Repair and Parts

Pro 230ES and Pro 270ES Electric Airless Sprayers

3A2817A

EN

Pro 230ES Model: 262863
Pro 270ES Model: 262864

3000 psi (20.7 MPa, 207 bar) Maximum Working Pressure

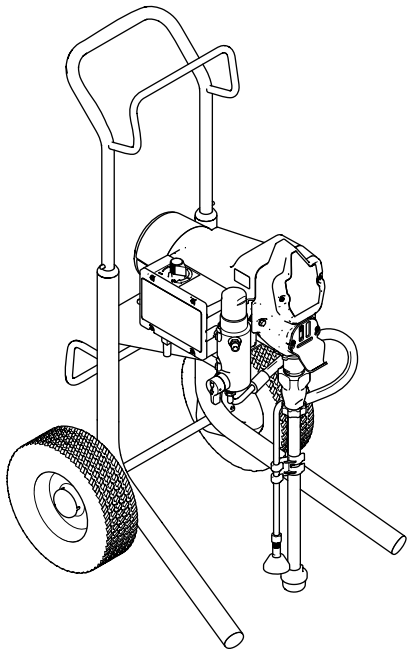
Important Safety Instructions
Read all warnings and instructions in this manual and in other manuals. Save these instructions.

Related Manuals

3A2813

312830

312015



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262863

PROVEN QUALITY. LEADING TECHNOLOGY.

Warnings

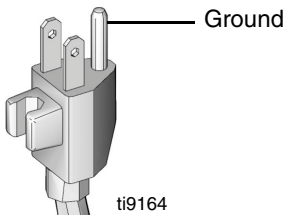
The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer 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.

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 120V circuit and has a grounding plug similar to the plug illustrated in the figure below.

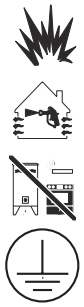


- Only connect the product to an outlet having the same configuration as the plug.
- Do not use an adapter with this product.

Extension Cords:

- Use only a 3-wire extension cord that has a 3-blade grounding plug and a 3-slot 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^2) 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.

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 flammable or 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 antistatic 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.
- Keep spray area well-ventilated. Keep a good supply of fresh air moving through the area. Keep pump assembly in a well ventilated area. Do not spray pump assembly.
- Do not smoke in the spray area.
- 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 Material Safety Data Sheets (MSDS) and container labels provided with the paints and solvents. Follow the paint and solvents manufacturer's safety instructions.
- Fire extinguisher equipment shall be present and working.
- Sprayer generates sparks. When flammable liquid is used in or near the sprayer or for flushing or cleaning, keep sprayer at least 20 feet (6 m) away from explosive vapors.

ELECTRIC SHOCK HAZARD

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

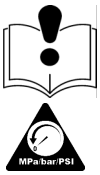
- Turn off and disconnect power cord before servicing equipment.
- Connect only to grounded electrical outlets.
- Use only 3-wire extension cords.
- Ensure ground prongs are intact on power and extension cords.
- Do not expose to rain. Store indoors.

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,** page 9 for turning off the unit and relieving the pressure before removing the nozzle tip to clean.
- Do not leave the unit energized or under pressure while unattended. When the unit is not in use, turn off the unit and follow the **Pressure Relief Procedure,** page 9 for turning off the unit.
- Check hoses and parts for signs of damage. Replace any damaged hoses or parts.
- This system is capable of producing 3000 psi. Use Graco replacement parts or accessories that are rated a minimum of 3000 psi.
- 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.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure,** page 9 when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- 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.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

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.
- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.

WARNING

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.

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 MSDSs 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.

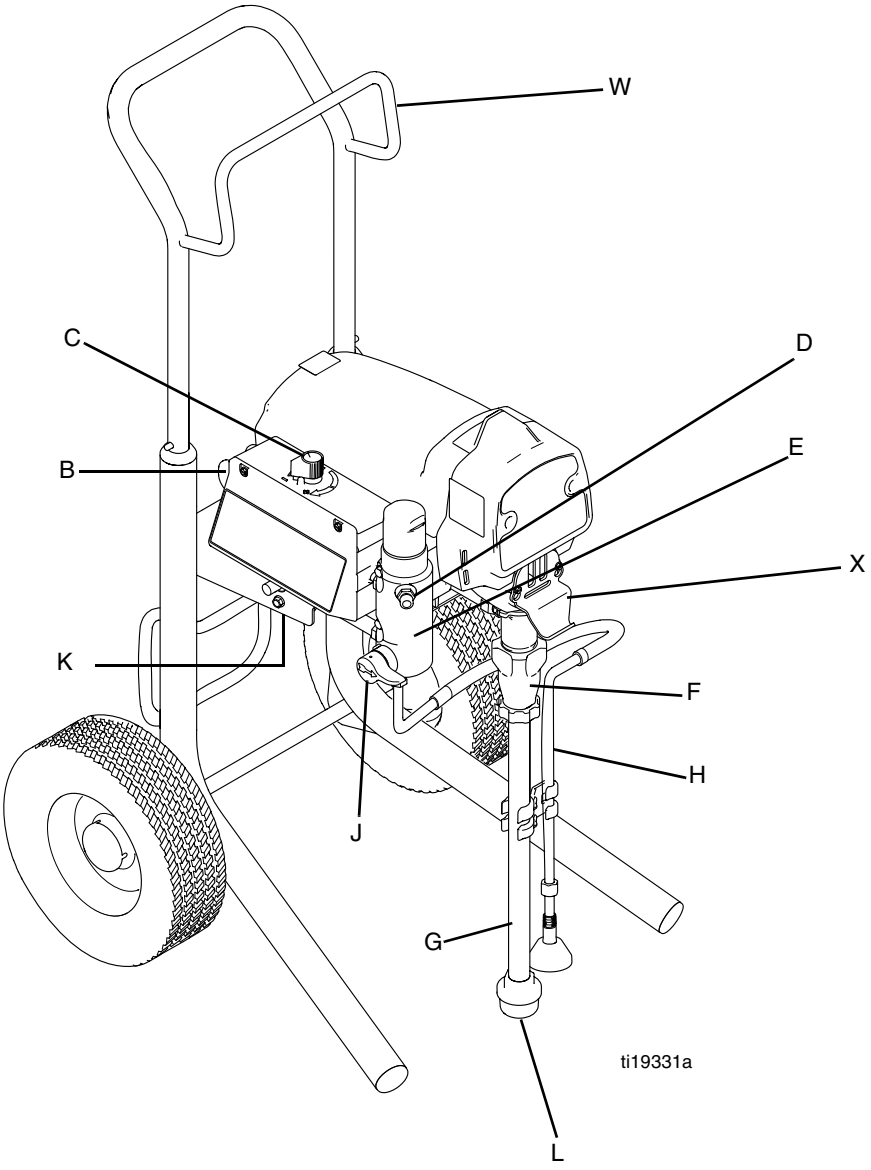
PERSONAL PROTECTIVE EQUIPMENT

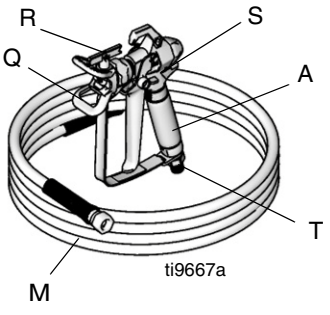
Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:

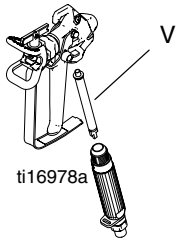
- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer

Component Identification

Model 262863 shown







V (SG2/SG3)

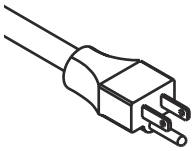
A	Airless spray gun	Dispenses fluid.
B	Power switch	Turns sprayer ON and OFF.
C	Pressure control knob	Increases (clockwise) and decreases (counter-clockwise) fluid pressure in pump, hose, and spray gun.
D	Pump fluid outlet fitting	Threaded connection for paint hose.
E	Filter	Filters fluid coming out of pump to reduce tip plugging and improve finish.
F	Endurance™ Pump	Pumps and pressurizes fluid and delivers it to paint hose.
G	Suction tube	Draws fluid from paint pail into pump.
H	Prime tube (with diffuser)	Drains fluid in system during priming and pressure relief.
J	Prime/Spray valve	• In PRIME position (pointing down) directs fluid to prime tube. • In SPRAY position (pointing forward) directs pressurized fluid to paint hose. • Automatically relieves system pressure in overpressure situations.
K	Serial Tag (below sprayer frame)	Sprayer model and serial number information
L	Inlet screen	Prevents debris from entering pump.
M	Paint hose	Transports high-pressure fluid from pump to spray gun.
Q	Tip guard	Reduces risk of fluid injection injury.
R	Reversible spray tip	• Atomizes fluid being sprayed, forms spray pattern and controls fluid flow according to hole size. • Reversed, it unclogs plugged tips without disassembly.
S	Gun trigger safety lever	Prevents accidental triggering of spray gun.
T	Gun fluid inlet fitting	Threaded connection for paint hose.
V	Gun fluid filter	Filters fluid entering spray gun to reduce tip clogs.
W	Hose wrap Rack	Stows paint hose.
X	Pail hanger	For transporting pail by its handle.

Installation

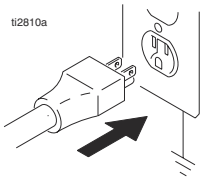
Grounding

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.

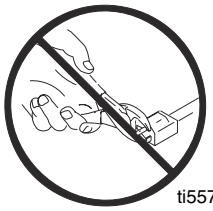
- The sprayer cord includes a grounding wire with an appropriate grounding contact.



- 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 plug! If it will not fit in outlet, have grounded outlet installed by a qualified electrician. Do not use an adapter.



Thermal Overload

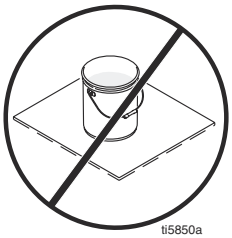
Motor has a thermal overload sensor to shut itself down if overheated. If unit overheats, perform **Pressure Relief Procedure**, page 9, and allow approximately 45 minutes for unit to cool before attempting to resume operation.

Power Requirements

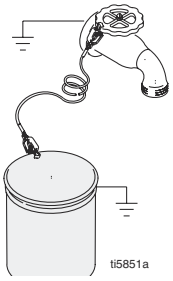
- Requires 100-120 VAC, 50/60 Hz, 15A, 1 phase.
- Use an extension cord with an undamaged ground contact.
- If an extension cord is necessary, use a 3-wire, 12 AWG (2.5 mm^2) minimum.

Pails

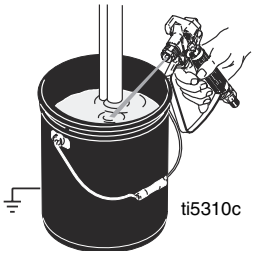
- **Solvent and oil/based fluids:** follow local code. Use only conductive metal pails, placed on a grounded surface such as concrete.
- Do not place pail on a nonconductive surface such as paper or cardboard which interrupts grounding continuity.



- **Grounding a metal pail:** connect a ground wire to the pail by clamping one end to pail and other end to a true earth ground such as a water pipe.

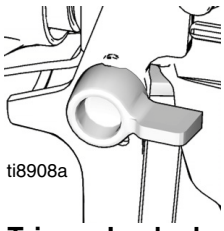


- **To maintain grounding continuity when flushing or relieving pressure:** hold metal part of spray gun firmly to side of a grounded metal pail. Then trigger gun.

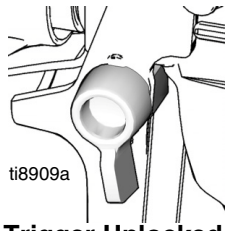


Trigger Lock

Always engage the trigger lock when you stop spraying to prevent the gun from being triggered accidentally by hand or if dropped or bumped.



Trigger Locked



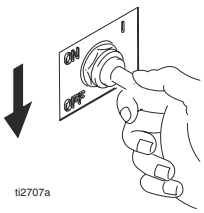
Trigger Unlocked

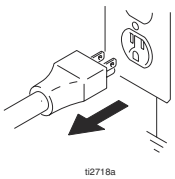
Pressure Relief Procedure

Follow the Pressure Relief Procedure whenever you see this symbol.

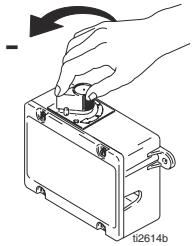
This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

1. Turn power **OFF** and unplug sprayer.





2. Turn pressure to lowest setting.



3. Trigger gun to relieve pressure.

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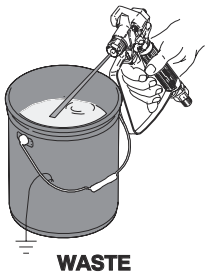
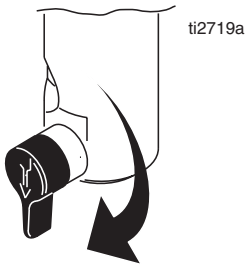


4. Turn prime valve down.



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

General Repair Information

Flammable materials spilled on hot, bare motor could cause fire or explosion. To reduce risk of burns, fire or explosion, do not operate sprayer with cover removed.

NOTICE

To reduce risk of pressure control malfunction:

- Use needle nose pliers to disconnect wire. Never pull on wire, pull on connector.
- Mate wire connectors properly. Center flat blade of insulated male connector in female connector.
- Route wires carefully to avoid interference with other connections or pressure control. Do not pinch wires between cover and control box.

