INSTALLATION & OPERATION MANUAL

PRE-ASSEMBLED PRIMARY & BATTERY BACK-UP SUMP PUMP SYSTEM

5030CVSPBUSS, 5033CVSPBUSS

www.aymcdonald.com

A.Y. McDonald BBU Manual Revised 8-13
3210-479 Rev. A

Non-Potable Use Only

This pump has been manufactured with your needs in mind. Properly installed in the right application, your new A.Y. McDonald pump will give you years of carefree performance.

Important Safety Information:

Carefully read and understand all of the Warnings and installation instructions in this manual. Failure to follow these instructions could lead to serious bodily injury and/or property damage. Retain these instructions for future reference.

⚠ DANGER

RISK OF ELECTRICAL SHOCK. Always disconnect the power source before attempting to install, service or perform maintenance on the pump. Failure to do so may result in fatal electrical shock.

⚠ DANGER

RISK OF ELECTRICAL SHOCK. This pump is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of electrical shock, be certain that it is connected only to a properly grounded, grounding-type receptacle.

⚠ DANGER

RISK OF ELECTRICAL SHOCK. Do not plug in or unplug the AC transformer while standing on a wet floor. If basement floor is wet, disconnect the power before walking on the floor.

⚠ DANGER

Water and electricity can be dangerous if certain precautions are not adhered to. This pump is designed to operate perfectly safe in a water environment; however, improper use and installation can result in personal harm from electrical shock. Please pay attention to the following warnings.

⚠ DANGER

Never touch any electrical device, including this pump, when it is touching water, in water, or even in a moist environment. Always unplug (disconnect the electricity) when working on or installing the unit.

⚠ DANGER

Keep all electrical connections away from wet and moist environments. Wet connections can cause electrical shock resulting in personal injury.

⚠ DANGER

Do not use this unit to pump chemicals, flammable liquids, sewage or corrosive liquids. You could injure yourself and the pump will fail. Pumping these types of liquids voids the warranty. A.Y. McDonald and other pump companies manufacture pumps for these types of liquids. Make sure you purchase a pump designed for your specific needs. This pump will handle fluids with the same characteristics as water.

⚠ DANGER

Battery acid is corrosive. Do not spill on skin, clothing, or parts of this system. Wear gloves and eye protection when handling the battery.

Notes:

Notes:

⚠WARNING

Always use a grounded outlet to attach the plug. A three-prong mating type receptacle is needed for safe use. This should be in accordance with the National Electric Code and any additional codes or laws required by your local government.

⚠WARNING

It is strongly recommended to use a ground fault interrupt device on any electrical appliance, including this pump, when used in a wet or moist environment. This GFCI (ground fault circuit interrupter) should be listed by Underwriters Laboratories (UL). This is required by many local codes and enforcement agencies. It is strongly recommended by A.Y. McDonald as it provides a much safer installation and will greatly reduce possible injury from electrical shock.

⚠CAUTION

EXTENSION CORDS: For best performance, it is recommended to connect the AC transformer power cord directly to a grounded GFCI outlet. The use of extension cords is NOT recommended.

⚠CAUTION

Do not use the power cord or discharge hose to carry or handle the pump. Doing so may cause damage to the power cord or discharge hose. Use the carrying handle supplied with the pump.

⚠CAUTION

EXTENSION CORDS: For best performance, it is recommended to connect the power cord directly to the grounded GFCI outlet. If the use of an extension cord is necessary, always use a grounded waterproof type cord. Never use longer than a 25-ft. cord that is lighter than 14/3 gauge.

⚠CAUTION

A qualified electrician must perform all wiring.

NOTICE

Your pump has thermal over-load protection built in. It is not recommended for pumping liquids over 120°F. The thermal overload protector will automatically shut down the pump in an overheat situation. It will then reset itself once the pump cools down. The pump will then work again. This overload is designed as a safety device and it will fail after repeated use. Normal operation is for fluids between 32°F & 120°F.

NOTICE

DO NOT RUN THE PUMPS DRY. The pumps depends on water for cooling and lubrication. Operating the pumps without water may cause the motor to overheat or cause damage to parts of the pump. It may also shorten the life of your pumps.

BATTERY SELECTION

This system is designed to work with 12 volt, lead-acid deep cycle marine / RV batteries. Either a flooded cell (serviceable or maintenance free) or sealed AGM battery are acceptable. Choose a battery with a minimum 90 amp-hour rating and a 175 minute reserve capacity or larger. Avoid using automobile batteries as these types of batteries are not intended to be charged/discharged for extended periods of time. The battery case will accommodate size 24 or 27 batteries.

