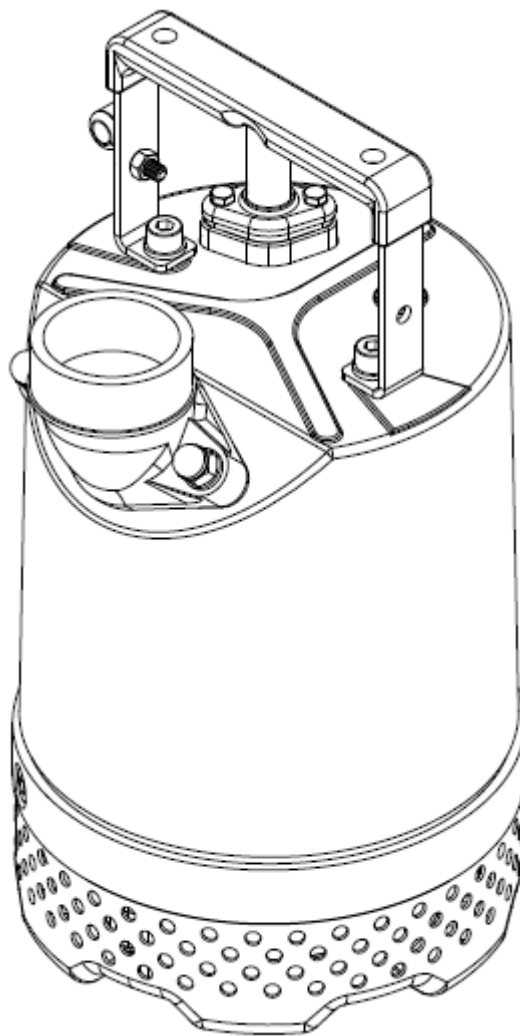




SP-21/26 Submersible Dewatering Pump

Operation Manual



Teral Inc.

OPERATION MANUAL

SUBMERSIBLE DEWATERING PUMP

Thank you for selecting our SP-21/26 Series Submersible Pump for your pumping requirement.

Please take a moment to review this manual before, installing, operating or servicing these pumps.

The pump should not be used other than the applications listed in this manual. Failure to do so may lead to a malfunction or an accident to which the manufacturer will not assume any liability.

After reading this Operation Manual, keep it in a location where it can be referred to during the operational life of the pump.

In the event the product is damaged, please contact your authorized local dealer or sales representative.



SAFETY FIRST

	DANGER Indicates a hazardous situation which, if not avoided WILL result in DEATH, SERIOUS INJURY, PROPERTY DAMAGE.
	WARNING Indicates a hazardous situation which, if not avoided MAY result in DEATH, SERIOUS INJURY, PROPERTY DAMAGE.
	CAUTION Indicates a hazardous situation which, if not avoided MAY result in MINOR or MODERATE INJURY, PROPERTY DAMAGE.
	NOTICE Indicates special instructions which are very important and must be followed.

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I. SAFETY INSTRUCTION



WARNING

All electrical work must be performed by an authorized electrician, in compliance with local electrical codes. **NEVER**, allow an unauthorized person to perform electrical work as it could lead to electrical shock, fire, or damaging the pump.

➤ Risk of Electrical Shock. The pump comes supplied with a grounding conductor and a grounding type attachment plug. **NEVER**, operate a pump with a plug in type power cord without a ground fault circuit interrupter. Keep power end connection dry.

II. BEFORE YOU START

- Upon receiving the pump, inspect for damages or shortages.
- Check the nameplate of the pump to ensure product is of the correct specification you ordered. Ensure that the voltage and frequency are correct.
- **NEVER**, pump water with a temperature greater than 40°C.



WARNING

- **NEVER**, use the power cord to lift or lower the pump. **ALWAYS**, tie a chain or rope to the handle of the pump to lift and lower the pump.
- **NEVER**, splice or use damaged or worn cables and cords.
- **ALWAYS**, disconnect the electrical power before servicing the pump.
- **DO NOT**, pump liquids which are flammable.
- **DO NOT**, operate pump in a hazardous environment.

- Risk of Electric Shock, this pump has not been investigated for use in a swimming pool application.



CAUTION

- When installing the pump, be mindful of the pump's center of gravity and weight. Failure to do so, may result in the pump to fall and break which may lead to injury.
- This pump is **NOT** designed for applications involving Acid, or Alkaline.
- **NEVER**, operate the pump dry. Doing so will damage the seals and overheat the motor.
- Periodically, check the oil level and water in the seal chamber. Check the seal condition quarterly for heavy duty applications or annually otherwise.

