

# ToughTek<sup>®</sup> Rotor/Stator Pumps

3A4361K

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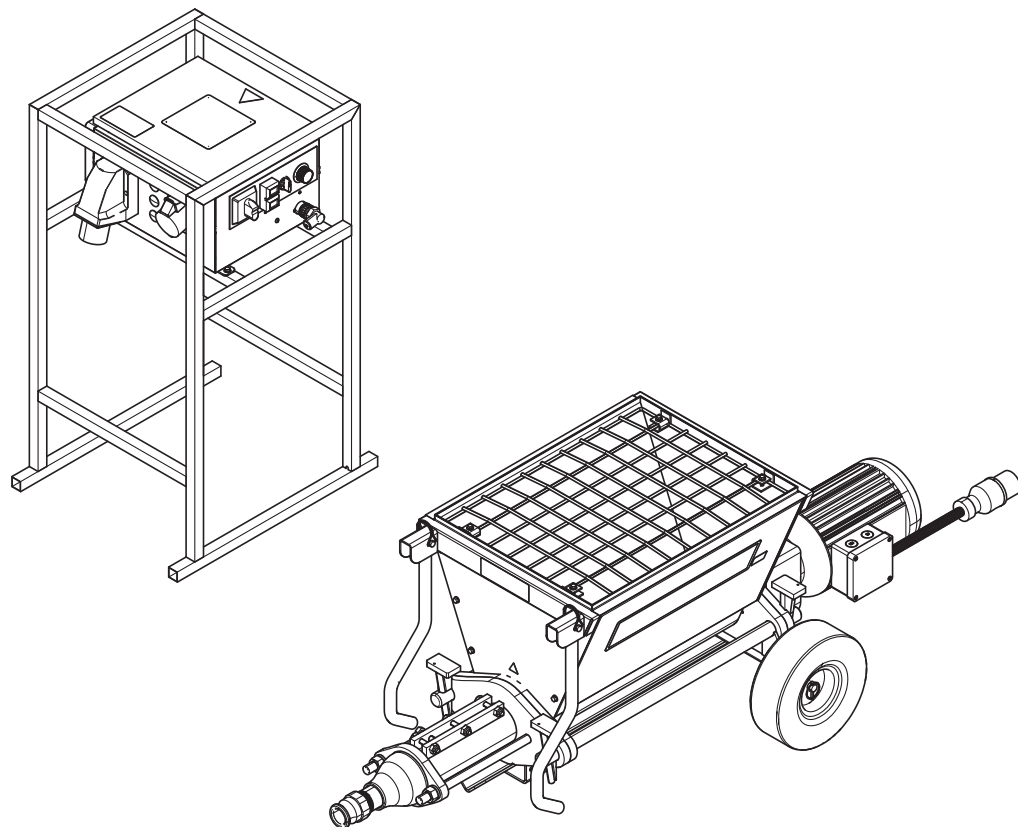
**Electric pump for water-based cementitious materials. For professional use only.  
Not approved for use in explosive atmospheres or hazardous locations.**

See page 3 for model information and maximum working pressure.



### **Important Safety Instructions**

Read all warnings and instructions in this manual before using the equipment. Save these instructions.



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## Related Manuals

Manual in English	Description
3A4350	ToughTek CM Series Mixer
3A4554	ToughTek Mortar Coupling Hose
3A5637	ToughTek Camlock Mortar Hose
3A3244	Fireproofing Pole Spray Applicator
3A3438	Stucco Pole Spray Applicator








Manuals are available at [www.graco.com](http://www.graco.com).

# Models

Model	Part	Series	Description	Power	Maximum Working Pressure
P-20	25M030	D	ToughTek P-20	200-240 VAC, 1 Phase, 50/60 Hz	300 psi (2.07 MPa, 20.7 bar)
	25M033	D	ToughTek P-20 16A	200-240 VAC, 1 Phase, 50/60 Hz	300 psi (2.07 MPa, 20.7 bar)
P-30 HT	25M032	D	ToughTek P-30 HT	200-240 VAC, 1 Phase, 50/60 Hz	300 psi (2.07 MPa, 20.7 bar)
P-30X	25M040	D	ToughTek P-30X	200-240 VAC, 1 Phase, 50/60 Hz	300 psi (2.07 MPa, 20.7 bar)
	25M041	D	ToughTek P-30X HT	200-240 VAC, 1 Phase, 50/60 Hz	300 psi (2.07 MPa, 20.7 bar)
P-40	25M050	D	ToughTek P-40	200-240 VAC, 3 Phase, 50/60 Hz	600 psi (4.14 MPa, 41.4 bar)

# 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.

 <h1 style="margin: 0;">WARNING</h1>	
   	<p><b>MOVING PARTS HAZARD</b></p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> <li>• Keep clear of moving parts.</li> <li>• Do not operate equipment with protective guards or covers removed.</li> <li>• Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the <b>Pressure Relief Procedure</b> and disconnect all power sources.</li> </ul>
 	<p><b>ELECTRIC SHOCK HAZARD</b></p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> <li>• Turn off and disconnect power before servicing equipment.</li> <li>• Connect only to grounded electrical outlets.</li> <li>• Ensure ground prongs are intact.</li> <li>• Do not expose to rain. Store indoors.</li> <li>• All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.</li> </ul>



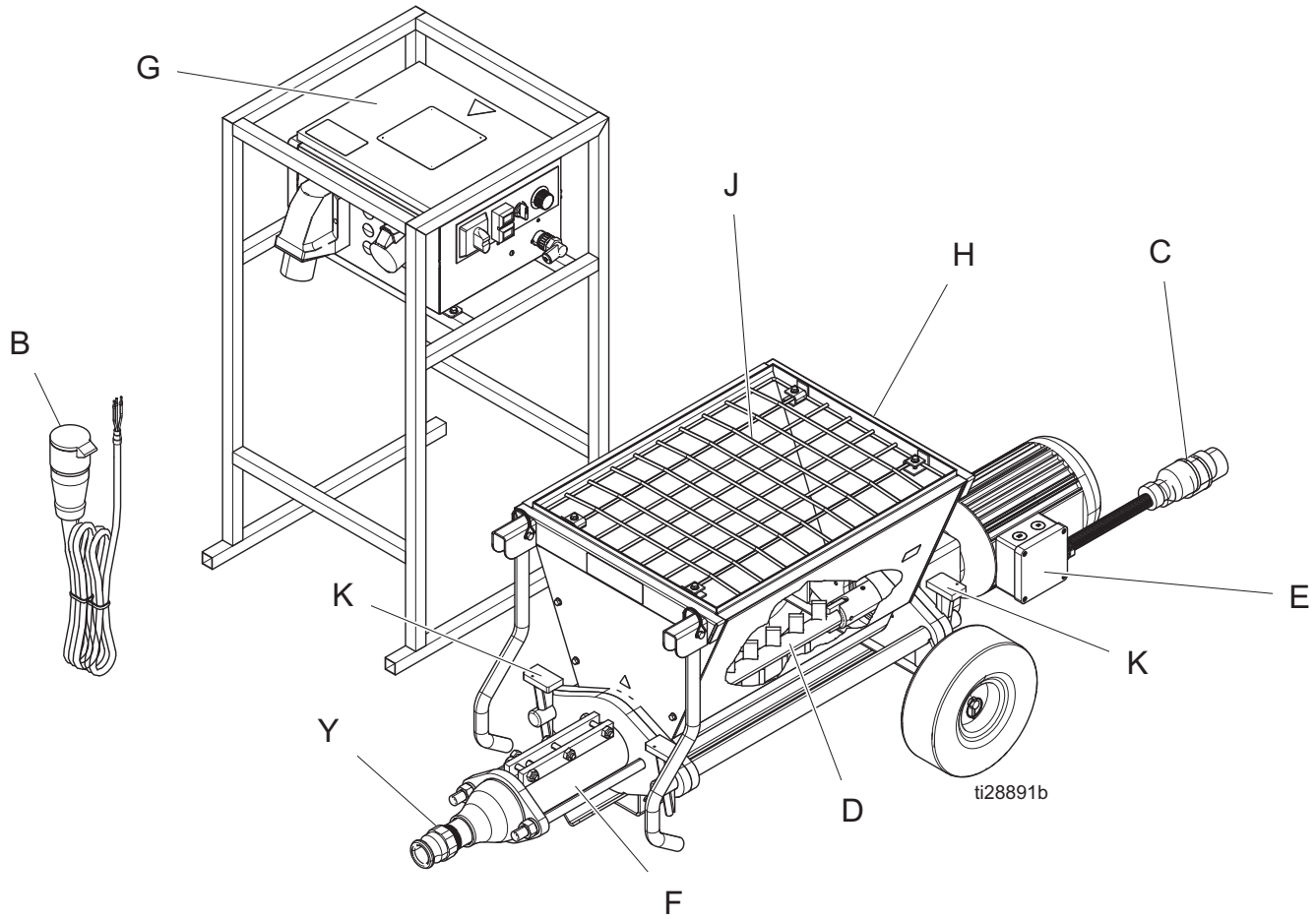


# WARNING

 	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. See in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.</li> <li>• Do not leave the work area while equipment is energized or under pressure.</li> <li>• Turn off all equipment and follow the <b>Pressure Relief Procedure</b> when equipment is not in use.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.</li> <li>• Make sure all equipment is rated and approved for the environment in which you are using it.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>
  	<p><b>PRESSURIZED EQUIPMENT HAZARD</b></p> <p>Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.</p> <ul style="list-style-type: none"> <li>• <b>Relieve Pressure</b> when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.</li> </ul>
	<p><b>TOXIC FLUID OR FUMES HAZARD</b></p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> <li>• Read Safety Data Sheets (SDSs) to know the specific hazards of the fluids you are using.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eyewear, and hearing protection.</li> <li>• Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.</li> </ul>

# Component Identification

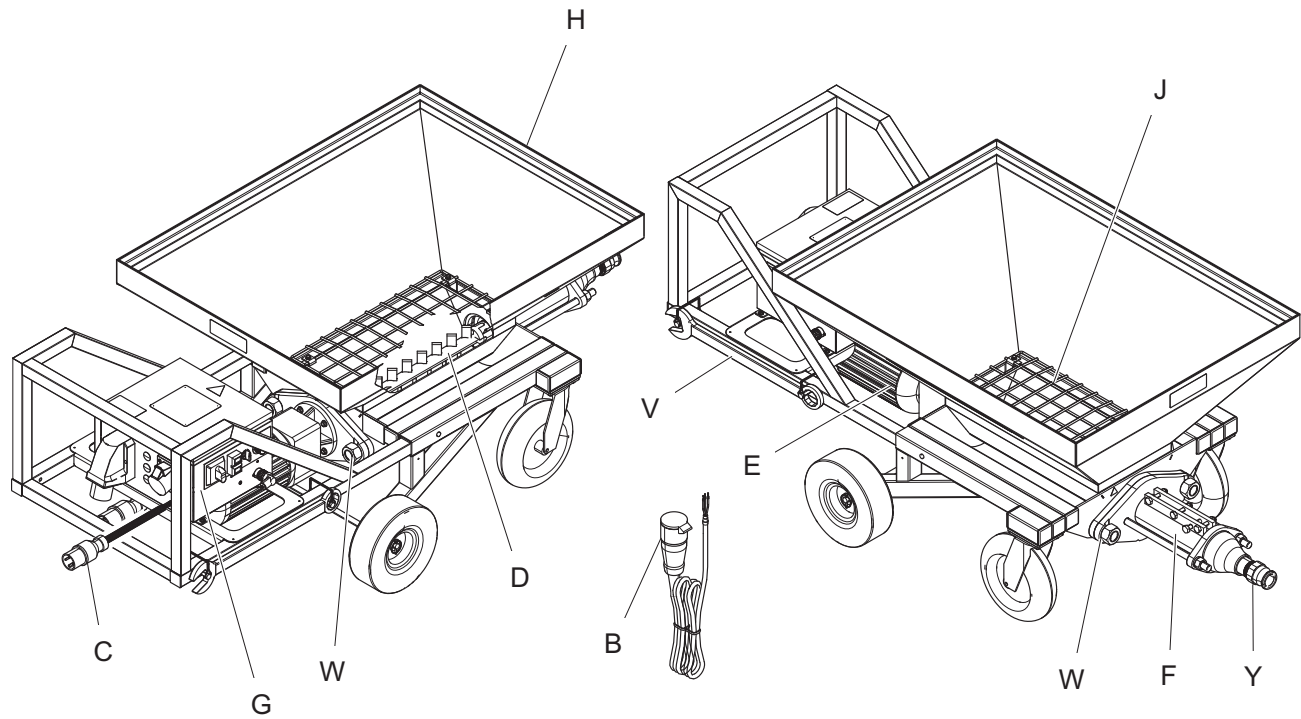
## P-20 and P-30 HT Series



Ref.	Description
B	Power Cable
C	Motor Cable
D	Drive Shaft
E	Gearbox Motor
F	Rotor/Stator Pump

Ref.	Description
G	Control Box
H	Hopper
J	Hopper Grate
K	Wedge Retainer
Y	Pump Assembly Outlet

# P-30X Series

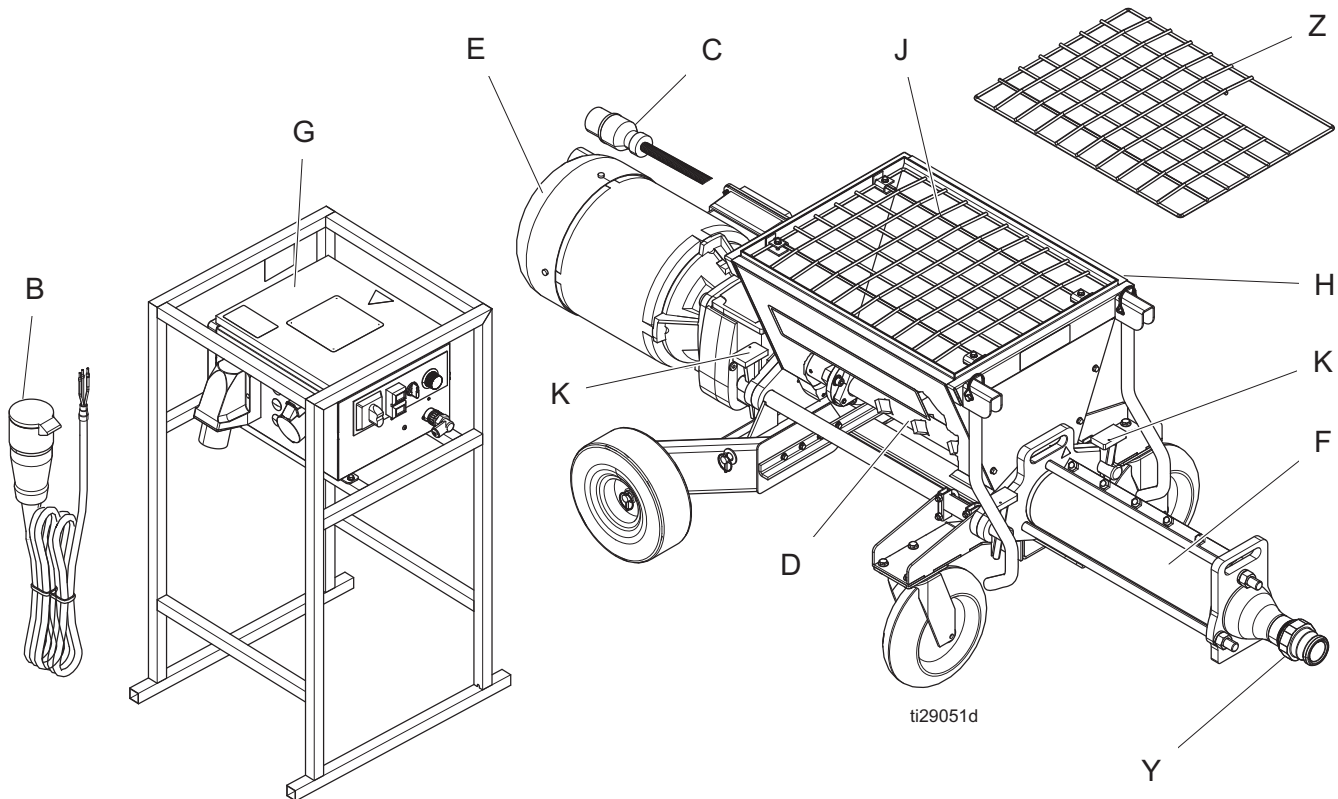


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Ref.	Description
B	Power Cable
C	Motor Cable
D	Drive Shaft
E	Gearbox Motor
F	Rotor/Stator Pump
G	Control Box

Ref.	Description
H	Hopper
J	Hopper Grate
V	1-7/8 in. Combination Wrench
W	Retaining Nut
Y	Pump Assembly Outlet

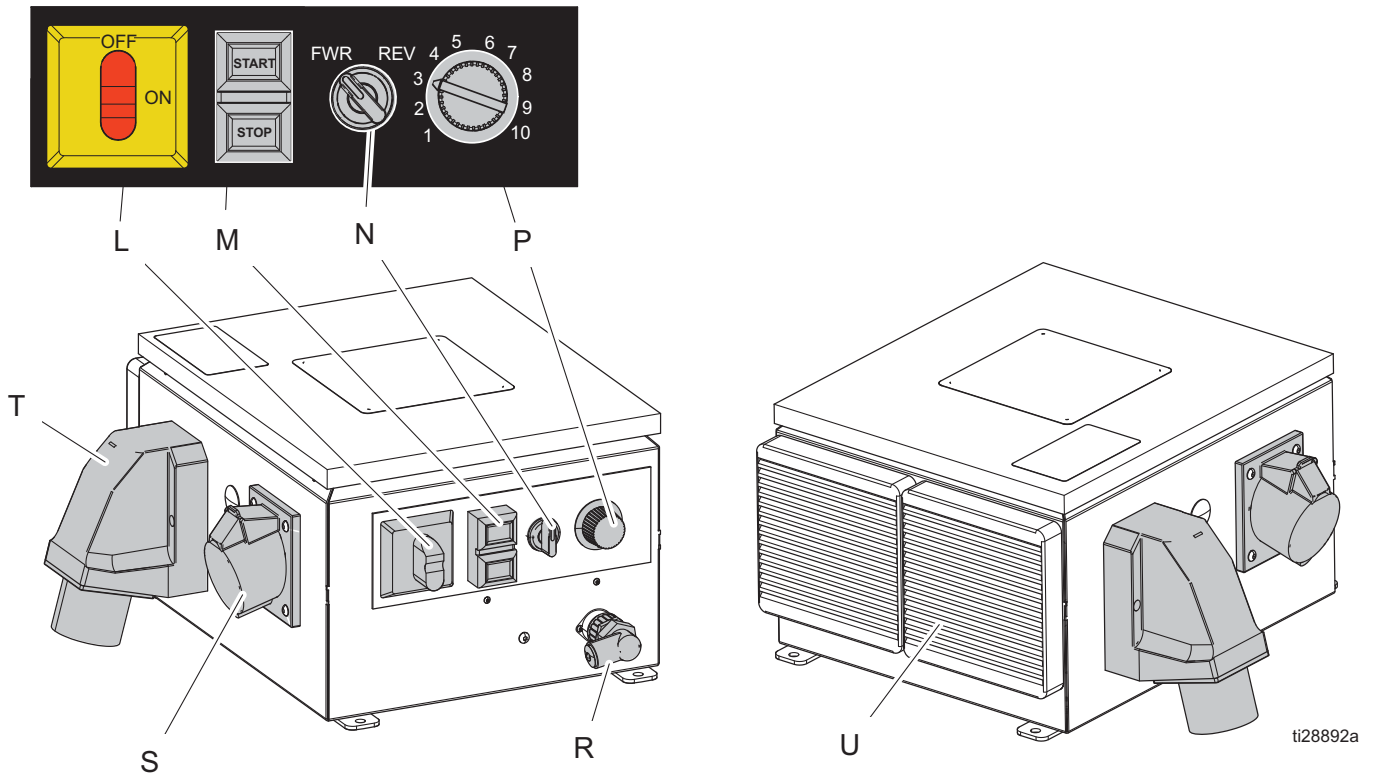
# P-40 Series



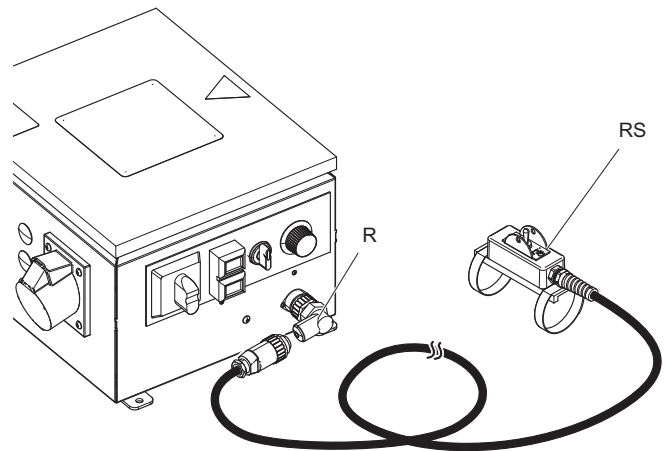
Ref.	Description
B	Power Cable
C	Motor Cable
D	Drive Shaft
E	Gearbox Motor
F	Rotor/Stator Pump
G	Control Box

Ref.	Description
H	Hopper
J	Hopper Grate
K	Wedge Retainer
Y	Pump Assembly Outlet
Z	CM-40 Hopper Grate

# Control Box



Ref.	Description
L	Power Disconnect
M	START/STOP Push Button
N	Forward/Reverse Pump Direction Switch
P	Speed Control Knob
R	Remote Switch Plug Connector
S	Power Out Connector
T	Main Power In Connector
U	Filter
RS	Remote Switch



**NOTE:** The remote switch (RS) controls the pump START/STOP function only. The remote switch (RS) and START/STOP push button (M) will both work at the same time. Even when the remote switch is connected, the operator at the system can still use the START/STOP push button (M) to stop the pump.

# Setup

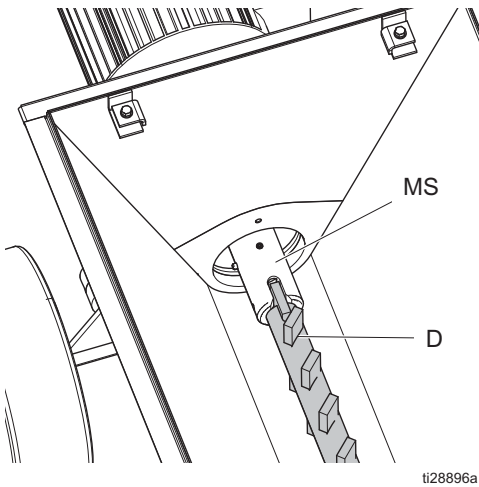
**NOTE:** For letter references, see the corresponding **Component Identification** section, starting on page 6.

