

# StormPro 2100-DC

Heavy Duty 12V DC Pump

## OPERATION MANUAL

Dated: 04/24/08

Supersedes: 02/04/08

Document No.: SP2100-OM

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# StormPro<sup>®</sup> Heavy Duty 12V DC Pump **2100-DC**



### Important Safety Instructions

**READ AND SAVE THESE INSTRUCTIONS - THIS MANUAL CONTAINS IMPORTANT INSTRUCTIONS**

**FAILURE TO HEED SAFETY INSTRUCTIONS AND WARNINGS COULD RESULT IN INJURY OR DEATH**

- Read all the instructions before installing or using the StormPro 2100-DC. Always disconnect batteries and disconnect StormPro 2100-DC from the AC power source before storing, handling, or making any adjustments to the unit.
- Use StormPro 2100-DC only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.
- Do not sit or stand on StormPro 2100-DC. Keep children away.
- Do not place objects on StormPro 2100-DC or allow vents to become blocked.
- Do not smoke, use sparkable electrical devices, or open flame when working on this unit!
- Do not install StormPro 2100-DC in locations classified as hazardous per N.E.C., ANSI/NFPA 70 - 1984.



**WARNING: ELECTRICAL SHOCK HAZARD**

- This unit has not been evaluated for use outdoors - Never operate StormPro 2100-DC outdoors.
- Never operate StormPro 2100-DC with battery enclosure open.
- Never operate StormPro 2100-DC in a wet location.
- Never operate StormPro 2100-DC in a location where liquid or moisture will come in contact with, splash on, or drip on unit.
- Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause electric shock, and/or a fire hazard.



**WARNING: RISK OF ELECTRICAL SHOCK**

In the event of a short circuit, grounding reduces the risk of shock by providing an escape wire for the electrical current. The StormPro 2100-DC must be properly grounded.

The StormPro 2100-DC is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be used with an outlet that has been installed and grounded in accordance with all local codes and ordinances. The outlet must be the same configuration as the plug. Where a two-prong wall outlet is encountered, it must be replaced; contact a qualified electrician. To reduce the risk of electric shock, the grounding plug must not be cut off the plug. Do not use the three-prong plug with a two-prong adapter. DO NOT attempt to defeat this safety feature.

Use the StormPro 2100-DC only with adequate wiring that is up to code. Connect to properly grounded outlets only.



**WARNING: RISK OF ELECTRICAL SHOCK**

The StormPro 2100-DC is capable of and intended to generate electrical current when unplugged from the wall outlet or when the AC power is shut off.

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Because the StormPro 2100-DC uses batteries to generate 120 volts of AC current, both the batteries and the power cord must be disconnected to neutralize the StormPro 2100-DC. Failure to disconnect both the batteries and the power cord could result in electrical shock sufficient to cause injury or death.

SEE ALSO "BATTERY PRECAUTIONS".

### Battery Precautions

**WARNING: IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS.**

A. Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.

B. When replacing batteries, use only models conforming to Battery Council International (BCI) 27 DC specifications for Group 27 Deep Cycle Marine batteries. At the time of this publication, the following model batteries are recommended. At the time of purchase, verify that these models, or any other model, conform to Battery Council International (BCI) 27DC specifications for Group 27 Deep Cycle Marine Batteries:

Die Hard	Model 27524
Exide	Model NC-27
Interstate	Model SRM-27
Metropolitan	Model 27T-36
Metropolitan	Model MT120
Metropolitan AGM	Model LW20104
NAPA	Model 8270

C. **CAUTION** - Do not dispose of batteries in a fire. The batteries may explode.

D. **CAUTION** - Do not open or mutilate the batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

E. **CAUTION** - A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries.

1. Remove watches, rings, or other metal objects.
2. Use tools with insulated handles.

3. Do not lay tools or metal objects on top of batteries.

4. Wear safety goggles and a face shield.

F. **CAUTION** - The electrolyte is a dilute sulfuric acid that is harmful to the skin and eyes. It is electrically conductive and corrosive. The following procedures should be observed:

1. Wear full eye protection and clothing.
2. If electrolyte contacts the skin, wash it off immediately.
3. If electrolyte contacts the eyes, flush thoroughly and immediately with water. Seek medical attention.
4. Spilled electrolyte should be washed down with a suitable acid neutralizing agent. A common practice is to use a solution of approximately one pound (500 grams) bicarbonate of soda to approximately one gallon (4 liters) of water. The bicarbonate of soda solution can be added until the evidence of reaction (foaming) has ceased. The resulting liquid should be flushed with water and the area dried.