- Keep all screws, nuts, washers, gaskets, and electrical fittings removed during repair procedures. These parts usually are not provided with replacement kits.
- Test repairs after problems are corrected.
- If sprayer does not operate properly, review repair procedure to verify you did it correctly. See **Troubleshooting**, page 11.
- Install motor shroud before operation of sprayer and replace if damaged. Motor shroud directs cooling air around motor to prevent overheating. It can reduce risk of burns, fire or explosion, or cut fingers.

To reduce risk of serious injury, including electric shock:

- Do not touch moving or electric parts with fingers or tools while testing repair.
- Unplug sprayer when power is not required for testing.
- Install all covers, gaskets, screws and washers before you operate sprayer.

NOTICE

- Do not run sprayer dry for more than 30 seconds. Doing so could damage pump packings.
- Protect the internal drive parts of this sprayer from water. Openings in the cover allow for air cooling of the mechanical parts and electronics inside. If water gets in these openings, the sprayer could malfunction or be permanently damaged.
- Prevent pump corrosion and damage from freezing. Never leave water or water-base paint in sprayer when its not in use in cold weather. Freezing fluids can seriously damage sprayer. Store sprayer with Pump Armor to protect sprayer during storage.

Troubleshooting

Type of Problem	What to Check (if check is OK, go to next)	What to DO (When check is not OK, refer to this column
Basic fluid pressure problems	Pressure control knob setting. Motor will not run if at minimum setting (fully counter-clockwise).	Slowly increase pressure to see if motor starts.
	Spray tip or fluid filter may be clogged.‘	**Relieve pressure**, page 9 and clear clog, or clean filter; refer to separate gun or tip instruction manual.
Basic mechanical problems	Pump frozen or paint hardened in pump.	Thaw sprayer if water or water-based paint has frozen in sprayer. Place sprayer in warm area to thaw. Do not start sprayer until thawed completely. If paint hardened (dried) in sprayer, replace pump packings. See page 17, **Displacement Pump Replacement.**
	Displacement pump connecting rod pin must be completely pushed into connecting rod and retaining spring must be firmly in groove of pump pin. See page 17, **Displacement Pump Replacement.**	Push pin into place and secure with spring retainer.
	Motor. Remove drive housing assembly. See **Drive Housing Replacement**, page 20.	Replace motor if fan won’t turn. See **Fan Replacement**, page 23.
	Motor control board. Board shuts down and displays error code.	See **Motor Control Board diagnostics**, page 30.
Basic Electrical Problems	Electric supply. Meter must read 85-130 VAC fro 120V models.	Reset building circuit breaker. Replace building fuse. Try another outlet.
	Extension cord. Check extension cord continuity with volt meter.	Replace extension cord.
	Sprayer power supply cord. Inspect for damage such as insulation or wires.	Replace power supply cord. See **ON/OFF Switch/Power Cord Board Kit**, page 27.
	Motor leads are securely fastened and properly mated.	Replace loose terminals, crimp to leads. Be sure terminals are firmly connected. Clean circuit board terminals. Securely reconnect leads.

Type of Problem	What to Check (if check is OK, go to next)	What to DO (When check is not OK, refer to this column
Basic Electrical Problems - These problems only apply to Pro 230ES model sprayers with brush motors. They do not apply to Pro 270ES model sprayers.	Motor armature for shorts using armature tester (growler) or perform spin test. See **Motor Diagnostics**, page 22.	Replace motor, page 33.
	For loose motor brush lead connections and terminals.	Tighten terminal screws. Replace brushes if leads are damaged.
	Brush length which must be 1/2 in. minimum. NOTE: Brushes do not wear at the same rate on both sides of motor. Check both brushes.	Replace brushes. See **Motor Brush Replacement**, page 24.
	Broken or misaligned motor brush springs. Rolled portion of spring must rest squarely on top of brush.	Replace spring if broken. Realign spring with brush.
	Motor brushes may be binding in brush holders.	Clean brush holders. Remove carbon with small cleaning brush. Align brush leads with slot in brush holder to assure free vertical brush movement.
	Motor armature commutator for burn spots, gouges or extreme roughness.	Remove motor and have motor shop resurface commutator, of possible. See **Motor Replacement**, page 33.
Note: For the following electric problems, refer to wiring diagrams, page 25, to identify Test Points.	Power supply cord. Connect volt meter between TP1 (neutral) and TP2. Plug in sprayer. Meter must read 85-130 VAC for 120V models. Unplug sprayer.	Replace ON/OFF switch. See **On/Off Switch Replacement**, page 25.
	All terminals for damage or loose fit.	Replace damaged terminals and reconnect securely.

Type of Problem	What to Check (if check is OK, go to next)	What to DO (When check is not OK, refer to this column
Low Output	For worn spray tip.	**Relieve pressure**, page 9. Then replace tip. See your separate gun manual for additional instruction.
	Verify pump does not continue to stroke when gun trigger is released.	Service pump. See **Displacement Pump Replacement**, page 17.
	Filter clogged.	**Relieve pressure**, page 9. Check and clean air filter.
	Prime valve leaking.	**Relieve pressure**, page 9. Repair prime valve.
	Suction hose kinks and/or loose connection.	Connect kink and/or tighten any loose connections.
	Electric supply with volt meter. Low voltages reduce sprayer performance. Meter must read 85-130 VAC for 120V models.	Reset building circuit breaker; replace building fuse. Repair electrical outlet or try another outlet.
	Extension cord size and length; must be at least 12 gauge wire and no longer than 300 ft. Longer cord lengths reduce sprayer performance.	Replace with a correct, grounded, extension cord.
	Leads from motor to pressure control circuit board for damaged or loose wires or connectors. Inspect wiring insulation and terminals for signs of overheating.	Be sure male terminal blades are centered and firmly connected to female terminals. Replace any loose terminal or damaged wiring. Securely reconnect terminals.
	Low stall pressure.	Do either or both: a. Turn pressure control knob fully clockwise. Make sure pressure control knob is properly installed to allow full clockwise position. b. Try a new transducer.

Type of Problem	What to Check (if check is OK, go to next)	What to DO (When check is not OK, refer to this column
These problems only apply to Pro 230ES model sprayers with brush motors. They do not apply to Pro 270ES.	Motor armature for shorts by using an armature tester (growler) or perform spin test, page 22.	Replace motor. See page 33.
	Loose motor brushes and terminals.	Tighten terminal screws. Replace brushes if leads are damaged.
	Worn motor brushes. (Brushes must be 1/2 in. minimum)	Replace brushes.
	Broken and misaligned motor brush springs. Rolled portion of spring must rest squarely on top of brush.	Replace spring if broken. Realign spring with brush.
	Motor brushes are binding in brush holders.	Clean brush holders, remove carbon dust with small cleaning brush. Align brush lead with slot in brush holder to assure free vertical brush movement.
Motor runs and pump strokes	Low paint supply.	Refill and reprime pump.
	Intake strainer clogged.	Remove and clean, then reinstall.
	Suction tube or fittings loose.	Tighten; use thread sealant or sealing tape on threads necessary
	See if intake valve ball and piston ball are seating properly. See pump manual.	Remove intake valve and clean. Check balls and seats for nicks, replace if necessary. Strain paint before using to remove particles that could clog pump. See pump manual.
	Leaking around throat packing nut which may indicate worn or damaged packings. See pump manual.	Replace packings. Also check piston valve seat for hardened paint or nicks and replace if necessary. Strain paint before using to remove particles that could clog pump. See pump manual.
	Pump rod damage.	Replace pump, page 17.
Motor runs but pump does not stroke.	Displacement pump pin damaged or missing.	Replace pump pin if missing. Be sure retainer spring is fully in groove all around connecting rod, page 17.
	Connecting rod assembly damaged.	Replace connecting rod assembly. See pump manual.
	Gears or drive housing, page 20.	Inspect drive housing assembly and gears for damage and replace if necessary, page 20.

Type of Problem	What to Check (if check is OK, go to next)	What to DO (When check is not OK, refer to this column
Motor is hot and runs intermittently	Determine if sprayer was operated at high pressure with small tips, which causes low motor RPM and excessive heat buildup.	Decrease pressure setting or increase tip size.
	Be sure ambient temperature where sprayer is located is not more than 90°F (32.22°C) and sprayer is not located in direct sun.	Move sprayer to shaded, cooler area if possible.
Building circuit breaker opens as soon as sprayer switch is turned on. **CAUTION** Any short in any part of the motor power circuit will cause the control circuit to inhibit sprayer operation. Correctly diagnose and repair all shorts before checking and replacing control board.	All electrical wiring damaged insulation and all terminals for loose fit or damage. Also, wires between pressure control and motor. See page 31.	Repair or replace any damaged wiring or terminals. Securely reconnect all wires.
	For missing inspection plate gasket, see page 29, bent terminal forks or other metal to metal contact points which case a short.	Correct faulty conditions.
	Motor control board by performing control board diagnostics. See page 17. If diagnostics indicate, substitute with a good board. CAUTION: Do not perform this check until motor armature is determined to be good. A bad motor armature can burn out a good board.	Replace with a new pressure control board. See page 29.
Building circuit breaker opens as soon as sprayer switch is turned on. This problem only applies to Pro 230ES model sprayers with brush motors. They do not apply to Pro 270ES	Motor armature for shorts. Use an armature tester (growler) or perform spin test. See page 22. Inspect windings for burns.	Replace motor. See page 33.
Building circuit breaker opens as soon as sprayer is plugged into outlet and sprayer is NOT turned on.	Basic Electric Problems, page 11 of **Troubleshooting**.	Perform necessary procedures.
	ON/OFF switch. See page 25. ***Be sure sprayer is unplugged!*** Disconnect wires from switch. Check switch with ohmmeter. Reading must be infinity with ON/OFF switch OFF, and zero when switch is ON.	Replace ON/OFF switch. See page 25.
	Damaged or pinched wires in pressure control. See page 29.	Replace damaged parts. See page 29.

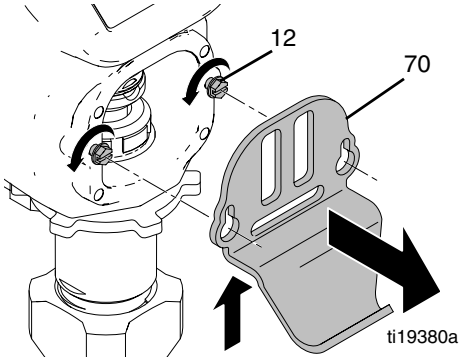
Type of Problem	What to Check (if check is OK, go to next)	What to DO (When check is not OK, refer to this column
Sprayer quits after spraying for 5 to 10 minutes.	Basic Electrical Problems, page 11 of Troubleshooting.	Perform necessary procedures.
	Electrical supply volt meter. Meter must read 86-130 VAC for 120V models.	If voltage is too high, do not operate sprayer until corrected.
	Tightness of pump packing nut. Over tightening tightens packings on rod, restricts pump action, and overloads motor.	Loosen packing nut. Check for leaking around throat. Replace pump packings, if necessary. See pump manual.

Displacement Pump Replacement

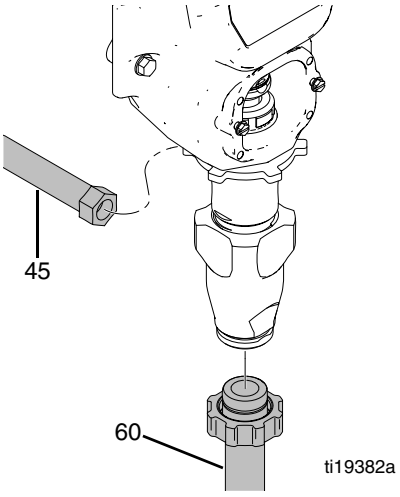
See manual 312015 for pump repair instructions.

Removal

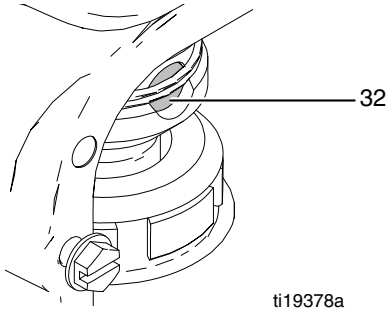
1. Flush pump.
2. Relieve pressure, page 9.
3. Loosen screws (12). Push cover (70) up and pull off sprayer.



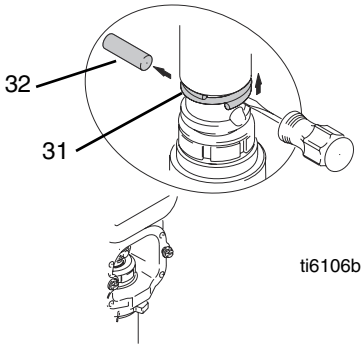
4. Remove suction tube (60) and hose (45).



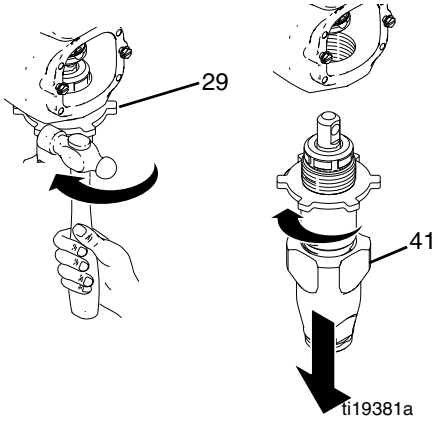
5. Cycle motor until pump pin (32) is in position to be removed.



6. Disconnect power cord from outlet.
7. Using a flat screwdriver, push retaining spring (31) up. Push out pump pin (32).