During prolonged periods of power failure or in an emergency, your automobile battery may be used. Make sure to replace the deep cycle battery as soon as possible as the automobile battery will be quickly ruined by the continuous charge/discharge cycles.

GENERAL INFORMATION

This battery back-up system is not intended to replace your primary sump pump. It is intended to provide temporary back-up during power failures or malfunctions with the primary pump.

CARBON MONOXIDE (CO) DETECTORS

All back-up pump systems that use lead acid batteries, regardless of brand, give off gaseous by-products when the battery is charging. Some of these by-products can cause a carbon monoxide (CO) detector to give a false alarm. When installing this system, position the battery as far away from the CO detector as possible. DO NOT move or remove CO detectors from their original location. Always follow the instructions that accompany your CO detector.

If your CO detector alarm sounds, take the following actions.

1. **Take immediate action for personal safety as outlined in the CO detector manual.**
2. **Contact the appropriate utility agency to determine if the CO is coming from your furnace, water heater or other appliance that uses natural gas**

If it's determined that a charging battery is causing the CO detector to activate, contact the manufacturer for recommendations on how to alleviate the problem.

INSTALLATION

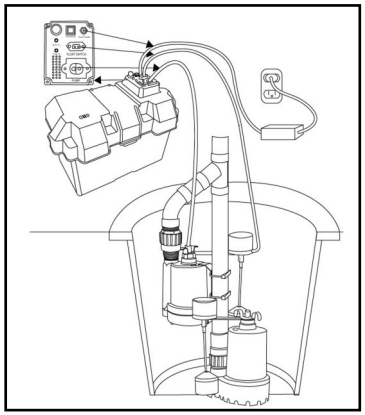
⚠ DANGER

RISK OF ELECTRICAL SHOCK. Always disconnect the power source before attempting to install, service or perform maintenance on the pump. Failure to do so may result in fatal electrical shock.

⚠ CAUTION

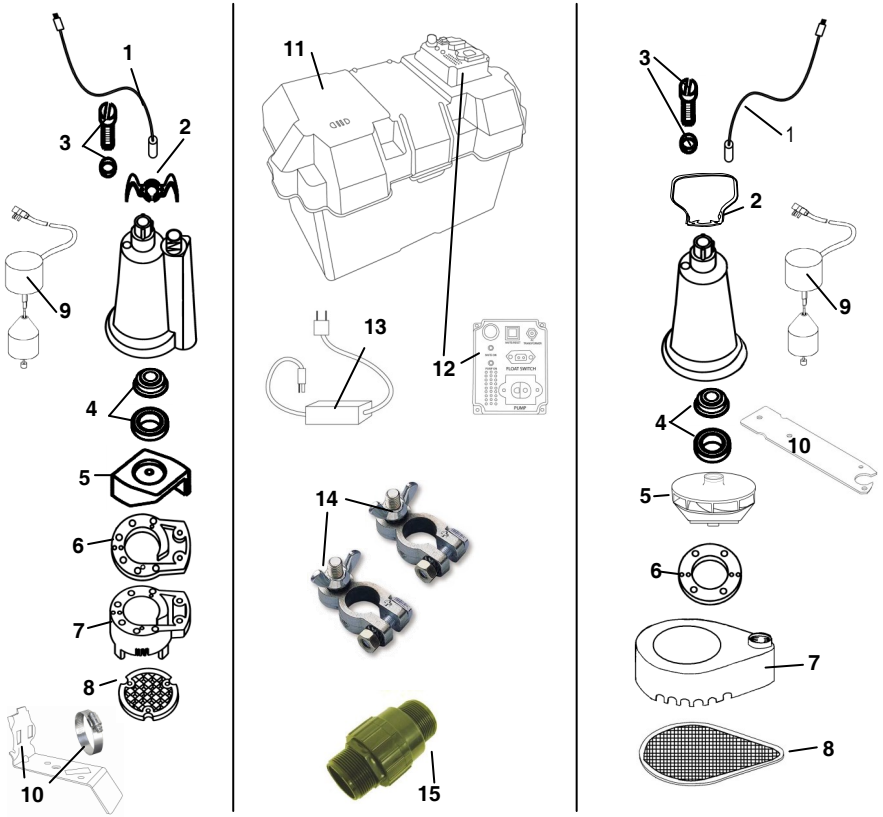
A qualified electrician must perform all wiring.

