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DRUM & CONTAINER PUMPS
OPERATION & SERVICE GUIDE

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DRUM PUMPS

BEFORE OPERATING THIS EQUIPMENT, THE OPERATOR SHOULD THOROUGHLY READ AND UNDERSTAND ALL INSTRUCTIONS AND SAFETY WARNING LABELS INCLUDING THE MANUFACTURER'S INSTRUCTIONS ON THE MATERIAL BEING PUMPED.

SECTION 1: GENERAL

1. The operator should wear suitable protective clothing including: face mask, safety shield or goggles, gloves, apron, and safety shoes.
2. Check a chemical resistance chart to be sure the chemical being pumped is compatible with pump construction.
3. Flammable or combustible liquids can only be handled with air driven motors and explosion-proof electric motors in conjunction with stainless steel pump tubes.
4. The use of SP-PP tubes (polypropylene), SP-PVDF (polyvinylidene fluoride), SP-CPVC (CPVC), and SP-PHT (High temp. polypropylene), SP-280P, SP-ODP series motors (open) or SP-ENC series motors (TEFC) on flammable or combustible liquids is prohibited and could cause fire, injury or death.
5. Bonding and grounding safety procedures as described in National Fire Protection Code 77 must be used when handling flammables, operating in a hazardous duty environment or when the danger of static discharge is present. Avoid liquid splashing. Refer to Section 6.
6. All federal, state and local safety codes should be followed.
7. Make sure nameplate information corresponds to voltage supplied.

PRE-START-UP

1. All connections must be properly in place and tightened securely. Stainless steel hose clamps are required on hose and must be properly tightened. Pump hand wheel must be snug, otherwise pump coupling damage can occur.
2. Since all pump motors and pump tubes are interchangeable, it is necessary for the operator to read and understand operating instructions for both the motor and the pump tube.
3. First use pump on water to be familiar with the assembly and check motor operation, flow rate, security of all hose connections, operation of speed control knob, liquid velocity, pump drainage and dispensing nozzle.
4. Before starting motor, check to be sure hose is securely fastened in receiving vessel so hose cannot splash chemicals, causing injury.
5. Before connecting motor to power supply, be sure motor switch is OFF ("O" position) and speed control is turned down.
6. Never submerge pump below the hose connection.
7. Never leave unit unattended during operation.
8. Do not use speed control knob as ON/OFF switch.*
9. If liquid appears below discharge assembly, check security of hose clamps and wing nut. If leakage fails to stop, cease operation. Neutralize pump and refer to specific parts list and operating instructions to repair. If unable to repair, contact factory.

10. When finished using pump, drain pump and hose thoroughly and operate on 1-2 gallons of clear water or neutral solution for 15-30 seconds to completely flush and rinse pump and hose assembly.
11. Never store the pump and hose assembly in the container. Always rinse thoroughly and hang on a wall bracket.

* The speed control switch should not be used as the main ON/OFF switch. Using the speed control switch in this manner causes excessive wear to the potentiometer and triac and may result in premature failure. The use of the speed control switch does not cut power to the motor and inadvertent activation could result in injury or death if the motor is activated when not properly attended and secured.

SECTION 2: INSTRUCTIONS FOR MOTORS - SP-280P Series, SP-ENC Series, SP-ODP Series and SP-400 Series

THIS EQUIPMENT (SP-280P, SP-ENC, SP-ODP, SP-400) MUST BE CONNECTED TO A GROUND FAULT CURRENT INTERRUPTION DEVICE BEFORE OPERATING.

SP-280P, SP-280P-V c UL us listed

Open Drip Proof enclosure, 115V/1/50-60Hz-1.1 HP (825 watts) - 10,000 RPM, thermal overload protection switch, manual reset on switch, 16 ft. SJT U.L. listed, 3 wire cord with 3 prong molded plug.

SP-280P-2 , SP-280P-2-V CE listed

Open Drip Proof enclosure (IP 44), 220V/1/50-60Hz-1.1 HP (825 watts) - 10,000 RPM, thermal overload protection switch, Low Voltage Release (LVR), 16 ft. (5 m) CE listed, Har Ho 7 cable cord with plug.

1. Do not use the SP-280P series motor on flammables or in hazardous duty environments.
2. Check nameplate data to verify proper voltage.
3. Before connecting plug to power supply, be sure motor switch is in the OFF position, "O".
4. Never carry motor by or pull on power cord.
5. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
6. If motor stops during operation, place the switch in the OFF position "O" and allow the motor to cool. **Motor will not restart if the switch is not placed in the OFF position.** 220V Models - LVR will release motor switch when voltage is interrupted or stopped. Motor will not turn on once power is restored.
7. Check viscosity and specific gravity limitations before resuming operation.
8. Connect power cord to suitable receptacle and never remove ground prong from plug.
9. To engage motor to pump tube, place motor on top of pump tube and turn hand wheel part #1842 clockwise until the motor coupling and pump coupling are completely engaged and secured.
10. To replace cartridge brushes, refer to Section 5.
11. Never submerge motor in liquid or splash motor with liquid. Operation of motor in wet conditions can cause injury or death.

12. **Variable Speed Models (SP280P-V, SP280P-2-V)** Make sure the speed control knob is turned in the OFF position before starting operation. Turn switch handle to the ON position and slowly turn the speed control knob to the right. The pump will begin to slowly transfer. The variable speed control should not be used as the main ON/OFF switch. This is considered excessive wear and may result in premature failure. See #8 in the Pre-Start-Up section.
13. Bond and ground where the possibility of static discharge is present.

SP-ENC, SP-ENC-V c UL us listed

TEFC enclosure, 115V/1/50-60Hz - 1.1 HP (825 watts) -10,000 RPM, thermal overload protection switch, manual reset on switch, 16 ft. SJT U.L. listed, 3 wire cord with 3 prong molded plug.

SP-ENC-2, SP-ENC-2-V CE listed

TEFC (IP 54) enclosure, 220V/1/50-60Hz - 1.1 HP (825 watts) - 10,000 RPM, thermal overload protection switch, Low Voltage Release (LVR), 16 ft. (5 m) CE listed, Har Ho 7 cable cord with plug.

The SP-ENC series motor is a totally enclosed fan cooled motor (TEFC). The construction of a TEFC motor minimizes corrosive fumes from entering and damaging the vital internal components of the motor. The SP-ENC is ideal where corrosive fumes present a detriment to the operation of open motors.

1. Do not use the SP-ENC series motor on flammables or in hazardous duty environments.
2. Check nameplate data to verify proper voltage.
3. Before connecting plug to power supply, be sure motor switch is in the OFF position, "O".
4. Never carry motor by or pull on power cord.
5. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
6. If motor stops during operation, place the switch in the OFF position "O" and allow the motor to cool.
   Motor will not restart if the switch is not placed in the OFF position.
   220V models - LVR will release motor switch when voltage is interrupted or stopped. Motor will not turn on once power is restored.
7. Check viscosity and specific gravity limitations before resuming operation.
8. Connect power cord to suitable receptacle and never remove ground prong from plug.
9. To engage motor to pump tube, place motor on top of pump tube and turn hand wheel part #1842 clockwise until the motor coupling and pump coupling are completely engaged and secured.
10. To replace cartridge brushes, refer to Section 5.
11. Never submerge motor in liquid or splash motor with liquid.
12. **Variable Speed Models (SP-ENC-V, SP-ENC-2-V)** Make sure the speed control knob is turned in the OFF position before starting operation. Turn switch handle to the ON position and slowly turn the speed control knob to the right. The pump will begin to slowly transfer. The variable speed control should not be used as the main ON/OFF switch. This is

considered excessive wear and may result in premature failure. See #8 in the Pre-Start-Up section.