This manual does not fully cover all safety issues. For this reason, the person using or maintaining the pump must pay special attention to their own safety as well as those around.

III PUMP IDENTIFICATION

Please check the nameplate on the received pump against your ordered pump. Paying special attention to the Model, Output(Hp), Voltage and Frequency.

patron			
 C US 271578			
Model:		S/NO.:	
Bore :	in	Output:	
Hertz/PH:	1Φ	Volt:	
HD Max:	ft	AMP	
Max flow:	gpm	RPM:	rpm
Ins:		Top View Rotation: 	
Made in Taiwan		Teral Inc.	

IV. INSTALLATION

Pump Mount

NOTICE

- **ALWAYS**, place the pump in an upright position. Ensure, that the pump will not burrow itself on the soft sand or mud.

- **NEVER**, allow the pump to freeze in the liquid it is pumping.

Piping



NOTICE

- All piping must be independently supported, properly aligned and capable of handling semi-solids.
- **DO NOT**, restrict the discharge flow of the pump as it will cause the pump to overheat.
- Be mindful of the discharge hose whipping under pressure.
- To avoid backflow or outflow of the pump. Backflow, discharge hose is above the water surface. Outflow, the discharge hose is above the source water surface.

Electrical



WARNING

The electrical voltage required to operate this pump can burn, shock, or even cause death. Before, installing, operating or servicing this pump, please thoroughly read through this manual.

- **DO NOT**, splice the power cord.
- **DO NOT**, handle or service the pump while it is connected to the power supply.
- **ALWAYS**, ensure that the voltage and frequency supplied to the pump are correct. Refer to the nameplate to determine the correct voltage and frequency.
- **ALWAYS**, make sure the pump is grounded properly in accordance to local law. **DO NOT**, connect the ground wire to gas pipe, water pipe, etc... as improper grounding will result in electrical shock.

V. PUMP OPERATION



DANGER

Do not operate this pump anywhere near explosive or flammable material. Serious personal injury, death, or major property damage will result.

WARNING



Accidental starting of the pump can cause severe injury or death.

- It is absolutely essential that the rotation of the pump be checked. All the pumps covered in this manual turn clockwise as viewed from the motor end.
- This pump comes with a built in motor protector. In the event of a current overload or overheating, the pump will stop automatically to protect the motor. After the motor cools down, the motor protector will automatically reset and the pump can be used again.
- If the motor protector trips frequently, check for the cause. It could be due to impeller blockage, wrong/low voltage, etc...
- For Automatic operation, the pump must stop before the water level reaches Pump Minimum Water Level.(M.W.L.)

VI. MAINTENANCE

If the pump must be disassembled for repair, please contact the Authorized Dealer in your area.



WARNING

Accidental starting of the pump can cause severe injury or death. **ALWAYS**, disconnect the electrical power before examining/working on the pump. For heavy parts, use a hoist lift to avoid injury.



CAUTIONS

Disassembling the pump or modifying the pump will void manufacturer warranty. **ALWAYS**, check that the voltage and amperage readings are in line with the nameplate of the pump. Check if the water low is normal.

STORAGE:



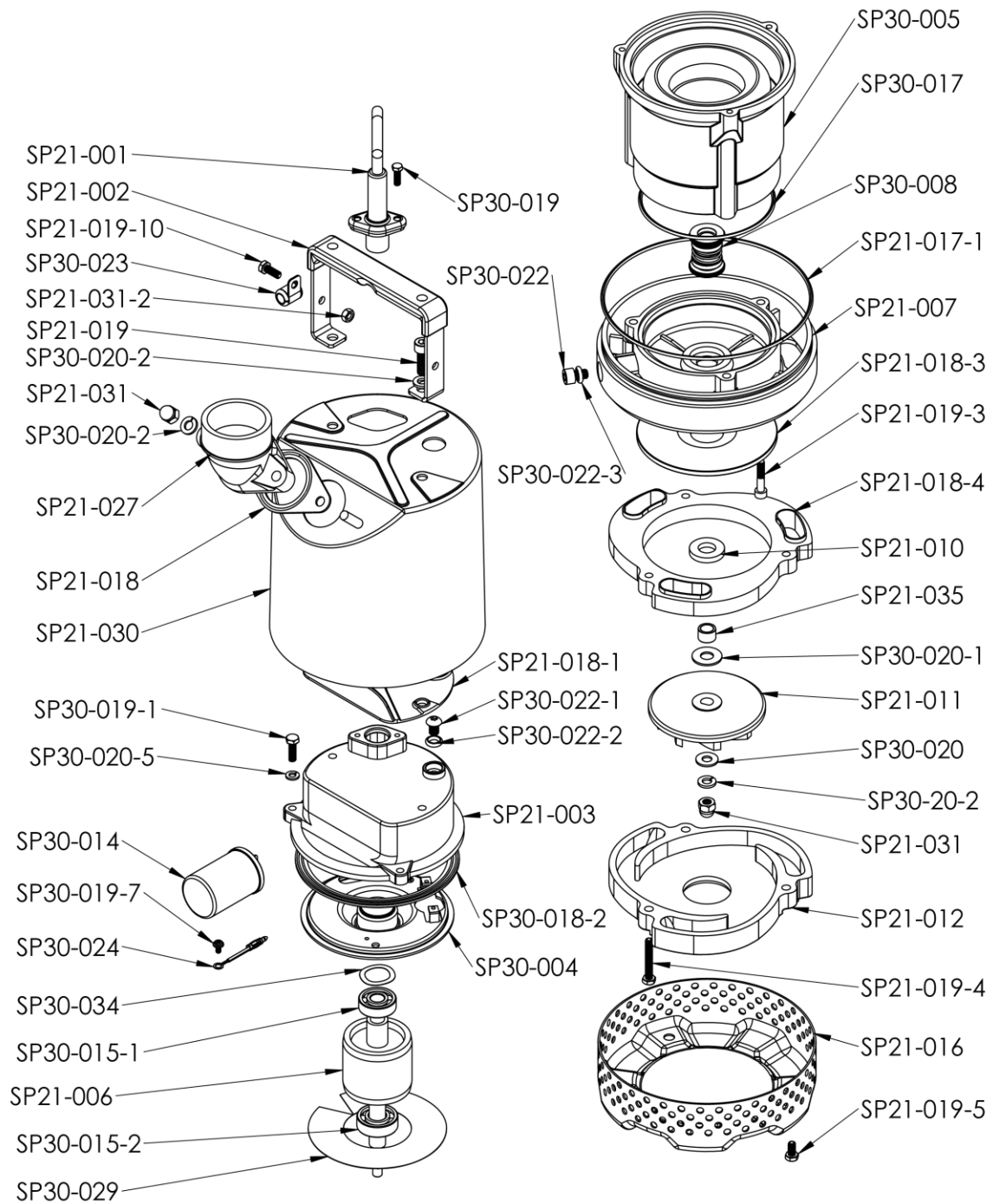
NOTICE

If the pump will not be used for a long period of time, wash the pump under tap water removing any debris. Allow the pump to dry and then store indoors. Before, reinstalling perform a test run to ensure it is operating correctly and within the parameters stated on the nameplate