1. **P-20, P-30 HT, and P40 Models:** Make sure the wedge retainers (K) are secure on the motor side.

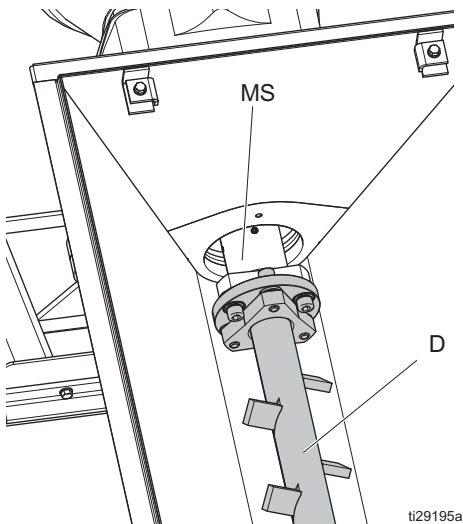
**P-30X Models:** Make sure the retaining nuts (W) are secure on the motor side.

2. If not assembled, assemble the drive shaft (D) into the hopper.

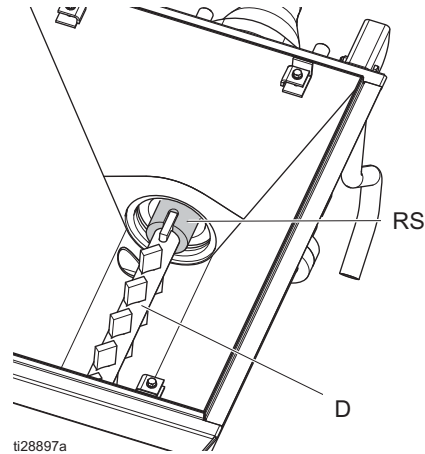
**P-20, P-30 HT, and P-30X Models:** Engage one of the flat ends of the drive shaft (D) into the motor shaft adapter (MS). The drive shaft is symmetric, so orientation does not matter.



**P-40 Models:** Bolt the drive shaft (D) plate to the motor shaft adapter (MS).

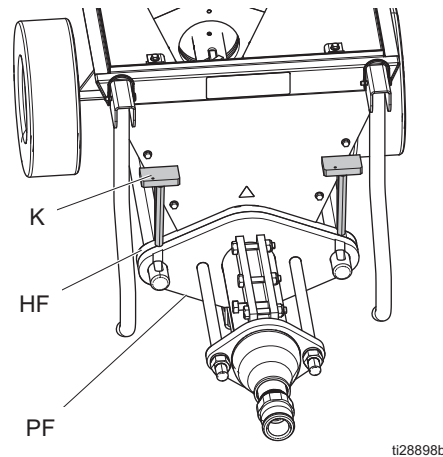


3. Rotate the drive (D) shaft by hand until the opposite flat end aligns with the approximate position of the slot in the end of the rotor in the pump assembly. Position the flat end of the drive shaft into the slot of the rotor (RS), then slide the pump assembly towards the hopper.



4. Ease the pump assembly into its final position until the pump flange (PF) and hopper flange (HF) are within 1/8 in. (3 mm) of each other. Then assemble the two wedge retainers (K) or retaining nuts (W) so they are secure.

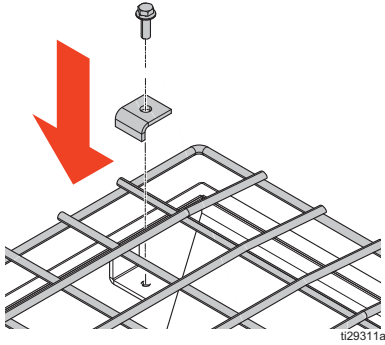
**NOTE:** Make sure both flange faces are paired with their matching counterpart.



## NOTICE

When removing a wedge retainer (K), hit the underside with a rubber mallet. Do not hit the pointed end of the wedge retainer. The end of the wedge can become damaged or bent, and no longer fit through the retaining slot.

- Secure the hopper grate (J) onto the top of the hopper.



**NOTE:** If a P-40 series rotor/stator pump is paired with a CM-40 mixer, replace the hopper grate (J) with the CM-40 hopper grate (Z).

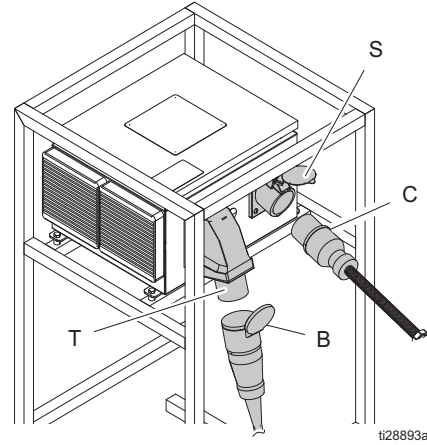
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To help prevent injury from moving parts:

- Do not operate with the grate (J, Z) removed.
- P-40 only:** Do not use the CM-40 hopper grate (Z) unless the CM-40 mixing tube discharge nozzle is extended through the grate and into the hopper.

- Attach the material hose to the pump assembly outlet (Y) and the applicator to the hose outlet.
- Verify the power disconnect switch (L) is in the OFF position.

- Connect the motor cable (C) to the power out connector (S).



- Connect power cable (B) to the main power in connector (T).
- Connect the power cable (B) to an appropriate power source.

## Electrical Connections

### Power Cable Color Code

<b>Power Cable MTA727 (for systems 25M030, 25M032, 25M033, 25M040, 25M041)</b>	
Line 1	Black
Line 2	White
Ground	Green
<b>Power Cable MTA728 (for system 25M050)</b>	
Line 1	Black
Line 2	White
Line 3	Red
Ground	Green

## Grounding

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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 system is grounded through the power cord.



# Operation

## Priming with Water



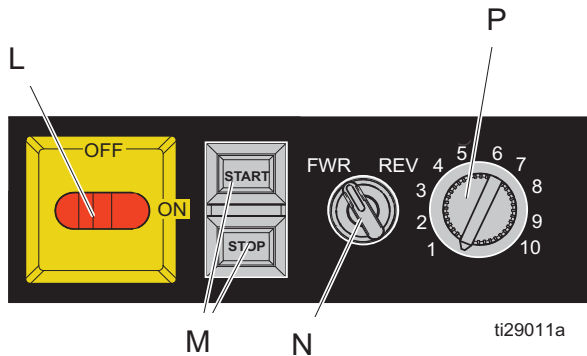
### NOTICE

To prevent material curing in the system, never load material into a dry system. Loading material into a dry system will cause the material to stick to components and cure, causing damage and requiring replacement of those parts.

1. Fill the hopper with clean water and either dish soap or a slicking agent.

**NOTE:** When priming with water, add dish soap or a slicking agent to the water to help lubricate the pump. Priming with water only may cause excessive pump friction, producing a high pitch noise and premature pump wear.

2. Turn the speed control knob (P) counterclockwise until the knob stops.

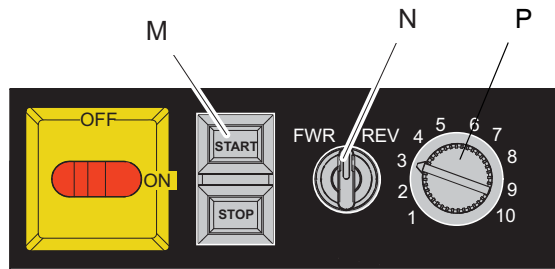


3. Place the applicator into a waste container.
4. Turn the power disconnect (L) to ON.
5. Press the START button (M) and slowly turn the speed control knob (P) clockwise. If the pump does not run within five seconds, immediately press the

STOP button (M) and follow the next step. If the pump runs, skip step 6 and proceed to step 7.

6. If the pump does not run within five seconds, perform the following:
  - a. Turn the speed control knob (P) to position 3 on the dial.
  - b. Press the START button (M) and quickly turn the pump direction switch (N) between FWD and REV.

**NOTE:** If the pump does not turn freely in the pump assembly after five seconds, press the STOP button (M) or the motor control could encounter an overload error. After multiple attempts to free the pump, allow the motor to cool for one minute.



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**NOTE:** The pump direction switch (N) is normally in the FWR position. The switch must be held in the REV position to reverse the pump direction. The switch will return to the FWR position when it is released.

- c. If the rotor does not turn freely in the pump assembly, call Graco Technical Support.
7. Turn the speed control knob (P) clockwise to increase pump speed to your desired speed so water flows from the end of the applicator. Make sure there is enough water in the hopper at all times so it does not run dry.

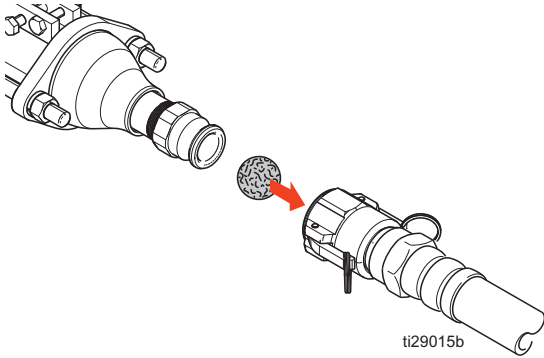
**NOTE:** Do not run the pump with water for more than five minutes at a time or premature pump wear could occur.



8. Use the clean-out balls to thoroughly wet out the complete internal surface area of the hoses.

**NOTE:** Running a clean-out ball through the hose will ensure the entire inside diameter of the hose is wetted down.

- a. Press the STOP button (M).
- b. Remove the hose inlet from the pump outlet and place a hose clean-out ball within the hose inlet. The ball must be wetted down before inserting. If using a 1 in. whip hose, begin with the smallest clean-out ball.



- c. Reattach the hose to the pump outlet and press the START button (M) to resume priming the hose.
  - d. The clean-out ball will be pushed out of the hose after several minutes. Once the ball is pushed through the hose, press the STOP push button (M).
  - e. If using a 1 in. (25 mm) whip hose, remove the hose and transition fitting and repeat the process using the large clean-out ball on the remaining hoses. Once the ball is pushed out, pump out the remaining water in the hopper, then reattach the transition fitting and whip hose.
9. Remove the hose inlet from the pump outlet and walk the water out of the hose.
    - a. Starting at the pump, raise the hose bundle above your head and slowly move towards the applicator end. As you move towards the applicator end, the remaining water will drain from the hoses.
  10. Reattach the hose to the pump outlet. The system is ready to prime with material.

## Mix the Material



Always flush the pump, hose, and applicator with water before loading material.

Always follow the material manufacturer's instructions for the material being sprayed. Material must be thoroughly mixed to a smooth consistency before loading it in the hopper.

## Managing Material After Mixing

- Pay close attention to the work life of the material being used.
- Only mix the material kits as needed. Do not let mixed material sit longer than necessary.
- To ensure that all material in the hopper is used while fresh, occasionally wait until the hopper is almost empty before refilling.

## Prime with Material



### NOTICE

Loading material into a dry system will cause the material to stick to components and cure, causing damage and requiring replacement of those parts. To prevent material curing in system, never load material into a dry system.

1. Prime the system with water. See **Priming with Water**, page 12.
2. Mix the material. See **Mix the Material**, page 13.
3. Turn the speed control knob (P) counterclockwise until the knob stops.
4. Remove the applicator.
5. Fill the clean hopper with material to be sprayed.
6. Place the hose outlet in a waste container.
7. Turn the power disconnect (L) to ON and press the pump START button (M).
8. Turn the speed control knob (P) clockwise slowly to increase pressure until any remaining water is purged out and a steady stream of material flows from the hose applicator.

**NOTE:** To prevent the chance of packing out, run the pump slowly until the system is primed.

9. To stop dispensing, turn the speed control knob (P) counterclockwise until it stops and press the STOP button (M).

10. Install applicator without the tip and tip retainer.

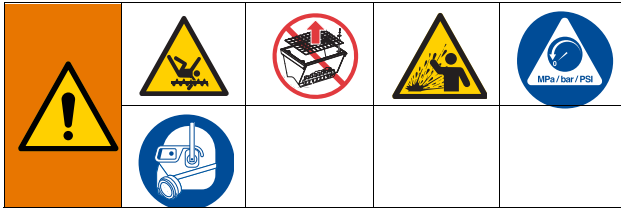
**NOTE:** For materials prone to packing out, before installing the applicator, prime the larger ID hose, then install and prime the transition fitting and whip hose.

11. Press the START button (M) and recirculate several cycles of material to make sure the material is flowing properly.

12. Turn the speed control knob (P) counterclockwise to stop the pump and press the STOP button (M).

13. Connect the air line and a tip onto the applicator (see applicator manual). The system is now primed and ready to spray.

## Spray



To help prevent injury from moving parts, do not operate with the grate (J, Z) removed.

To prevent injury from splashing fluid, always follow the **Pressure Relief Procedure**, page 16, before disconnecting any hoses or hose fittings.

Hose pack-out can occur while using this equipment. During a pack-out, equipment and fluid will stay pressurized. If a pack-out occurs, follow the **Pressure Relief Procedure**, page 16, before disconnecting any hoses or hose fittings.

### Prevent Pack-Out

To avoid “packing out” the pump or hose:

- Use the lowest pressure and largest tip size that provides an acceptable spray pattern. This will also result in wear parts lasting longer.
- Do not use any more material hose than is necessary (minimum 25 ft).

### Before Starting or Stopping Material Flow

Always have the atomizing air turned on at the applicator before and after spraying fluid (see applicator manual).

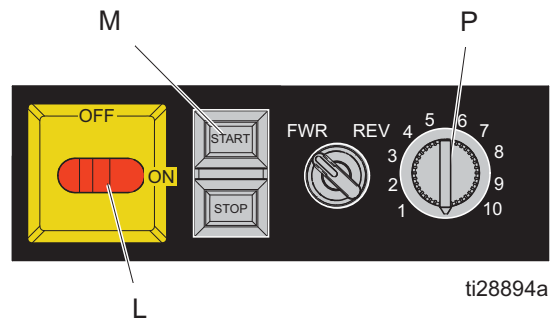
## Spraying

1. **Priming with Water**, page 12.
2. **Mix the Material**, page 13.
3. **Prime with Material**, page 14.

**NOTICE**

Failure to flush prior to material curing in the system will result in damage to the system and may require replacement of all system parts in contact with material.

4. Turn on atomizing air and adjust the air output to the required level (see applicator manual).
5. Turn the pump disconnect (L) to ON and press the pump START button (M).



6. Adjust the speed control knob (P) to set the desired output. Turn clockwise to increase speed, counterclockwise to decrease speed.
7. If the system is approaching its cure time or the system will be idle for enough time for material to begin curing in the system, **Flush** the system (see page 17).

## Pressure Relief Procedure

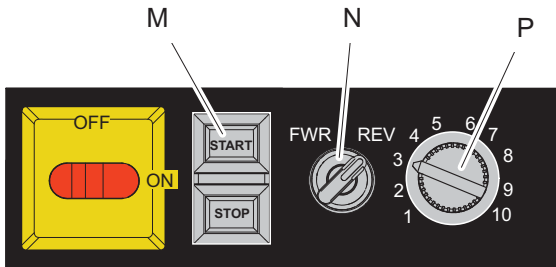


Follow the Pressure Relief Procedure whenever you see this symbol.



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

1. Push the STOP button (M).
2. Remove the applicator tip and tip retainer, and hold the applicator firmly against a pail.
3. Turn the speed control knob (P) to position “3” on the dial.
4. Hold the pump direction switch (N) in the REV position and push the START button (M).

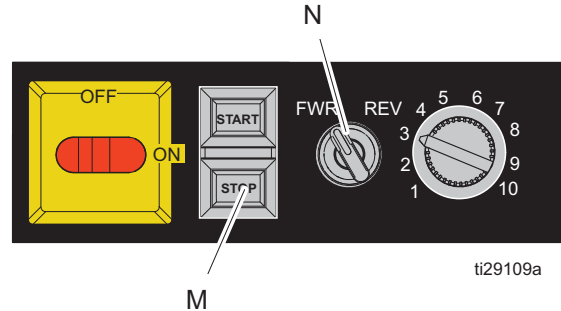


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5. Allow the pump to run in reverse for several seconds while holding the pump direction switch (N) in the REV position.

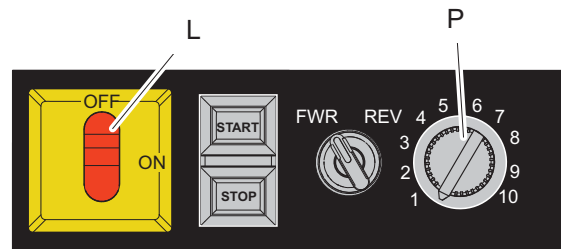
**NOTE:** If the pump is stalled, do not run the pump for more than five seconds at a time or the motor control could encounter an overload error. After multiple attempts to free the pump, allow the motor to cool for one minute.

6. Push the STOP button (M) and then let go of the pump direction switch (N). The switch will return to its normal FWR position.



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7. Turn the speed control knob (P) counterclockwise until the knob stops.
8. Turn the power disconnect (L) to OFF.



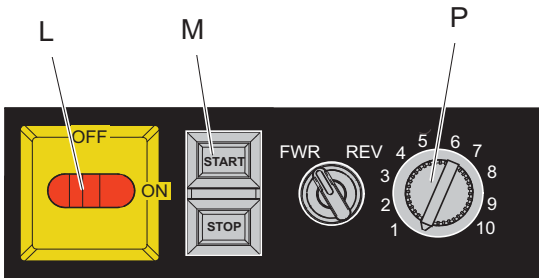
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9. Allow time for material to drain to relieve any remaining pressure.
10. If you suspect the applicator or hose is still clogged or that pressure has not been fully relieved after following the previous step.
  - a. Starting at the applicator, **VERY SLOWLY** open the coupling while maintaining control of both the applicator and hose.
  - b. Clear the hose or tip obstruction.
  - c. If there is still pressure trapped down the line, work your way back to the pump by individually opening each coupling between each hose connection. Maintain control of each hose and **VERY SLOWLY** open each coupling until pressure has been fully relieved.

# Flush



1. With the pump stopped, turn the speed control knob (P) counterclockwise to the lowest setting.



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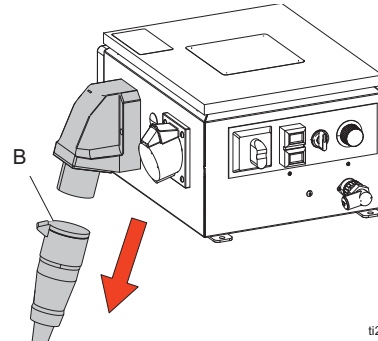
2. Remove the applicator tip and retainer.
3. Place the applicator outlet in a waste container.
4. Press the START push button (M) to start the motor.
5. Increase speed by turning the speed control knob (P) clockwise until a steady stream of material flows from the applicator.
6. When there is not enough material left to continue pumping:

- a. Turn the speed control knob (P) counterclockwise to the lowest setting and press the STOP button (M).
- b. Thoroughly rinse down the hopper with water.
- c. Press the START button (M) and increase the speed control knob (P) so the remaining material in the hoses and hopper is chased out by clean water.
- d. Keep the hopper filled with water and a slicking agent while dispensing and run until clean water begins to exit the applicator outlet.

**NOTE:** When flushing with water, add dish soap or a slicking agent to the water to help lubricate the pump. Flushing without dish soap added to the water can cause excessive pump friction, producing a high pitch noise and premature pump wear.

- e. Press the STOP button (M) to stop dispensing.

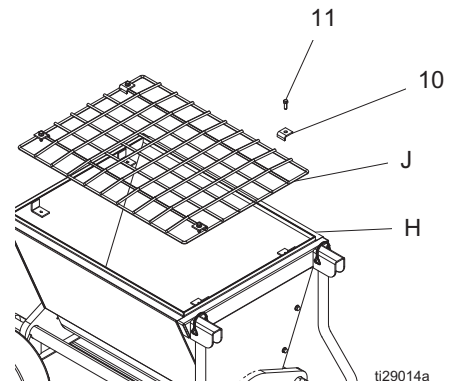
7. If any material still remains in the hopper:
  - a. Turn the speed control knob (P) counterclockwise to the lowest setting and press the STOP push button (M) to stop the motor.
  - b. Turn the power disconnect (L) to OFF and disconnect the power cable (B).



ti29013a

- c. Remove the hopper grate (J, Z).

<p>At any time before removing the hopper grate (J, Z), the power disconnect must be OFF and the power cable (B) disconnected from the main power in connector (T). Failure to do this can result in serious injury.</p>				

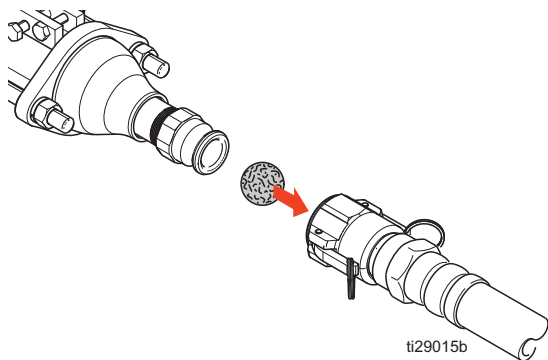


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- d. Scrape the remaining material down the sides of the hopper and rinse with water. Scrub the hopper and drive shaft with a scrub brush if needed.
- e. Once the hopper has been cleaned, replace the hopper grate (J, Z) onto the hopper (H).
- f. Connect the power cable (B) to the main power in connector (T), and turn the power disconnect (L) to ON.

## Operation

- g. Press the START button (M) and increase the speed control knob (P) to flush out any material residual that was left in the hopper after cleaning.
  - h. Keep the hopper filled with water and dish soap or slicking agent while dispensing.
8. After the remaining material in the hopper has been flushed, press the STOP button (M) to stop dispensing.
  9. Remove the applicator and clean/flush separately.
    - a. Make sure all parts are free of residual material.
    - b. Turn on air to make sure air lines are free of obstructions.
  10. Remove the remaining material in the hoses with a hose clean-out ball:
    - a. Place the hose outlet in the waste container.
    - b. Remove the hose inlet from the pump outlet and place a hose clean-out ball within the hose inlet. The ball must be wetted down before inserting. If using a 1 in. (25 mm) whip hose, begin with the smallest clean-out ball.
  11. Turn the speed control knob (P) counterclockwise to the lowest setting and press the STOP push button (M).
  12. Turn the power disconnect (L) to OFF.
  13. Dispose of all waste material in accordance with local rules and regulations. See manufacturer's SDSs for additional information.
- c. Reattach the hose to the pump outlet and press the START push button (M) to resume flushing the hose.
  - d. The hose clean-out ball will be pushed out of the hose after several minutes. Once the ball is pushed through the hose, press the STOP push button (M). Repeat until all sediment is removed from the hose.
  - e. If using a 1 in. (25 mm) whip hose, remove the hose and transition fitting and repeat the process using the large clean-out ball on the remaining hoses. Once the ball is pushed out, pump out the remaining water in the hopper, then reattach the transition fitting and whip hose.