13. Bond and ground where the possibility of static discharge is present.

SP-ODP

Open Drip Proof enclosure, 115V/1/50-60Hz-½ HP (450 watts) - 10,000 RPM, thermal overload protection switch, manual reset switch, 16 ft. power cord. 3-wire cord with molded plug.

1. Do not use the SP-ODP series motor on flammables or in hazardous duty environments.
2. Check nameplate data to verify proper voltage.
3. Before connecting plug to power supply, be sure motor switch is in the OFF position, "O".
4. Never carry motor by or pull on power cord.
5. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
6. If motor stops during operation, place the switch in the OFF position "O" and allow the motor to cool. **Motor will not restart if the switch is not placed in the OFF position.** 220V Models - LVR will release motor switch when voltage is interrupted or stopped. Motor will not turn on once power is restored.
7. Check viscosity and specific gravity limitations before resuming operation.
8. Connect power cord to suitable receptacle and never remove ground prong from plug.
9. To engage motor to pump tube, place motor on top of pump tube and turn hand wheel part #1842 clockwise until the motor coupling and pump coupling are completely engaged and secured.
10. To replace cartridge brushes, refer to Section 5.
11. Never submerge motor in liquid or splash motor with liquid. Operation of motor in wet conditions can cause injury or death.
12. Bond and ground where the possibility of static discharge is present.

SP-ODP-2

Open Drip Proof enclosure, 230V/1/50-60Hz-½ HP (450 watts) - 10,000 RPM, thermal overload protection switch, manual reset switch, 16 ft. power cord. 3-wire cord with molded plug.

1. Do not use the SP-ODP series motor on flammables or in hazardous duty environments.
2. Check nameplate data to verify proper voltage.
3. Before connecting plug to power supply, be sure motor switch is in the OFF position, "O".
4. Never carry motor by or pull on power cord.
5. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
6. If motor stops during operation, place the switch in the OFF position "O" and allow the motor to cool. **Motor will not restart if the switch is not placed in the OFF position.** 220V Models - LVR will release motor switch when voltage is interrupted or stopped. Motor will not turn on once power is restored.
7. Check viscosity and specific gravity limitations before resuming operation.
8. Connect power cord to suitable 3 prong receptacle and never remove ground prong from plug.

9. To engage motor to pump tube, place motor on top of pump tube and turn hand wheel part #1842 clockwise until the motor coupling and pump coupling are completely engaged and secured.
10. To replace cartridge brushes, refer to Section 5.
11. Never submerge motor in liquid or splash motor with liquid. Operation of motor in wet conditions can cause injury or death.
12. Bond and ground where the possibility of static discharge is present.

SP-400-2 CE listed, class 1, group C & D, ATEX

625 watts, 220V/1/50-60Hz, 10,000 RPM, thermal overload protected, manual reset switch, 16 ft. power cord.

BEFORE STARTING THIS MOTOR, HAVE A SAFETY ENGINEER CHECK UNIT AND ALL SAFETY PROCEDURES. DO NOT USE THIS MOTOR WITHOUT PROPER KNOWLEDGE AND INSTRUCTIONS. FOLLOW AND COMPLY WITH ALL LOCAL, STATE AND FEDERAL SAFETY / ELECTRICAL CODES.

IF FLAMMABLE LIQUIDS ARE GOING TO BE PUMPED OR MOTOR IS TO BE USED IN A HAZARDOUS DUTY ENVIRONMENT, ALWAYS USE IN CONJUNCTION WITH A STAINLESS STEEL PUMP TUBE.

1. Verify nameplate data with all available electrical connections.
2. Confirm that the switch is in the OFF position before connecting the power supply.
3. Do not use the SP-400-2 motor in conjunction with plastic pump tubes SP-PP (polypropylene),SP-PHT (High temperature polypropylene) SP-CPVC (CPVC) or SP-PVDF (PVDF) when transferring flammable liquids or while in a hazardous environment.
4. Bond and ground before operating motor in hazardous environments. See figure #1 (page 24, Section 6).
5. To attach motor to stainless pump tube, place motor on stainless pump tube and turn plastic handwheel (P/N 1842) clockwise until secure.
6. Never submerge motor in liquid or splash motor with liquid.

SECTION 3: SP-A1 AND SP-A2 AIR MOTORS

SP-A1

Pneumatic drum pump motor - 7500 RPM, air consumption: 22 CFM @ 90 PSI (10.38 liter/sec @ 6.3 bar), the recommended operating inlet pressure. Maximum inlet pressure is 100 PSI (6.8 bar). Air Inlet 1/8" (3 mm)

SP-A2

Pneumatic drum pump motor - 8000 RPM, air consumption: 28 CFM @ 90 PSI (13.2 liter/sec @ 6.2 bar), the recommended operating inlet pressure. Maximum inlet pressure is 100 PSI (6.8 bar). Air inlet 3/8" (9 mm)

1. Always use a filter, lubricator, regulator (FLR) on the intake side of the unit. Failure to provide an FLR will result in premature failure of the air motor. A filter is necessary to provide moisture free air and avoid rust build up. A lubricator using SAE 10 wt. oil is necessary to provide internal lubrication. The regulator assures proper air pressure.
2. Daily normal maintenance is recommended.
3. When pumping flammables or in a hazardous duty environment, proper

bonding and grounding is required according to NFPA 77 to avoid static electric discharge. See Fig. 2 (page 24, Section 6).

4. Never use the SP-A1 or SP-A2 motors in conjunction with plastic pump tubes SP-PP (polypropylene), SP-PVDF (PVDF), SP-CPVC (CPVC) or SP-PHT (High temperature polypropylene) when pumping flammables or in a hazardous duty environment.
5. If motor slows down or stops, disconnect air supply from motor remove motor from pump. Turn the motor shaft with your finger; it should turn easily. If it does not, check your lubricator to be sure air motor is receiving proper lubrication.
6. Check the muffler to make sure it is not clogged. A safety solvent can be used to clean the clogged muffler. A clogged muffler will cause back pressure and prevent the unit from working freely.
7. Never stand directly in path of muffler exhaust.
8. Never operate the air motor without the muffler in place and tightened properly.
9. Before operation make sure the motor is securely fastened to the pump with the handwheel, part #1842. Improper connection will result in damage to the pump coupling and possibly the pump shaft.

SECTION 4: INSTRUCTIONS FOR PUMP TUBES: polypropylene, CPVC, PVDF and stainless steel

All pump tubes are engineered with a seal-less design. Pumps can run dry and against back pressure without damage to the integrity of the pump.

