure 96 dBa
measured at 3.1 feet (1 m)
Cycles/gallon (liter) 78 (20)
Maximum delivery 1.75 gpm (6.7 liter/min)
Fuel tank capacity 0.95 gallons (3.6 liter)
Maximum tip size 1 gun with 0.043 inch tip
2 guns with 0.029 inch tip
3 guns with 0.025 inch tip
4 guns with 0.021 inch tip

Inlet paint strainer 8 mesh
stainless steel screen, reusable
Outlet paint filter 60 mesh (250 micron)
stainless steel screen, reusable
Pump inlet size 1 inch npt (f)
Fluid outlet size 3/8 npsm from fluid filter
Wetted parts
Displacement Pump stainless steel, carbon steel,
polyurethane, uhmw polyethylene,
Delrin®, leather
Filter aluminum, carbon steel, stainless steel

NOTE: Delrin® is a trademark of the DuPont Company.

Graco Warranty

Graco warrants all equipment listed in this manual which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor 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.

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, gas engines, 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.

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ADDITIONAL WARRANTY COVERAGE

Graco does provide extended warranty and wear warranty for products described in the "Graco Contractor Equipment Warranty Program".

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Foreign Offices: Belgium, Korea, Hong Kong, Japan

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<http://www.graco.com>

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