8. Loosen pump jam nut (29). Unscrew and remove pump (41).



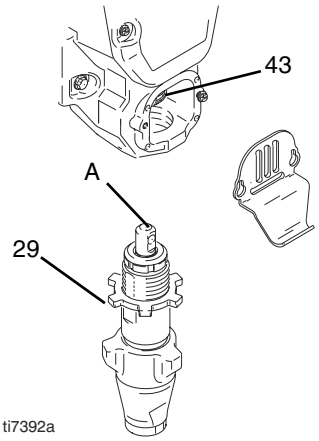
Installation

If pump pin works loose, parts could break off due to force of pumping action. Parts could project through air and result in serious injury or property damage.

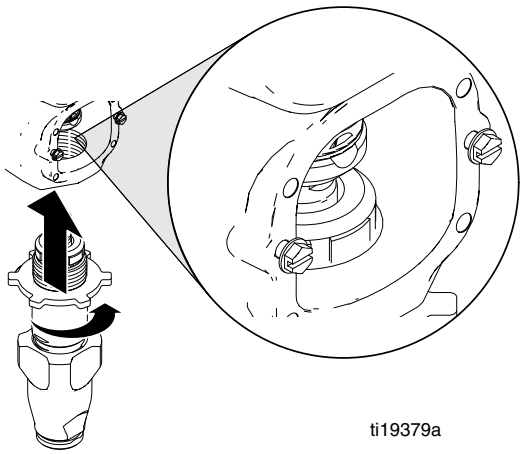
NOTICE

If the pump jam nut loosens during operation, the threads of the drive housing will be damaged.

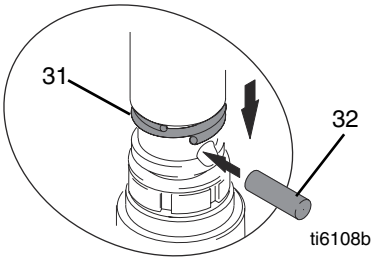
1. Extend pump piston rod full. Apply grease to top of pump rod at (A) or inside connecting rod (43). Install jam nut (29) on pump threads.



2. Install pump rod (A) into connecting rod (43).

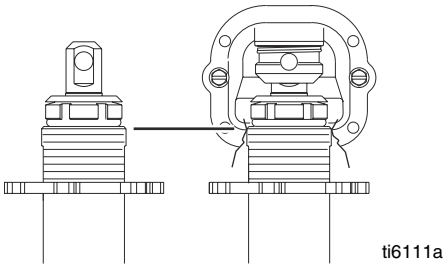


3. Install pump pin (32). Slide retainer spring (31) down into groove over pump pin.

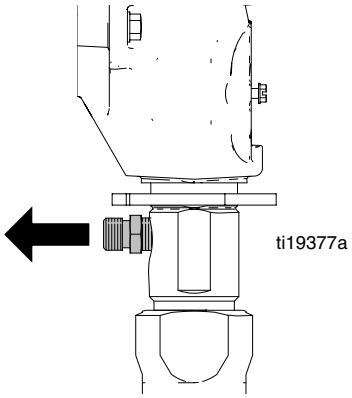


4. Push pump (41) up until pump threads engage.

5. Screw in pump until threads are flush with top of drive housing opening.

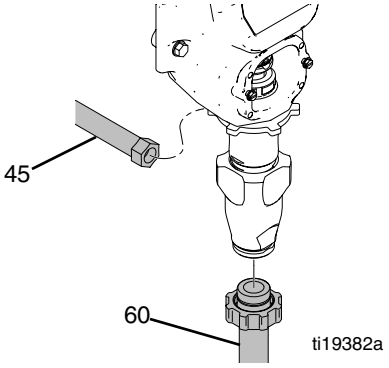


6. Align pump outlet to back.

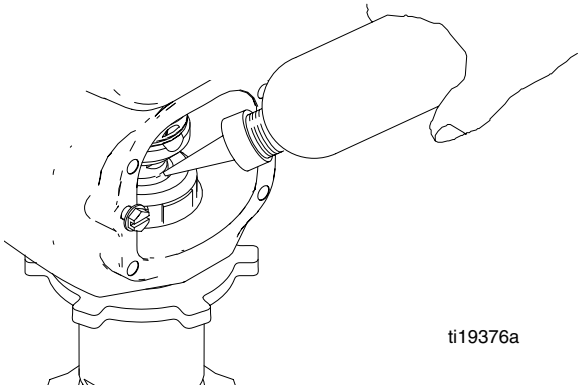


7. Turn jam nut (29) counter-clockwise until it stops. Tighten jam nut by hand, then tap 1/8 to 1/4 turn with a 20 oz (maximum) hammer to approximately 75 ft-lb (102 N•m).

8. Install suction tube (60) and high pressure hose (45). Tighten fittings.



9. Fill packing nut with Graco TSL until fluid flows onto top of seal.



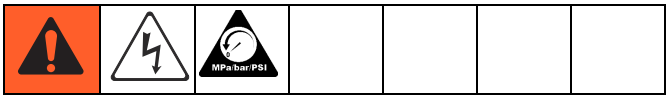
10. Replace cover (70) over screws. Push cover down into place. Tighten screws (12).

Drive Housing Replacement

NOTICE

Do not drop gear cluster (44) and (40) when removing from drive housing (42). Gear cluster may stay engaged in motor front end bell or drive housing.

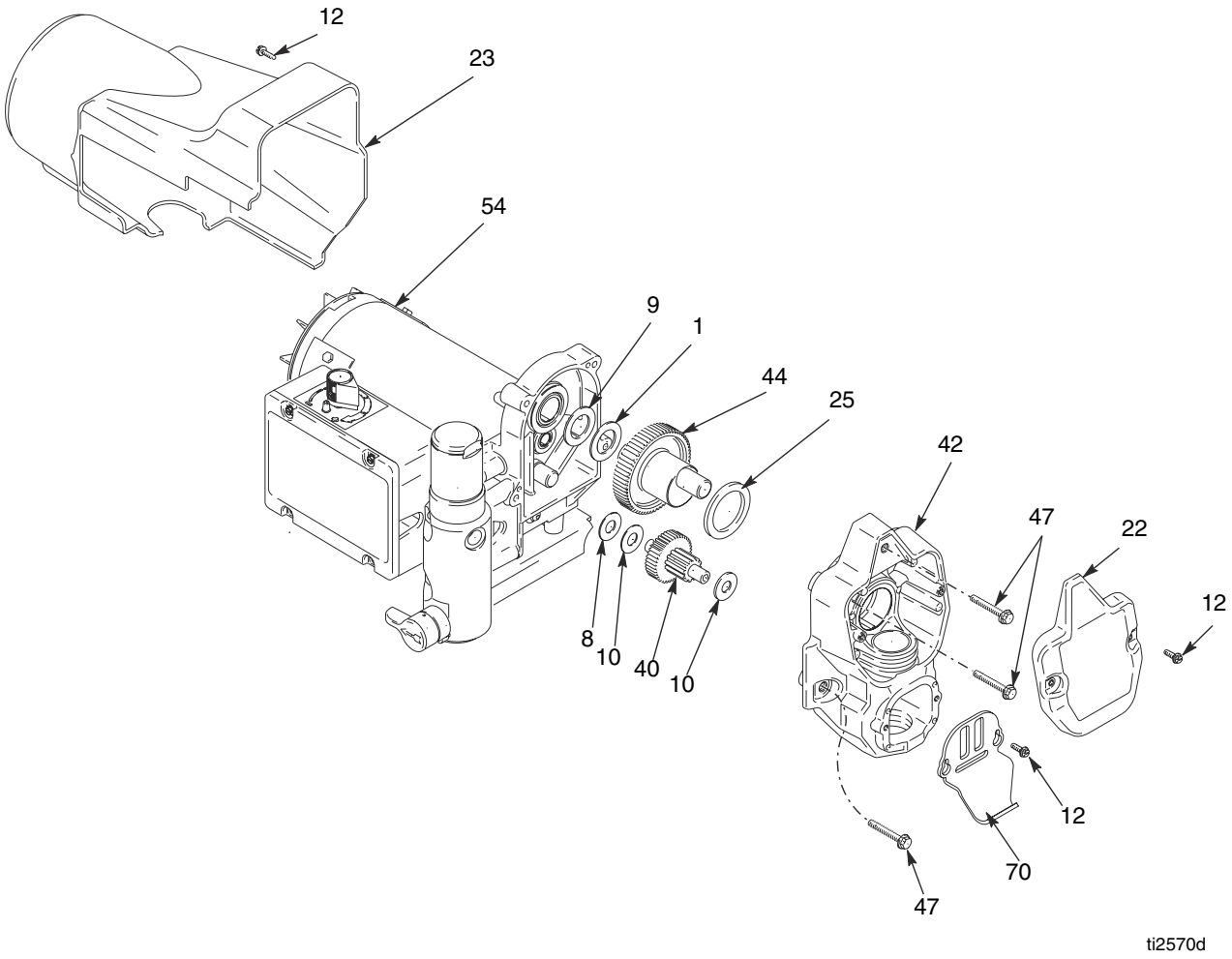
Removal



1. Relieve pressure, page 9.
2. Disconnect power cord from outlet.
3. Remove screws (12) and pump rod cover (70).
4. Remove pump, Displacement Pump Replacement, page 17.
5. Remove screws (12) from shroud (23).
6. Remove screws (12) from front cover (22).
7. Remove screws (47).
8. Pull drive housing (42) off motor (54).
9. Remove gear cluster (44) and (40) and thrust washer (25) from drive housing.

Installation

1. Apply a heavy coat of grease to gears and needle bearing surfaces.
2. Install washers (8, 10) on back of gear (40). Install gear in motor end bell. Using grease for retention, place washer (10) over bearing inside housing (42).
3. Install washers (1, 9) on back of gear (44). Install in motor endbell.
4. Install thrust washer (25) on gear (44).
5. Push drive housing (42) on motor endbell as you guide gear crank (44) through hole in connecting rod (43).
6. Install screws (47).
7. Install cover (22) and screws (12).
8. Install shroud (23) and screws (12).
9. Install pump; see Displacement Pump Replacement, page 17.
10. Install pump rod cover (70) with screws (12).


12
23
54
9
1
44
25
42
47
22
12
8
10
40
10
12
70
47
ti2570d

Motor Diagnostics

Spin Test

***NOTE:** Motors used in the Pro 270ES, model sprayers are brushless. The following brush information and instructions apply to model Pro 230ES sprayers only.

Check for electrical continuity in motor armature, windings and brush* as follows:

If Motor Diagnostics reveal a damaged motor or of motor brushes* are shorter than 1/2 in (12.7 mm) or if the motor shaft cannot turn, replace the motor, page 33.

Setup

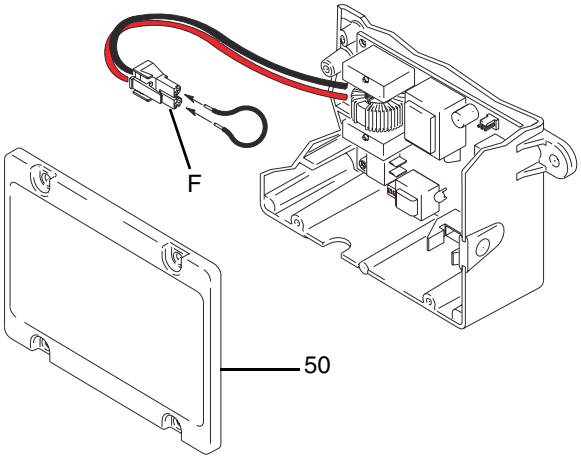
1. **Relieve pressure**, page 9.
2. Unplug electric cord.
3. Remove drive housing, Drive Housing Replacement, page 20.
4. Remove pressure control cover (50). Disconnect connector F.
5. Remove four screws (12) and motor shroud (23) and inspection covers.

Armature Short Circuit Test

Quickly turn motor fan by hand. If not shorted, motor will coast two or three revolutions before complete stop. If motor does not spin freely, armature is shorted. Replace motor, page 33.

Armature Brushes and Motor Wiring Open Circuit Test (Continuity)

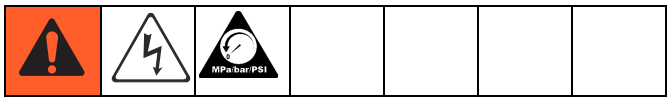
1. Connect red and black motor leads together with test lead.



2. Turn motor fan by hand, about two revolutions per second.
3. If there is uneven resistance or no resistance, check for broken brush springs*, brush leads*; loose brush terminal screws*, worn brushes*, or motor lead terminals. Repair as needed, page 24.
4. If still uneven, or no resistance, replace motor using Motor Kit, page 33.