MODEL NUMBER KEY = Example: SP-PP-39
SP = Standard Pump
PP = polypropylene
39 = tube length 39" (1000 mm)

SP-PP

Polypropylene construction - Hastelloy drive shaft - Viton V-seal - Viton sealed ball bearings - TFE guide sleeve - carbon grade 6038C carbon bushing - hose connection 1" (25 mm), ¾" (22mm) available. Maximum temperature 130°F (55°C).

1. Do not use SP-PP pump tubes on flammables or in hazardous duty environments. The insulating nature of plastic prevents proper bonding and grounding. A static electric discharge can take place and ignite fumes resulting in fire, injury or death.
2. SP-PP pumps can be run dry without damaging the structural integrity of the unit. Prolonged periods of dry running should be avoided.
3. Always check the chemical compatibility of the liquid being pumped with pump construction and hose you have selected.
4. Securely tighten all connections before beginning operation.
5. Before starting motor, check to be sure hose is securely fastened in receiving vessel so hose cannot splash chemicals, causing injury.
6. Check temperature limitation, pressure rating and chemical compatibility of the hose you have selected.
7. Never submerge pump below the hose connection.
8. If liquid appears below discharge housing, part #1028, check security of

hose clamps and wing nut, part #1106. If leakage fails to stop, cease operation. Neutralize pump and return unit to an authorized Standard Pump distributor for inspection and possible repair.

SP-PVDF

PVDF (polyvinylidene fluoride) construction - natural PVDF contains no pigment or color and is ideal for the transfer of concentrated chemicals - Hastelloy® C-276 drive shaft - TFE V-seal -Viton sealed ball bearings -TFE guide sleeve - pure carbon grade 6038C carbon bushing - hose connection 1" (25 mm), ¾" (22 mm). Maximum temperature 175°F (80°C) maximum.

1. Do not use SP-PVDF pump tubes on flammables or in hazardous duty environments. The insulating nature of plastic prevents proper bonding and grounding. A static electric discharge can take place and ignite fumes resulting in fire, injury or death.
2. SP-PVDF pump can run dry without damaging the structural integrity of the unit. Prolonged periods of dry running should be avoided.
3. Always check the chemical compatibility of the liquid being pumped with pump construction and hose you have selected.
4. Securely tighten all connections before beginning operation.
5. Before beginning operation, check to be sure hose is securely fastened in receiving vessel. Failure to secure hose properly will allow hose to splash chemicals, causing injury.
6. Check temperature limitation, pressure rating and chemical compatibility of the hose you have selected.
7. Never submerge pump below the hose connection.
8. If liquid appears below discharge housing, part #4028, check security of hose clamps and wing nut, part #4106. If leakage fails to stop, cease operation. Neutralize pump and return unit to an authorized Standard Pump distributor for inspection and possible repair.

SP-SS

Stainless steel 316 construction - TFE rotor - TFE V-seal - TFE guide sleeve, stainless drive shaft, - pure carbon grade 6038C carbon bushing - Viton sealed ball bearings - 1" (25 mm) hose connection. Maximum temperature 175°F (80°C).

1. SP-SS pumps can be run dry without damaging the structural integrity of the unit. Prolonged periods of dry running should be avoided.
2. Always check the chemical compatibility of the liquid being pumped with pump construction and hose you have selected.
3. Check temperature limitation, pressure rating and chemical compatibility of the hose you have selected.
4. Securely tighten all connections before beginning operation. Use only stainless steel hose clamps to secure hose and tighten securely. Use of optional hand clamp is recommended. See Catalog.
5. The SP-SS requires a TFE seal #2195 between the wing nut and pump body. Be sure this "O"-ring is in place or leakage of chemicals will occur.
6. When using the SP-SS on flammables or in hazardous duty environments, it is always necessary to bond and ground as per NFPA 77. See Fig. 1 (page 24 Section 6) for illustration.

7. An electrically conductive hose may be employed with the SP-SS tube when pumping flammables. Installation must be exactly to manufacturer's installation instructions. Bonding and grounding must also be used in conjunction with hose to prevent static electric discharge.
8. If liquid appears below the bearing housing, re-check security of all fittings. Re-check to be sure the TFE seal #2195 is in place. If leakage continues, cease operation, neutralize the pump and return it to an authorized Standard Pump distributor for inspection and possible repair.

SP-CPVC

CPVC construction, Hastelloy C 276 drive shaft, TFE V-seal. Viton sealed ball bearings, TFE guide sleeve, carbon bushing, 1" (25mm) or ¾" (22mm) hose barb available. Temperature limitation 190° F (90°C)

1. Do not use SP-CPVC pump tubes on flammables or in hazardous duty environments. The insulating nature of plastic prevents proper bonding and grounding. A static electric discharge can take place and ignite fumes resulting in fire, injury or death.
2. SP-CPVC pumps can be run dry without damaging the structural integrity of the unit. Prolonged periods of dry running should be avoided.
3. Always check the chemical compatibility of the liquid being pumped with pump construction and hose you have selected.
4. Securely tighten all connections before beginning operation.
5. Before starting motor, check to be sure hose is securely fastened in receiving vessel so hose cannot splash chemicals, causing injury.
6. Check temperature limitation, pressure rating and chemical compatibility of the hose you have selected.
7. Never submerge pump below the hose connection.
8. If liquid appears below discharge housing, part #5028, check security of hose clamps and wing nut, part #5106. If leakage fails to stop, cease operation. Neutralize pump and return unit to an authorized Standard Pump distributor for inspection and possible repair.

SP-PHT

Polypropylene construction, Hastelloy C 276 drive shaft, TFE V-seal. Viton sealed ball bearings, TFE guide sleeve, carbon bushing, 1" (25mm) or ¾" (22mm) hose barb available. Temperature limitation 190° F (90°C)

1. Do not use SP-PHT pump tubes on flammables or in hazardous duty environments. The insulating nature of plastic prevents proper bonding and grounding. A static electric discharge can take place and ignite fumes resulting in fire, injury or death.
2. SP-PHT pumps can be run dry without damaging the structural integrity of the unit. Prolonged periods of dry running should be avoided.
3. Always check the chemical compatibility of the liquid being pumped with pump construction and hose you have selected.
4. Securely tighten all connections before beginning operation. Use only stainless steel hose clamps to secure hose and tighten securely.
5. Before starting motor, check to be sure hose is securely fastened in receiving vessel so hose cannot splash chemicals, causing injury.

6. Check temperature limitation, pressure rating and chemical compatibility of the hose you have selected.
7. Never submerge pump below the hose connection.
8. If liquid appears below discharge housing, part #6028, check security of hose clamps and wing nut, part #6106. If leakage fails to stop, cease operation. Neutralize pump and return unit to an authorized Standard Pump distributor for inspection and possible repair.

REPAIR SECTION

All SP-PP (polypropylene), SP-PVDF (PVDF), SP-CPVC (CPVC), SP-SS (stainless) and SP-PHT (high temperature polypropylene) pumps are repaired in the same steps.