## Shutdown

1. To shutdown, flush the system (see **Flush**, page 13).
2. Disconnect from the power supply.

## Routine Maintenance

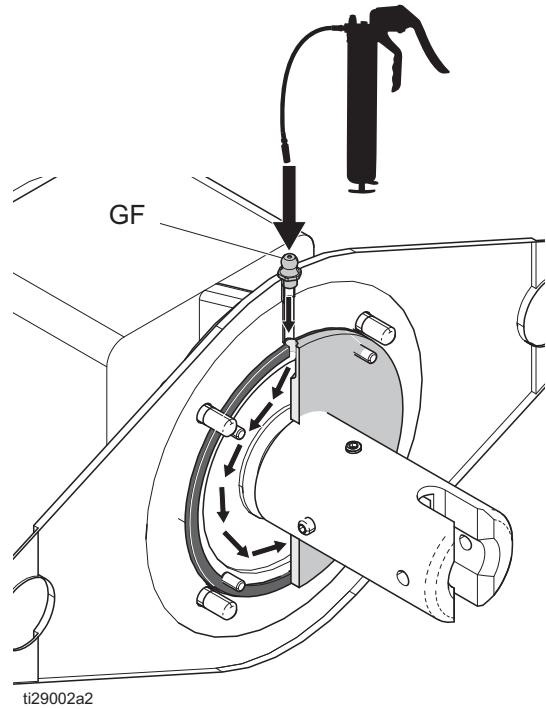
The following maintenance should be performed daily:

1. Flush the system (see **Flush**, page 13).
2. Perform the **Pressure Relief Procedure**, page 10.
3. Clean the hopper with a scrub pad. Clean the outside of the sprayer with a cloth and water.

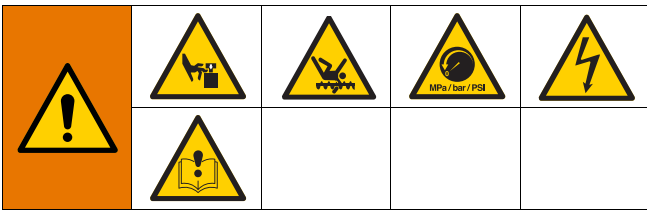
**NOTICE**

Failure to clean properly after use will damage seals and moving parts due to wear from material build-up.

4. Check pump, seals, hoses, couplings, and cables for wear and damage. Replace as necessary.
5. Grease seals daily via the grease fitting (GF) located on the motor flange. Use water resistant, corrosion inhibited grease.



# Troubleshooting



Problem	Cause	Solution
The rotor/stator pump operates, but output is low	Pump pressure is too low, stator is too loose.	Tighten stator to achieve suitable pumping pressure.
	Pump pressure is too high, stator is too tight.	Loosen stator to achieve suitable pumping pressure.
	Stator is worn or damaged.	Tighten stator. If low output continues, replace stator.
	Rotor is worn or damaged.	Tighten stator. If low output continues, replace stator.
	Material hose is clogged.	Clean or replace the material hose.
	Applicator or tip is dirty or clogged.	Clean or replace the applicator or tip.
	Large pressure drop in material hose.	Reduce hose length and/or increase diameter.
Pump does not operate	VFD overload fault.	Turn power disconnect switch to OFF and wait one minute for VFD to reset. See "VFD overload fault," below, for possible causes.
	Material hose or applicator is obstructed.	Clean or replace the hose or applicator.
	Dried material in pump assembly.	Clean or replace the pump assembly.
Poor finish or irregular spray pattern	Inadequate air assist air pressure.	Adjust the air assist air pressure output on the applicator.
	Dirty, worn, or damaged spray applicator.	Service the spray applicator (see applicator manual).
Pump is noisy when pumping	Pumping water without dish soap or a slick agent.	Add dish soap or a slicking agent to the water
	Pump is running with no material or fluid in the hopper.	Add material to hopper or shut off pump.
Erratic accelerated speed	Material supply exhausted.	Refill the hopper and prime pump with material.
Motor is powered but nothing comes out of the hose	Pump pressure is too high, stator is too tight.	Loosen stator to achieve suitable pumping pressure.
	Pump is packed out with dry or cured material.	Disassemble and clean the pump.
	Hose is packed out with dry or cured material.	Clean or replace the material hose.



Problem	Cause	Solution
Material is too thick to push through the hose without packing out	Hose is too restrictive.	Thin and mix material thoroughly to a lower viscosity if material supplier allows.
		Use a pump system priming fluid (dish soap or slicking agent) to wet out the system.
		Reduce length and/or increase diameter of hose.
Electric motor will not start or stops during operation	Loose connections.	Check connections in electrical enclosure. Check for correct voltage supply at the disconnect and VFD terminals L1, L2, L3.
	Motor overload relay trips.	Turn power disconnect switch to OFF and wait one minute for VFD to reset. Allow the motor to cool if conditions occur frequently. See "VFD overload fault" section of this table for possible causes.
VFD overload fault	The VFD detects a motor overload due to motor slowing down under a high current condition.	Reduce motor load.
		Lower pressure.
		Reduce length and/or increase diameter of hose.

### Error Codes on the Display

Error Code	Fault Description	Corrective Action
oc	Over current	Check the wiring connections to U/T1, V/T2, W/T3 for possible short circuits or shorts to ground.
		Check for loose contacts between AC motor drive and motor.
		Check for possible excessive loading conditions at the motor.
ov	Over voltage	Check if the input voltage falls within the rated AC motor drive input voltage range.
		Check for possible voltage transients.
oH1 oH2	Overheating	Make sure that the ambient temperature falls within the specified temperature range.
		Make sure that ht ventilation holes are not obstructed.
		Remove any foreign objects from the heat sinks and check for possible dirty heat sink fins.
		Check the fan and clean it.
Lv	Low voltage	Check whether the input voltage falls within the AC motor drive rated input voltage range.
		Check for abnormal load in motor.
		Check for correct wiring of input power to R-S-T (for 3-phase models) without phase loss.
oL	Overload - The VDF detects excessive drive current	Check whether the motor is overloaded.
oL1	Overload 1 - Internal electronic overload trip	Check for possible motor overload.
oL2	Overload 2 - Motor overload	Reduce the motor load.
GFF	Ground fault	Check for possible poor insulation at the output line.
cFA	Auto acceleration or deceleration failure	Load may have changed suddenly.
AErr	Analog signal error	Check the wiring of the ACI.
PHL	Phase loss	Check the input phase wiring for loose contacts.
ocA	Over current during acceleration	Short-circuit at motor output: Check for possible poor insulation at the output line.
ocd	Over current during deceleration	Short-circuit at motor output: Check for possible poor insulation at the output line.
ocn	Over current during constant speed	Short-circuit at motor output: Check for possible poor insulation at the output line.
		Sudden increase in motor loading: Check for possible motor stall.
<b>NOTE:</b> If the display shows any error codes not listed in this table, call Graco Technical Assistance.		

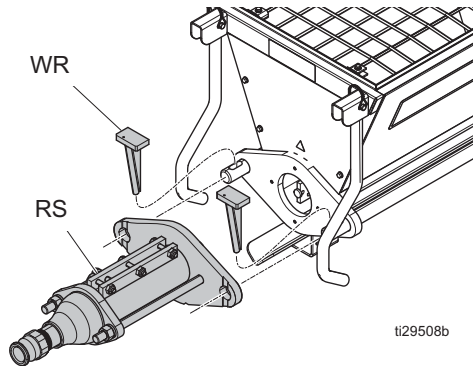
# Repair

## Rotor/Stator Pump Repair

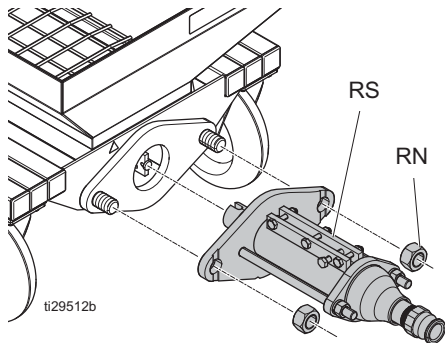


1. Disconnect the pump from the power source.
2. Remove wedge retainers (WR) or retaining nuts (RN) to disconnect the rotor/stator pump (RS) from the hopper.

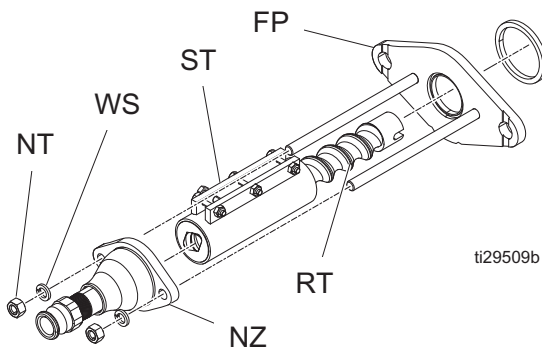
### P-20, P-30 HT, and P-40 Series:



### P-30X Series:



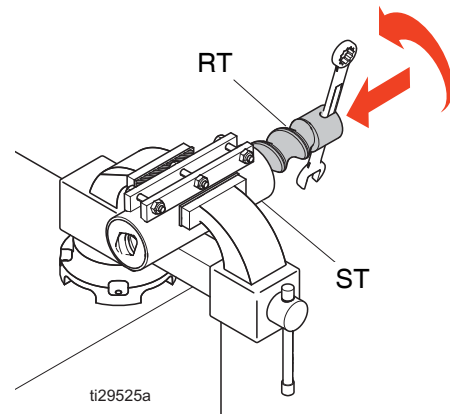
3. Remove nuts (NT), washers (WS), and nozzle (NZ) from the rotor/stator assembly.



4. Disengage the rotor (RT) and stator (ST) from the flange plate (FP) and replace necessary parts.

### If Replacing Both the Rotor and the Stator

1. If not assembled together, join the new rotor (RT) with the new stator (ST) by placing the stator (ST) in a vise and screwing in the rotor (RT) using a flat bar or wrench.



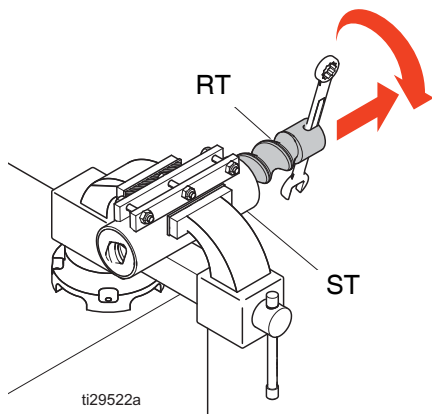
**NOTE:** Apply a lubricant to the rotor and stator beforehand to improve ease of assembly.

**NOTE:** Do not screw the non-slotted end of the rotor past the end of the stator. It should be flush or positioned slightly within the stator. If the rotor sticks out past the stator end, the nozzle will not fit onto the end of the ties rods correctly.

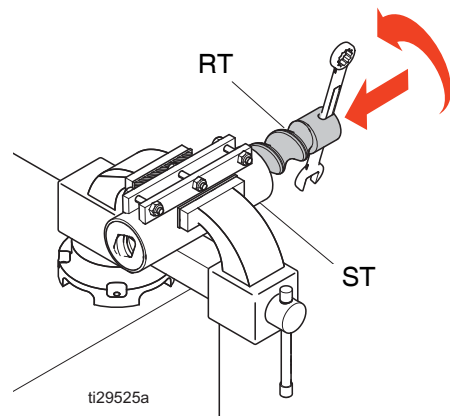
2. With the new rotor/stator assembly, join the stator (ST) and flange plate (FP) together.
3. Assemble the nozzle (NZ), nuts (NT), and washers (WS). Torque the nuts to 60 ft-lb (81 N•m) for P-20, P-30 HT, and P-30X Series pumps. Torque the nuts to 150 ft-lb (203 N•m) for the P-40 Pump.
4. Attach the rotor/stator pump (RS) to the hopper and secure with either wedge retainers (WR) or retaining nuts (RN), depending on your system. Be sure to engage the rotor slot with the drive shaft flat.

## If Replacing Only the Rotor or the Stator

1. Place the rotor/stator (RS) assembly in a vise.
2. Turn the rotor (RT) counterclockwise with a flat bar or wrench to remove the rotor (RT) from the stator (ST).



3. Replace the worn rotor (RT) or stator (ST) with a new part, then screw the rotor (RT) clockwise back into the stator (ST).



**NOTE:** Apply a lubricant to the rotor and stator beforehand to improve ease of assembly.

**NOTE:** Do not screw the non-slotted end of the rotor past the end of the stator. It should be flush or positioned slightly within the stator. If the rotor sticks out past the stator end, the nozzle will not fit onto the end of the ties rods correctly.

4. With the new rotor/stator assembly, join the stator (ST) and flange plate (FP) together.
5. Assemble the nozzle (NZ), nuts (NT), and washers (WS). Torque the nuts to 60 ft-lb (81 N•m) for P-20, P-30 HT, and P-30X Series pumps. Torque the nuts to 150 ft-lb (203 N•m) for the P-40 Pump.
6. Attach the rotor/stator pump (RS) to the hopper and secure with either wedge retainers (WR) or retaining nuts (RN), depending on your system. Be sure to engage the rotor slot with the drive shaft flat.

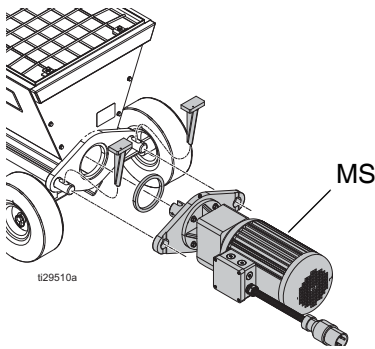
# Motor Assembly Repair



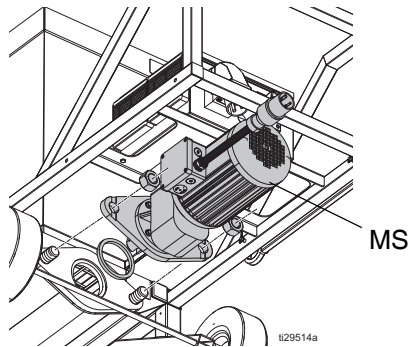
1. Remove the motor assembly (MS) from the hopper and place it on a flat surface.

**NOTE:** The motor assembly is heavy. It may require two people to safely remove.

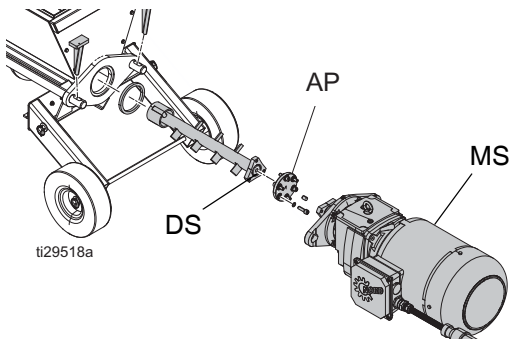
**P-20, P-20 16A, and P-30 HT:**



**P-30X and P-30X HT:**



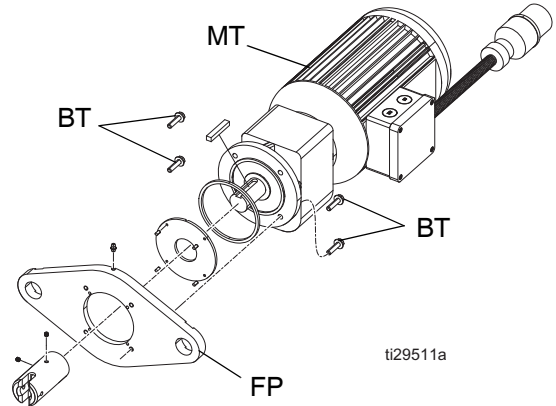
**P-40:**



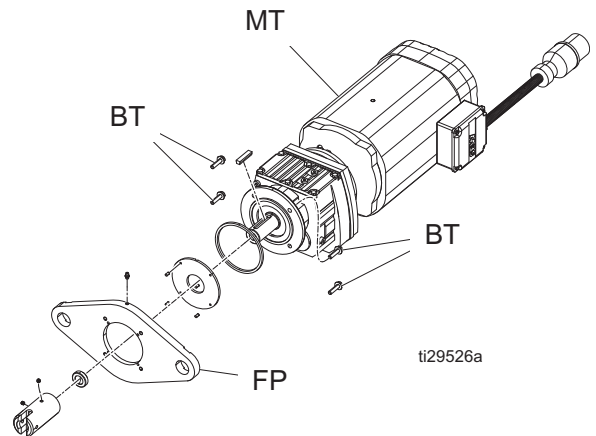
**NOTE:** The P-40 motor assembly (MS) is bolted to the drive shaft (DS) with an adapter plate (AP). Remove the bolts to detach the motor assembly.

2. Remove the four bolts (BT) securing the motor flange plate (FP) to the motor (MT) and replace all necessary parts as needed.

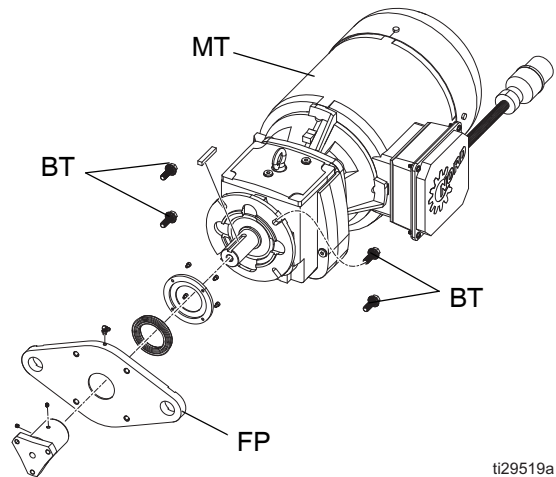
**P-20, P-20 16A, and P-30X:**



**P-30 HT, P-30X HT:**



**P-40:**



3. Reassemble all parts and secure the flange plate (FP) to the motor (MT) with the four bolts (BT).

**NOTE:** When reassembling, follow all notes listed in “Motor Assemblies” on pages 32-35 that pertain to your specific motor.

4. Use the wedge retainers (WR) or retaining nuts (RT) (depending on your system) to securely attach the motor assembly (MS) to the hopper. Add grease to motor assembly if needed.

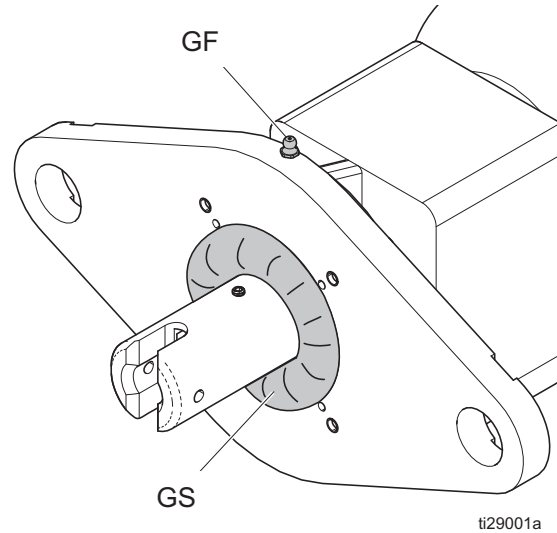
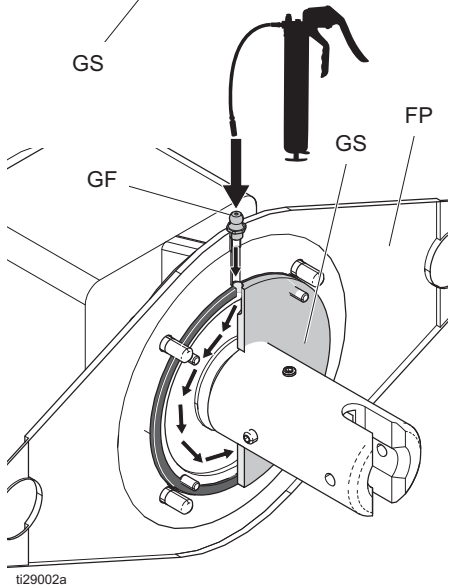
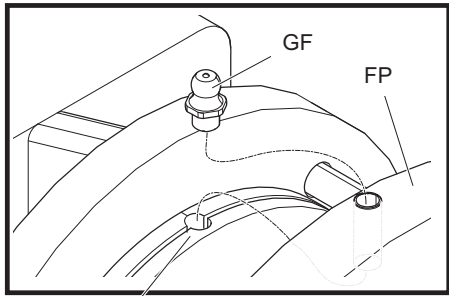
**NOTE:** For the P-30X series pumps, torque the retaining nuts to 60 ft-lb (81 N•m).

## Motor Seal Replacement

Take special note of the groove positions of the grease seal (GS), in relation to the grease hole in the flange plate (FP) and the grease fitting (GF). The groove gives a path for the grease to get into the cavity.

Use a grease that has high water resistance and high compression protections. If necessary, add grease on a daily basis, or after each time the unit is cleaned down.

The illustration below shows the grease seal (GS) in a deformed state, as it should be when the motor assembly is complete and the seal is full of grease.