VII Specifications & Parts List

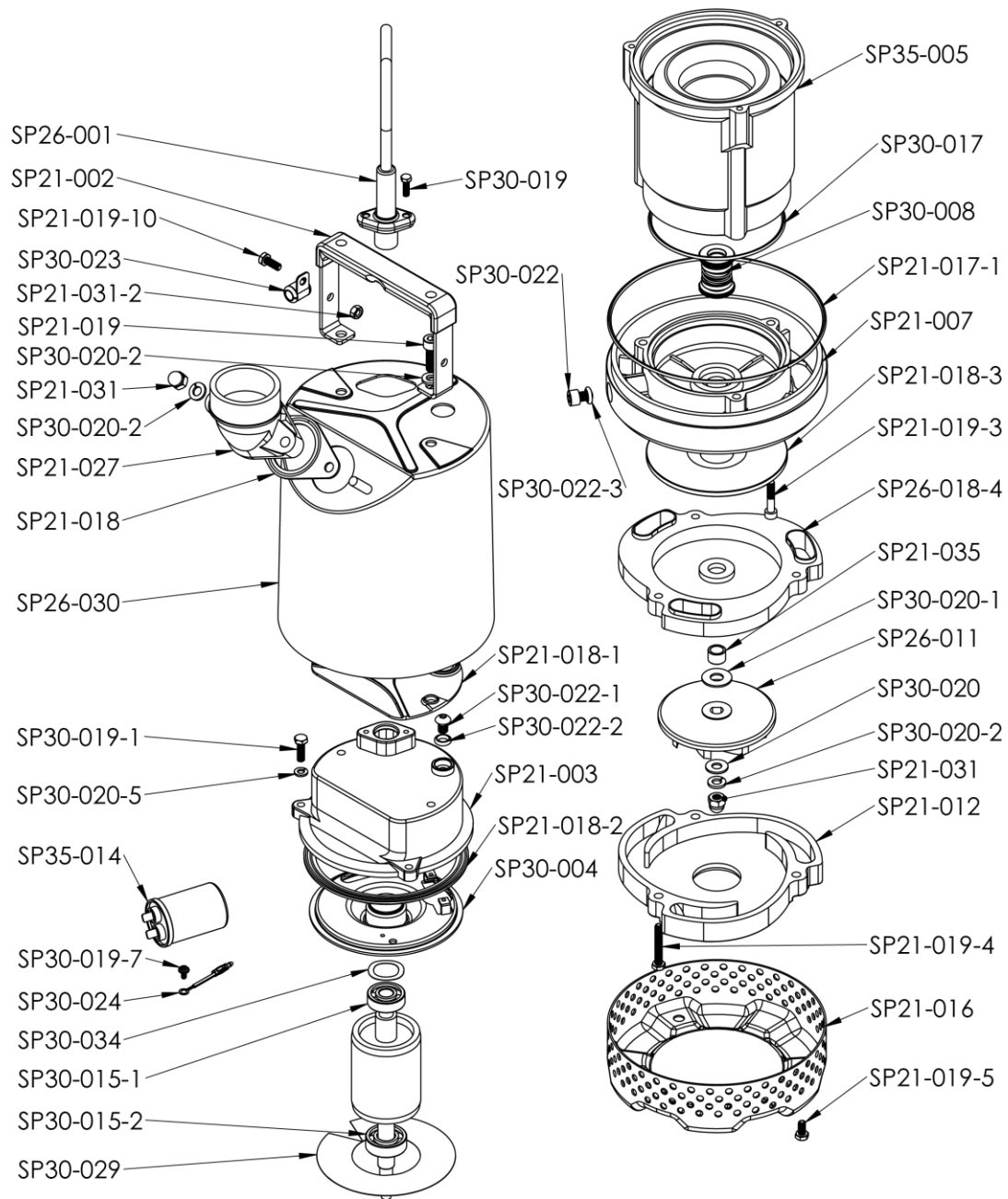
Specifications				
Application	Dewatering			
Motor	Single Phase	115V	2/3HP	1HP
Parts	Impeller	Semi Vortex Impeller		
	Ball bearing	Shielded ball bearing		
	Mechanical Seal	Double mechanical seal		
	Insulation	Class B		
	Motor Protection	Thermal Overload Protector		

Parts List-SP-21



No.	PART NAME	No.	PART NAME
SP21-001	CABLE	SP21-019-3	SOCKET BOLT
SP21-002	HANDLE	SP21-019-4	HEX. BOLT
SP21-003	MOTOR COVER	SP21-019-5	HEX. BOLT
SP30-004	BRACKET	SP30-019-7	PHILLIPS SCREW
SP30-005	MOTOR HOUSING+STATOR	SP21-019-10	HEX. BOLT
SP21-006	SHAFT WITH ROTOR	SP30-020	FLAT WASHER
SP21-007	OIL CHAMBER	SP30-020-1	FLAT WASHER
SP30-008	MECHANICAL SEAL	SP30-020-2	SPRING WASHER
SP21-010	LIP SEAL	SP30-020-5	SPRING WASHER
SP21-011	IMPELLER	SP30-022	SOCKET SCREW
SP21-012	PUMP CASING	SP30-022-1	TRUSS SCREW
SP30-014	CAPACITOR	SP30-022-2	O-RING
SP30-015-1	BEARING	SP30-022-3	O-RING
SP30-015-2	BEARING	SP30-023	CABLE CLAMP
SP21-016	STRAINER	SP30-024	EARTH LEAD
SP30-017	O-RING	SP21-027	2" DISCHARGE NPT
SP21-017-1	O-RING	SP30-029	INSULATION PAPER
SP21-018	FLANGE GASKET	SP21-030	OUTER HOUSING
SP21-018-1	GASKET	SP21-031	CAP NUT
SP30-018-2	MOTOR COVER GASKET	SP21-031-2	HEX. NUT
SP21-018-3	WEARING PLATE	SP30-034	WAVE WASHER
SP21-018-4	VOLUTE LINER	SP21-035	SHAFT SLEEVE
SP21-019	SOCKET BOLT		OIL 192ml
SP30-019	HEX. BOLT		
SP30-019-1	HEX. BOLT		