Impeller, Pump Coupling (1004) and Pump Foot replacement

1. Unplug motor, remove motor from pump and store safely. Remove pump from solution and neutralize or flush with water.
2. Unscrew pump foot in a clockwise direction. (NOTE: left handed threads). This will expose the impeller.
3. Secure 1004 pump coupling on opposite end. Use a flat head screwdriver to unscrew the impeller in a counter-clockwise direction.
4. Replace impeller and pump foot in opposite order. NOTE: If 1004 pump coupling loosens instead of the impeller, simply hold shaft with pliers and unscrew impeller. Take care not to damage threads on shaft.

Pump Housing Replacement

1. Unplug motor, remove motor from pump and store safely. Remove pump from solution and neutralize or flush with water.
2. Unscrew pump foot in a clockwise direction. (NOTE: left handed threads). This will expose the impeller.
3. Secure 1004 pump coupling on opposite end. Use a flat head screwdriver to unscrew the rotor in a counter- clockwise direction. NOTE: If 1004 coupling loosens instead of the impeller, simply hold the shaft with pliers, taking care not to damage the shaft threads.
4. Unscrew the pump housing in a clockwise direction. NOTE the left handed threads.
5. Replace new components in opposite order.

SECTION 5: REPLACEMENT OF CARTRIDGE BRUSHES - SP-280P AND SP-ENC MOTORS (Consult factory for brush replacement on other models.)

THE REPLACEMENT OF BRUSHES OR ANY ELECTRICAL WORK SHOULD ONLY BE PERFORMED BY A LICENSED ELECTRICIAN OR BY PLANT PERSONNEL FULLY TRAINED IN ELECTRICAL REPAIR.

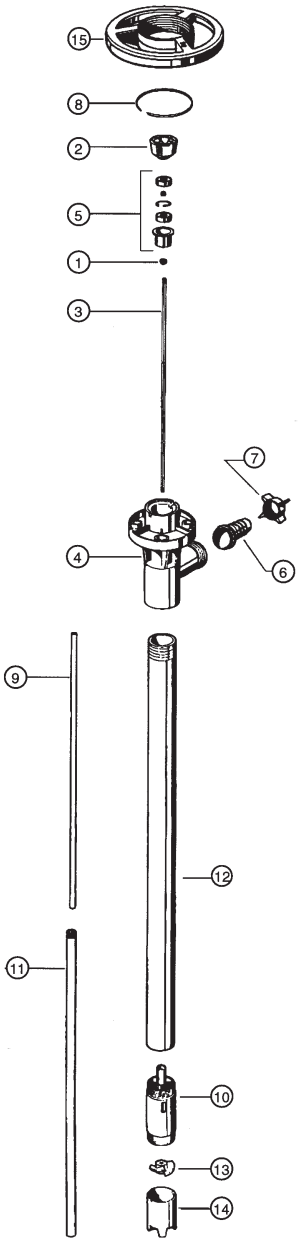
1. Disconnect motor from power supply and pump tube.
2. Place motor on a flat table in the upright position.
3. Remove fan cover screws. Be careful not to lose the wave washer or drop it into motor windings.

4. On the SP-ENC (TEFC), it is necessary to next remove the fan and the bearing cover. Again, be careful of the wave washer.
5. Back out screw holding the clamp over the brush cartridge. Do not fully remove the screw or clamp.
6. Gently push brush cartridge toward the armature and lift up from the motor housing side.

TO INSTALL NEW BRUSH CARTRIDGE:

7. Check to be sure the brush plate is properly located in the brush channel. The brush plate has a tab that sits on the armature side of the brush holder. Do not allow the brush plate to come in contact with the armature or a short circuit will occur. Do not position the brush plate where it will contact the motor housing or an electrical short circuit will occur, causing injury or death.
8. Push cartridge gently forward and down in the brush channel. The brass locator pins will fit into the locking channel. The cartridge can only go in one way. Re-check the connector plate below the brush cartridge.
9. Tighten the screw on the cartridge clamp. Be sure the clamp is not in contact with the armature.
10. On the SP-ENC, re-install the bearing cover. Check the wave washer on top of the bearing.
11. Re-install fan on the SP-ENC.
12. Re-install fan cover.

POLYPROPYLENE PUMP TUBE
SP-PP SERIES

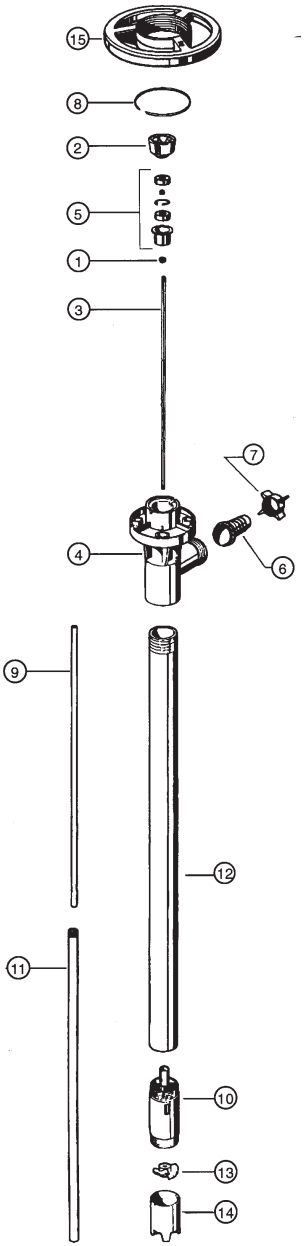


ITEM NO.	DESCRIPTION		PART NUMBER
1	V-seal - Viton		1000
2*	Pump coupling		1004
3	Drive shaft,	27" (700 mm)	1005
		39" (1000 mm)	1006
		47" (1200 mm)	1007
		60" (1400 mm)	1611
		72" (1800 mm)	1612
4	Discharge housing		1028
5*	Bearing unit assembled - 2 each Viton shielded bearings, spacer, snap ring, bearing can		1038
6	Hose barb,	3/4" (22 mm)	1051
		1" (25 mm)	1082
7	Wing nut		1106
8*	Snap ring		1508
9	Guide sleeve - TFE		
		27", 39", 47"	1514
		60", 72"	1661
10	Pump housing includes carbon bushing		1524
11	Inner tube,	27" (700 mm)	1600
		39" (1000 mm)	1601
		47" (1200 mm)	1602
		60" (1400 mm)	1615
		72" (1800 mm)	1616
12	Outer tube,	27" (700 mm)	1604
		39" (1000 mm)	1603
		47" (1200 mm)	1605
		60" (1400 mm)	1617
		72" (1800 mm)	1618
13	Impeller		1608
	High pressure impeller		4608 HH
14	Pump foot		1609
	High pressure pump foot		1609 HH
15*	Hand wheel		1842

* Parts interchange with all pump tubes.

Polypropylene pumps should not be used to pump flammables.