This pump kit is completely assembled. To install, simply place the pump assembly in the bottom of your basin and connect to your new or existing discharge pipe. The pump should be placed on a solid foundation. Do not place the pump directly on the ground or sandy or rocky surfaces. Sand and small stones may clog or cause damage to your pump. Make sure the float switches will operate freely without coming in contact with the sides of the sump basin. Contact with the side of the sump basin may cause the switch to malfunction. See figure.



PARTS LIST

5000	5030, 5033



Ref	Description	PARTS FOR MODEL# 5000PVSPBU	PARTS FOR MODEL# 5030CVSP 5033CVSP
1	Power Cord	*Please call your Professional Plumber for price and availability*	
2	Handle		
3	Oil Fill Plug with O-ring		
4	Shaft Seal		
5	Impeller		
6	Gasket		
7	Volute/Base		
8	Intake Screen		
9	Float Switch		
10	Vertical Float Switch Bracket		
11	Battery Box (Complete Unit)		
12	Control Panel		
13	AC Power Cord		
14	Battery Terminals (+ & -)		
15	Check Valve		

NOTICE: Height and/or piping restriction will reduce the pump output performance. See the performance chart below to insure you have the proper pump for your application. Whenever possible use the same size or larger pipe as the pump discharge for optimum performance. Reducing the pipe size will not harm your pump; it will just reduce the output.

PERFORMANCES

Model #	*Output in gallons per minute at listed discharge height above pumping level*					
	0'	*5'*	*10'*	*15'*	*20'*	*25'*
5000PVSPBU	23	22	18	13	8	-
5030CVSP	46	36	30	25	12	1
5033CVSP	60	56	50	35	15	6

***Performance ratings are based on using a 27M, 12 volt deep cycle marine battery with a 100 Ah rating**

SPECIFICATIONS 12 VOLT DC PUMP - MODEL 5000PVSPBU

Motor ..... **12 volt DC**
Amps **12**
Battery Requirements ..... **12 Volt Deep Cycle Marine**
Low Voltage Shut off ..... **10 Volts**
Solids Handling ..... **1/8"**
Discharge Size ..... **1-1/4" or 1-1/2"**
Battery Charger ..... **2 amp**
Liquid Temperature Range ..... **32°-120°F (0°-49°C)**

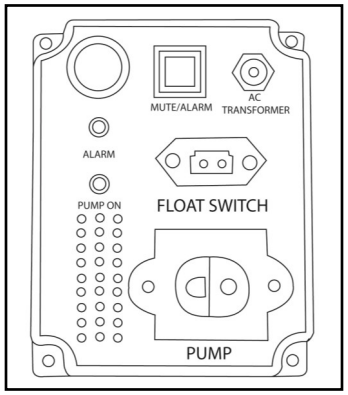
SPECIFICATIONS 120 VOLT PRIMARY PUMP

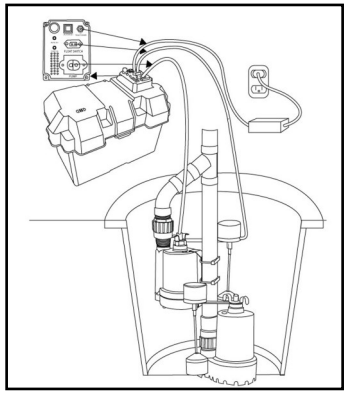
Motor ..... **120 VOLT AC**
Liquid Temperature Range ..... **32°-120°F (0°-49°C)**
Power Supply Requirements ..... **120V, 60 Hz (15 amp)**
Motor ..... **Continuous Duty, Capacitor Start, Thermally Protected**

Model #	*5030CVSP*	*5033CVSP*
HP	3/10	1/3
Amps	4.1	5.9
Solids Handling	3/8"	1/2"
Discharge Size	$1^1/_2$"	$1^1/_2$"