Parts List-SP-26



No.	PART NAME	No.	PART NAME
SP26-001	CABLE	SP21-019-2	HEX. BOLT
SP21-002	HANDLE	SP21-019-3	SOCKET BOLT
SP21-003	MOTOR COVER	SP21-019-4	HEX. BOLT
SP30-004	BRACKET	SP21-019-5	HEX. BOLT
SP35-005	MOTOR HOUSING+STATOR	SP30-019-7	PHILLIPS SCREW
SP26-006	SHAFT WITH ROTOR	SP21-019-10	HEX. BOLT
SP21-007	OIL CHAMBER	SP30-020	FLAT WASHER
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SP35-014	CAPACITOR	SP30-022-2	O-RING
SP30-015-1	BEARING	SP30-022-3	O-RING
SP30-015-2	BEARING	SP30-023	CABLE CLAMP
SP21-016	STRAINER	SP30-024	EARTH LEAD
SP30-017	O-RING	SP21-027	2" DISCHARGE NPT
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SP26-018-4	VOLUTE LINER	SP21-035	SHAFT SLEEVE
SP21-019	SOCKET BOLT		OIL 192ml
SP30-019	HEX. BOLT		

VIII. Preventative Maintenance

Daily	<ol style="list-style-type: none"> 1. Ensure the Voltage and Amperage conform to the nameplate. Voltage must be within 10% of nameplate nominal voltage 2. Check if the water flow is normal.
Monthly	Maintenance is recommended when the insulation reading is lower than 10MΩ. Replace new motor immediately when insulation is lower than 1MΩ
Annual	<p>Inspecting of Lubricant:</p> <ul style="list-style-type: none"> • The pump should be checked every 3000 hours or 12 months. (Whichever comes first) <p>PS: Loosen the oil plug screw and check the color of the lubricant. If the lubricant is non-translucent, please change the mechanical seal and the lubricant immediately. Apply adhesive before resealing the oil plug screw to strengthen the screw against leakage.</p>
Biennial	<ol style="list-style-type: none"> 1. Replacing Lubricant: <ul style="list-style-type: none"> • The lubricant should be replaced every 4500 hours or 24 months. (Whichever comes first) 2. Change mechanical seal. Inspecting and replacing the mechanical seal. Only qualified mechanics with proper tools and knowledge should be attempting to service this pump or contact our authorized local dealers in your area.
Every 2 – 5 years	<ol style="list-style-type: none"> 1. During the typical operating cycle, it is recommended to have the pump overhauled and inspected periodically. This preventative maintenance activity can extend the pump operating life cycle. 2. Please contact your authorized local dealers in your area.

IX. TROUBLE SHOOTING

Hazardous voltage can shock, burn, or kill. Disconnect the electrical power before attempting any service or work on pump

SYMPTOM	PROBABLE CAUSE	SOLUTION
Pump Fails to Start	Incorrect Voltage/Amps	Check power and correct connections.
	Defective Cable	Replace Power Cable
	Clogged Impeller	Remove foreign debris from impeller or casing.
	Non Functioning Motor Protector	Replace with new protector.
	Burned Out Motor	Replace Motor
	Defective Float Switch	Replace Float Switch
	Bad Control Panel	Repair or Replace Control Panel
Pump Starts but Immediately Stops	Jammed Impeller	Remove foreign debris from impeller or casing.
	Irregular Voltage	Check power to ensure it corresponds to the nameplate
	Tripped Motor Protector	Check if pump is completely submerged. Ensure the liquid temperature being pumped is below 40°C.
Fails to Deliver Full Output	Incorrect Rotation	Change the power connection
	Worn Out or Damaged Impeller	Change the Impeller.
	Strainer is clogged	Remove debris
	Obstruction in Valves and pipes.	Remove obstruction
ELCB Trips	Damaged Power Cable	Replace with new cable
	Wet Cable Terminals	Reconnect after drying out.
	Worn out mechanical seal causes water to enter.	Replace mechanical seal and oil seal
	Burned out Motor	Replace with new motor.
High Amperage	Irregular Voltage	Check the power to make sure it corresponds to the nameplate.
	Incorrect Rotation	Change the power connection
	Highly Viscous Liquid	Decrease the viscosity of the liquid
	Debris inside the pump.	Remove debris from the pump.
	Damaged Bearings	Replace the New Bearings.

X. PRODUCT DISPOSAL

Properly dispose the product in accordance with your local waste disposal program.

Please record the following information for future reference:

Model Number:

Serial Number:

Purchase Date:

XI. MEMO



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www.patronproducts.com