G. **CAUTION** - Lead acid batteries can present a risk of fire because they generate oxygen and hydrogen gas. The following procedures should be followed.

1. Do not smoke when near batteries
2. Do not cause flame or spark in battery area.
3. Discharge static electricity from body before touching batteries by first touching a grounded metal surface.

H. See Battery Manufacturers' installation manual for additional installation maintenance, and safety instructions.



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### Tools Needed

A pipe wrench, pliers, adjustable wrench, pipe cutter, and a screwdriver will be needed.

### Materials Needed

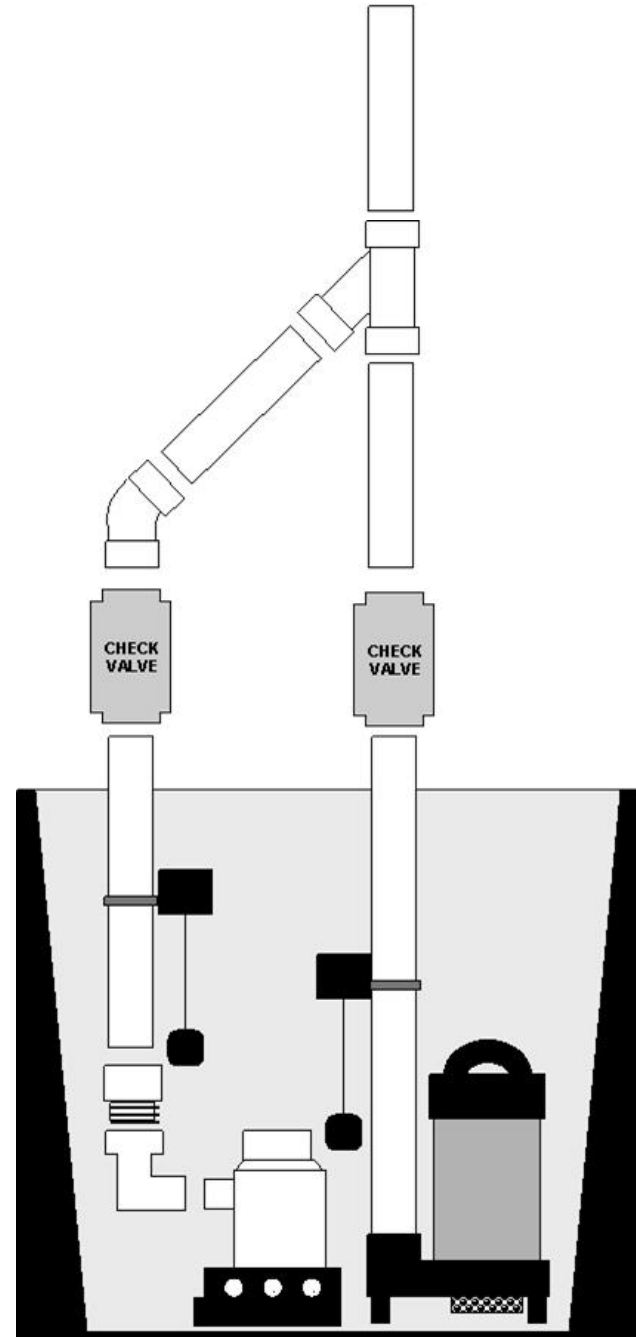
PVC Pipe, appropriate PVC fitting, PVC glue and primer, non restrictive 1 1/2" check valve, and a tape measure.

### Pump Installation

1. Use PVC glue to fasten the pumps 90 degree elbow onto the pumps discharge pipe in an upright position so the discharge is going straight up. Use PVC glue to secure the elbow into place.
2. Screw in the 1 1/8" PVC male adapter fitting into the 90 degree elbow on the pump.
3. Place the pump into the pump base.
4. Place the pump into the basin in a suitable position next to the primary pump and away from the drain tile if possible.
5. Begin to rough in your PVC piping, If you are using a single discharge pipe for both pumps, make sure your PVC Y or 90 degree connection is above the primary check valve. Do not glue any fittings at this point.
6. Make sure to include a separate 1 1/2" check valve for the backup pumps discharge pipe. Do not use spring loaded or any type resistance check valve.
7. Once all of your PVC piping is roughed in and all pipe connections fit flush begin to glue the piping together starting from the pump up. Use only PVC cement and primer.