CPVC PUMP TUBE
SP-CPVC SERIES

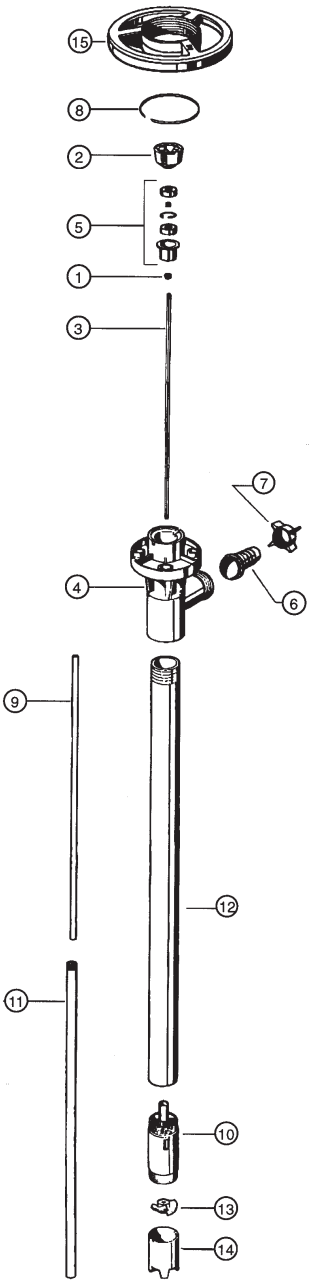


ITEM NO.	DESCRIPTION		PART NUMBER
1	V-seal - TFE		4000
2*	Pump coupling		1004
3	Drive shaft	27" (700 mm)	1543
		39" (1000 mm)	1544
		47" (1200 mm)	1545
		60" (1400 mm)	1546
		72" (1800 mm)	1547
4	Discharge housing		5028
5*	Bearing unit assembled - 2 each Viton shielded bearings, spacer, snap ring, bearing can		1038
6	Hose barb,	3/4" (22 mm)	5051
		1" (25 mm)	5082
7	Wing nut		5106
8*	Snap ring		1508
9	Guide sleeve - TFE		
		27", 39", 47"	1514
		60", 72"	1661
10	Pump housing includes carbon bushing		5524
11	Inner tube,	27" (700 mm)	5600
		39" (1000 mm)	5601
		47" (1200 mm)	5602
		60" (1400 mm)	5615
		72" (1800 mm)	5616
12	Outer tube,	27" (700 mm)	5604
		39" (1000 mm)	5603
		47" (1200 mm)	5605
		60" (1400 mm)	5617
		72" (1800 mm)	5618
13	Impeller		5608
	High pressure impeller		4608 HH
14	Pump foot		5609
	High pressure pump foot		5609 HH
15*	Hand wheel		1842

* Parts interchange with all pump tubes.

CPVC pumps should not be used to pump flammables.

HIGH TEMPERATURE PUMP TUBE
SP-PHT SERIES

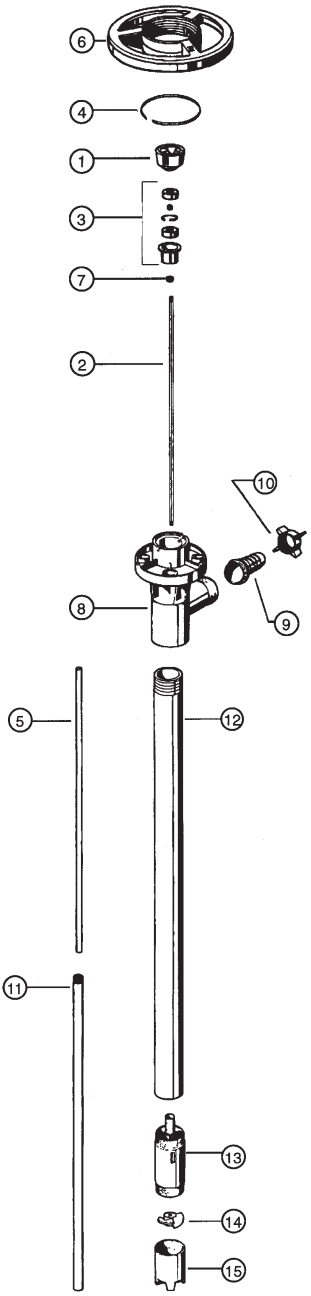


ITEM NO.	DESCRIPTION		PART NUMBER
1	V-seal - TFE		4000
2*	Pump coupling		1004
3	Drive shaft	27" (700 mm)	1543
		39" (1000 mm)	1544
		47" (1200 mm)	1545
		60" (1400 mm)	1546
		72" (1800 mm)	1547
4	Discharge housing		
5*	Bearing unit assembled - 2 each Viton shielded bearings, spacer, snap ring, bearing can		6028 1038
6	Hose barb,	3/4" (22 mm)	6051
		1" (25 mm)	6082
7	Wing nut		6106
8*	Snap ring		1508
9	Guide sleeve - TFE		
		27", 39", 47"	1514
		60", 72"	1661
10	Pump housing includes carbon bushing		6524
11	Inner tube,	27" (700 mm)	6600
		39" (1000 mm)	6601
		47" (1200 mm)	6602
		60" (1400 mm)	6615
		72" (1800 mm)	6616
12	Outer tube,	27" (700 mm)	6604
		39" (1000 mm)	6603
		47" (1200 mm)	6605
		60" (1400 mm)	6617
		72" (1800 mm)	6618
13	Impeller		6608
	High pressure impeller		4608 HH
14	Pump foot		6609
	High pressure pump foot		6609 HH
15*	Hand wheel		1842

* Parts interchange with all pump tubes.

Polypropylene pumps should not be used to pump flammables.

PVDF PUMP TUBE
SP-PVDF SERIES

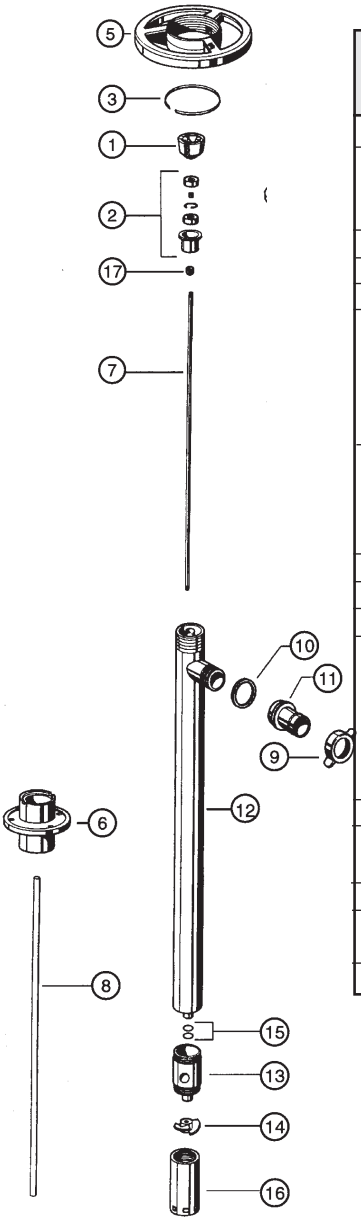


ITEM NO.	DESCRIPTION	PART NUMBER
1*	Pump coupling	1004
2	Drive shaft 27" (700 mm)	1543
	39" (1000 mm)	1544
	47" (1200 mm)	1545
3*	Bearing unit assembled - 2 each Viton shielded bearings, spacer, snap ring, bearing can	1038
4*	Snap ring	1508
5	Guide sleeve - TFE 27", 39", 47"	1514
6*	Hand wheel	1842
7	V-seal - TFE	4000
8	Discharge housing	4028
9	Hose barb, 3/4" (22 mm)	4051
	1" (25 mm)	4082
10	Wing nut	4106
11	Inner tube, 27" (700 mm)	4600
	39" (1000 mm)	4601
	47" (1200 mm)	4602
12	Outer tube, 27" (700 mm)	4604
	39" (1000 mm)	4603
	47" (1200 mm)	4605
13	Pump housing includes carbon bushing	4607
14	Impeller - PVDF	4608
	High pressure rotor	4608HH
15	Pump foot	4609
	High pressure pump foot	4609HH