WIRING & ELECTRICAL CONNECTIONS

1. **If necessary, attach the provided battery terminals to the battery. (Many deep cycle marine batteries come with a threaded post terminal built in.) NOTE: The provided battery terminals are labeled (+) positive and (-) negative. Make sure the terminals are connected to the proper terminal on the battery. Place the battery in the battery box.**
2. **Connect the battery lead wires from the control panel to the corresponding terminals on the battery. Connect the red (+) positive lead to the positive battery terminal and tighten the wing nut. Connect the black (-) negative lead to the negative battery terminal and tighten the wing nut. Secure the battery box cover to the lower case.**
3. **Next connect the pump power cord, the float switch and the AC adapter to the corresponding terminals on the control panel. Make sure they are fully seated in the terminals.**
4. **Plug the AC adapter into the wall outlet and turn the power back on.**
5. **If your battery is fully charged you will notice a green light on the AC adapter. If the battery is not fully charged a red light will indicate that the battery is charging. Once fully charged, the light will change to green.**





6. **Once all connections are made, press the "MUTE/ALARM" button on the control panel until the "ALARM" light illuminates. This indicates that the alarm will sound once the pump is activated. To mute the alarm, press the "MUTE/ALARM" button on the control panel until the "ALARM" light turns off.**
7. **Test the float switch and pump by lifting and holding the float. The alarm will sound and the "PUMP ON" light on the control panel will illuminate. The pump should start after lifting the float. If it does not run, check your connections and retry.**

TESTING YOUR INSTALLATION

1. Once your installation and wiring connections are complete, unplug or disconnect the power to the primary pump.
2. Fill the basin using buckets or a hose. Observe the float switches to make sure they are positioned properly when the basin is filling. Fill the basin until the back-up float activates the alarm.
3. Make any necessary adjustments to the float(s) and/or pumps at this time.

OPERATION

1. When the power fails or when there is a problem with the primary pump, the back-up pump will automatically start. The back-up pump will operate for many hours intermittently. During prolonged periods of power outage the pump may stop pumping when the battery voltage drops below 10 volts. When this happens the alarm will sound signaling that the voltage is too low to operate the pump.
2. This unit is equipped with a 2 amp charger. It will charge a discharged battery at a rate of 2 Ah (Amp hours). Once the battery reaches a full charge, the charger will gradually reduce the charge rate. It will also maintain a charged battery by periodically checking the voltage of the battery.
3. The charger is equipped with over charge protection. It will not let the battery become over charged.

12 VOLT DC BACK-UP PUMP TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	HOW TO CORRECT
Pump won't run. Pump hums but won't run	Loose, corroded or reversed wire connections	Tighten, clean or reconnect if necessary
	Discharged battery	Charge battery
	Defective battery	Replace battery
	Blown fuse	Replace with 20 amp fuse
	Float switch is stuck	Position float so it moves freely
	Battery is discharged below 10 volts	Fully charge battery
Pump cycles too often	Float switch positioned improperly	Reposition float switch
	Defective or missing check valve	Install or replace check valve
Pump runs but moves little or no water	Low or discharged battery	Fully charge battery
	Obstruction in pipe	Clear obstruction
	Discharge pipe height/length exceeds the capacity of the pump	Check performance section for capacity of this pump
	Defective check valve	Replace Check Valve if necessary

120 VOLT AC PRIMARY PUMP TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	HOW TO CORRECT
If the pump does not start or run	Pump is not plugged in, switch or breaker is off	Plug pump in or turn on switch/ breaker
	Check for blown fuses or tripped circuit breakers or tripped GFCI outlets	Replace fuse, reset breaker, reset GFCI outlet
	Float switch is defective	Check and replace if necessary
	Motor thermal protector tripped	Allow pump to cool. Pump will reset
	Float switch is stuck or obstructed	Remove obstruction or position pump so it will not become stuck
The pump starts and stops too often	Backflow of water from discharge hose/pipe	Install or replace check valve
	Float switch is defective	Replace float switch
If the pump runs but moves little or no water	Clogged intake screen	Clean or replace screen
	Clogged discharge hose/pipe	Remove clog
	Frozen discharge hose/pipe	Allow hose/pipe to thaw
	Pump is air locked	Clean out airlock hole with a paper clip or pipe cleaner
	Low line voltage	Check wire size and increase if necessary
	Check valve is stuck in the closed position	Inspect, repair or replace if necessary
	Check valve is installed backwards	Make sure check valve is installed in the correct direction of flow
	Worn, damaged or clogged pump parts	Inspect for wear, damage or clog and clean or replace if necessary
	Discharge head exceeds pump capacity	If pumping height is over 25', the pump will not move water. See performance chart
Pump does not shut off	Float switch is obstructed or stuck	Remove obstruction
	Defective Float Switch	Replace switch