Fan Replacement

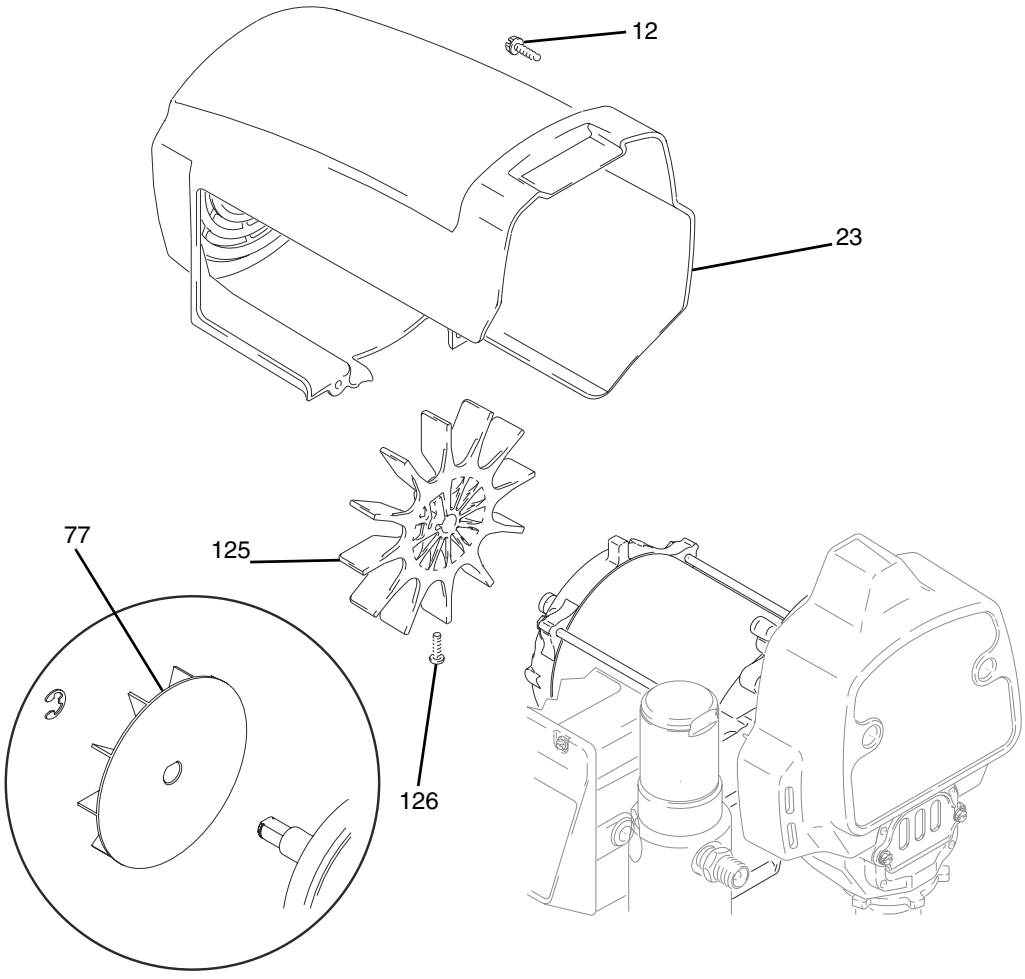
Removal



1. **Relieve pressure**, page 9. Disconnect power cord from outlet.
2. Remove four screws (12) and shroud (23).
3. Loosen tensioning screw (126) on fan (125). (Pro 270ES only)
4. Pull off fan (77) or (125).

Installation

1. Slide new fan (125) in place on back of motor. Be sure blades of fan face motor as shown.
2. Tighten screw (126).
3. Replace shroud (23) and four screws (12)



(Pro 270ES shown)

Motor Brush Replacement

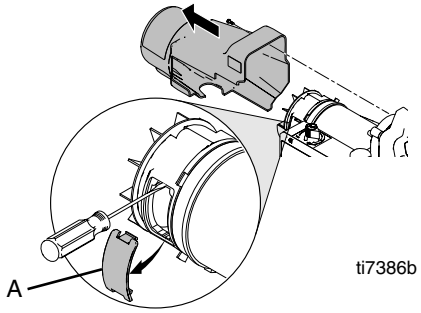
NOTE: Motors used in the Pro 270ES model sprayers are brushless. The following brush information and instructions apply to Pro 230ES model sprayers only.

Motor Brush Removal

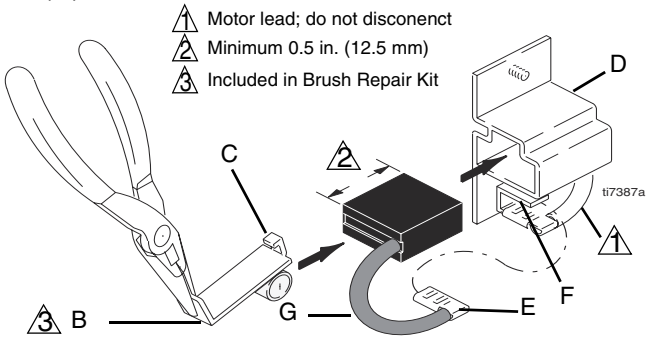
Replace brushes worn to less than 1/2 in. Brushes wear differently on each side of motor, check both sides. Brush Repair Kit 287735 is available.

1. Read **General Repair Information**, page 10.

2. **Relieve pressure**, page 9.
3. Unplug sprayer powercord.
4. Remove motor shroud and two inspection covers (A).



5. Push clip spring (B) to release hook (C) from brush holder (D). Pull out spring clip (B).
6. Pull brush lead (E) off terminal (F). Remove brush (G).

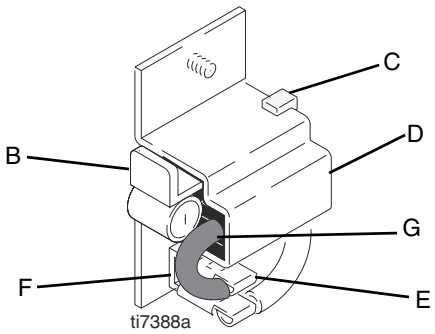


7. Inspect commutator for excessive pitting, burning, or gouging. A black color on commutator is normal. Have commutator resurfaced by a motor repair shop if brushes wear too fast.

Motor Brush Installation

NOTICE

When installing brushes, follow all steps carefully to avoid damaging parts.



1. Install new brush (G) with lead into brush holder (D).
2. Slide brush lead (E) onto terminal (F).
3. Install spring clip (B). Push down to set hook (C) into brush holder (D).
4. Repeat for other side.
5. Test brushes.
   a. With sprayer OFF, turn pressure control knob fully counter-clockwise to minimum pressure. Plug in sprayer.
   b. Turn sprayer ON. Slowly increase pressure until motor is at full speed.

NOTICE

Do not run sprayer for more than 30 seconds while checking brushes to avoid damaging displacement pump packings.

6. Install brush inspection covers (A).
7. Break in brushes
   a. Remove pump pin (32), Displacement Pump Replacement, page 17.
   b. Operate sprayer 1 hour with no load.
   c. Install pump pin (32). See **Displacement Pump Replacement**, page 17.

On/Off Switch Replacement

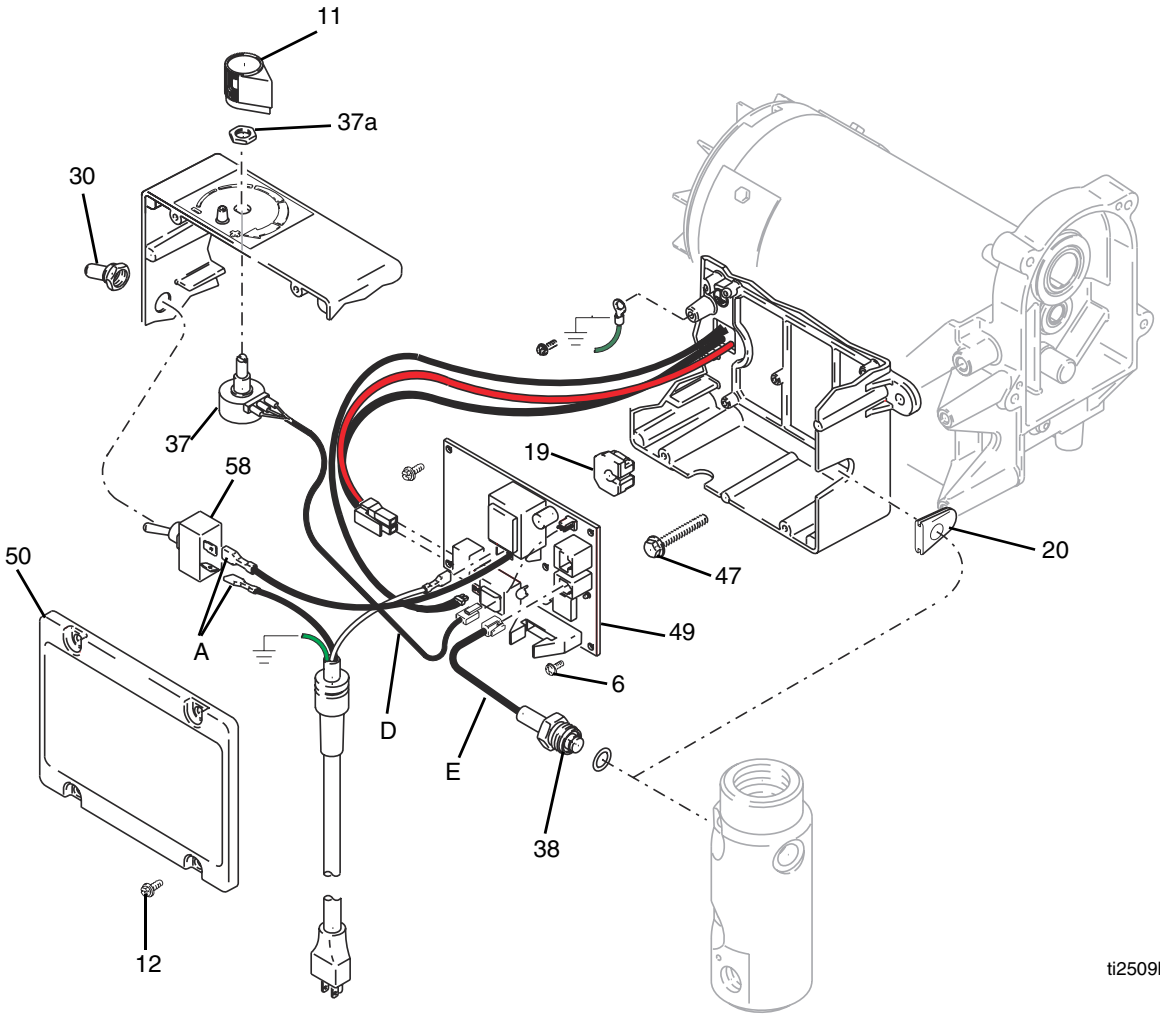
120 VAC Pro 230ES Models

Removal

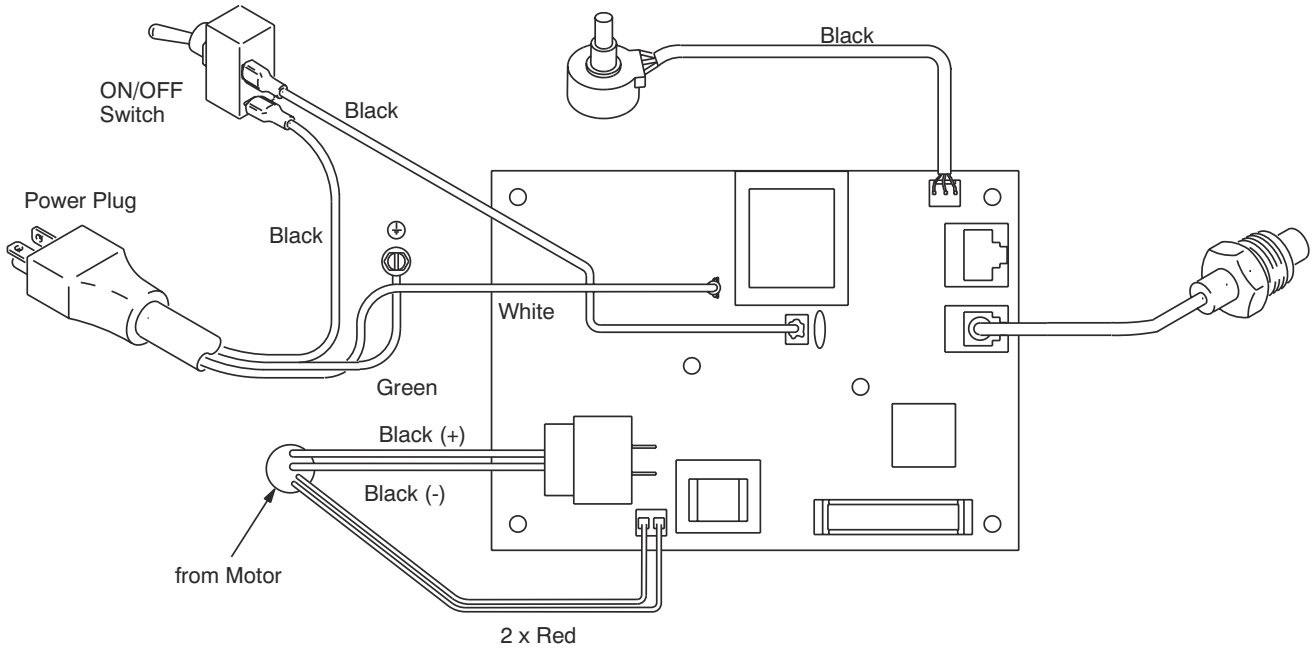
1. **Relieve pressure**, page 9.
2. Unplug sprayer cord.
3. Remove four screws (12) and pressure control cover (50).
4. Disconnect two wires (A) from ON/OFF switch (58).
5. Remove toggle boot (30) and locking ring. Remove ON/OFF switch (58).

Installation

1. Install new ON/OFF switch (58). Install locking ring and toggle boot (30).
2. Connect two wires (A) to ON/OFF switch (58).
3. Install pressure control cover (50) with four screws (12).