# Parts

Series	Part	Description
P-20	25M030	ToughTek P-20
	25M033	ToughTek P-20 16A
P-30 HT	25M032	ToughTek P-30 HT
P-30X	25M040	ToughTek P-30X
	25M041	ToughTek P-30X HT
P-40	25M050	ToughTek P-40

## Contents

**P-20 and P-30 HT Series Parts (25M030, 25M033, 25M032) ..... 28**

**P-30X Series Parts (25M040, 25M041) ..... 29**

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    Motor Assemblies ..... 33

    Control Box Assemblies ..... 37

    Electrical Enclosures ..... 38

    Electrical Enclosures ..... 40

    Hopper Assembly (MTA824) ..... 42

**P-40 Series Parts (25M050) ..... 43**

    Rotor/Stator Pump Assemblies ..... 44

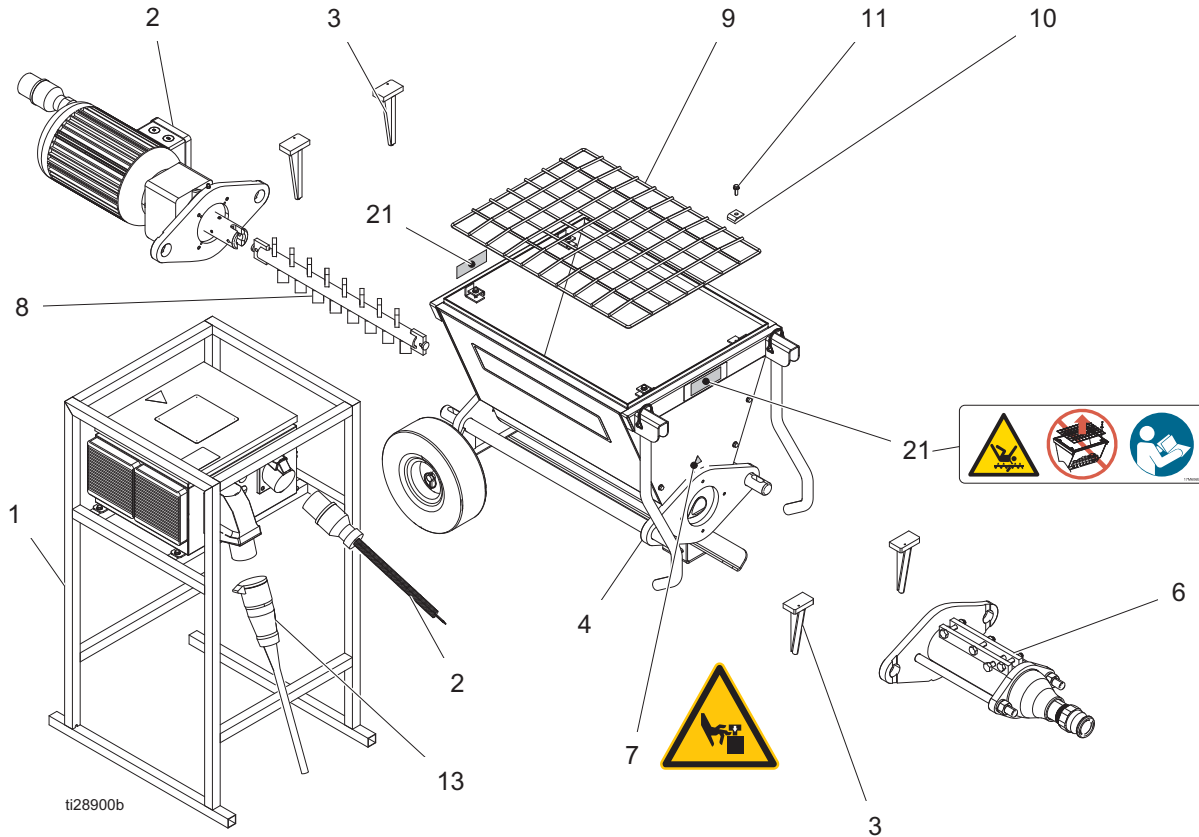
    Motor Assembly ..... 45

    Control Box Assembly ..... 46

    Electrical Enclosure ..... 47

    P-40 Hopper Assembly (MTA930) ..... 49

## P-20 and P-30 HT Series Parts (25M030, 25M033, 25M032)

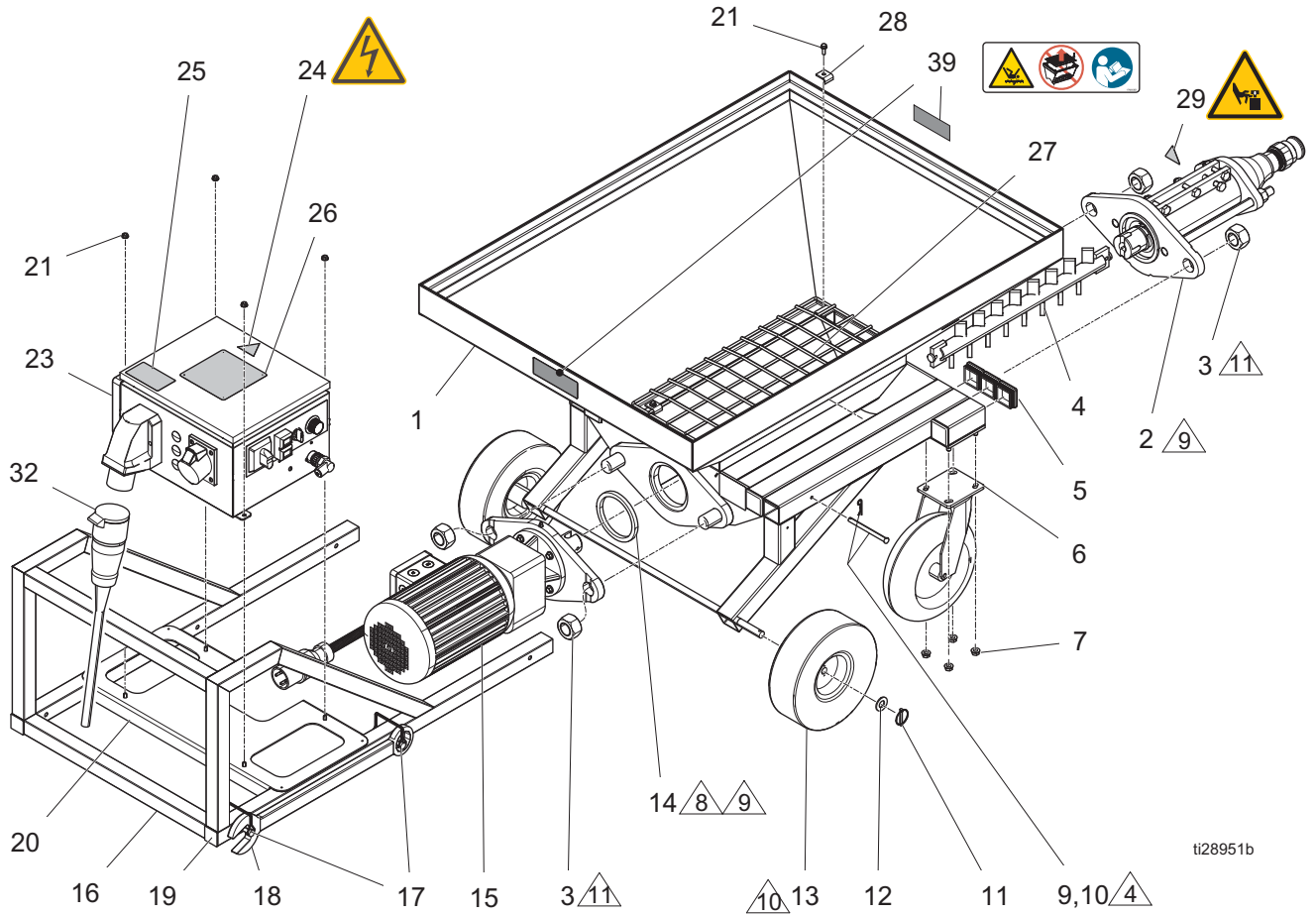


Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	-----	CONTROL BOX, assembly, with stand	1	9	◆	GRATE, assembly, hopper	1
2	MTA754	MOTOR, gearbox, assembly (for P-20 and P-20 16A)	1	10	◆ †	BRACKET, plate, hopper	4
	MTA755	MOTOR, assembly, 5.5 kW SEW (for P-30 HT)		11	◆ †	SCREW, flanged, hex hd	4
3	MTA125	RETAINER, wedge, assembly	4	13	MTA727	HARNES, power, single phase	1
4	MTA824	HOPPER, assembly, includes safety labels	1	13a	MTA007	PLUG ONLY, power, single phase	1
5	-----	LABEL, branding	2	14	-----	LABEL, transparent	1
6	MTA751	PUMP, 90 mm, assembly, green (for P-20, P-20 16A)	1	15	-----	ARTWORK, identification	1
	MTA753	PUMP, 113 mm, assembly, black (for P-30 HT)	1	21▲	17M606	LABEL, safety	2
7▲	15H108	LABEL, safety, warning, pinch	1	▲ Replacement Danger and Warning labels are available at no cost.			
8	MTA675	SHAFT, drive, assembly, P-20/P-30 HT	1	1	Add grease lubricant to face seal of pump and hopper.		
				2	Install wedges (3) with mallet.		






Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
◆	MTA717	Hopper Grate Assembly Kit	9 (1), 10 (4), 11 (4)
†	MTA756	Replacement Bracket Kit	10 (1), 11 (1)



# P-30X Series Parts (25M040, 25M041)



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-  Assembly on both sides of the hopper frame.
-  Adhere seal (14) to hopper (1).
-  Add grease lubricant to face seal of pump (2). Apply to seal (14).
-  Apply grease lubricant to axle of hopper (1) before assembling wheel (13).
-  Torque to 60 ft-lb.

## P-30X Series Parts List

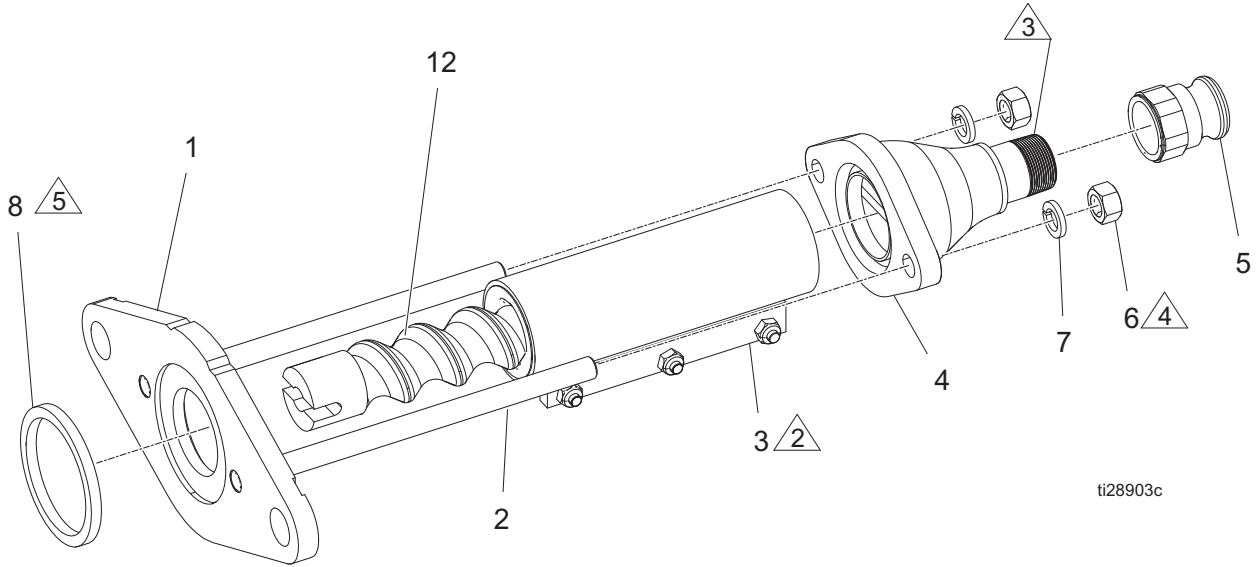
Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	-----	HOPPER, weldment	1	20	115942	NUT, hex, flange head	4
2	MTA753	PUMP, 113 mm, assembly, black	1	21	☼*	SCREW, flanged, hex hd	8
3	MTA356	NUT, hex, 1 1/4-7 UNC	4	23	MTA682	ENCLOSURE, control assembly (for P-30X)	1
4	MTA675	SHAFT, drive, assembly	1		MTA761	ENCLOSURE, control assembly, (for P-30X HT)	1
5	-----	CAP, tube, square, 2 in.	10	24▲	196548	LABEL, warning, shock	1
6	†	CASTER, 10 in., swivel, no brake	2	25	MTA411	LABEL, notice, 240 VAC, 1 ph, 50/60 Hz	1
7	†	NUT, hex, flanged	8	26	MTA915	LABEL, G, control box	1
9	✕	PIN, clevis, 3/8 x 4.5	2	27	*	GRATE, hopper	1
10	✕	PIN, bridge	2	28	☼*	BRACKET, plate, hopper	4
11	❖	PIN, lynch, 3/16 in. diameter shaft	2	29▲	15H108	LABEL, safety, warning, pinch	1
12	❖	WASHER, plain, 5/8 in.	2	30	-----	LABEL, branding	2
13	❖	WHEEL, tire, 10 in. runflat	2	32	MTA727	HARNESS, power, single phase	1
14	MTA106	SEAL, flange	1	32a	MTA007	PLUG ONLY, power, single phase	1
15	MTA679	MOTOR, assembly, 4 kW (for P-30X)	1	39▲	17M606	LABEL, safety	1
	MTA680	MOTOR, assembly, 5.5 kW (for P-30X HT)	1				
16	-----	HANDLE, weldment, P-30X	1				
17	MTA354	PIN, snap, 3/8 in. x 3 in.	2				
18	MTA681	TOOL, wrench, combo, 1-7/8 in.	1				
19	-----	PLUG, square tube	2				

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

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA676	Caster Replacement Kit	6 (1), 7 (4)
❖	MTA678	Tire Replacement Kit	11 (1), 12 (1), 13 (1)
☼	MTA756	Bracket Replacement Kit	21 (1), 28 (1)
*	MTA716	Hopper Grate Assembly Kit	21 (4), 27 (1), 28 (1)
✕	MTA677	Clevis Pin Replacement Kit	9 (1), 10 (1)

# Rotor/Stator Pump Assemblies

## MTA751 (for P-20 and P-20 16A)



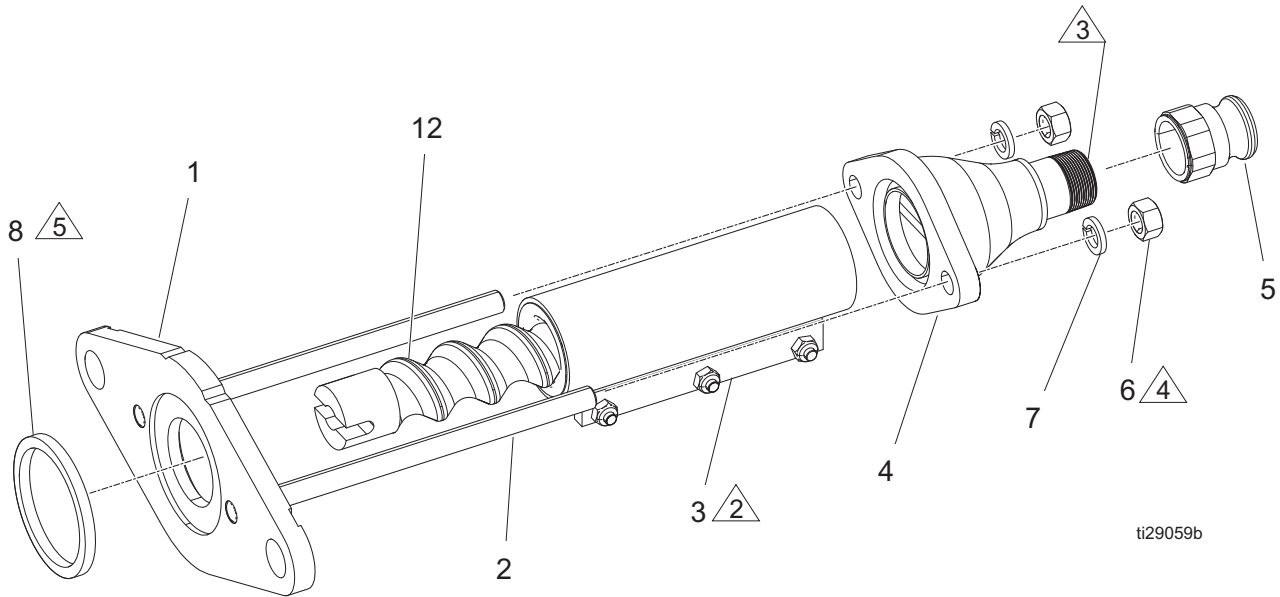
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Ref.	Part	Description	Qty.	
1	-----	FLANGE, pump, 90 mm	1	△2
2	-----	STUD, 3/4-10 x 13.25	2	△3
3	MTA720†	STATOR, D8-1.5, green, int clamp	1	△4
4	MTA760	NOZZLE, assembly, reducer, 90 mm, LC	1	△5
5	128474	FITTING, 1.5 in. camlock m x 1.5 in. npt f	1	
6	C19187	NUT, nex	2	
7	101015	WASHER, lock	2	
8	MTA106	SEAL, flange	1	
12	MTA719†	ROTOR, D8-1.5	1	

△2 Apply grease PTFE lubricant to both ends and inside of stator (3).  
 △3 Apply pipe sealant to pipe threads.  
 △4 Torque to 60 in-lb.  
 △5 Fit seal (8) into groove of flange (1).

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA721	D8-1.5 Green Rotor/Stator Combo Kit	3 (1), 12 (1)

**MTA753 (for P-30 HT, P-30X, P-30X HT)**

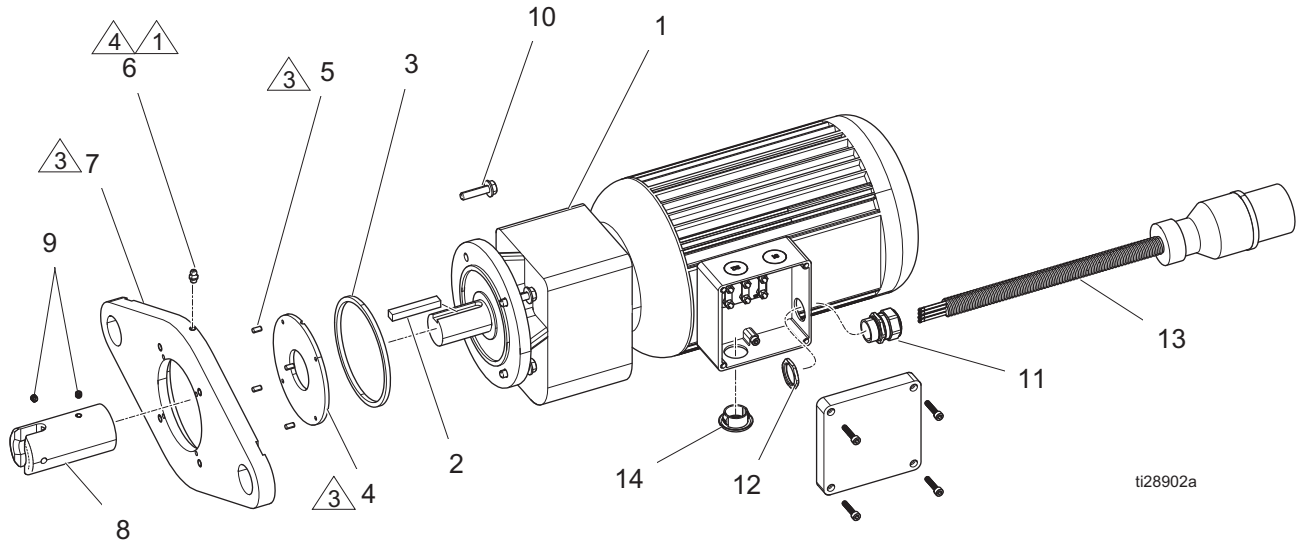


Ref.	Part	Description	Qty.	
1	-----	FLANGE, pump, 113 mm	1	△2 Apply grease PTFE lubricant to both ends and inside of stator (3).
2	-----	STUD, 3/4-10 x 13.25	2	△3 Apply pipe sealant to pipe threads.
3	MTA747†	STATOR, R8-1.5, black	1	△4 Torque to 60 in-lb.
4	MTA759	NOZZLE, assembly, reducer, 113 mm, LC	1	△5 Fit seal (8) into groove of flange (1).
5	128474	FITTING, 1.5 in. camlock m x 1.5 in. npt f	1	
6	C19187	NUT, hex	2	
7	101015	WASHER, lock	2	
8	MTA106	SEAL, flange	1	
12	MTA746†	ROTOR, R8-1.5, black	1	

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA750	R8-1.5 Black Rotor/Stator Combo Kit	3 (1), 12 (1)

# Motor Assemblies

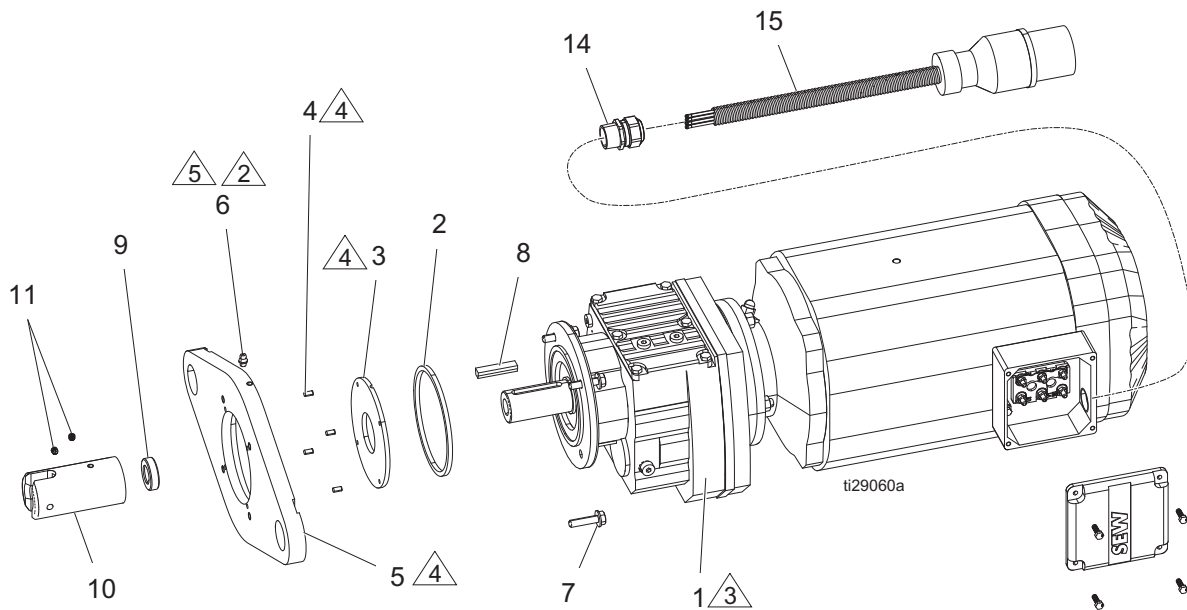
## MTA754 (for P-20 and P-20 16A)



Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	†	MOTOR, gearbox, ABM-4kW	1	10	-----	SCREW, flange, hex, 5/16-18 x 1.25	4
2	MTA020†	KEY, special, drive	1	11	†	BUSHING, strain relief	1
3	MTA019	ADAPTER, motor flange	1	12	†	BUSHING, strain relief, nut	1
4	◆	SEAL, grease, shaft, motor	1	13	MTA783†	HARNES, motor, 120.0 in.	1
5	◆	PIN, 3/16 in. diameter x 3/8 in. dowel	4	14	†	PLUG, liquid tight, 1.0 in.	1
6	115278	FITING, zerk, grease, 1/4-28 unf	1	△1 Apply SST pipe sealant to threads. △3 Assemble seal (4) and pins (5) to flange (7) before sliding onto the shaft of the motor. Match orientation of grease port to port in flange. △4 Add grease lubricant through the grease port (6) after assembly.			
7	-----	FLANGE, motor, machined	1				
8	MTA014✘	ADAPTER, auger/pump	1				
9	✘	SCREW, set 1/4-20 x 0.25 soc cup	2				

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA698	4 kW Motor Kit	1 (1), 2 (1), 11 (1), 12 (1), 13 (1), 14 (1)
◆	MTA731	Motor Shaft Grease Seal Replacement Kit	4 (1), 5 (4)
✘	MTA790	Driver Auger Kit	2 (1), 8 (1), 9 (2)

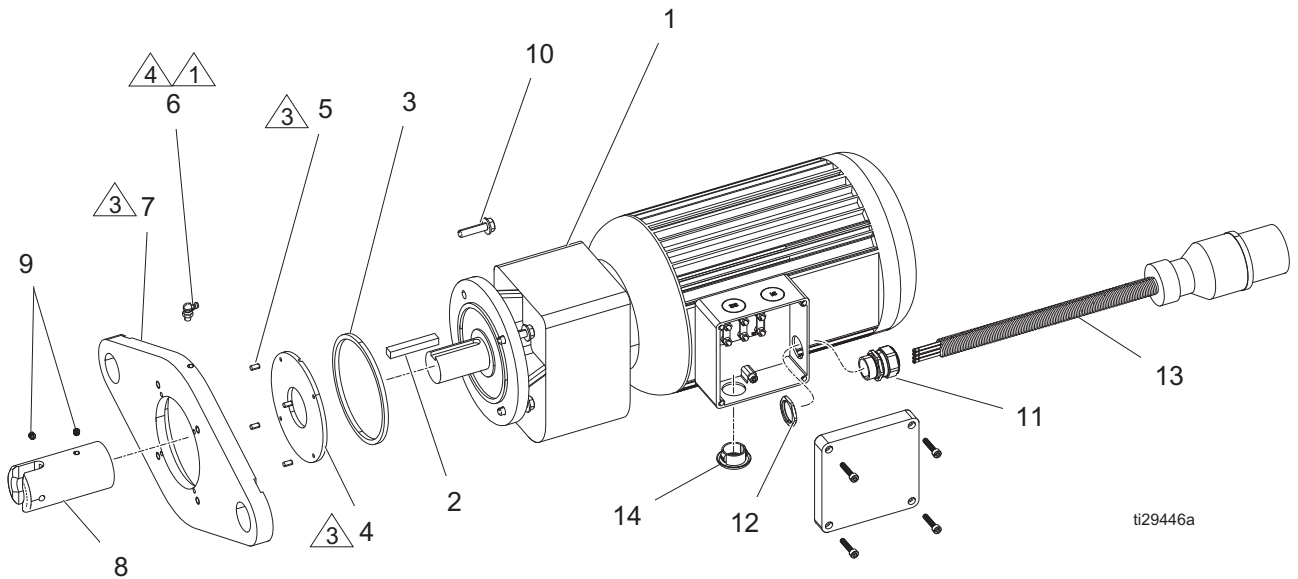
**MTA755 (for P-30 HT)**



Ref.	Part	Description	Qty.	
1	†	MOTOR, gearbox, 5.5 kW, sew-Euro 124	1	△2 Apply SST pipe sealant to threads.
2	MTA019	ADAPTER, motor, flange	1	△3 Apply grease EP lubricant to the shaft of the motor before assembly.
3	◆	SEAL, grease, shaft, motor	1	△4 Assemble seal (3) and pins (4) to flange (5) before sliding onto shaft of the motor. Match orientation of grease port to port in flange.
4	◆	PIN, 3/16 diameter x 3/8 dowel	4	△5 Add grease EP lubricant through grease port (6) after assembly.
5	-----	FLANGE, motor, machined	1	
6	115278	FITTING, zerk, grease, 1/4-28 unf	1	
7	-----	SCREW, flange, hex, 5/16-18 x 1.25	4	
8	MTA363†✱	KEY, custom, sew	1	
9	MTA364	SPACER, custom, sew	1	
10	MTA014✱	ADAPTER, auger/pump	1	
11	✱	SCREW, set 1/4-20 x 0.25 soc cup	2	
14	†	FITTING, cbl, strain relief, 3/4 npt	1	
15	MTA783†	HARNESS, motor, 120 in.	1	

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA766	5.5 kW Motor Kit	1 (1), 8 (1), 14 (1), 15 (1)
◆	MTA731	Motor Shaft Grease Seal Replacement Kit	3 (1), 4 (4)
✱	MTA791	Driver Auger Kit	8 (1), 10 (1), 11 (2)

**MTA679 (for P-30X)**

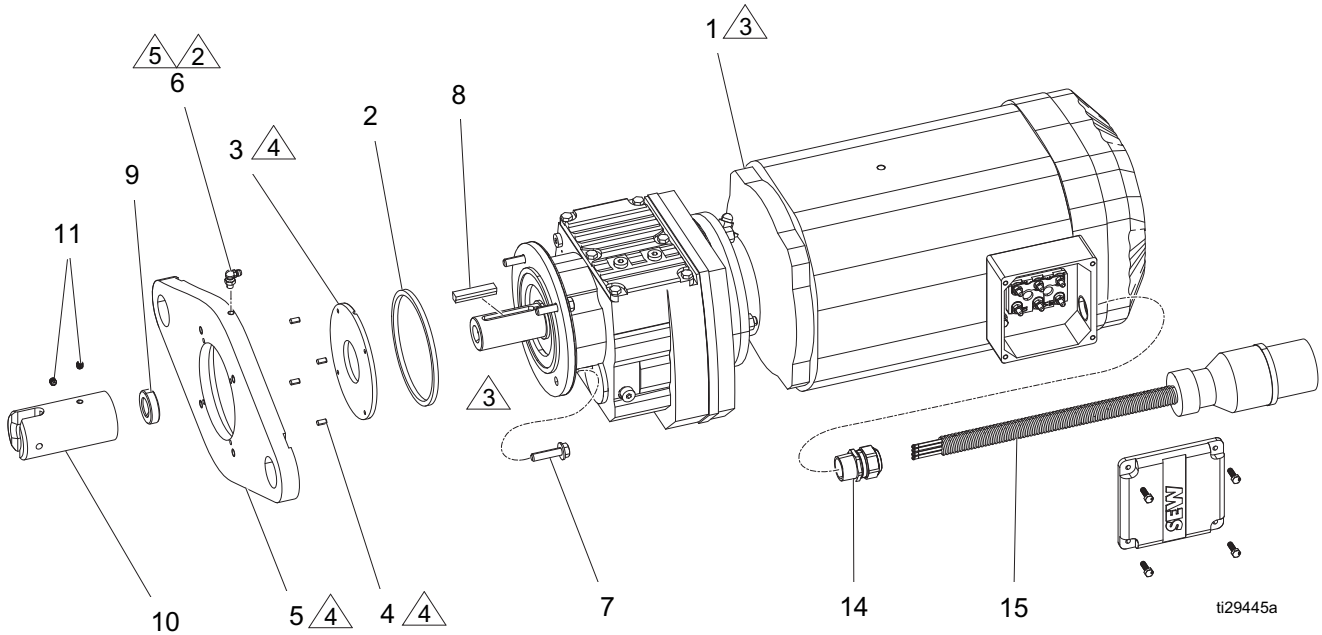


Ref.	Part	Description	Qty.
1	†	MOTOR, gearbox, abm-4 kW	1
2	MTA020† ✘	KEY, special drive	1
3	MTA019	ADAPTOR, motor flange	1
4	◆	SEAL, grease, shaft, motor	1
5	◆	PIN, 3/16 diameter x 3/8 dowel	4
6	MTA355	FITTING, nipple, grease, 90°, 1/4 in,	1
7	-----	FLANGE, motor, machined	1
8	MTA014✘	ADAPTOR, auger/pump	1
9	✘	SCREW, set, 1/4-20 x 0.25 soc cup	2
10	-----	SCREW, flange, hex, 5/16-18 x 1.25	4
11	†	BUSHING, strain relief	1
12	†	BUSHING, strain relief, nut	1
13	MTA785†	CABLE, power, motor, 30 in.	1
14	†	PLUG, liquid tight, 1.0 in.	1

- △1 Apply SST pipe sealant to threads. Angled grease port (6) to point towards motor.
- △3 Assemble seal (4) and pins (5) to flange (7) before sliding onto the shaft of the motor. Match orientation of grease port to port in flange.
- △4 Add grease lubricant through the grease port (6) after assembly.

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA758	4 kW Motor Kit	1 (1), 2 (1), 11 (1), 12 (1), 13 (1), 14 (1)
◆	MTA731	Motor Shaft Grease Seal Replacement Kit	4 (1), 5 (4)
✘	MTA790	Driver Auger Kit	2 (1), 8 (1), 9 (2)

**MTA680 (for P-30X HT)**



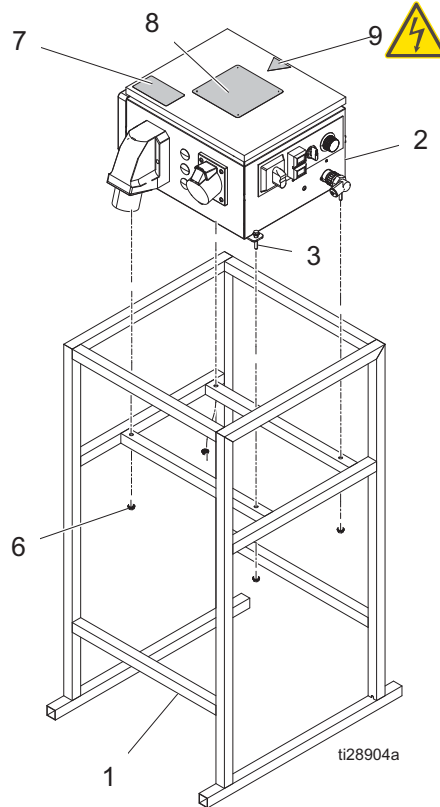
Ref.	Part	Description	Qty.	
1	†	MOTOR, gearbox, 5.5 kW, sew-euro 124	1	△ <sub>2</sub> Apply SST pipe sealant to threads. Angled grease port (6) to point towards motor.
2	MTA019	ADAPTOR, motor flange	1	△ <sub>3</sub> Apply grease EP lubricant to the shaft of the motor before assembly.
3	◆	SEAL, grease, shaft, motor	1	△ <sub>4</sub> Assemble seal (3) and pins (4) to flange (5) before sliding onto shaft of the motor. Match orientation of grease port to port in flange.
4	◆	PIN, 3/16 diameter 3/8 dowel	4	
5	-----	FLANGE, motor, machined	1	△ <sub>5</sub> Add grease EP lubricant through grease port (6) after assembly.
6	MTA355	FITTING, nipple, grease, 90°, 1/4 in.	1	
7	-----	SCREW, flange, hex, 5/16-18 x 1.25	4	
8	†✘	KEY, custom, sew	1	
9	MTA364	SPACER, custom, sew	1	
10	MTA014✘	ADAPTOR, auger/pump	1	
11	✘	SCREW, set 1/4-20 x 0.25 soc cup	2	
14	†	FITTING, cbl, strain relief, 3/4 npt	1	
15	MTA785†	CABLE, power, motor, 30 in.	1	

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA767	5.5 kW Motor Kit	1 (1), 8 (1), 14 (1), 15 (1)
◆	MTA731	Motor Shaft Grease Seal Replacement Kit	3 (1), 4 (4)
✘	MTA791	Driver Auger Kit	8 (1), 10 (1), 11 (2)



# Control Box Assemblies

(for P-20, P-20 16A, and P-30 HT)

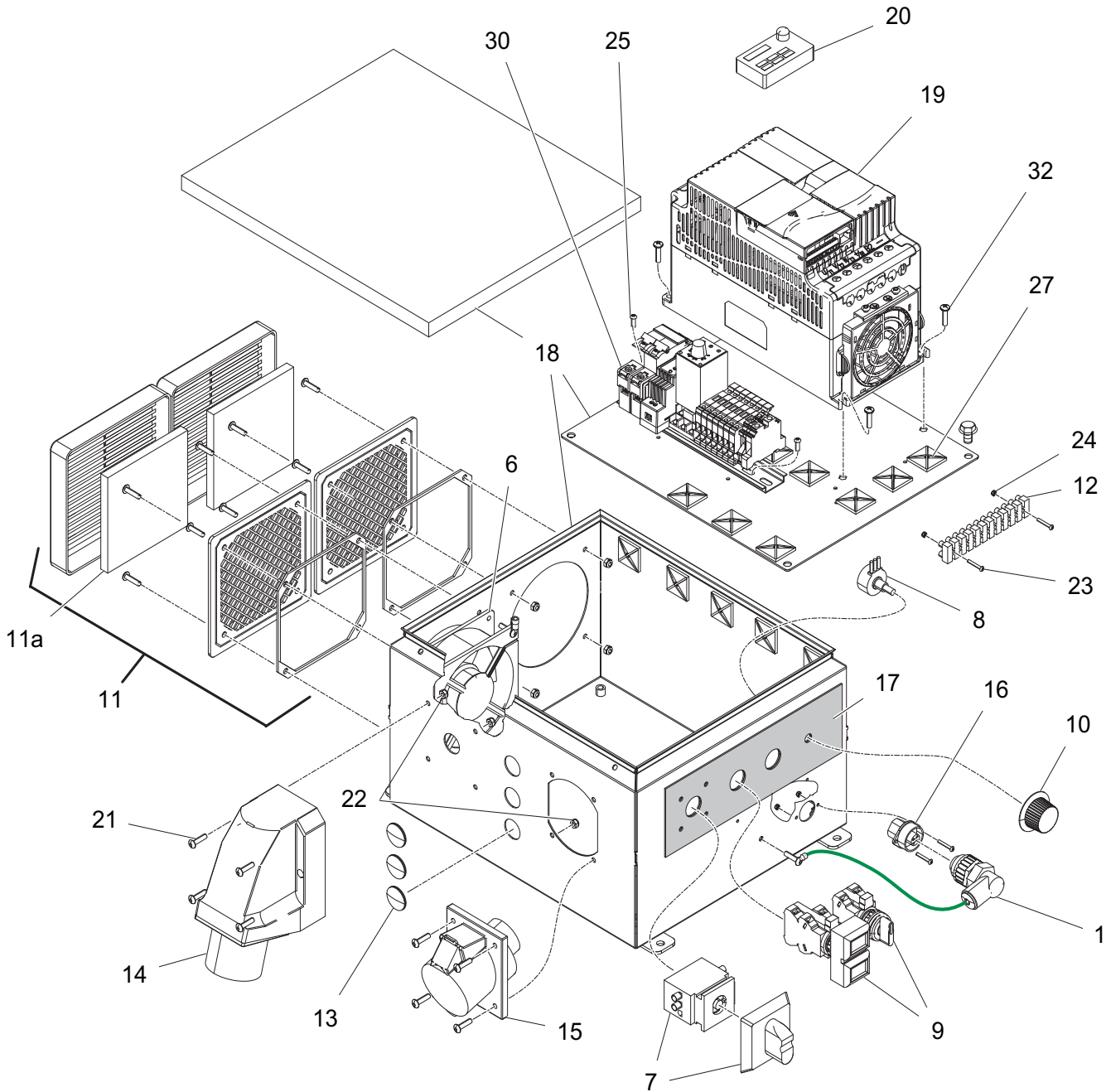


Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	25B073	FRAME, assembly, electric box	1	7	MTA411	LABEL, notice, 240 VAC, 1 ph, 50/60 Hz	1
2	MTA682	ENCLOSURE, control assembly, (for P-20 and P-30X)	1		MTA429	LABEL, notice, 240 VAC, 1 ph, 50 Hz	1
	MTA761	ENCLOSURE, control assembly, (for P-30 HT, P-30X HT)	1		MTA412	LABEL, notice, 240 VAC, 3 ph, 50/60 Hz	1
	MTA762	ENCLOSURE, control, assembly, (for P-20 16A)	1	8	MTA915	LABEL, G, control box	1
3	-----	SCREW, hex, serrated, 1/4-20 x 1.50	4	9▲	196548	LABEL, warning, shock	1
6	-----	NUT, hex, flange head	4				

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

# Electrical Enclosures


MTA682 (for P-20 and P-30X)  
MTA762 (for P-20 16A)



ti28905a

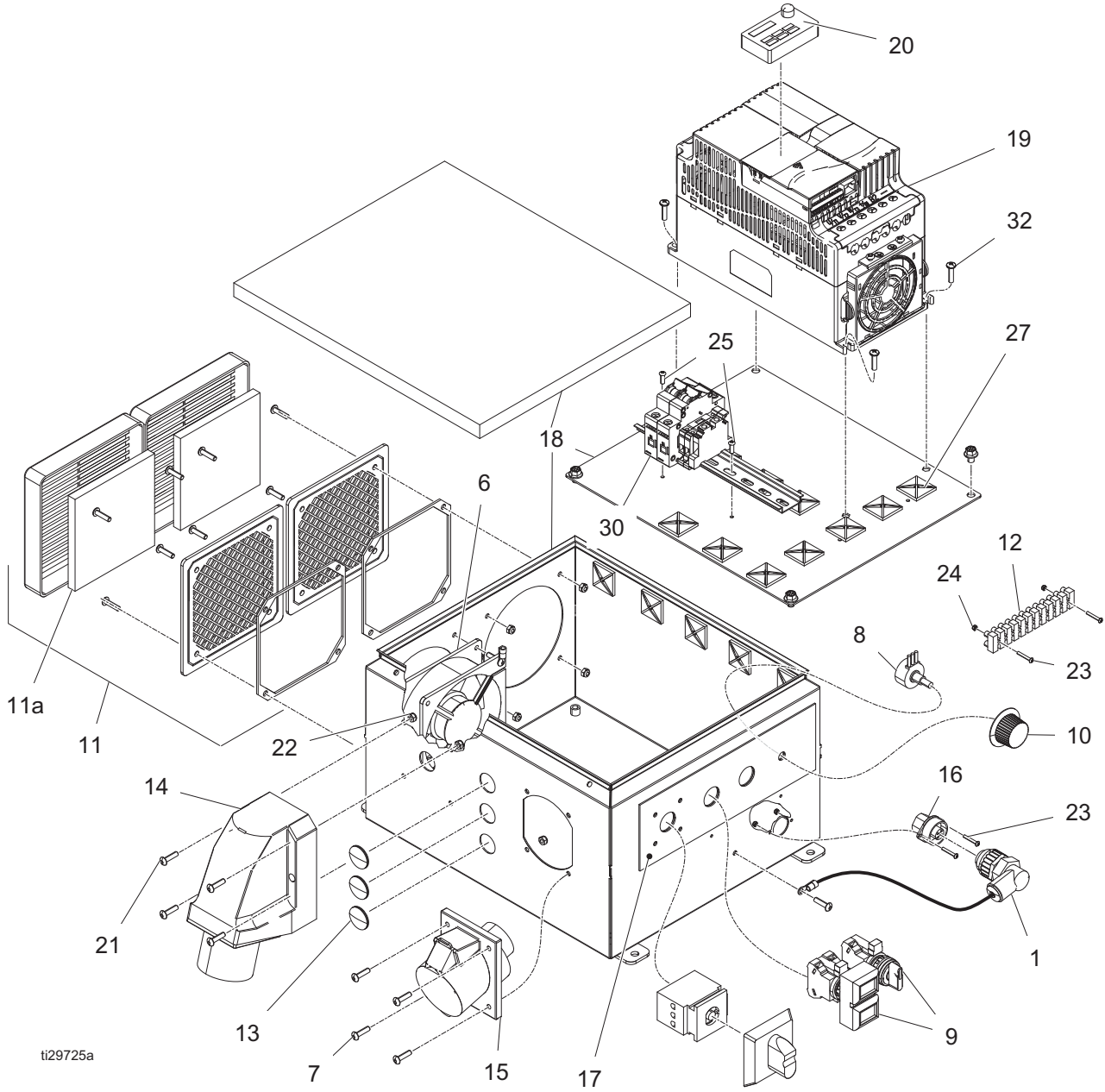
## Electrical Enclosures Parts List

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	MTA832	HARNESS, connector, jumper and ground	1	18	-----	ENCLOSURE, control	1
3	-----	WIRE, ground	1	19	MTA774	KIT, VDF, P-20/P-30X	1
4	-----	HARNESS, VFD control	1		MTA775	KIT, VFD, P-20 16A	1
5	-----	HARNESS, VDF power	1	20	MTA831	CONTROL, VFD keypad	1
6	MTA833	FAN, cooling, 120 x 38, 230 VAC	1	21	-----	FASTENER, #4-40 x 3/4, BH, CS	16
7	MTA834	SWITCH, disconnect assembly	1	22	115483	NUT, lock	13
8	MTA835	POTENTIOMETER, 5 K, assembly	1	23	-----	FASTENER, #4-40 x 3/4, BH, CS	4
9	MTA836	SWITCH, ON/OFF assembly	1	24	C27076	NUT	4
10	MTA837	KNOB, potentiometer	1	25	-----	FASTENER, #6-18 x 3/8, ph, threading	2
11	MTA926	FILTER, fan, assembly	2	26	125871	TIE, cable, 7.5 in.	23
11a	MTA881	KIT, filter, cooling fan (pack of 5)	2	27	-----	HOLDER, zip tie mount, adhesive	23
12	-----	TERMINAL, strip, 12 pos	1	30	-----	MODULE, din rail assembly, P-20/P-30X (see page 55)	1
13	-----	PLUG, hole, rubber	3		-----	MODULE, din rail assembly, P-20 16A (see page 55)	1
14	MTA838	CONNECTOR, inlet, 230 VAC, 3 wire	1	32	-----	FASTENER, #10-24 x 3/4, ph, Phillips	3
15	MTA839	CONNECTOR, outlet, 230 VAC, 4 wire	1				
16	-----	CONNECTOR, 4 pole, Ecomate, panel	1				
17	-----	LABEL, legend	1				

 When positioning tie downs (27), make sure non-interference with other components.