* Parts interchange with all pump tubes.

PVDF pumps should not be used to pump flammables.

316 STAINLESS STEEL PUMP TUBE
SP-SS SERIES

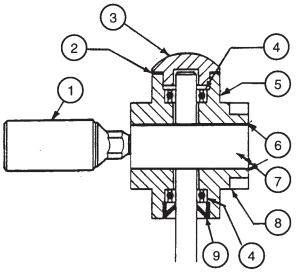


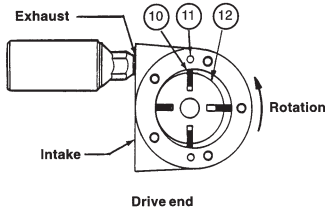
ITEM NO.	DESCRIPTION	PART NUMBER
1*	Pump coupling	1004
2*	Bearing unit assembled — 2 each Viton shielded bearings, spacer, snap ring, bearing can	1038
3*	Snap ring	1508
5*	Hand wheel	1842
6	Connection flange	2000
7	Drive shaft 27" (700 mm)	2027
	39" (1000 mm)	2028
	47" (1200 mm)	2029
	60" (1400 mm)	2709
	72" (1800 mm)	2710
8	TFE guide sleeve 27" (700 mm)	2031
	39" (1000 mm) / 47" (1200 mm)	2032
	60" (1400 mm)	2711
	72" (1800 mm)	2712
9	Wing nut	2068
10	TFE seal	2195
11	Hose barb, 1" (25 mm)	2196
12	Inner/outer tube assembly	
	27" (700 mm)	2700
	39" (1000 mm)	2701
	47" (1200 mm)	2702
	60" (1400 mm)	2713
	72" (1800 mm)	2714
13	Pump housing with carbon bushing	2704
14	TFE impeller	2706
	High pressure impeller	4608 HH
15	'O'-ring, Viton, 2 per set	2707
16	Pump foot	2708
	High pressure pump foot	2708 HH
17	V-Seal - TFE	4000

* Parts interchange with all pump tubes.

Read and understand operating and safety instructions before operating any Standard Pump.

AIR MOTOR
SP-A1





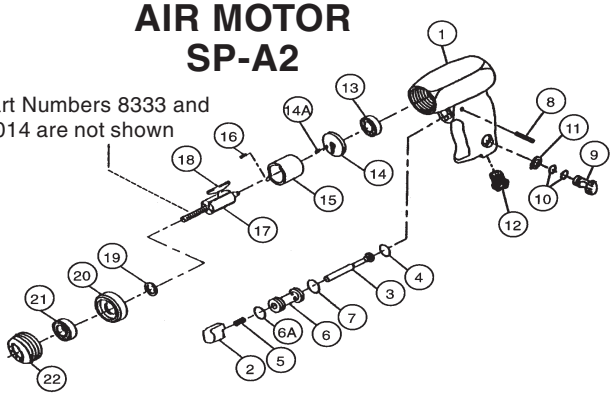
ITEM NUMBER	DESCRIPTION	PART NUMBER
1	Muffler	SAF350
2	Gasket	SAC229
3	Dead end cap	SAC228A
4	Bearing (2 req'd)	SAG549
5	Dead end plate	SAC617
6	Gasket (2 req'd)	SAC527
7	Body	SAE899
8	Drive end plate	SAC616
9	Shaft seal	SAC190A
10	Vane (4 req'd)	SAE893
11	Dowel pin (4 req'd)	SD324A
12	Impeller	SAE896
13	**Repair Kit*** Includes item numbers 2, 4, 6, 9 and 10.	**SK285**
14	A1 adapter (not shown)	9007

* Items not sold separately. Item sold as part of repair kit, item 13.

Read and understand operating and safety instructions before operating any Standard Pump.

AIR MOTOR
SP-A2

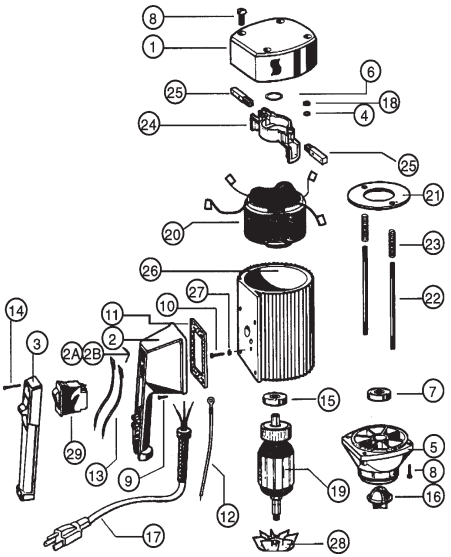
NOTE: Part Numbers 8333 and 9014 are not shown



ITEM NUMBER	DESCRIPTION	PART NUMBER
1	Motor housing	S317-40
	Trigger assembly repair kit (includes items 2-8)	**S317-00**
2	Trigger	S317-93
3	Throttle valve assembly	S317-A302
4	Throttle valve seal	S317-103
5	Throttle valve spring	S317-51
6	Throttle valve body assembly	S317-A503
6A	Valve body seal	S7802-291
7	Valve body seal	S7802-291
8	Valve body retaining pin	S317-120
	Speed regulator repair kit (includes items 9-12)	**S317-01**
9	Speed regulator assembly	S317-A249
10	Regulator seal (2 req'd)	S310-169
11	Regulator retainer	S317-118
12	Inlet bushing	S317-38
13	Rear impeller bearing	S222-22
	Rear impeller repair kit (includes items 14 & 14A)	**S317-02**
14	Rear end plate assembly	S317-A12
14A	Dowel (end plate)	S308-98
	Cylinder repair kit (includes items 15 & 16)	**S317-03**
15	Cylinder assembly	S317-A3
16	Dowel (cylinder)	S308-98
17	Impeller	S317-53
18	Vane packet (4)	S317-42-4
19	Impeller spacer	S317-65
20	Front end plate	S317-11
21	Front impeller bearing	S317-22
22	Motor locknut	S317-27
23	Muffler (not shown)	SAF350
24	Motor coupling (not shown)	8333
25	A2 adapter (not shown)	9014

Read and understand operating and safety instructions before operating any Standard Pump.