Pro 230ES Wiring Diagram



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Pro 270ES ON/OFF Switch/Power Cord Kit

Removal

1. Relieve pressure, page 9.
2. Unplug sprayer powercord.
3. Remove four screws (12) and control box cover (50).

Power Cord

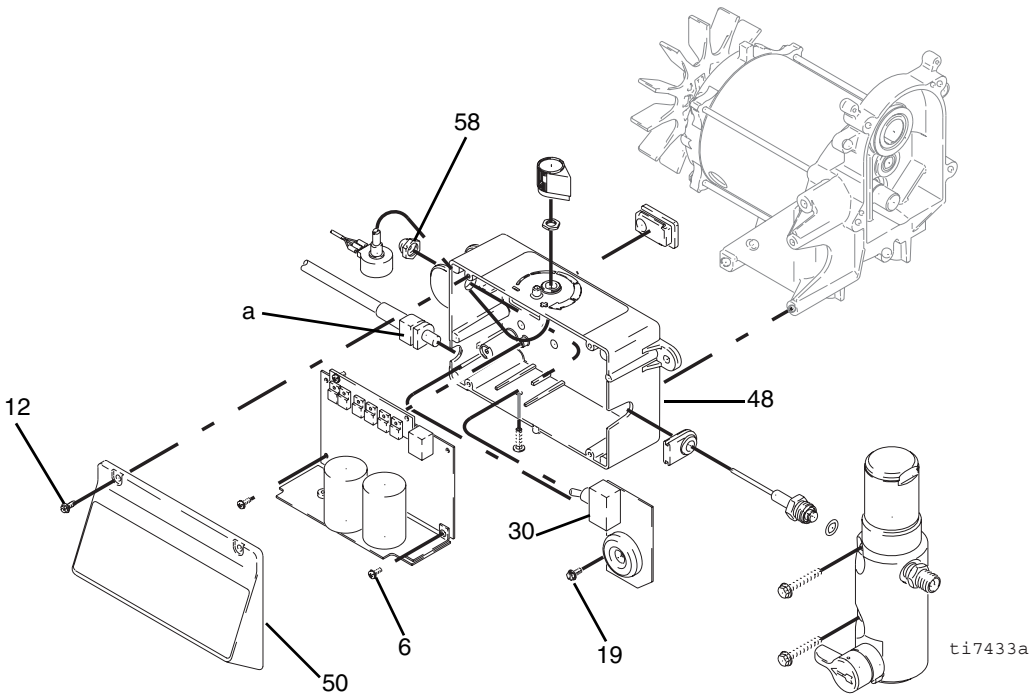
4. Remove green ground screw (19) and disconnect ground choke coil and black leads.
5. Slide black power cord strain relief (a) out of slot in control box (48) to remove it.

On/Off Switch

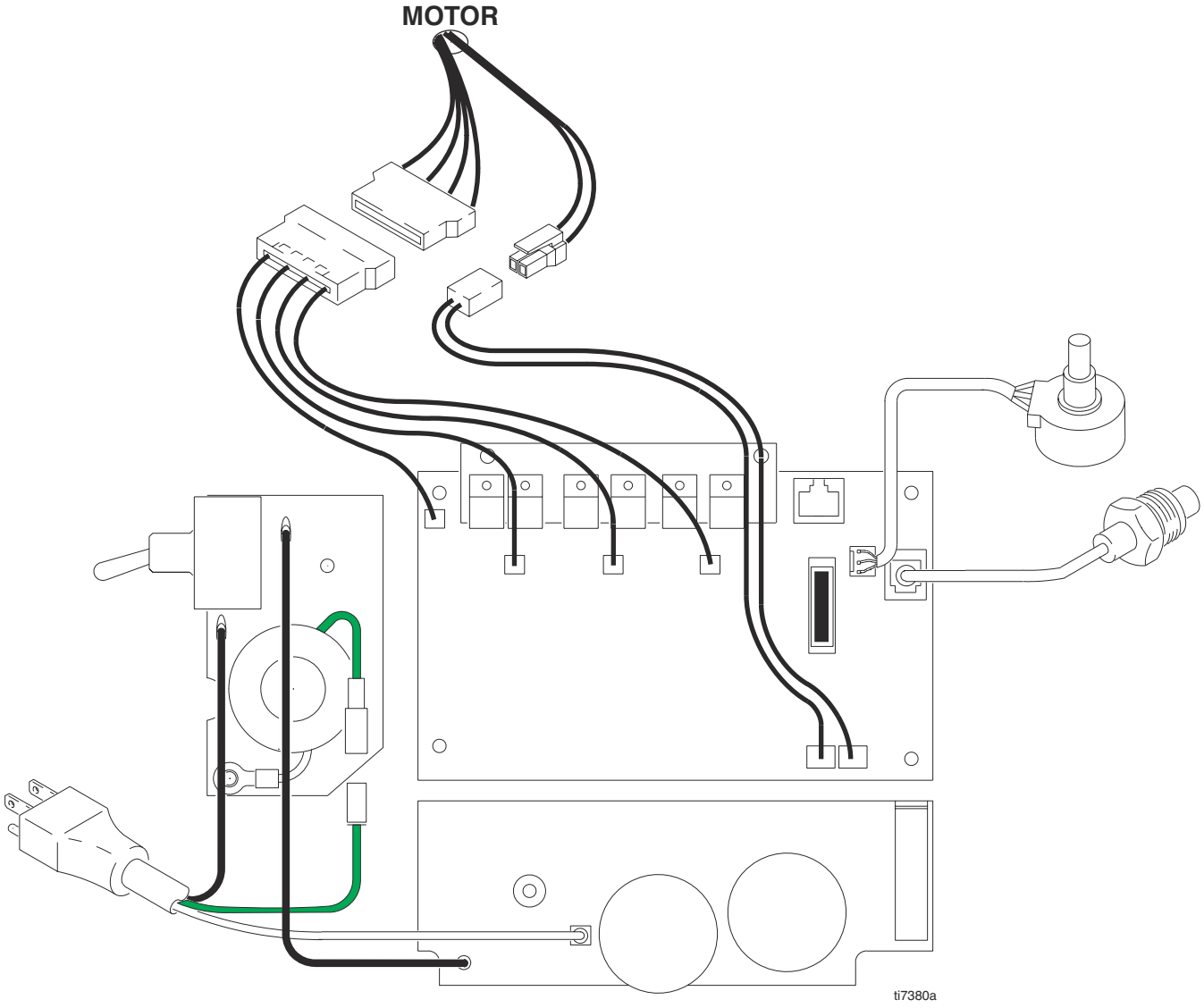
6. Remove switchboard mounting screw (6)
7. Using a 5/8 in. deep socket wrench, remove ON/OFF switch toggle boot (58).
8. Slide switch board (30) through opening in control box housing.
9. Disconnect black lead between control boards.
10. Remove switch board from box.

Installation

1. Reconnect black lead between control and switch boards.
2. Slide ON/OFF switch board (30) through opening in control box housing and position switch board.
3. Place toggle boot (58) over ON/OFF switch. Using a 5/8 in. deep socket wrench, tighten securely.
4. Install switchboard mounting screws (6).
5. Slide power cord strain relief (a) into opening in control box (48).
6. Reattach black and white power cord leads to control and switch boards.
7. Reattach ground choke coil to ground screw (19). Replace and tighten green ground screw.
8. Install pressure control cover (50) with four screws (12).



Pro 270ES Wiring Diagram



Pressure Control Repair

Motor Control Board Pro 230ES

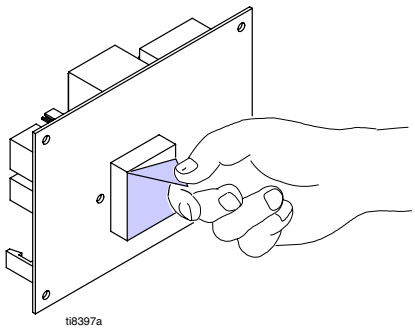
Refer to wiring diagram page 25.

Removal

1. **Relieve pressure**, page 9, and unplug sprayer.
2. Unplug sprayer powercord.
3. Remove screws (12) and cover (50).
4. Disconnect all leads to motor control board (49).
5. Remove screws (6) and circuit board (49).

Installation

1. Remove old thermal paste from control box. Remove cover from thermal pad on new motor control board.



2. Install motor control board (49) with screws (6).
3. Connect all leads to motor control board (49). See **wiring diagram,** page 26.
4. Install cover (50) with screws (12).

Motor Control Board Kit Pro 270ES

Refer to **wiring diagram** page 28.

Removal

1. **Relieve pressure**, page 9.
2. Unplug sprayer powercord.
3. Perform steps 2-9 of **ON/OFF Switch/Power Cord Kit** removal instructions, page 27.
4. Remove screw (127) from bottom of control box and screws (6) holding motor control (49) to back of control box (48).
5. Remove motor shroud (23) and screws (12).
6. Disconnect motor and thermistor connections (210, 211).
7. Disconnect pressure transducer lead (J11).
8. Disconnect potentiometer lead (J12) from board.
9. Remove grommet (5) from back of control box. Slide motor leads through opening in back of control box.
10. Remove motor control board (49) from control box (48).

Installation

1. Feed motor leads through back of control box (48).
2. Replace grommet (5) in control box (48).
3. Position motor control board (49) in control box. Secure control board with screws (6 and 127).
4. Connect potentiometer and transducer leads to control board.
5. Connect motor and thermistor leads (210, 211).
6. Perform steps 1-8 of **ON/OFF Switch/Power Cord Kit** installation instructions, page 28.
7. Replace shroud (23) with four screws (12).

Motor Control Board Diagnostics

- Before repair, **relieve pressure**, page 9.
- Keep a new transducer on hand to use for test.
- No display does not mean the sprayer is not pressurized.

NOTICE

Do not allow sprayer to develop fluid pressure without transducer installed. Leave drain valve open if test transducer is used.

1. Remove screws (12) and cover (50).
2. Turn ON/OFF switch ON.
3. A display may be temporarily attached for diagnostic purposes.
4. Observe LED operation and reference following table:

⚠3 DISPLAY	LED BLINKS	SPRAYER STATUS	INDICATES	WHAT TO DO
No Display	Never blinks	Sprayer stops. Power is not applied. Sprayer must be pressurized.	Loss of power.	Check power source. Relieve pressure before repair disassembly.
psi/bar/MPa	Once	Sprayer is pressurized. Power is applied. (Pressure varies with tip size and pressure control setting.)	Normal operation	Do nothing
E=02	Two times repeatedly	Sprayer may continue to run. Power is applied.	Run away pressure. Pressure greater than 4500 psi (310 bar, 31 MPa) or damaged pressure transducer	Replace motor control board or pressure transducer.
E=03	Three times repeatedly	Sprayer shuts down and LED continues to blink three times repeatedly.	Pressure transducer is faulty or missing	Check transducer connection. Open drain valve. Substitute new transducer for transducer in sprayer. If sprayer runs, replace transducer.
E=04*	Four times repeatedly	Sprayer shuts down and LED continues to blink four times repeatedly. Power is applied.	Line voltage is too high	Check for voltage supply problems.
E=05	Five time repeatedly	Sprayer does not start or stops and LED continues to blink five times repeatedly. Power is applied.	Motor fault	Check for locked rotor, shorted wiring or disconnected motor. Repair or replace failed parts.
E=06	Six times repeatedly	Sprayer stops and LED blinks six times repeatedly. Power is applied.	Motor is too hot or there is a fault in the motor thermal device.	Allow sprayer to cool. If sprayer runs correctly when cool, check motor fan and function and air flow. Keep sprayer in cool location. If sprayer does not run when cool and continues to blink six times, replace motor.
---		Power is applied.	Pressure less than 200 psi (14 bar, 1.4 MPa).	Increase pressure if desired. Drain valve may be open.
E=08*	Eight times repeatedly	Sprayer shuts down and LED blinks 8 times repeatedly. Power is applied.	Line voltage is too low.	Check for voltage supply problems.

* Pro 230ES only
**Pro 270ES only

Pressure Control Transducer

Removal

1. **Relieve pressure**, page 9.
2. Unplug sprayer powercord.
3. Remove screws (12) and cover (50).
4. Disconnect transducer lead from motor control board (49).
5. Slide transducer grommet (20) out of control box (48).
6. Remove pressure control transducer (38) and o-ring (3) from filter housing.

Installation

1. Install o-ring (3) and pressure transducer (38) in filter housing (15). Torque to 30-35 ft-lb.
2. Thread transducer lead plastic connector through transducer grommet (20) and slide grommet into slot in control box housing (48).
3. Connect transducer lead (J7 or J11) to motor control board (49).
4. Install cover (50) with screws (12).

Pressure Adjust Potentiometer

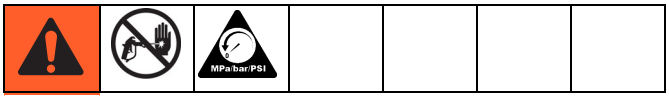
Removal

1. **Relieve pressure**, page 9.
2. Unplug sprayer powercord.
3. Remove screws (12) from cover (50).
4. Disconnect potentiometer lead from motor control board (49).
5. Remove potentiometer knob (11), nut (37a) and pressure adjust potentiometer (37).

Installation

1. Install pressure adjust potentiometer (37) and nut (37a).
   a. Turn potentiometer fully clockwise.
   b. Install knob (11) at full clockwise position.
2. Connect potentiometer lead (J8 or J12) to motor control board (49). See **wiring diagram** pages 26 or 28 for your sprayer model.
3. Install cover (50) with screws (12).

SmartControl



The SmartControl contains stored data to assist with troubleshooting and maintenance. To view this stored data on the digital display:

1. **Relieve pressure**, page 9.
2. Plug in sprayer.
3. Hold down display button and turn sprayer ON.
4. Release display button about 1 second after turning on sprayer.

   Pro 230ES displays (model family) for a few seconds and then data point 1 is displayed.
5. Push display button and next data point displays.
6. Turn sprayer OFF and then ON to exit stored data mode.