# Electrical Enclosures


MTA761 (for P-30 HT, P-30X HT)



ti29725a

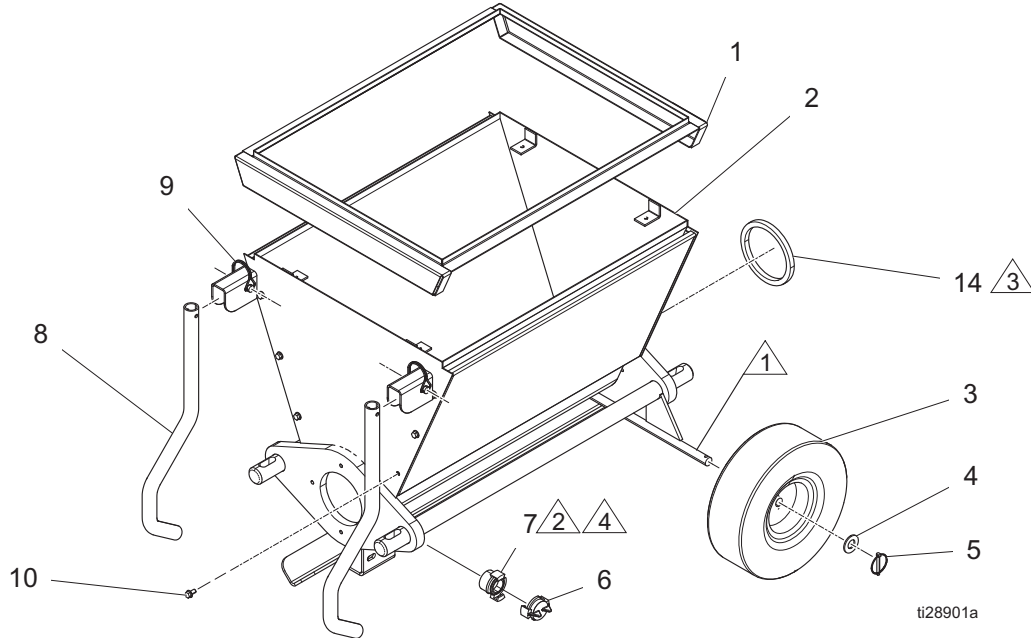
## Electrical Enclosures Parts List

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	MTA832	HARNESS, connector, jumper and ground	1	17	-----	LABEL, legend	1
3	-----	WIRE, ground	1	18	-----	ENCLOSURE, control	1
4	-----	HARNESS, VFD control	1	19	MTA776	KIT, VDF, P-30 HT/P-30X HT	1
5	-----	HARNESS, VDF power	1	20	MTA831	CONTROL, VFD keypad	1
6	MTA833	FAN, cooling, 120 x 38, 230 VAC	1	21	-----	FASTENER, #4-40 x 3/4, BH, CS	16
7	MTA866	SWITCH, disconnect assembly	1	22	115483	NUT, lock	13
8	MTA835	POTENTIOMETER, 5 K, assembly	1	23	-----	FASTENER, #4-40 x 3/4, BH, CS	4
9	MTA836	SWITCH, ON/OFF assembly	1	24	C27076	NUT	4
10	MTA837	KNOB, potentiometer	1	25	-----	FASTENER, #6-18 x 3/8, ph, threading	2
11	MTA926	FILTER, fan, assembly	2	26	125871	TIE, cable, 7.5 in.	23
11a	MTA881	KIT, filter, cooling fan (pack of 5)	2	27	-----	HOLDER, zip tie mount, adhesive	23
12	-----	TERMINAL, strip, 12 pos	1	30	-----	MODULE, din rail assembly, P-30 HT/P-30X HT (see page 55)	1
13	-----	PLUG, hole, rubber	3	32	-----	FASTENER, #10-24 x 3/4, ph, Phillips	3
14	MTA838	CONNECTOR, inlet, 230 VAC, 3 wire	1				
15	MTA839	CONNECTOR, outlet, 230 VAC, 4 wire	1				
16	-----	CONNECTOR, 4 pole, Ecomate, panel	1				

 When positioning tie downs (27), make sure non-interference with other components.

# Hopper Assembly (MTA824)

(for P-20 and P-30 HT)



Ref. Part	Description	Qty.
1	----- HOPPER, assembly, P-20/P-30 HT	1
2	----- PANEL, side, assembly, hopper	2
3	† TIRE, 10 in. pneumatic, 5/8 in. bore	2
4	† WASHER, plain 5/8 in.	2
5	† PIN, linch, 3/16 in. diameter shaft	2
6	MTA012 FITTING, Geka, cap, end	1
7	MTA011 FITTING, Geka, clamp, hose	1
8	MTA113 HANDLE, hopper	2
9	17H025 PIN, 1/4 in. x 1-3/8 in.	2
10	----- SCREW, flange, hex hd, 1/4-20 x 0.50	12
14	MTA106 SEAL, flange	1

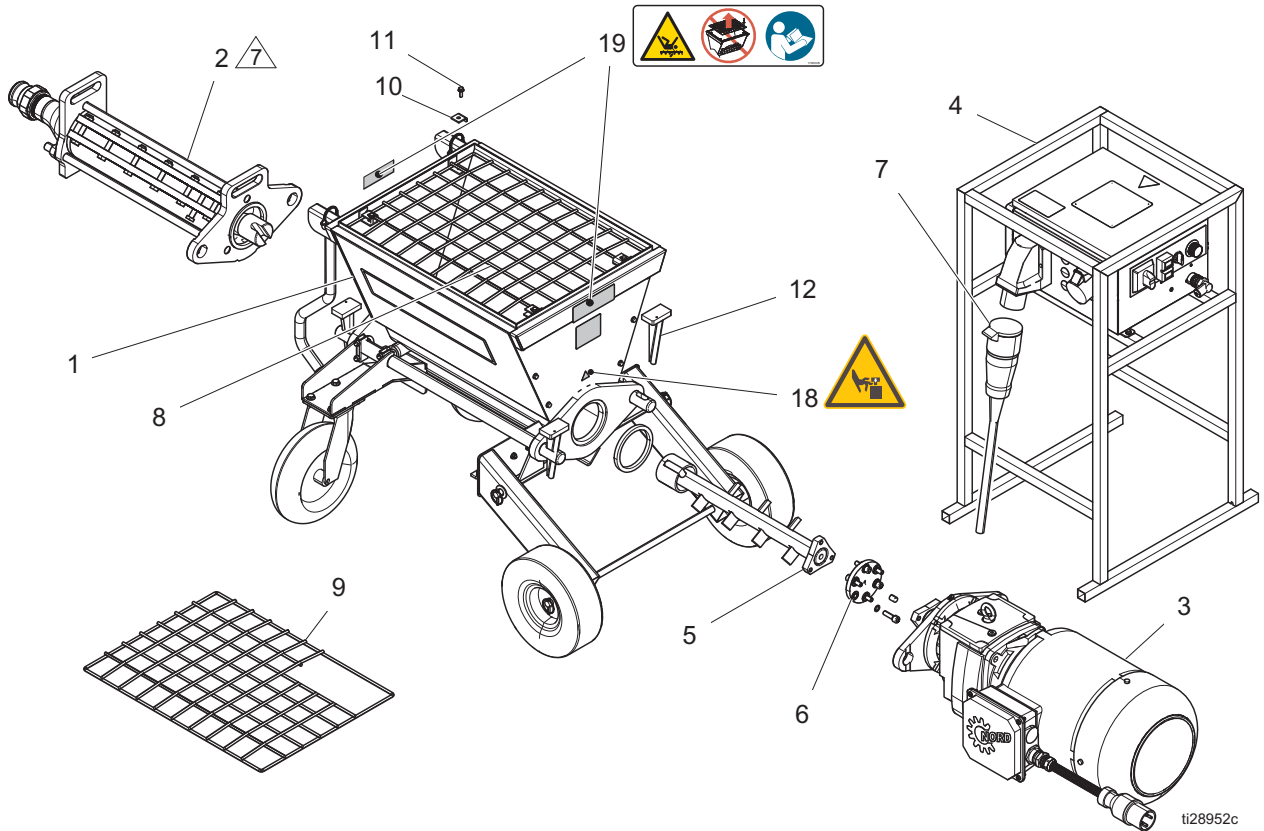
△<sub>2</sub> Apply SST pipe sealant to pipe threads.

△<sub>3</sub> Fit seal (14) into groove of hopper (1).

△<sub>4</sub> Torque to 20 ft-lb.

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA678	Tire Replacement Kit	3 (1), 4 (1), 5 (1)

# P-40 Series Parts (25M050)



ti28952c

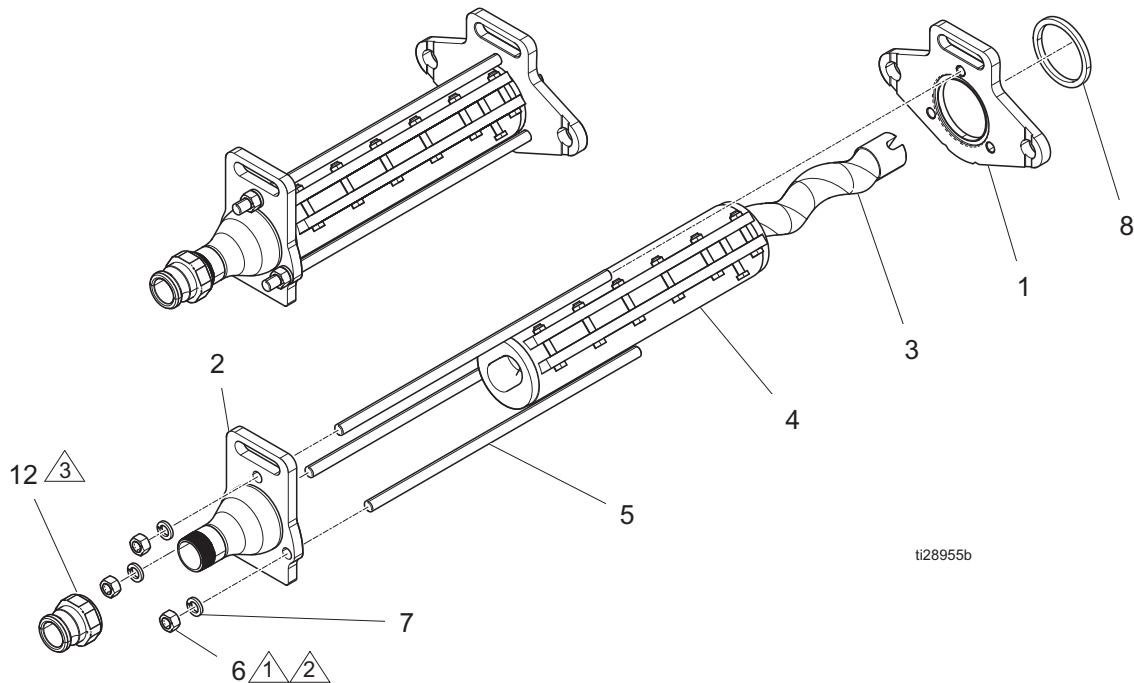
Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	-----	HOPPER, assembly, P-40	1	10	†◆	BRACKET, plate, hopper	4
2	MTA683	PUMP, P-40, yellow	1	11	†◆	SCREW, flanged, hex hd	4
3	MTA684	MOTOR, assembly, P-40	1	12	MTA125	RETAINER, wedge, assembly	1
4	-----	CONTROL BOX, assembly, w/ stand, 200 V, 3 P	1	13	-----	LABEL, branding, P-40	2
5	MTA685	SHAFT, drive, assembly, spider, P-40	1	14	-----	LABEL, transparent	1
6	MTA686	COUPLING, assembly, spider, drive	1	15	-----	ARTWORK, identification	1
7	MTA728	HARNESS, power, three phase	1	18▲	15H108	LABEL, safety, warning, pinch	1
7a	MTA935	PLUG ONLY, power, three phase	1	19▲	17M606	LABEL, safety	1
8	◆	GRATE, assembly, hopper	1				
9	17Y769	GRATE, assembly, hopper, CM-40 only	1				

△ Add grease EP lubricant to face seal of pump (2) and hopper (1).  
 ▲ Replacement Danger and Warning labels are available at no cost.




Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA756	Replacement Bracket Kit	10 (1), 11 (1)
◆	MTA717	Hopper Grate Assembly Kit	8 (1), 10 (4), 11 (4)

# Rotor/Stator Pump Assemblies

## MTA683 (for P-40)



ti28955b

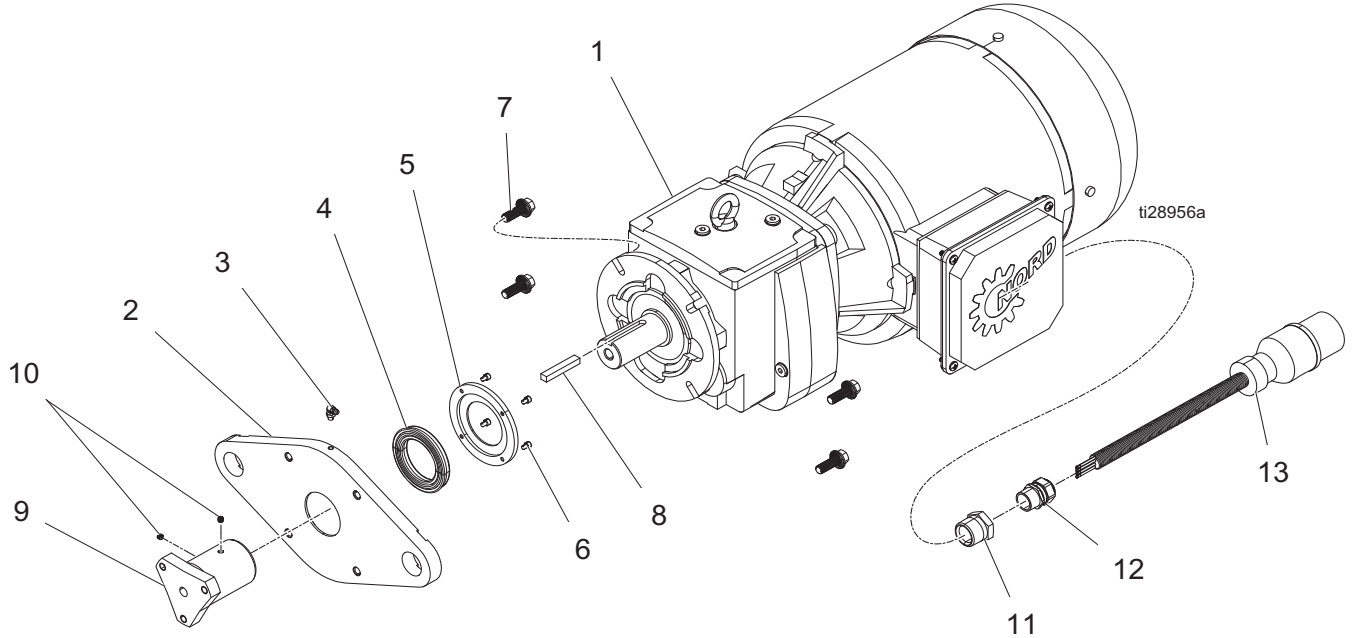
Ref.	Part	Description	Qty.	
1	-----	FLANGE, pump, 125 mm	1	 Apply thread-locking sealant to threads only on flange (1) side.
2	MTA687	NOZZLE, output, P-40, assembly	1	 Torque to 150 ft-lb.
3	MTA701†	ROTOR, U356, yellow	1	 Apply pipe thread sealant to pipe threads.
4	MTA702†	STATOR, U356, yellow	1	
5	-----	ROD, threaded, 3/4 in. - 10 x 24 in.	3	
6	C19187◆	NUT, nex	3	
7	101015◆	WASHER, lock	3	
8	MTA106	SEAL, flange	1	
12	25D861	FITTING, 2 in. camlock m x 2 in. nptf	1	

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA703	U356 Rotor/Stator Combo Kit	3 (1), 4 (1)
◆	MTA704	Nozzle Fastener Kit	6 (3), 7 (3)



# Motor Assembly

## MTA684 (for P-40)



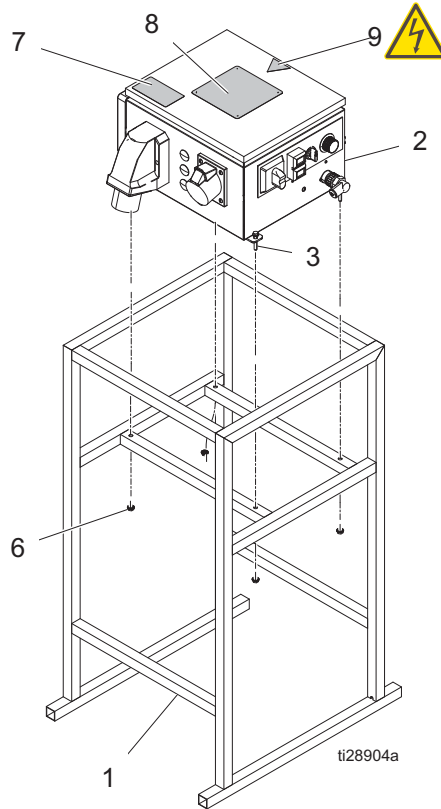
Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	◆	MOTOR, gearbox, 15 hp, nord-170	1	8	MTA020†◆	KEY, special, drive	1
2	‡	FLANGE, motor, 15 hp, nord, new seal	1	9	†	BASE, drive, assembly, spider, P-40	1
3	MTA355	FITTING, nipple, grease, 90°, 1/4 in.	1	10	†	SCREW, set 1/4-20 x 0.25 soc cup	2
4	MTA622‡	SEAL, P-40, 2.375 shaft	1	11	◆	FITTING, bushing	1
5	‡	PLATE, retainer, seal, P-40	1	12	◆	FITTING, cbl, strain relief, 3/4 npt	1
6	‡	SCREW, cap	4	13	MTA867◆	HARNESS, motor, 120.0 in.	
7	-----	BOLT, flange, serrated, hhcs 7/16	4				

Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA692	Spider Drive Base Kit	8 (1), 9 (1), 10 (2)
‡	MTA768	Flange Seal Kit	2 (1), 4 (1), 5 (1), 6 (4)
◆	MTA705	11 kW Motor Kit	1 (1), 8 (1), 11 (1), 12 (1), 13 (1)

**NOTE:** For legacy P-40 motor assemblies, order the legacy motor seal MTA526 to replace motor seal MTA622.

# Control Box Assembly

(for P-40)



Ref.	Part	Description	Qty.
1	25B073	FRAME, assembly, electric box	1
2	MTA765	ENCLOSURE, control, (for P-40)	1
3	-----	SCREW, hex, serrated, 1/4-20 x 1.50	4
6	-----	NUT, hex, flange head	4
7▲	MTA412	LABEL, notice, 240 VAC, 3 PH, 50/60 Hz	1
8	MTA915	LABEL, G, control box	1
9▲	196548	LABEL, warning, shock	1

**Notes:**



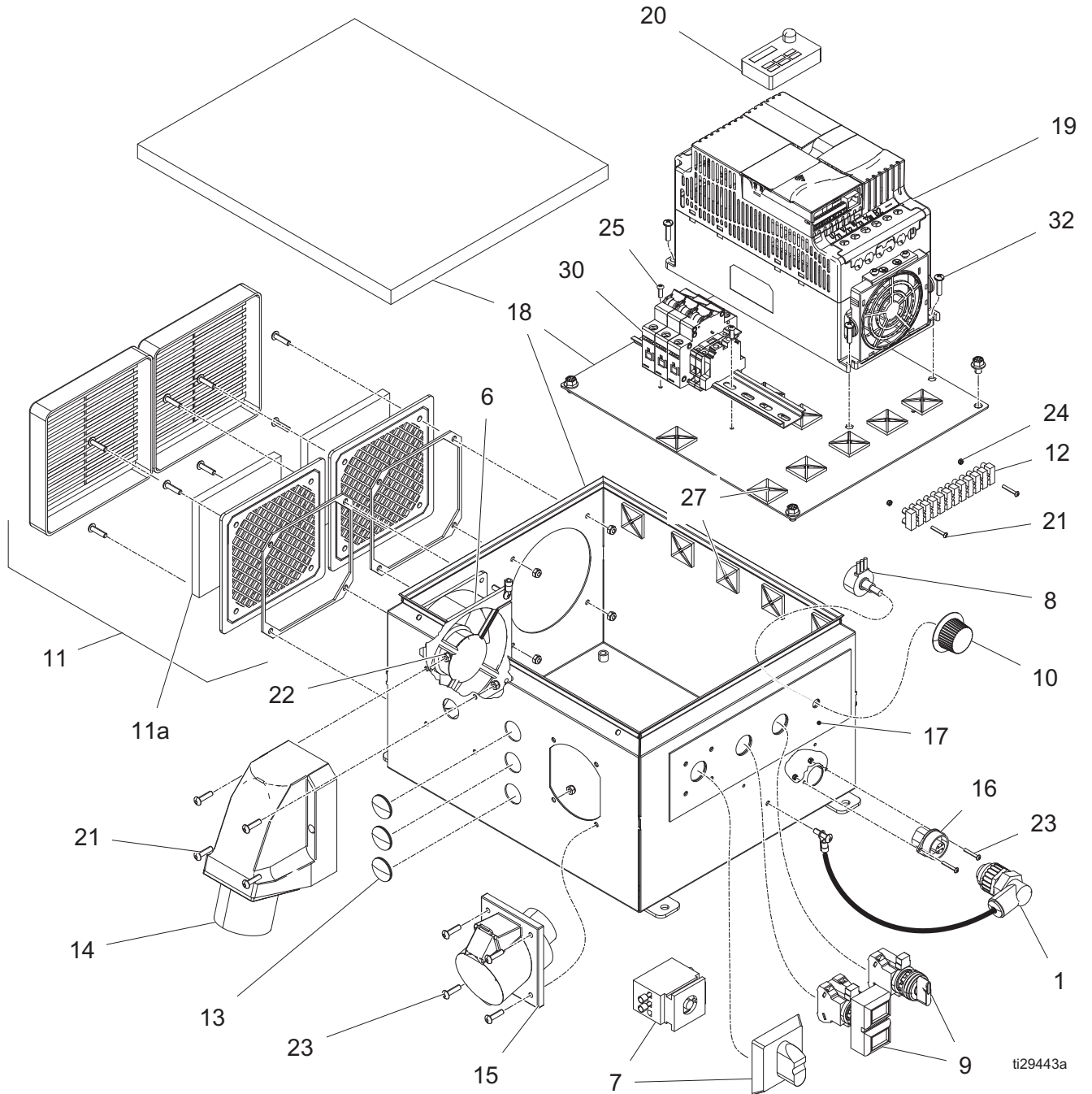
Locate approximately as shown.