OPEN DRIP PROOF MOTOR
SP-280P SERIES

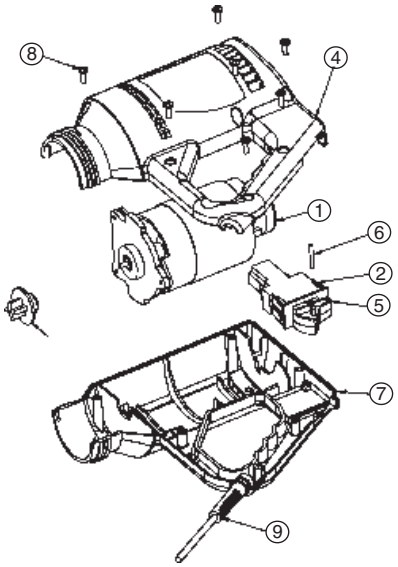


SP-280P open motor should not be used to pump flammables.

*Parts interchange with all Standard electric motors

ITEM NO.	DESCRIPTION	PART NUMBER
1	Motor cover	8000
2*	Switch housing	8001
2A*	Switch housing for variable speed includes potentiometer 115V 220V	 8004 8005
2B*	Switch housing for batch control includes potentiometer and BCS port connection 115V 220V	 8006 8007
3*	Switch cover	8002
4*	Lock washer	8071
5*	Lower housing	8100
6*	Wave washer	8125
7	Ball bearing	8126
8	Screw for plastic housing	8130P
9*	Screw	8131
10*	Ground screw	8162
11*	Gasket low voltage release (for 220V)	8167 8167LVR
12	Earthing lead	8183
13*	Lead	8185
14*	Screw	8220
15	Ball bearing	8331
16*	Motor coupling	8333
17*	Power cord w/strain relief & plug 115V 220V	 8360 8705
18*	Hexagon nut	8448
19	Armature 115V 220V	8502 8701
20	Stator 115V 220V	8503 8702
21	Guide disc	8504
22	Rod connector	8506
23	Pressure spring	8507
24*	Brush holder	8508
25*	Carbon brush 115V 220V	8509 8703
26	Motor housing, plastic	8510P
27	Star washer	8511
28	Fan	8512
29*	Overload switch, 8.5 amp 115V 5 amp 220V low voltage release	 8611 8704LVR

OPEN DRIP PROOF MOTOR
SP-ODP SERIES

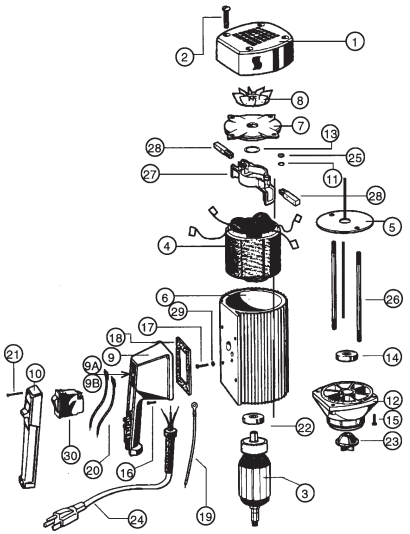


ITEM NO.	DESCRIPTION	PART NUMBER
1	Motor assembly	8900
2*	Overload switch 8.5 amp, 115V	8611
	5 amp, 220V	8704 LVR
3*	Motor coupling	8333
4	Case right	8901
5	Actuator switch (2 req'd.)	8903
6	Pin rocker switch	8904
7	Case left	8902
8	Screw #8 x ½ L pan head Plastite (7 req'd.)	8905
9	Power cord w/strain relief & plug 115V	8361
	220V	8706

SP-ODP open motor should not be used to pump flammables.

*Parts interchange with all Standard electric motors

TEFC MOTOR
SP-ENC SERIES

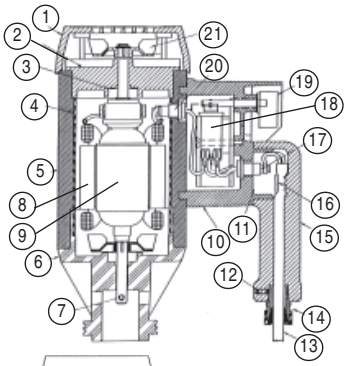


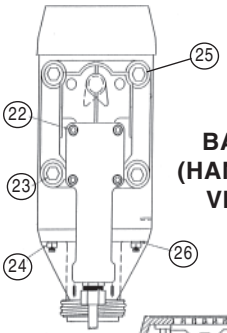
SP-ENC motor should not be used to pump flammables.

*Parts interchange with all Standard electric motors

ITEM NO.	DESCRIPTION	PART NUMBER
1	Motor cover	3000
2	Screw	3130
3	Armature 115V	3502
	220V	3701
4	Stator 115V	3503
	220V	3702
5	Guide disc	3504
6	Motor housing	3510
7	Bearing cover	3511
8	Fan	3512
9*	Switch housing	8001
9A*	Switch housing for variable speed includes potentiometer 115V	8004
	220V	8005
9B*	Switch housing for batch control includes potentiometer and BCS port connection 115V	8006
	220V	8007
10*	Switch cover	8002
11*	Lock washer	8071
12*	Lower housing	8100
13*	Wave washer	8125
14*	Ball bearing	8126
15	Screw	8130
16*	Screw	8131
17*	Ground screw	8162
18*	Gasket	8167
	Low voltage release (for 220V)	8167LVR
19	Earthing lead	8183
20	Lead	8185
21*	Screw	8220
22	Ball bearing	8331
23*	Motor coupling	8333
24*	Power cord w/strain relief & plug 115V	8360
	220V	8705
25*	Hexagon nut	8448
26	Rod connector	3703
27*	Brush holder	8508
28*	Carbon brush, 115V	8509
	220V	8703
29*	Star washer	8511
30*	Overload switch, 8.5 amp 115V	8611
	5 amp 220V low voltage release	8704LVR