Data Point	Definition
1	• Number of hours power switch has been ON with power applied. (Pro 230ES only) • Serial Number of sprayer. (Pro 270ES only)
2	Number of hours motor has been running.
3	Last error code. Press and hold display button to clear error code to E=00
4	Software revision

Motor Replacement

Pro 230ES Models Only

NOTICE

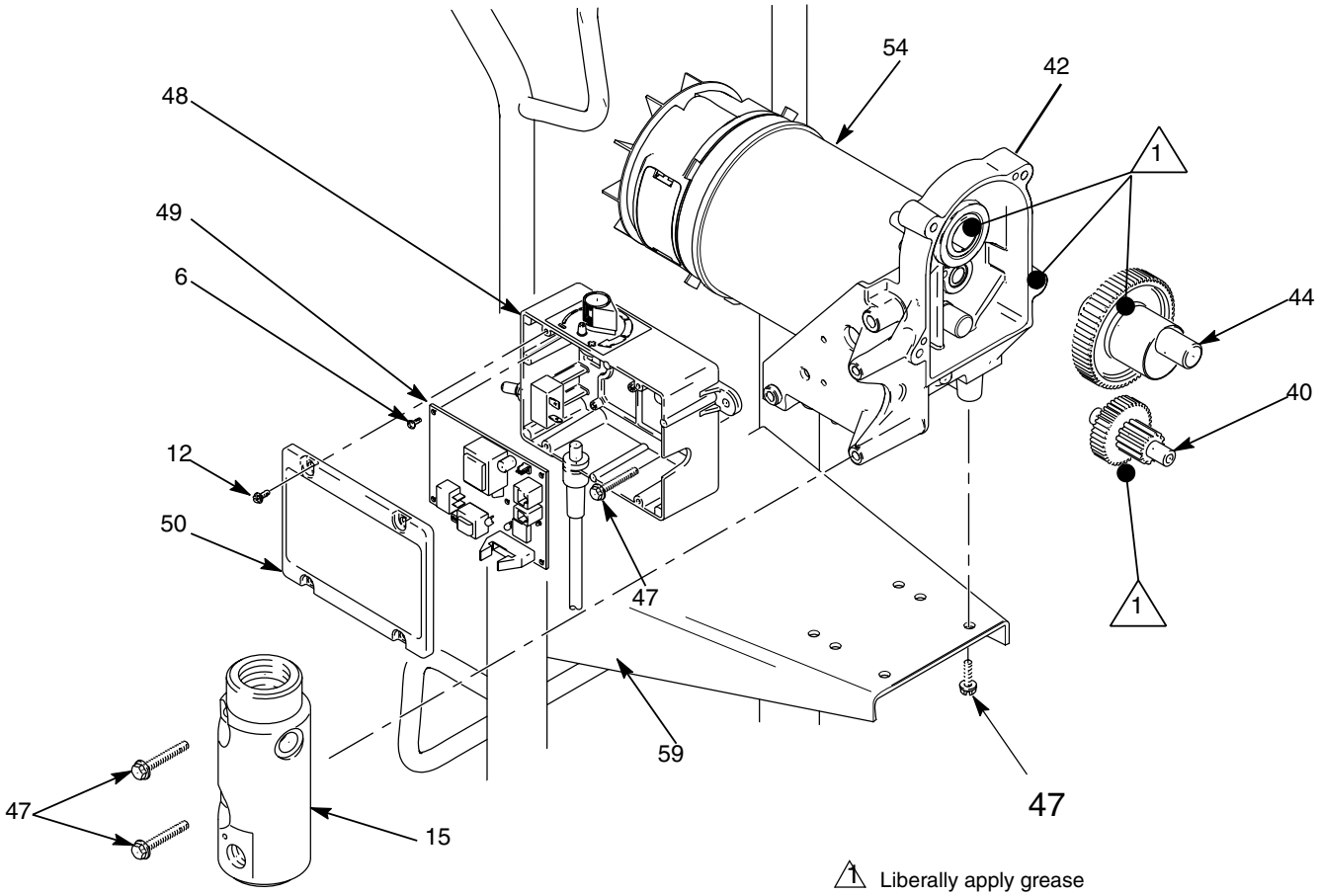
Do not drop gear cluster (44) and (40) when removing from drive housing (42). Gear cluster may stay engaged in motor front end bell or drive housing.

Removal

1. **Relieve pressure**, page 9.
2. Unplug sprayer powercord.
3. Remove pump; see **Displacement Pump Replacement**, page 17
4. Remove drive housing; see **Drive Housing Replacement**, page 20.
5. Remove screws (12) from cover (50).
6. Disconnect all leads from board (49). Remove screws (6) and board.
7. Remove screws (47) and control box (48).
8. Remove screws (47) and manifold (15).
9. Remove screws (47) and motor (54) from frame (59).

Installation

1. Install new motor (54) on frame (59) with screws (47).
2. Install manifold (15) with screws (47).
3. Install control housing (48) with screws (47).
4. Install board (49) with screws (6). Connect all leads to board. See **wiring diagram** page 26.
5. Install drive housing; see **Drive Housing Replacement**, page 20.
6. Install pump; see **Displacement Pump Replacement**, page 17.


54
42
48
1
49
6
44
40
12
50
47
1
59
47
47
15
1 Liberally apply grease

ti2569c

Pro 270ES Models Only

NOTICE

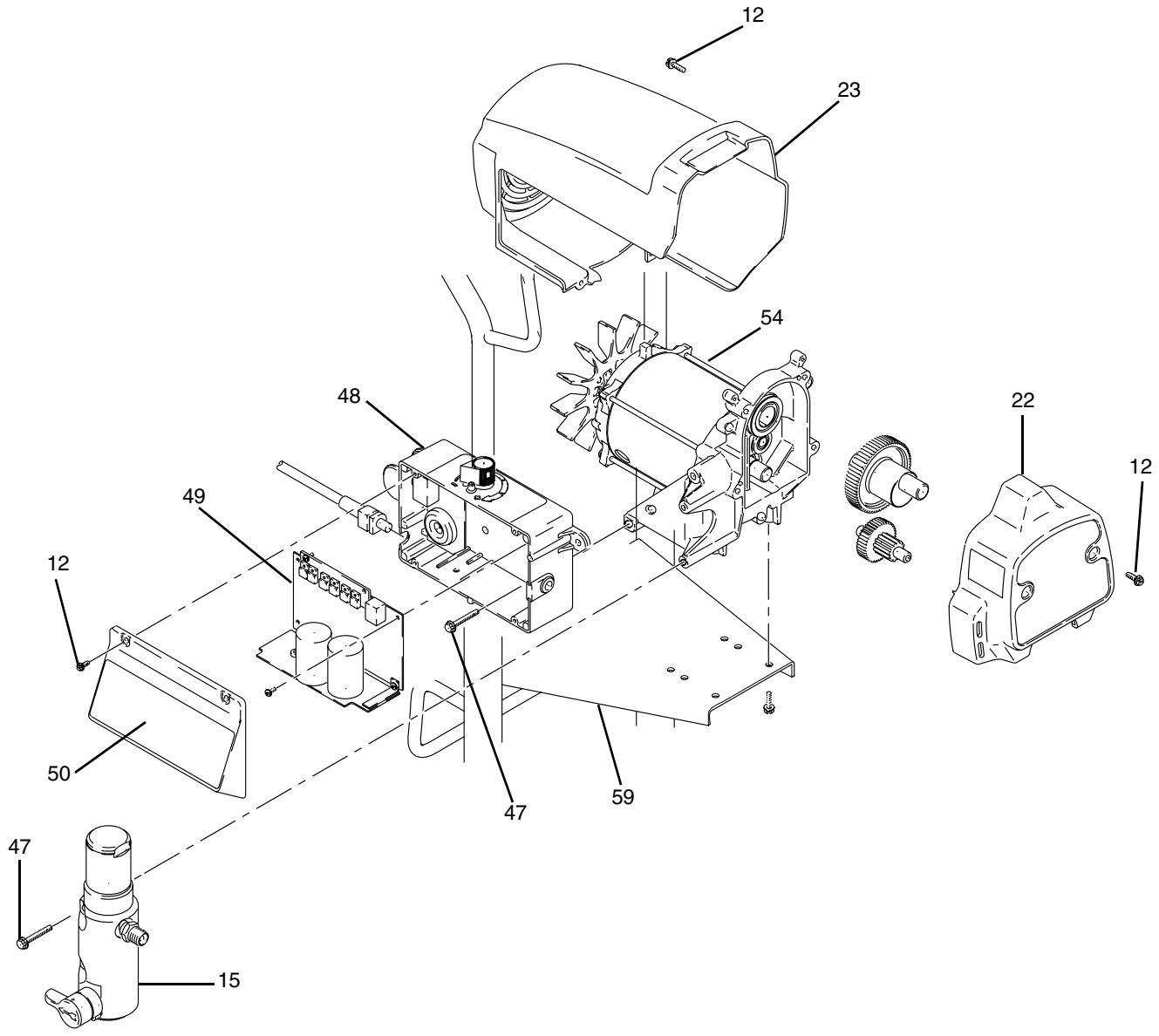
Do not drop gear cluster (44) and (40) when removing from drive housing (42). Gear cluster may stay engaged in motor front end bell or drive housing.

Removal

1. **Relieve pressure**, page 9.
2. Remove four screws (12) and shroud (23).
3. Remove two screws (12) and front cover (22)
4. Remove pump; see **Displacement Pump Replacement,** page 17
5. Remove drive housing; see **Drive Housing Replacement**, page 20.
6. Disconnect motor leads.
7. Remove screws (47) and manifold (15).
8. Remove screws (47) and control box (48).
9. Remove screws (47) and motor (54) from frame (59).

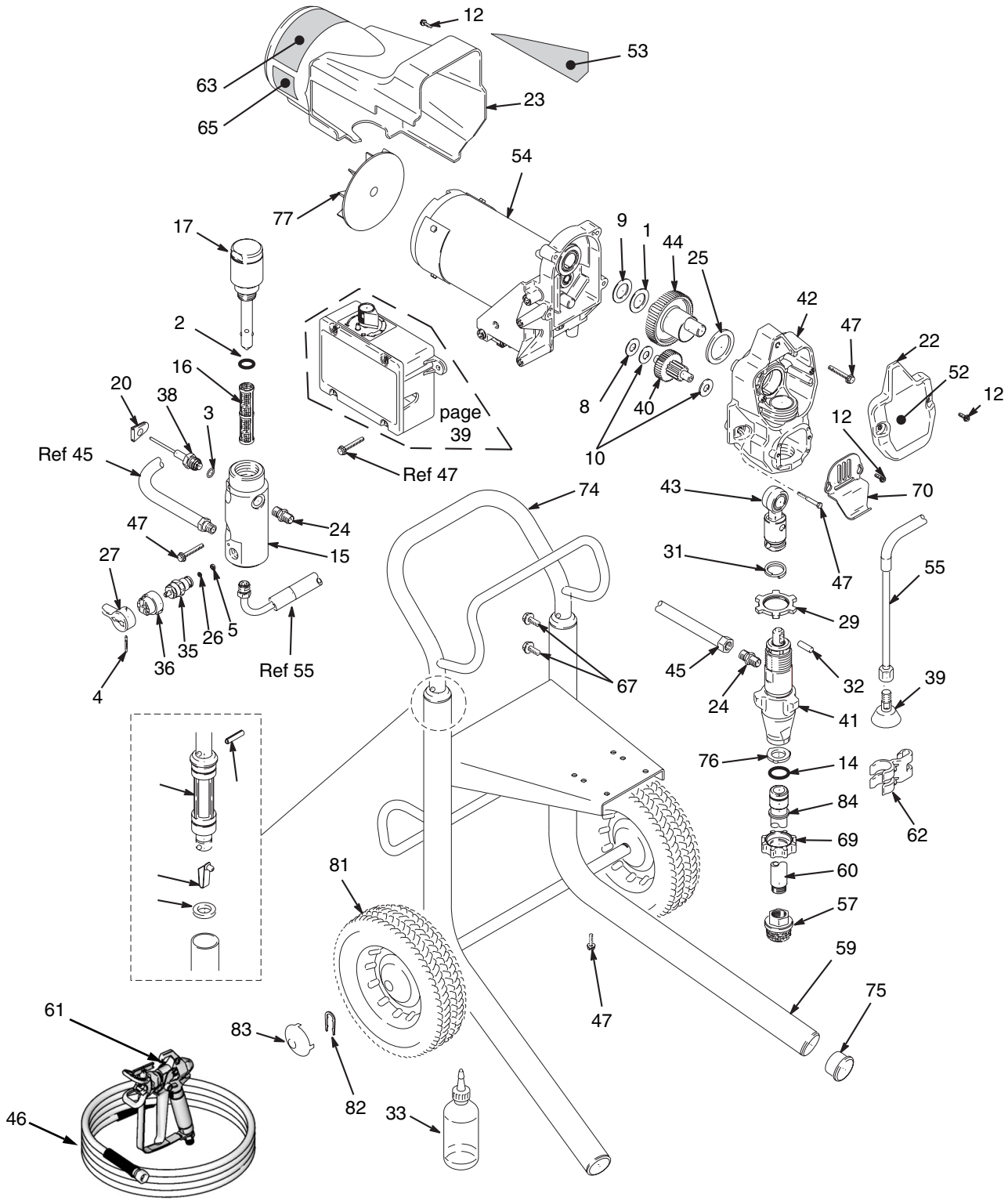
Installation

1. Install new motor (54) on frame (59) with screws (47).
2. Install control housing (48) with screws (47).
3. Install manifold (15) with screws (47).
4. Connect motor leads. See **wiring diagram** on page 28.
5. Install drive housing; see **Drive Housing Replacement,** page 20.
6. Install pump; see **Displacement Pump Replacement,** page 17.
7. Replace front cover (22) and screws (12). Tighten screws securely.
8. Replace shroud (23) and screws (12). Tighten screws securely.