Replacement Danger and Warning labels are available at no cost.

# Electrical Enclosure

MTA765 (for P-40)

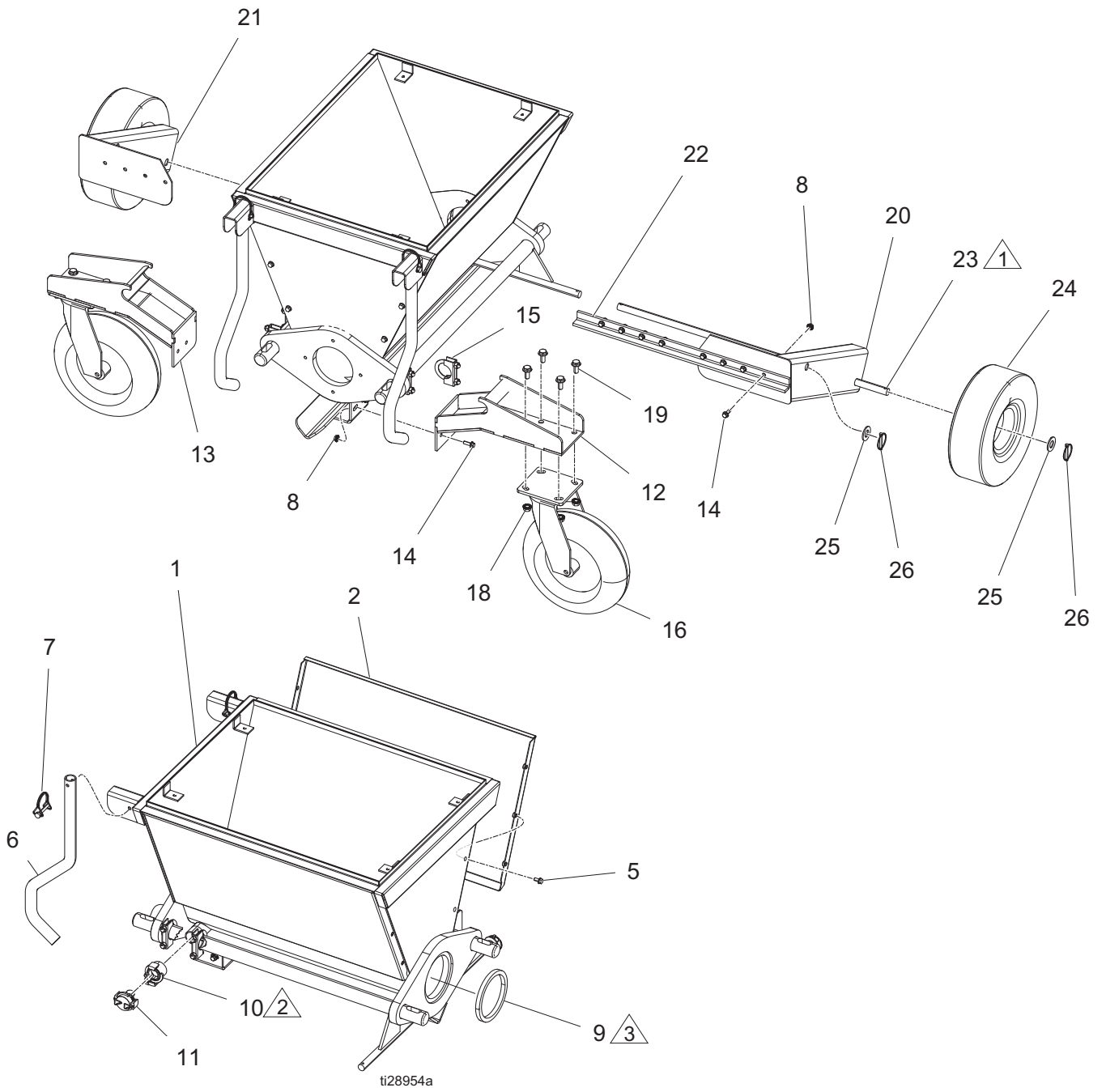


 When positioning tie downs (27), make sure non-interference with other components.

## P-40 Electrical Enclosure Parts List

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	MTA832	HARNESS, connector, jumper and ground	1	16	-----	CONNECTOR, 4 pole, Ecomate, panel	1
3	-----	WIRE, ground	1	17	-----	LABEL, legend	1
4	-----	HARNESS, VFD control	1	18	-----	ENCLOSURE, control	1
5	-----	HARNESS, VDF power	1	19	MTA777	KIT, VDF, P-40	1
6	MTA833	FAN, cooling, 120 x 38, 230 VAC	1	20	MTA831	CONTROL, VFD keypad	1
7	MTA864	SWITCH, P-40, 3 ph, disconnect	1	21	-----	FASTENER, #4-40 x 3/4, BH, CS	16
8	MTA835	POTENTIOMETER, 5 K, assembly	1	22	115483	NUT, lock	13
9	MTA865	KIT, switch, ON/OFF, fwd/rev	1	23	-----	FASTENER, #4-40 x 3/4, BH, CS	4
10	MTA837	KNOB, potentiometer	1	24	C27076	NUT	4
11	MTA926	FILTER, fan, assembly	2	25	-----	FASTENER, #6-18 x 3/8, ph, threading	2
11a	MTA881	KIT, filter, cooling fan (pack of 5)	2	26	125871	TIE, cable, 7.5 in.	23
12	-----	TERMINAL, strip, 12 pos	1	27	-----	HOLDER, zip tie mount, adhesive	23
13	-----	PLUG, hole, rubber	3	30	-----	MODULE, din rail assembly, P-40 (see page 55)	1
14	MTA849	CONNECTOR, inlet, 230 VAC, 3 wire	1	32	-----	FASTENER, #10-24 x 3/4, ph, Phillips	3
15	MTA839	CONNECTOR, outlet, 230 VAC, 4 wire	1				

# P-40 Hopper Assembly (MTA930)



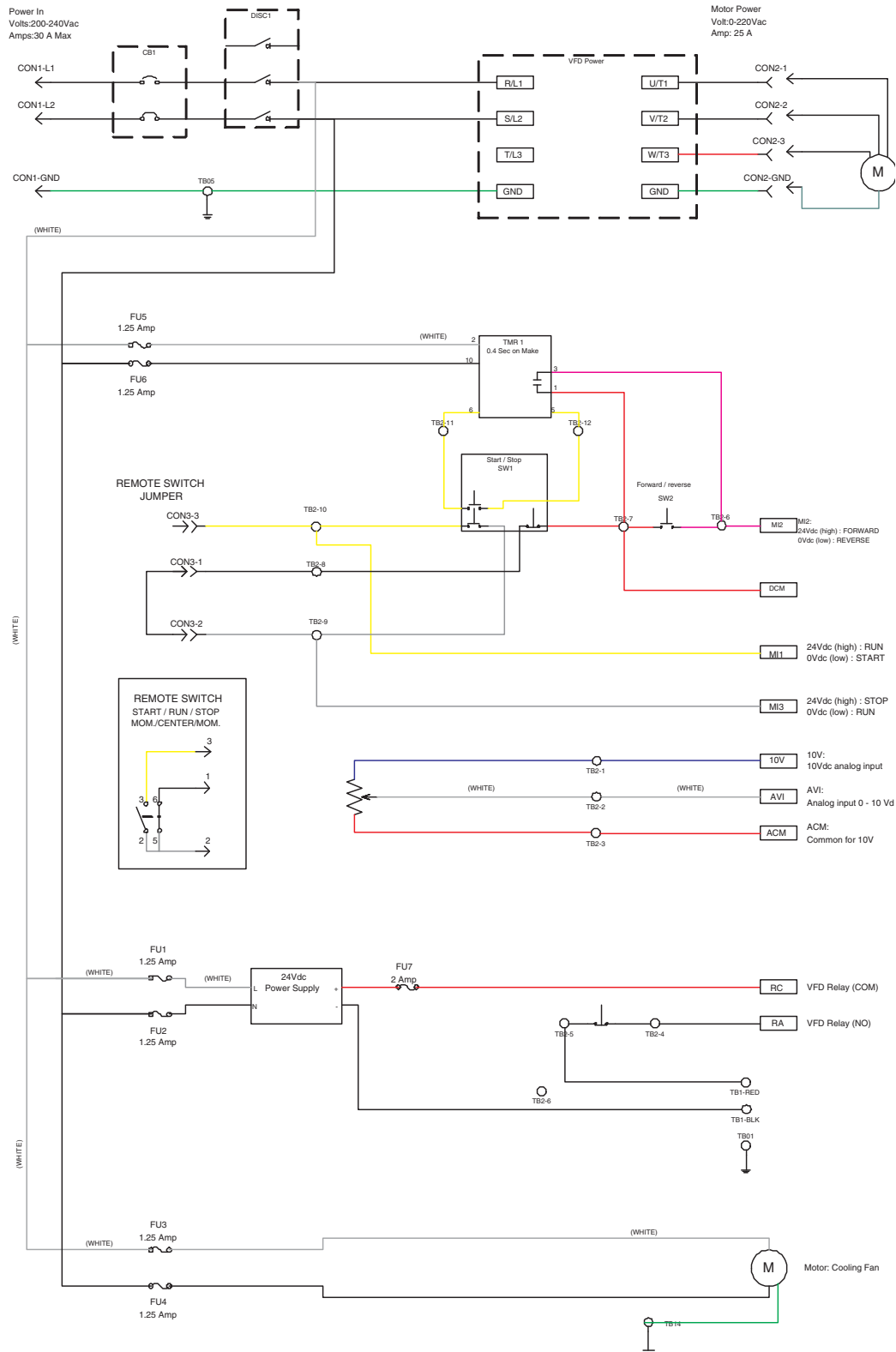
## P-40 Hopper Assembly Parts List

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	-----	HOPPER, assembly	1	19	†	NUT, hex, flanged	8
2	-----	PANEL, side, assembly, hopper	2	20	-----	ARM, trailing, lhs, assembly	1
5	-----	SCREW, flange, hex hd	12	21	-----	ARM, trailing, rhs, assembly	1
6	MTA113	HANDLE, hopper	2	22	-----	BRACE, arm, trailing	1
7	17H025	PIN, 1/4 in. x 1 3/8 in.	2	23	-----	AXLE, arm, trailing, painted	1
8	-----	NUT, hex, flange head	12	24	◆	WHEEL, tire, 10 in., runflat	2
9	MTA106	SEAL, flange	1	25	◆	WASHER, plain 5/8	4
10	MTA011	FITTING, Geka, clamp, hose	1	26	◆	PIN, linch, 3/16 diameter shaft	4
11	MTA012	FITTING, Geka, cap, end	1	29	-----	LABEL, direction, rotation, ccw	1
12	-----	FRAME, caster, lhs, assembly	1				
13	-----	FRAME, caster, rhs, assembly	1				
14	-----	SCREW, flanged, hex hd	12	△ <sub>1</sub>		Apply grease lubricant to axle (23) before assembling wheel components (24, 25, 26).	
15	MTA516	CLAMP, u-bolt, 1-7/16 in.	4	△ <sub>2</sub>		Apply SST pipe sealant to pipe threads.	
16	†	CASTER, 10 in., swivel, no brake	2	△ <sub>3</sub>		Fit seal (9) into groove of hopper (1).	
18	†	SCREW, cap flange hd	8				

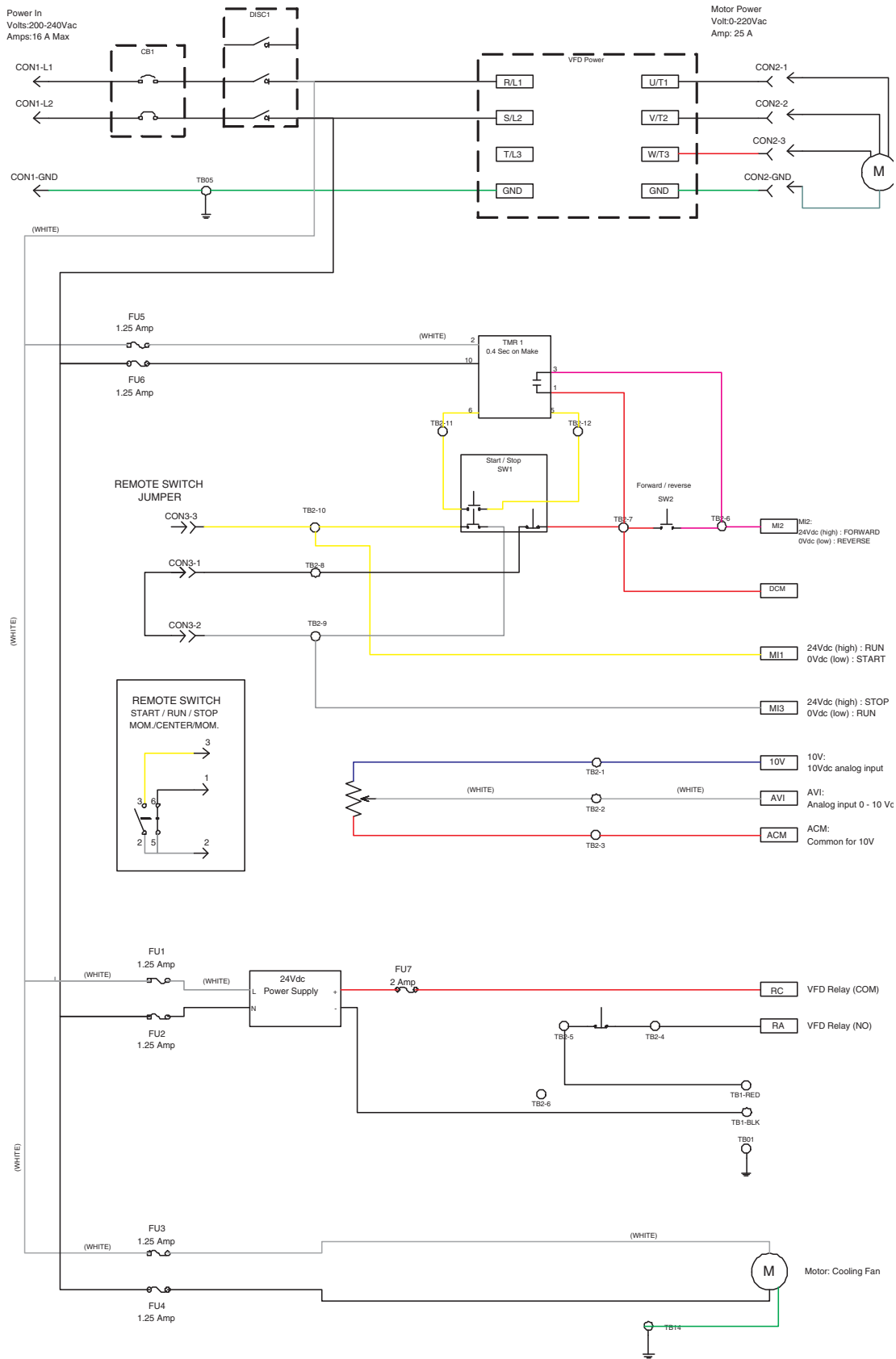
Symbol	Kit	Description	Included in Kit: Ref. (Qty.)
†	MTA700	Caster Replacement Kit	16 (1), 18 (4), 19 (4)
◆	MTA678	Tire Replacement Kit	24 (1), 25 (1), 26 (1)

# Wiring Schematics

## P-20 and P-30X (MTA682)

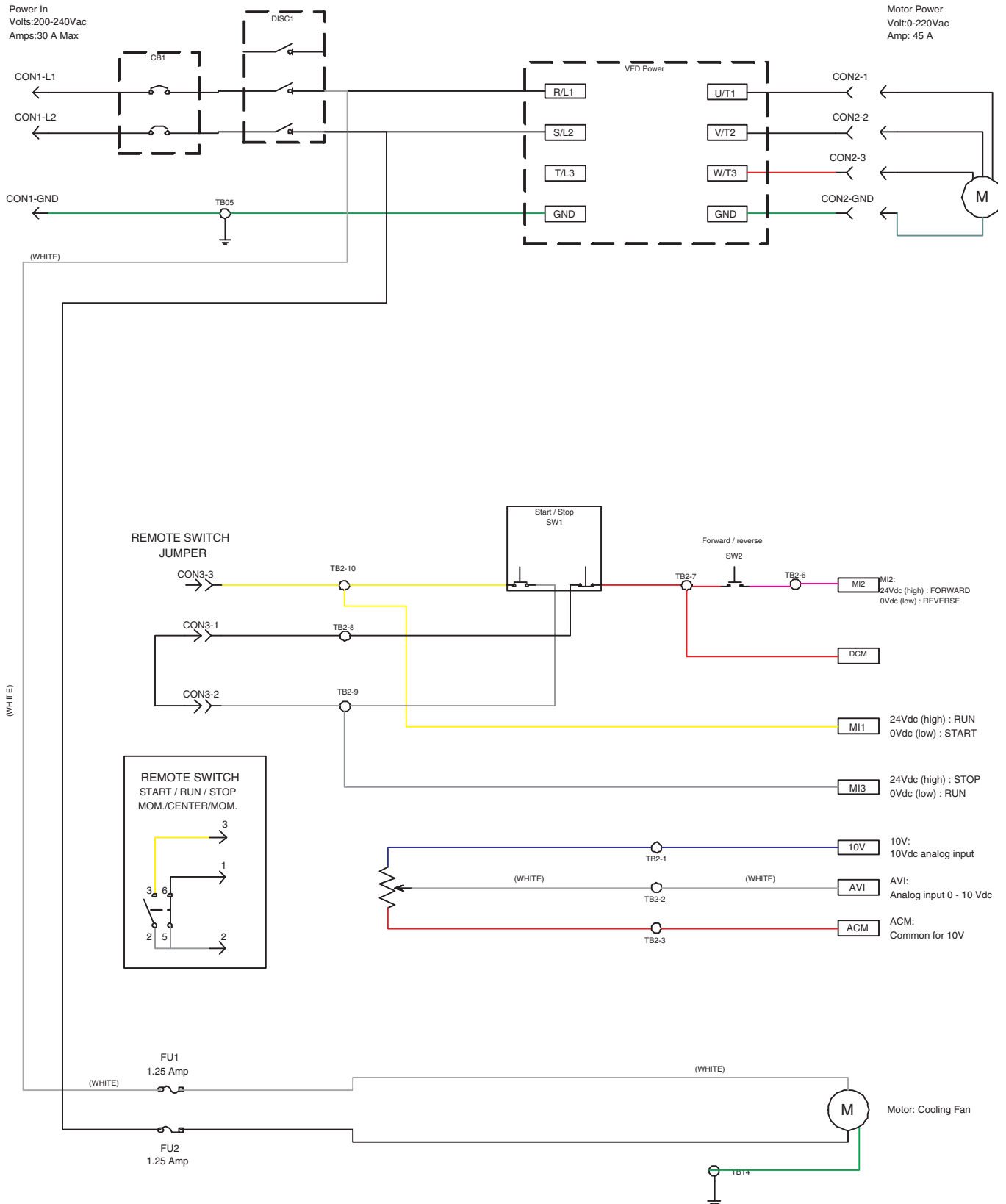


# P-20 16A (MTA762)

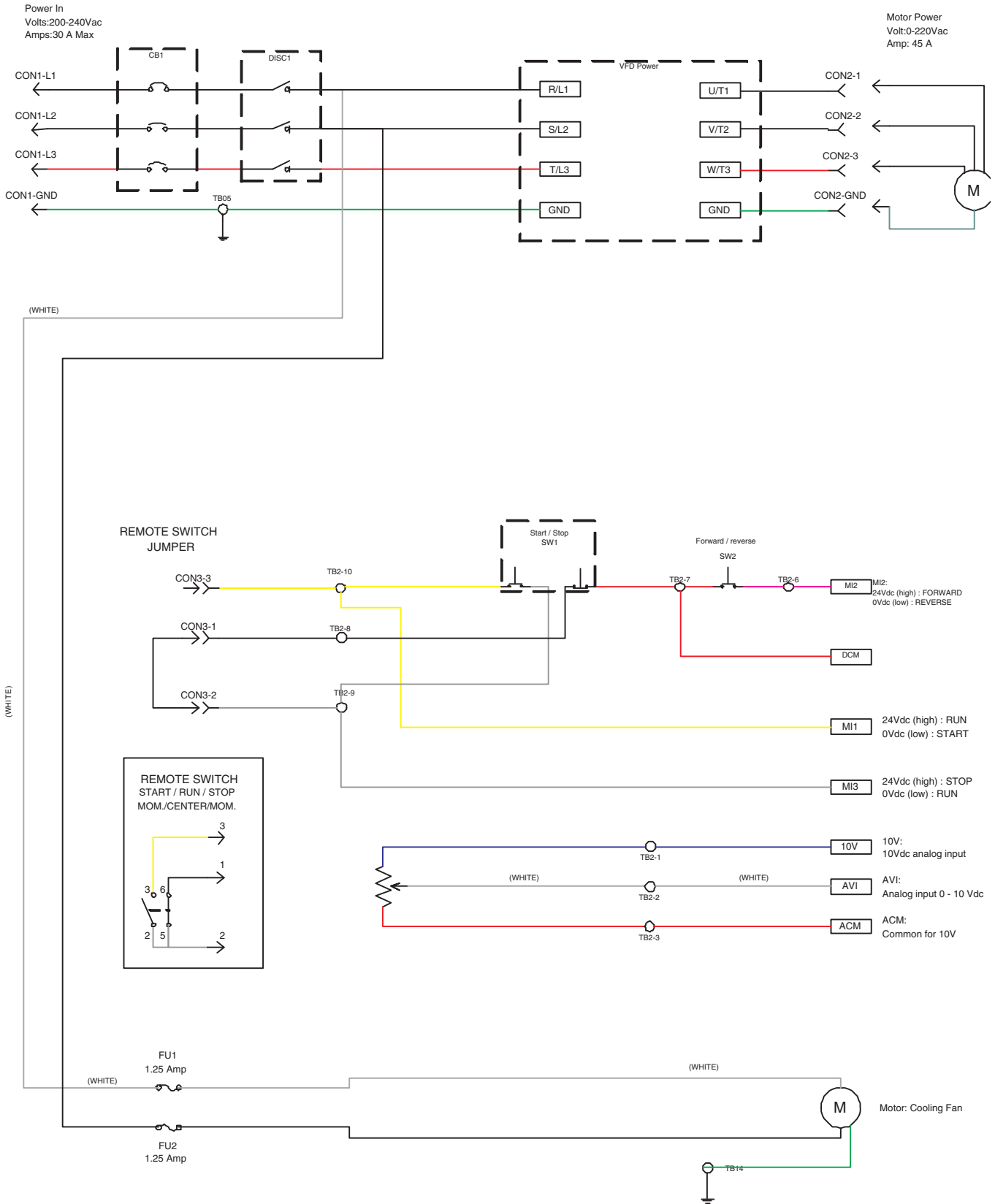




# P-30 HT, P-30X HT (MTA761)

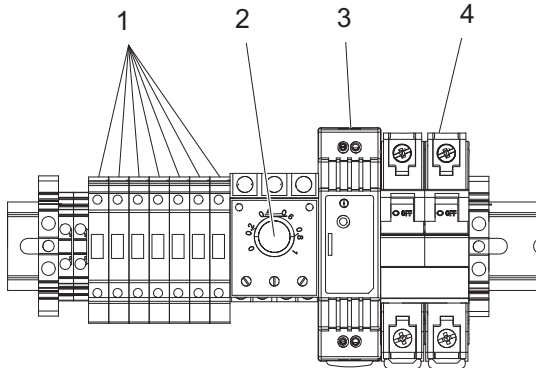


# P-40 (MTA765)



## Din Rail Assembly Modules

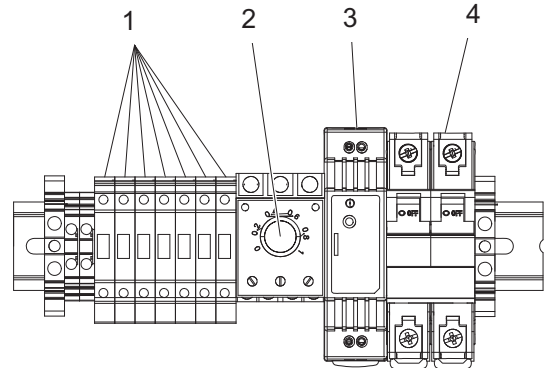
**Module, din rail assembly  
(for P-20 and P-30X)**



ti29726a

Ref.	Part	Description	Qty.
1	MTA882	KIT, fuse, P-20/P-20 16A/P-30X	7
2	MTA888	KIT, relay, timer	1
3	MTA889	KIT, power supply, 24 VDC, 15 watt	1
4	MTA890	KIT, circuit breaker, 63A, 2 pole	1