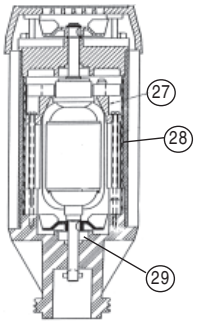
EXPLOSION-PROOF MOTOR
SP-400-2 SERIES



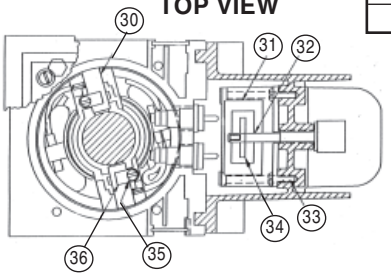


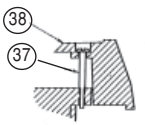
BACK (HANDLE) VIEW

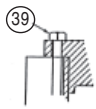
FRONT VIEW



TOP VIEW







ITEM NO.	DESCRIPTION	PART NUMBER
1	Fan cover	5013
2	Bearing cover	5004
3	Wave washer (2 req'd)	5050
4	Glass sleeve	5137
5	Motor housing	5007
6	Lower housing	5006
7	Motor coupling	8333
8	Stator 230V	3702
9	Armature 230V	5001
10	Switch housing	5008
11	Ground connector	8183-2
12	Set screw	5028
13	Cord without plug	8705-EXP
14	Strain relief	5046-1
15	Handle	5005
16	Cord clamp	5010
17	Pass through (4 req'd)	5036
18	Switch	8704LVR
19	On / Off knob	5017
20	Connector terminal	????
21	Fan	5020
22	Switch handle screw (4 req'd)	5045
23	Switch housing screw (4 req'd)	5044
24	Motor bolt nut (8 req'd)	5043
25	Switch housing washer (4 req'd)	5049-03
26	Motor bolt washer (8 req'd)	5049-02
27	Brush holder	8508
28	Rod connector (2 req'd)	5015-04
29	Ball bearing (2 req'd)	5053
30	Carbon brush 220V (2 req'd)	8703
31	Switch bracket	5011
32	Switch actuator	5009
33	Switch bracket screw (2 req'd)	5015-01
34	Switch actuator pin	5016
35	Brush tab screw (2 req'd)	8508-1
36	Brush tab (2 req'd)	8508-2
37	Fan cover screw (4 req'd)	5015-02
38	Fan cover screw washer (4 req'd)	5049-01
39	Motor bolt (4 req'd)	5018-01

SECTION 6:

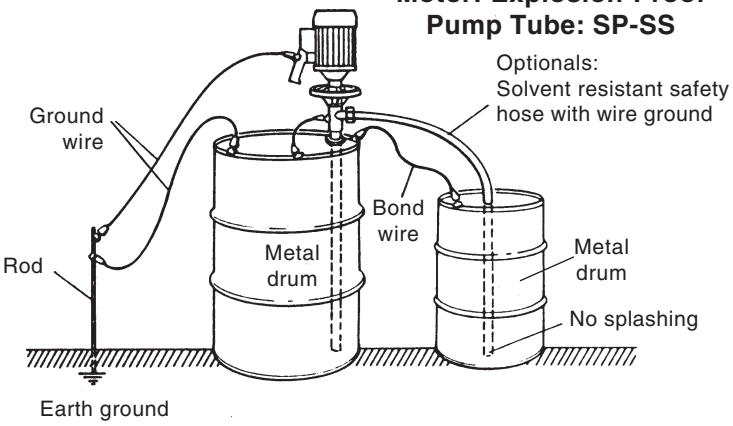
TRANSFERRING OF FLAMMABLES OR USE IN HAZARDOUS DUTY ENVIRONMENTS

Bonding is an electrical connection between a primary metal vessel and a metal receiving vessel. See schematic.

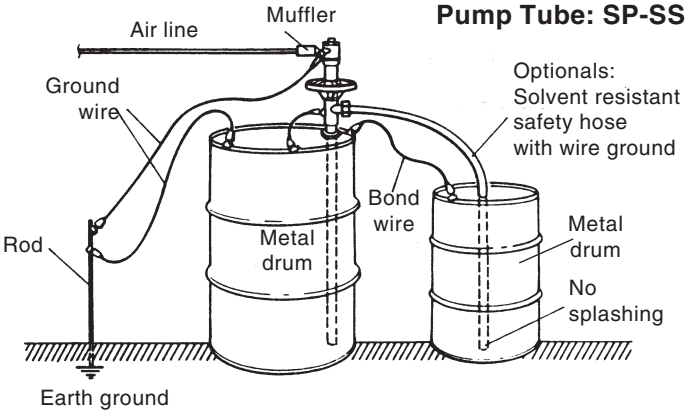
Grounding is an electrical connection between a metal vessel, pump, motor and a constant ground; i.e. a metal rod driven into the earth.

Bonding and grounding are required when pumping flammable materials or in hazardous duty environments. Failure to bond and ground properly can cause a discharge of static electricity resulting in fire, injury or death. Follow NFPA 77 and 30 procedures at all times. If in doubt, do not start pump! Be sure bonding and grounding wires are secure before starting operation. (Ground and bond wires must have less than one ohm resistance for safe usage. Check continuity before starting.) Always check with a safety engineer when any question arises and periodically check safety procedures with a safety engineer.

Motor: Explosion-Proof
Pump Tube: SP-SS



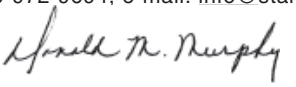
Air Motor: SP-A1 or SP-A2
Pump Tube: SP-SS



Declarations

Declaration of Conformity	**When this unit is used as a stand alone unit it complies with: Machinery Directive 98/37/EC EN60204, EN60335-2-41, EN60335-1, Low Voltage Directive 73/23/Eec EN61010-1, EMC Directive 89/336/Eec EN55014, EN 550104, EN50081-1, EN50082-1**
Declaration of Incorporation	**When this pump unit is to be installed into machine or is to be assembled with other machines for installations, it must not be put into service until the relevant machinery has been declared in conformity with Machine Directive 98/37/EC EN60204, EN60335-2-41, EN60335-1.**

Responsible person: Donald M. Murphy, Managing Director, Standard Pump, Inc., 3230 Industrial Way, Snellville, GA 30039, USA. Ph: 001-770-972-9693, Fax: 001-770-972-9694, e-mail: info@standardpump.com



Three year warranty

Standard Pump, Inc. warrants, subject to the conditions below, through either Standard Pump, Inc., it's subsidiaries, or its authorized distributors, to repair or replace free of charge, including labor, any part of this equipment which fails within three years of delivery of the product to the end user. Such failure must have occurred because of defect in material or workmanship and not as a result of operation of the equipment other than in accordance with the instructions given in this material. Specific exceptions include:

- consumable items such as motor brushes, bearings, couplings and impellers.

Conditions of exceptions include:

- Equipment must be returned by prepaid carriage to Standard Pump, Inc., its subsidiary or authorized distributor.
- All repairs, modifications must have been made by or with express written permission by Standard Pump, Inc., it's subsidiary or authorized distributor.
- Equipment which have been abused, misused, or subject to malicious or accidental damage or electrical surge are excluded.

Warranties purporting to be on behalf of Standard Pump, Inc. made by any person, including representatives of Standard Pump, Inc, its subsidiaries, or its distributors, which do not fall within the terms of this warranty shall not be binding upon Standard Pump, Inc. unless expressly approved in writing by a Director or Manager of Standard Pump, Inc.

Information for returning pumps

Equipment which has been contaminated with, or exposed to, bodily fluids, toxic chemicals or any other substance hazardous to health must be decontaminated before it is returned to Standard Pump, Inc, or its distributor.

A returned goods authorization number (RGA #) issued by Standard Pump, Inc., its subsidiary or authorized distributor, must be included with the returned equipment. The RGA # is required if the equipment has been used. If the equipment has been used, the fluids that have been in contact with the pump and the cleaning procedure must be specified along with a statement that the equipment has been decontaminated.

NOTES

NOTES