12
23
54
48
22
12
49
12
50
47
59
47
15
ti7434b

Parts

Pro 230ES Model 262863



Pro 230ES Model 262863

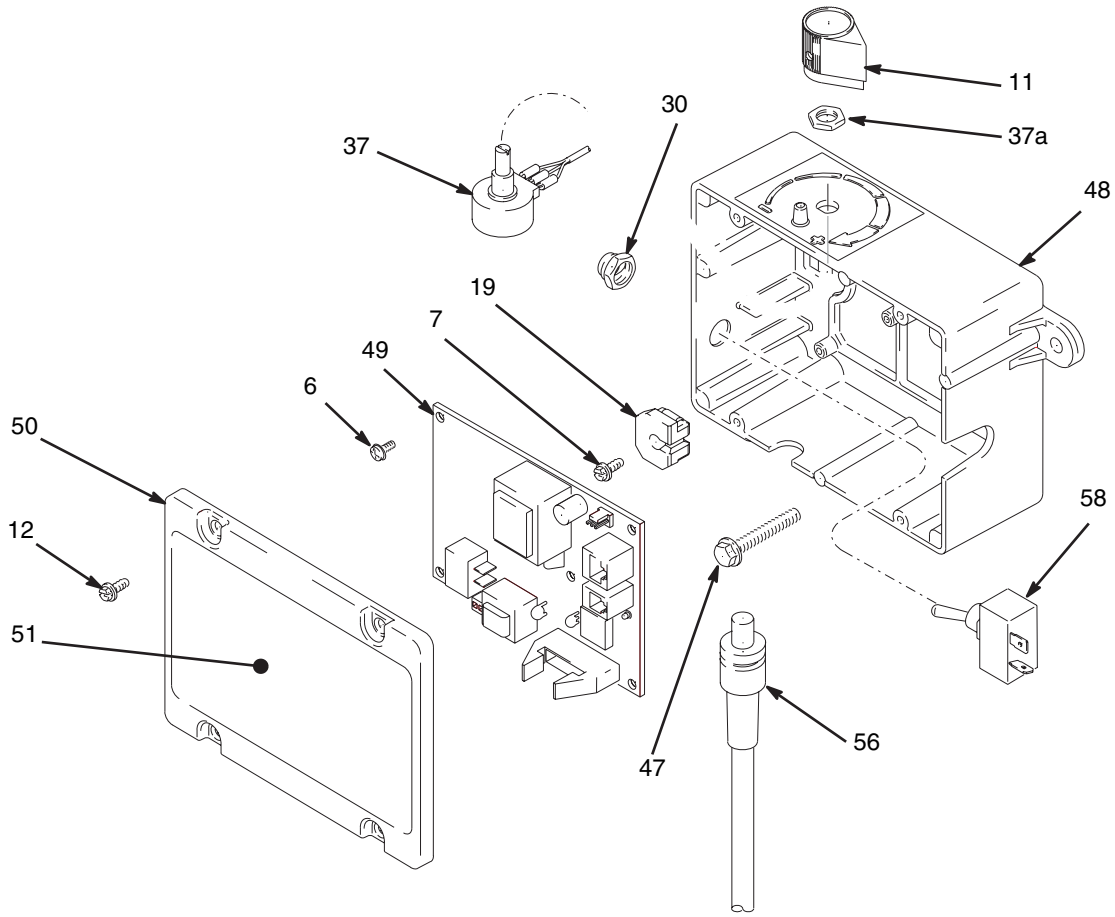
Ref No.	Part No.	Description	Qty
1	107434	BEARING, thrust	1
2	117828	PACKING, o-ring	1
3	111457	PACKING, o-ring	1
4	111600	PIN, grooved	1
5	111699	GASKET, seat, valve	1
8	116073	WASHER, thrust	1
9	116074	WASHER, thrust	1
10	116079	BEARING, thrust	2
12	117501	SCREW, mach, hex washer hd	6
14	103413	O-RING	1
15	15G455	MANIFOLD	1
16†	246384	FILTER, fluid, 60 mesh	1
17	287167	CAP, manifold	1
20	15B120	GROMMET, transducer	1
22	15E630	COVER, front	1
23	16R902	SHIELD, motor, includes 12, 63, 65	1
24	162453	NIPPLE, (1/4 npsm x 1/4 npt)	2
25	180131	BEARING, thrust	1
26	15E022	SEAT, valve	1
27	187625	HANDLE, valve, drain	1
29	195150	NUT, jam, pump	1
31	196750	SPRING, retaining	1
32	196762	PIN, straight	1
33	206994	FLUID, TSL	1
35	235014	VALVE, drain, includes 5, 26	1
36	224807	BASE, valve	1
38	243222	TRANSDUCER, pressure control includes 3	1
39	241920	DEFLECTOR, threaded	1
40	287057	GEAR, reducer includes 8, 10	1
41	255198	PUMP, displacement	1
42	287055	HOUSING, drive includes 12, 47	1
43	287053	ROD, connecting, includes 31, 32	1
44	287054	GEAR, crankshaft includes 1, 9, 25	1
45	287003	HOSE, cpld	1
46	247340	HOSE, cpld, 1/4 in. x 50 ft	1
47	117493	SCREW, mach, hex washer hd	10
52	16P989	LABEL, front, Pro 230ES	1
53	16P990	LABEL, side, Pro 230ES	1
54*†	287015	MOTOR, 120V includes 77	1
55	244240	HOSE, drain, includes 39	1
57	16R865	STRAINER, 7/8-14 unf	1
59	245984	FRAME, cart, HI	1
60	246387	TUBE, suction, includes 14, 57, 69, 76, 84	1
61	243012	GUN, SG3 Manual 312830	1
62	276888	CLIP, drain line	1
63▲	15B516	LABEL, danger	1
65▲	195793	LABEL, warning	1
67	109032	SCREW, pan hd	4
69	15E813	NUT, jam	1
70	15C146	HOOK, pail	1
74	287489	HANDLE	1
75	108691	PLUG, tubing	2
76	115099	WASHER, hose	1
77	248189	FAN, motor	2
81	106062	WHEEL	2
82	15B999	CLIP, retaining	2
83	104811	CAP, hub	2
84	15B652	WASHER, nylon	1
85▲	222385	FOLDER, warning (not shown)	1

▲ *Additional warning labels are available at no cost.*

* Motor Brush Kit 287735 is available

† Other filters available; 246382, 100 mesh; 246383, 200 mesh; 246425, 30 mesh

Control Box - Pro 230ES

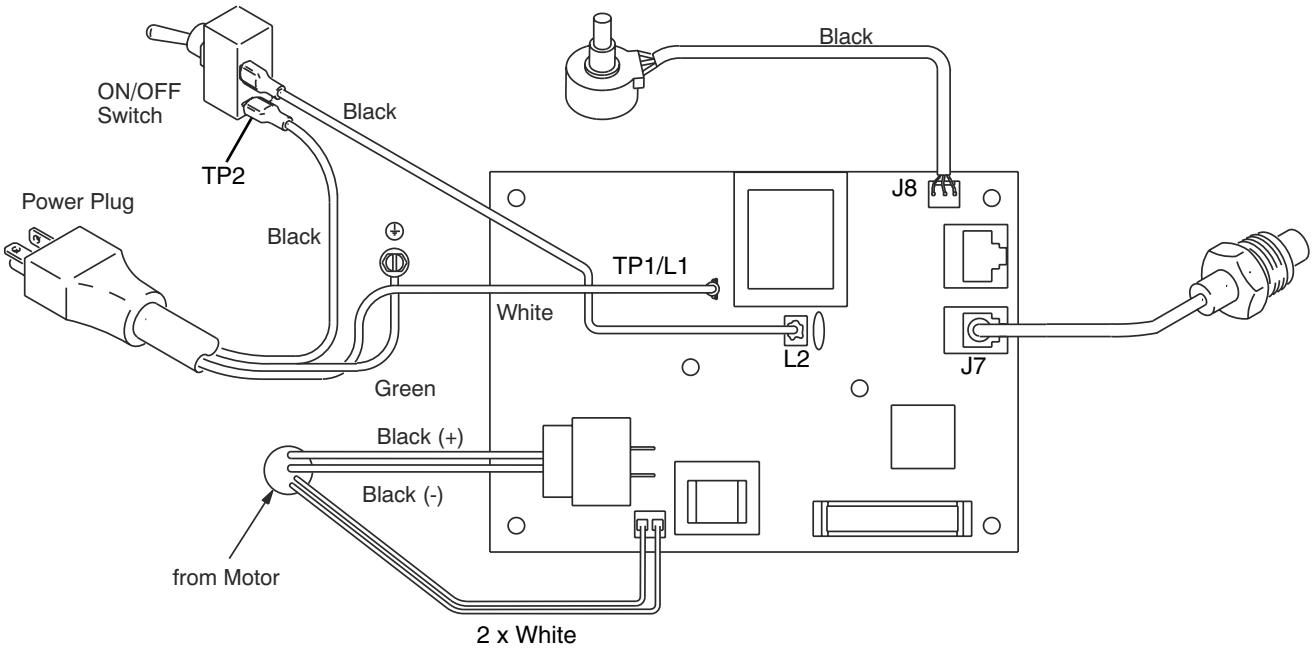


9537b

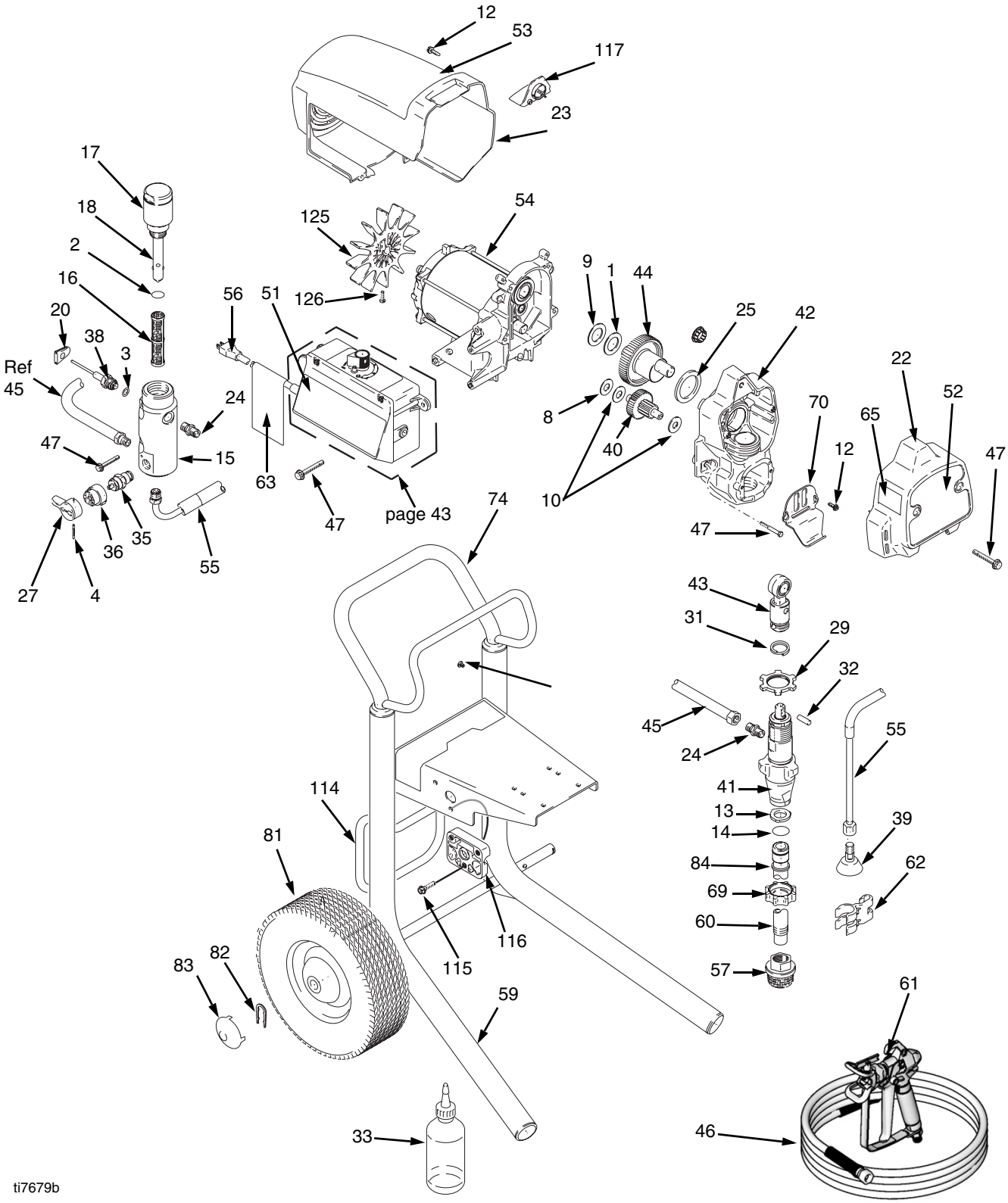
Ref No.	Part No.	Description	Qty
6	115494	SCREW, mach, phillips, pan hd	6
7	115498	SCREW, mch, slot/hex, wash hd	1
11	116167	KNOB, potentiometer	1
12	117501	SCREW, mach, hex waher hd	4
19	15B118	BUSHING, motor wire	1
30	195428	BOOT, toggle	1
37	256219	POTENTIOMETER, assembly	1

Ref No.	Part No.	Description	Qty
47	117493	SCREW, mach, hex washer hd	2
48	276868	BOX, control	1
49	16T028	CONTROL, board, 120V	1
50	276882	COVER, control	1
51	15K393	LABEL, control	1
56	15B258	CORD, power	1
58	195429	SWITCH, toggle	1