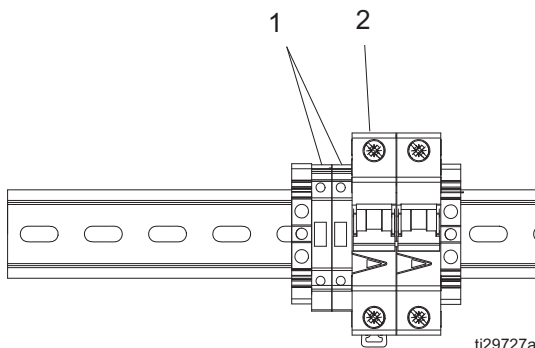
**Module, din rail assembly  
(for P-20 16A)**



ti29726a

Ref.	Part	Description	Qty.
1	MTA882	KIT, fuse, P-20/P-20 16A/P-30X	7
2	MTA888	KIT, relay, timer	1
3	MTA889	KIT, power supply, 24 VDC, 15 watt	1
4	MTA890	KIT, circuit breaker, 63A, 2 pole	1

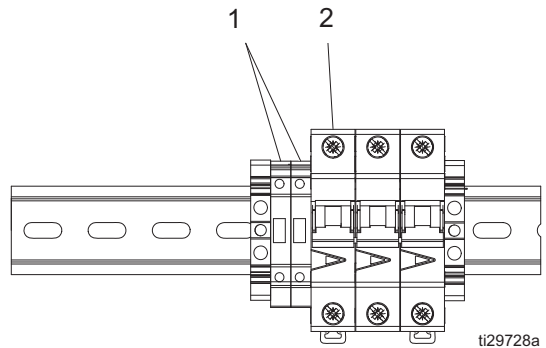
**Module, din rail assembly  
(for P-30 HT, P-30X HT)**



ti29727a

Ref.	Part	Description	Qty.
1	MTA883	KIT, fuse, P-30 HT/P-30X HT/P-40	2
2	MTA890	KIT, circuit breaker, 63A, 2 pole	1

**Module, din rail assembly  
(for P-40)**



ti29728a

Ref.	Part	Description	Qty.
1	MTA883	KIT, fuse, P-30 HT/P-30X HT/P-40	2
2	MTA891	KIT, circuit breaker, 40A, 3 pole	1

## Systems and Accessories

### Systems

Description	Power	Motor	Bare System Part
P-20	220 V, 1-ph, 30 A	5.4 hp (4 kW)	25M030
P-20 16A	220 V, 1-ph, 16 A	5.4 hp (4 kW)	25M033
P-30 HT	220 V, 1-ph, 30 A	7.5 hp (5.5 kW)	25M032
P-30X	220 V, 1-ph, 30 A	5.4 hp (4 kW)	25M040
P-30X HT	220 V, 1-ph, 30 A	7.5 hp (5.5 kW)	25M041
P-40	220 V, 3-ph, 25 A	15 hp (11 kW)	25M050

### Accessories

Kit	Description
MTA787	KIT, remote control switch, 40 ft (12.2 m) cable length (remotely start/stop the rotor/stator pump, attaches to applicator)
MTA788	KIT, remote control switch extension cable, 50 ft (15.2 m) cable length
17N886	KIT, rotor/stator pump water pressure tester, 1.5 in. female camlock

### Wheels & Casters Kits

Kit	Description	Associated System
MTA676	KIT, caster, 10 in., swivel	P-30X (25M040), P-30X HT(25M041)
MTA700	KIT, caster, 10 in., swivel, P-40	P-40 (25M050)
MTA678	KIT, wheel, tire, 10 in., runflat	P-20 (25M030), P-20 16A (25M033), P-30 HT (25M032)
		P-30X (25M040), P-30X HT(25M041), P-40 (25M050)

## Rotor/Stator Pump Kits

Kit	Description	Associated System	Kit Type
MTA719	KIT, rotor, D8-1.5, green	P-20 (25M030), P-20 16A (25M033)	Rotor only
MTA720	KIT, stator, D8-1.5, green	P-20 (25M030), P-20 16A (25M033)	Stator only
MTA721	KIT, rotor/stator, D8-1.5, green	P-20 (25M030), P-20 16A (25M033)	Rotor and stator
MTA751	KIT, pump, 90 mm, assembly, green	P-20 (25M030), P-20 16A (25M033)	Complete pump assembly
MTA746	KIT, rotor, R8-1.5, black	P-30 HT (25M032), P-30X (25M040), P-30X HT (25M041)	Rotor only
MTA747	KIT, stator, R8-1.5, black	P-30 HT (25M032), P-30X (25M040), P-30X HT (25M041)	Stator only
MTA750	KIT, rotor/stator, R8-1.5, black	P-30 HT (25M032), P-30X (25M040), P-30X HT (25M041)	Rotor and stator
MTA753	KIT, pump, 113 mm, assembly, black	P-30 HT (25M032), P-30X (25M040), P-30X HT (25M041)	Complete pump assembly
MTA701	KIT, rotor, U356, yellow	P-40 (25M050)	Rotor only
MTA702	KIT, stator, U356, yellow	P-40 (25M050)	Stator only
MTA703	KIT, rotor/stator, U356, yellow	P-40 (25M050)	Rotor and stator
MTA683	KIT, pump, P-40, yellow	P-40 (25M050)	Complete pump assembly
MTA106	KIT, flange seal	P-20 (25M030), P-20 16A (25M033), P-30 HT (25M032), P-30X (25M040), P-30X HT (25M041), P-40 (25M050)	Flange seal

## Nozzle Kits

Kit	Description	Associated System
MTA760	KIT, nozzle, assembly, 90 mm	P-20 (25M030), P-20 16A (25M033)
MTA759	KIT, nozzle, assembly, 113 mm	P-30 HT (25M032), P-30X (25M040), P-30X HT (25M041)
MTA687	KIT, nozzle, rotor/stator, 125 mm	P-40 (25M050)

## Motor Kits

Kit	Description	Associated System	Kit Type
MTA698	KIT, motor, ABM 4kW	P-20 (25M030), P-20 16A (25M033)	Motor only
MTA754	KIT, motor, gearbox, assembly	P-20 (25M030), P-20 16A (25M033)	Motor assembly
MTA766	KIT, motor, 5.5 kW, SEW	P-30 HT (25M032)	Motor only
MTA755	KIT, assembly, 5.5 kW, SEW	P-30 HT (25M032)	Motor assembly
MTA758	KIT, motor, gearbox, ABM, 4 kW	P-30X (25M040)	Motor only
MTA679	KIT, motor, assembly, P-30X, 4kW	P-30X (25M040)	Motor assembly
MTA767	KIT, motor, 5.5 kW, SEW	P-30X HT(25M041)	Motor only
MTA680	KIT, motor, assembly, P-30X, 5.5 kW	P-30X HT(25M041)	Motor assembly
MTA705 ❖	KIT, motor, 15 hp, nord-170, P-40	P-40 (25M050)	Motor only
MTA684	KIT, motor, assembly, P-40	P-40 (25M050)	Motor assembly
MTA692	KIT, spider drive base	P-40 (25M050)	Spider drive
MTA768	KIT, flange seal	P-40 (25M050)	Flange seal
MTA731	KIT, motor shaft grease seal	P-20 (25M030), P-20 16A (25M033), P-30 HT (25M032), P-30X (25M040), P-30X HT (25M041)	Grease seal
MTA783	HARNESS, motor cable, 120 in.	P-20 (25M030), P-20 16A (25M033), P-30 HT (25M032), P-40 (25M050)	Motor harness
MTA785	HARNESS, motor cable, 30 in.	P-30X (25M040), P-30X HT (25M041)	Motor harness
MTA790	KIT, drive auger/pump adapter	P-20 (25M030), P-20 16A (25M033), P-30 HT (25M032)	Driver auger
MTA791	KIT, drive auger/pump adapter	P-30 HT (25M032), P-30X HT(25M041)	Driver auger

❖ Before installing a replacement motor MTA705 (for 25M050 series A-D), call Graco Technical Assistance. The variable frequency drive (VFD) parameters must updated before power is applied to the motor.

## Drive Shaft Kits

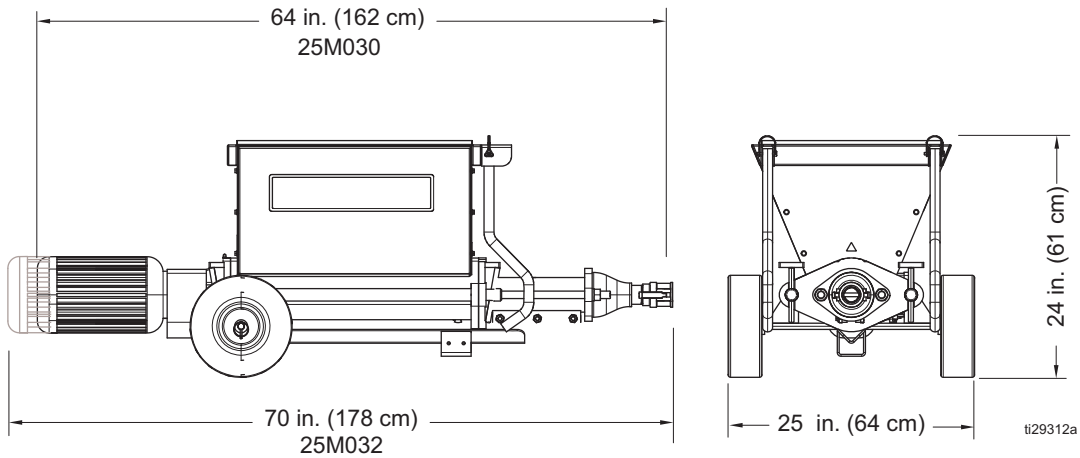
Kit	Description	Associated System
MTA675	KIT, shaft, drive, P-20/P-30 HT/P-30X	P-20 (25M030), P-20 16A (25M033), P-30 HT (25M032), P-30X (25M040), P-30X HT (25M041)
MTA685	KIT, shaft, drive, spider, P-40	P-40 (25M050)

## Enclosure Kits

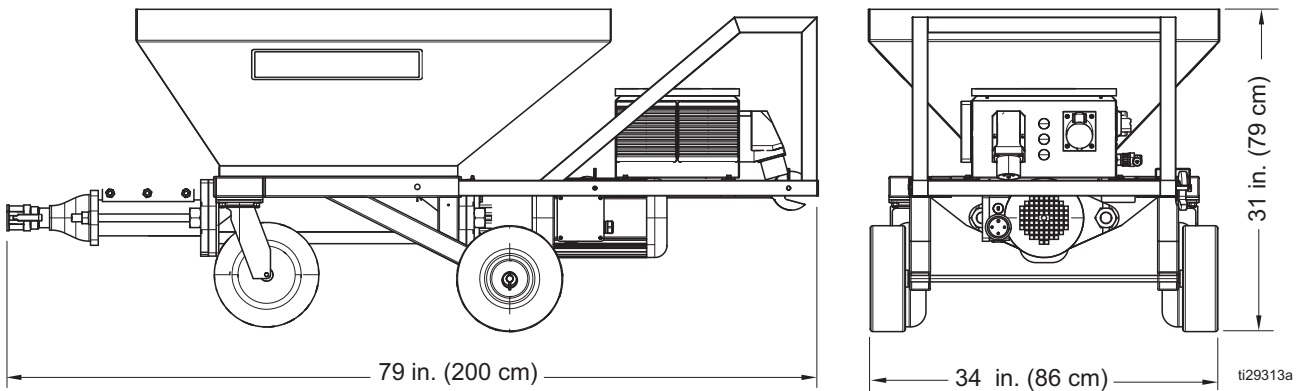
Kit	Description	Associated System
MTA682	KIT, enclosure, control, P-20	P-20 (25M030), P-30X (25M040)
MTA762	KIT, enclosure, control, 16A	P-20 16A (25M033)
MTA761	KIT, enclosure, control, P-30 HT	P-30 HT (25M032), P-30X HT(25M041)
MTA765	KIT, enclosure, control, P-40	P-40 (25M050)
MTA727	KIT, harness, power, 1 phase	P-20 (25M030), P-20 16A (25M033), P-30 HT (25M032), P-30X (25M040), P-30X HT(25M041)
MTA728	KIT, harness, power, 3 phase	P-40 (25M050)

# Dimensions

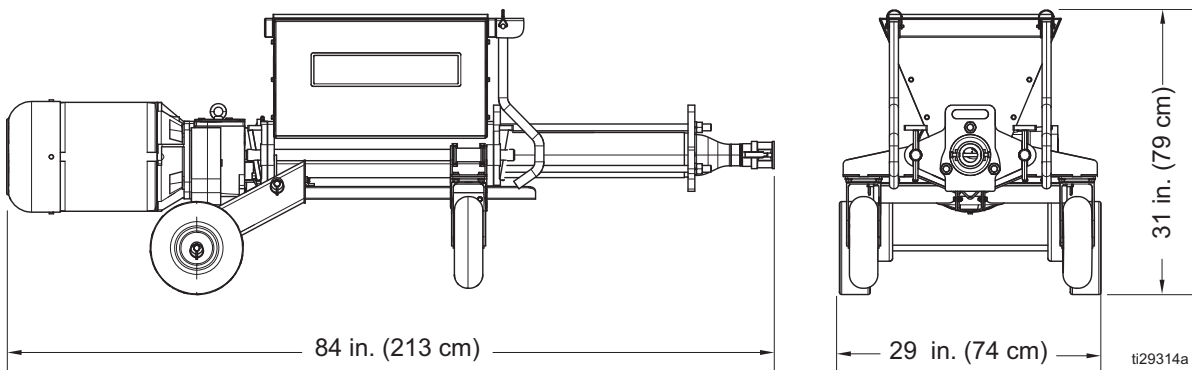
## P-20, P-30 HT



## P-30X, P-30X HT



## P-40







# Technical Specifications

<b>ToughTek P-20 Pump 25M030</b>		
	<b>US</b>	<b>Metric</b>
Maximum Fluid Working Pressure	300 psi	2.07 MPa, 20.7 bar
Maximum Motor Speed	314 rpm	
Weight (empty)	300 lb	136 kg
Wetted Parts	Tool steel, painted steel, plated steel, PORON®	
Fluid Inlet Size	3.0 in.	7.6 cm
Fluid Outlet Size	1.5 in. npt male with 1.5 in. male camlock	
Rotor/Stator Pump	D8-1.5 rotor/stator	
<b>Power Requirements</b>		
Voltage	200-240 VAC	
Minimum Circuit Breaker Size	30 Amps	
Phase	1 Phase	
Frequency	50/60 Hz	
<b>Hose Requirements</b>		
Minimum Pressure	300 psi	2.07 MPa, 20.7 bar
Minimum Hose Diameter	1.0 in.	25 mm
Minimum Hose Length	25 ft	7.5 m
<b>Noise Level (measured at 3.1 ft)</b>		
Sound Pressure	85 dBa	
<b>Operating Ambient Temperature</b>		
Temperature	32° F to 120° F	0° C to 49° C

<b>ToughTek P-20 16A Pump 25M033</b>		
	<b>US</b>	<b>Metric</b>
Maximum Fluid Working Pressure	300 psi	2.07 MPa, 20.7 bar
Maximum Motor Speed	244 rpm	
Weight (empty)	300 lb	136 kg
Wetted Parts	Tool steel, painted steel, plated steel, PORON®	
Fluid Inlet Size	3.0 in.	7.6 cm
Fluid Outlet Size	1.5 in. npt male with 1.5 in. male camlock	
Rotor/Stator Pump	D8-1.5 rotor/stator	
<b>Power Requirements</b>		
Voltage	200-240 VAC	
Minimum Circuit Breaker Size	16 Amps	
Phase	1 Phase	
Frequency	50/60 Hz	
<b>Hose Requirements</b>		
Minimum Pressure	300 psi	2.07 MPa, 20.7 bar
Minimum Hose Diameter	1.0 in.	25 mm
Minimum Hose Length	25 ft	7.5 m
<b>Noise Level (measured at 3.1 ft)</b>		
Sound Pressure	85 dBa	
<b>Operating Ambient Temperature</b>		
Temperature	32° F to 120° F	0° C to 49° C

<b>ToughTek P-30 HT Pump 25M032</b>		
	<b>US</b>	<b>Metric</b>
Maximum Fluid Working Pressure	300 psi	2.07 MPa, 20.7 bar
Wetted Parts	Tool steel, painted steel, plated steel, PORON®	
Fluid Inlet Size	3.8 in.	9.7 cm
Fluid Outlet Size	1.5 in. npt male with 1.5 in. male camlock	
Rotor/Stator Pump	R8-1.5 rotor/stator	
<b>Maximum Motor Speed</b>		
P-30 HT	186 rpm	
<b>Weight (empty)</b>		
P-30 HT	320 lb	145 kg
<b>Hopper Capacity</b>		
P-30 HT	16 gallons	60.6 liters
<b>Power Requirements</b>		
Voltage	200-240 VAC	
Minimum Circuit Breaker Size	30 Amps	
Phase	1 Phase	
Frequency	50/60 Hz	
<b>Hose Requirements</b>		
Minimum Pressure	300 psi	2.07 MPa, 20.7 bar
Minimum Hose Diameter	1.0 in.	25 mm
Minimum Hose Length	25 ft	7.5 m
<b>Noise Level (measured at 3.1 ft)</b>		
Sound Pressure	88 dBa	
<b>Operating Ambient Temperature</b>		
Temperature	32° F to 120° F	0° C to 49° C

<b>ToughTek P-30X Pump 25M040 and P-30X HT Pump 25M041</b>		
	<b>US</b>	<b>Metric</b>
Maximum Fluid Working Pressure	300 psi	2.07 MPa, 20.7 bar
Wetted Parts	Tool steel, painted steel, plated steel, PORON®	
Fluid Inlet Size	3.8 in.	9.7 cm
Fluid Outlet Size	1.5 in. npt male with 1.5 in. male camlock	
Rotor/Stator Pump	R8-1.5 rotor/stator	
<b>Maximum Motor Speed</b>		
P-30X	314 rpm	
P-30X HT	186 rpm	
<b>Weight (empty)</b>		
P-30X	420 lb	191 kg
P-30X HT	440 lb	200 kg
<b>Hopper Capacity</b>		
P-30X, P-30X HT	60 gallons	227.1 liters
<b>Power Requirements</b>		
Voltage	200-240 VAC	
Minimum Circuit Breaker Size	30 Amps	
Phase	1 Phase	
Frequency	50/60 Hz	
<b>Hose Requirements</b>		
Minimum Pressure	300 psi	2.07 MPa, 20.7 bar
Minimum Hose Diameter	1.0 in.	25 mm
Minimum Hose Length	25 ft	7.5 m
<b>Noise Level (measured at 3.1 ft)</b>		
Sound Pressure	84 dBa	
<b>Operating Ambient Temperature</b>		
Temperature	32° F to 120° F	0° C to 49° C

<b>ToughTek P-40 Pump 25M050</b>		
	<b>US</b>	<b>Metric</b>
Maximum Fluid Working Pressure	600 psi	4.14 MPa, 41.4 bar
Maximum Motor Speed	244 rpm	
Weight	560 lb	250 kg
Hopper Capacity	16 gallons	60.6 liters
Wetted Parts	Tool steel, painted steel, plated steel, PORON®	
Fluid Inlet Size	4.22 in.	10.7 cm
Fluid Outlet Size	2.0 in. npt with 2 in. male camlock	
Rotor/Stator Pump	U356 rotor/stator	
<b>Power Requirements</b>		
Voltage	200-240 VAC	
Minimum Circuit Breaker Size	25 Amps	
Phase	3 Phase	
Frequency	50/60 Hz	
<b>Hose Requirements</b>		
Minimum Pressure	600 psi	4.14 MPa, 41.4 bar
Minimum Hose Diameter	1.0 in.	25 mm
Minimum Hose Length	25 ft	7.5 m
<b>Noise Level (measured at 3.1 ft)</b>		
Sound Pressure	87 dBa	
<b>Operating Ambient Temperature</b>		
Temperature	32° F to 120° F	0° C to 49° C
<b>Notes</b>		
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Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

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

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Original instructions. This manual contains English. MM 3A4361

**Graco Headquarters:** Minneapolis

**International Offices:** Belgium, China, Japan, Korea

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