Wiring Diagram - Pro 230ES



Pro 270ES Model 262864



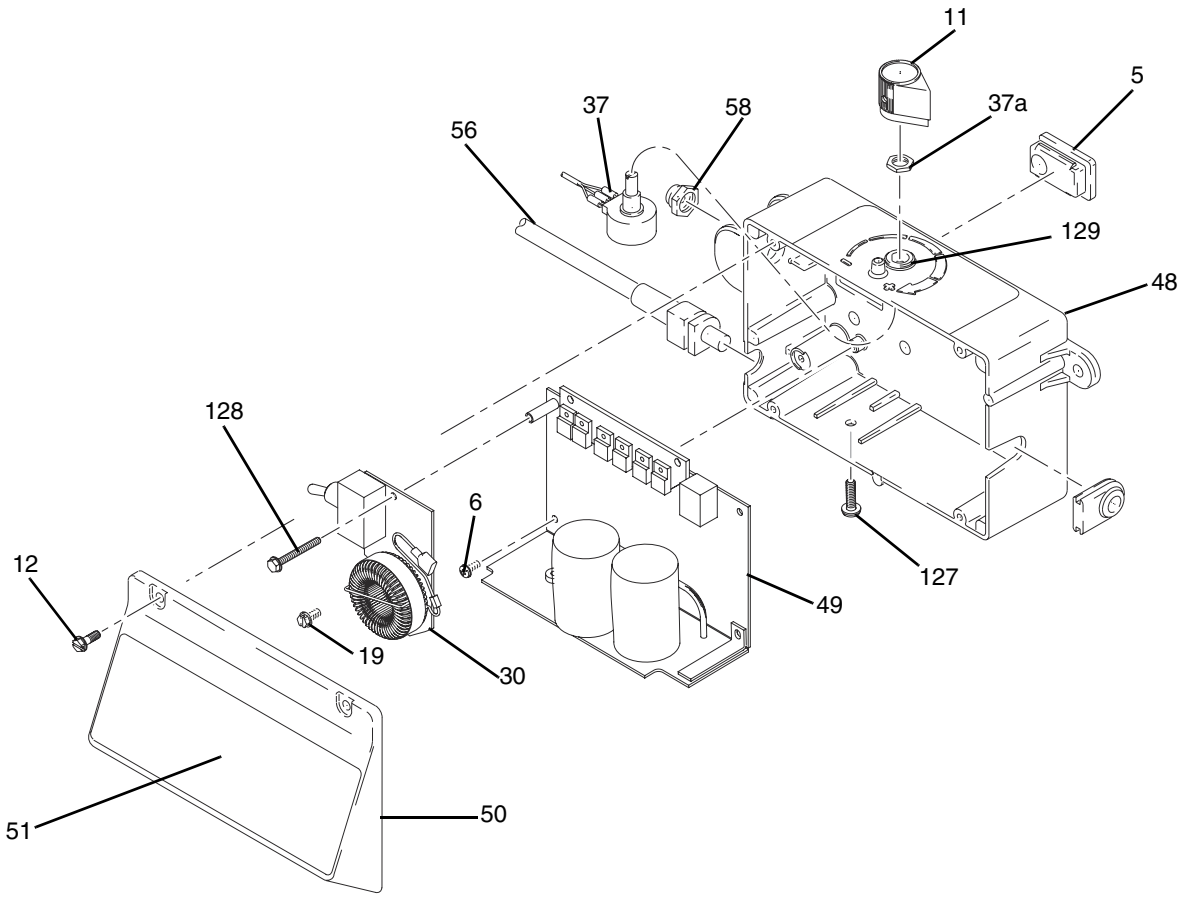
Pro 270ES Model 262864

Ref No.	Part No.	Description	Qty
1	107434	BEARING, thrust	1
2	117828	PACKING, o-ring	1
3	111457	PACKING, o-ring	1
4	111600	PIN, grooved	1
8	116073	WASHER, thrust	1
9	116074	WASHER, thrust	1
10	116079	BEARING, thrust	2
12	117501	SCREW, mach, hex washer hd	8
13	115099	WASHER, hose	1
14	103413	O-RING	1
15	15G455	MANIFOLD	1
16†	246384	FILTER, fluid, 60 mesh	1
17	287902	KIT, repair, filter cap, includes 18	1
18		INSERT, filter	1
20	15B120	GROMMET, transducer	1
22	16R904	COVER, front	1
23	16R903	SHIELD, motor, includes 12	1
24	162453	NIPPLE, (1/4 npsm x 1/4 npt)	2
25	180131	BEARING, thrust	1
27	187625	HANDLE, valve, drain	1
29	195150	NUT, jam, pump	1
31	196750	SPRING, retaining	1
32	196762	PIN, straight	1
33	206994	FLUID, TSL	1
34▲	222385	FOLDER, warning (not shown)	1
35	235014	VALVE, drain, includes 5, 26	1
36	224807	BASE, valve	1
38	243222	TRANSDUCER, pressure control includes 3	1
39	241920	DEFLECTOR, threaded	1
40	244242	GEAR, reducer includes 8, 10	1
41	246428	PUMP, displacement, ST	1
42	287899	HOUSING, drive includes 12, 47	1
43	287053	ROD, connecting, includes 31, 32	1
44	248231	GEAR, crankshaft includes 1, 9, 25	1
45	287003	HOSE, cpld	1
46	247340	HOSE, cpld, 1/4 in. x 50 ft	1
47	117493	SCREW, mach, hex washer hd	12
51	15K383	LABEL, Smart Control-2	2
52	16P991	LABEL, front, Pro 270ES	1
53	16P992	LABEL, side, Pro 270ES	1
54	287807	MOTOR, 120V includes 125, 126	1
55	244240	HOSE, drain includes 39	1
56	15D029	CORD, power	1
57	16R865	STRAINER, 7/8-14 unf	1
59	287779	FRAME, cart, HI	1
60	246387	TUBE, suction includes 13, 14, 57, 69, 84	1
61	243012	GUN, includes SG3 Manual 312830	1
62	276888	CLIP, drain line	1
63▲	15H085	LABEL, danger	1
65▲	195793	LABEL, warning	1
67	109032	SCREW, pan hd	4
69	15E813	NUT, jam	1
70	15C146	HOOK, pail	1
74	287489	HANDLE	1
81	106062	WHEEL	2
82	15B999	CLIP, retaining	2
83	104811	CAP, hub	2
84	15B652	WASHER, nylon	1
85▲	222385	TAG, warning (not shown)	1
114	15D281	HANGER, stand	1
115	15C982	CAM, cart	2
116	114531	SCREW, mch, hex	4
117	16R876	PLUG, shield	1
125	15D088	FAN, motor	1
126	115477	SCREW	1

▲ *Additional warning labels are available at no cost.*

† Other filters available; 246382, 100 mesh; 246383, 200 mesh; 246425, 30 mesh

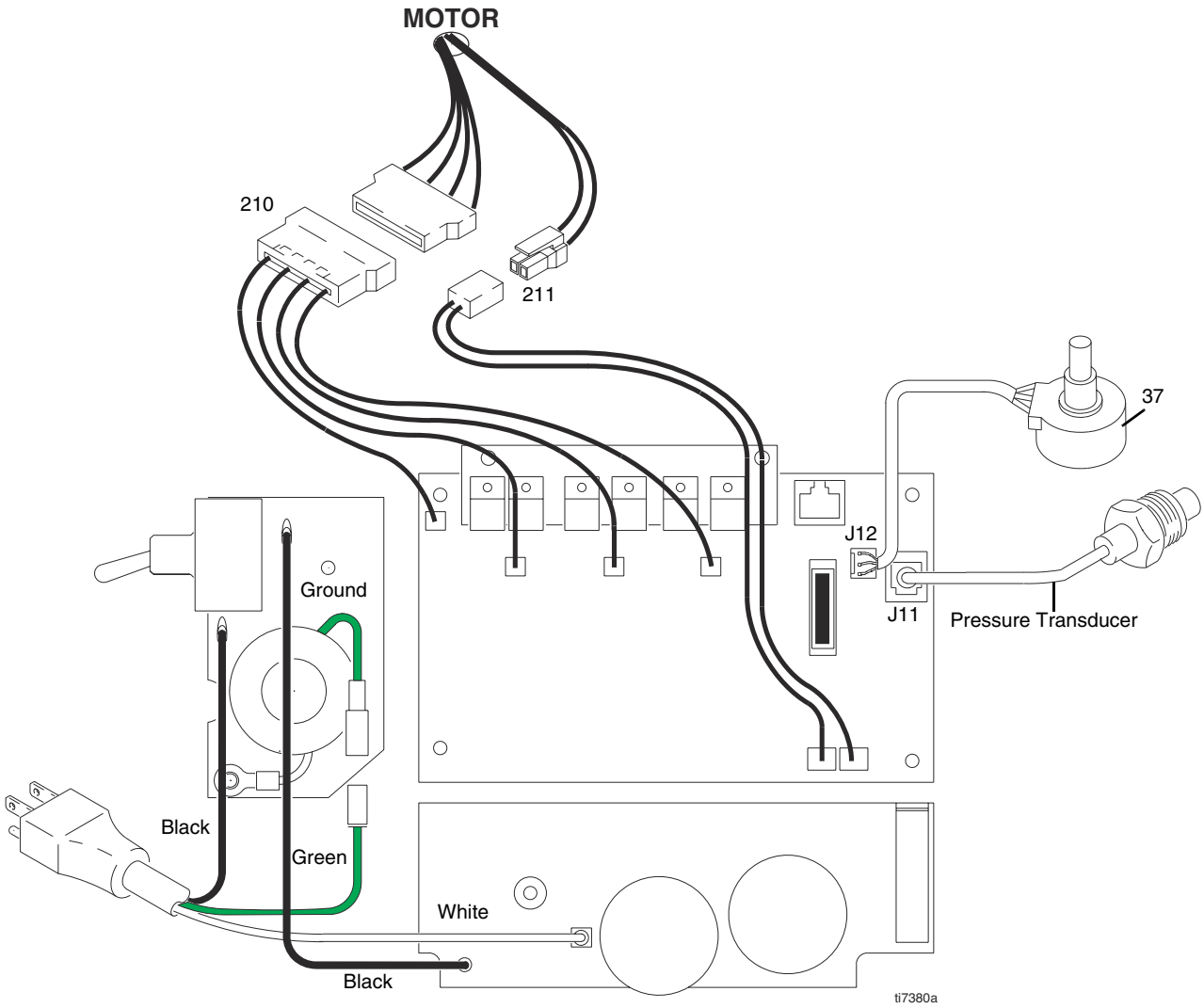
Control Box - Pro 270ES



Ref No.	Part No.	Description	Qty
5	15G562	BUSHING, control box	1
6	115494	SCREW, mach, phillips, pan hd	5
7	15H176	SCREW	1
11	116167	KNOB, potentiometer	1
12	117501	SCREW, mach, hex washer hd	4
19	115498	SCREW, mch, slot, hex, wash hd	1
30	287911	BOARD, filter, 120V GFI	1
37	256219	POTENTIOMETER, adjust, pressure includes 37a	1
37a	112382	NUT, potentiometer	1

Ref No.	Part No.	Description	Qty
48	16T033	BOX AND CONTROL (includes 11, 30, 37, 49, 58)	1
49	16T030	KIT, control board, 120V	1
50	277229	COVER, control	1
51	15K383	LABEL, Smart Contol-2	1
56	253371	CORD, power	1
58	195428	BOOT, toggle	1
127	120165	SCREW, mach, phillips, pan hd	1
128	120406	SCREW	1
129	158674	O-RING	1

Wiring Diagram - Pro 270ES



Technical Data

	Pro 230ES	Pro 270ES
Working pressure range	0-3000 psi (0-21 MPa, 0-207 bar)	
Electric motor	11.0A (120 VDC) (permanent magnet DC, TEFC)	5.5A (330 VDC) (Permanent magnet brushless DC, TEFC)
Operating horsepower	1.0	1.4
Maximum delivery (with tip)	0.54 gpm (2.05 lpm)	0.70 gpm (2.65 lpm)
Paint hose	1/4 in. x 50 ft (6.4 mm x 15 m)	
Maximum tip hole size	0.023 in. (0.58 mm)	0.027 in. (0.69 mm)
Weight, sprayer only	66 lb (30 kg)	72 lb (33kg)
Weight, sprayer, hose & gun	69 lb (31.4 kg)	75 lb (34 kg)
Dimensions:		
Length	21 in. (53.3 cm)	
Width	20.5 in. (52.1 cm)	
Height	39.5 in. (100.3 cm)	
Height (handle retracted)	29.5 in (74.9 cm)	
Power cord	16 AWG, 3-wire, 10 ft (3.05 m)	14 AWG, 3-wire, 10 ft (3.05 m)
Fluid inlet fitting	7/8” - 14 UNF external thread	
Fluid outlet fitting	1/4 NPSM external thread	
Inlet screen (on suction tube)	#12 mesh (1675 micron)	
Wetted parts, pump & hose	zinc-plated carbon steel, nylon, stainless steel, PTFE, acetal, chrome plating, leather, UHMWPE, aluminum, carbide	
Wetted parts, gun	aluminum, brass, carbide, nylon, plated steel, stainless steel, UHMWPE, zinc	
Generator requirement	3000 Watt minimum	
Electrical power requirement	120 Vac, 60 Hz, 11A, 1 phase	
Storage temperature range ◆❖	-30° to 160°F (-35° to 71°C)	
Operating temperature range ✔	40° to 115°F (4° to 46°C)	

◆ When pump is stored with non-freezing fluid. Pump damage will occur if water or latex paint freezes in pump.

❖ Damage to plastic parts may result if impact occurs in low temperature conditions.

✔ Changes in paint viscosity at very low or very high temperatures can afftect sprayer performance.

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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.

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.

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Original instructions. This manual contains English. MM 3A2817

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