### Float Switch Installation

1. The backup float switches turn ON point must be above the primary pump float switches ON point and below the top of the basin.
2. Once the backup pump is installed properly attach the backup float switch by tightening the switch clamp securely to the backup pumps discharge pipe.



3. Make sure that the float ball on the backup switch will not get caught or hung up on the primary pump or any other object that will restrict the switch from turning on.

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### Charger Unit Installation

**WARNING:** BE SURE THAT THE CHARGER UNIT IS NOT PLUGGED INTO THE WALL OUTLET BEFORE CONNECTING THE TERMINALS

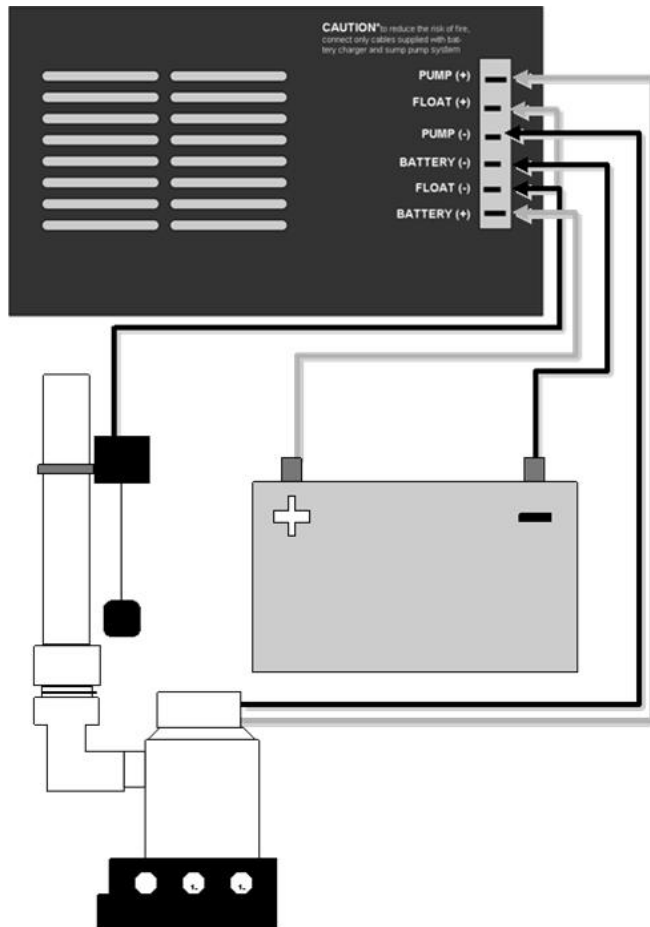
The backup pump, backup float switch, and battery will all connect into the back of the charger unit. Make sure to use correct polarity.

**PUMP:** Start with the backup pump wires, the terminals are different sizes to ensure correct polarity, do not force the terminal onto the plug. Connect the backup pumps negative (-) black wire to the charger units negative (-) pump post and connect the pumps positive (+) brown wire to the charger units positive (+) pump post.

**FLOAT:** Connect the float switches positive (+) white wire to the chargers positive (+) float post. Connect the float switches negative (-) black wire to the chargers (-) float post.

**BATTERY:** The battery should be placed inside its protective battery box before being connected to the charger unit. Make sure that the charger unit is not plugged into the wall outlet.

1. Take the negative (-) black battery wire and fasten the ring terminal securely to the negative (-) battery post on top of the battery.
2. Take the Positive(+) red battery wire and fasten the ring terminal securely to the Positive(+) battery post on top of the battery.
3. The battery terminals are different sizes to ensure correct polarity, do not force the terminal on to the plug if it does not fit. Connect the negative (-) black wire to the charger units (-) battery post and connect the positive (+) red wire to the charger units positive (+) battery post.
4. After all the terminals have been installed properly plug the charger unit into a dedicated 115V wall outlet.



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Error Description	Possible Causes	Fix
The battery failed pre-qualification test	The battery is highly sulfated The charger is connected to a six-volt battery	Replace the battery with a 12-volt deep-cycle marine battery Replace the battery with a 12-volt deep-cycle marine battery
Battery over-voltage	The charger is connected to a 24 volt battery	Replace the battery with a 12-volt deep-cycle marine battery
Charge time monitor	Battery took too long to complete its charge: A. Load applied (e.g. the pump motor started) during charging B. The battery ampere-hour rating is too large (max. 130 ampere-hours)	Be sure the pump cannot start during charging; reset the charger Replace with correct size battery
Excessive battery drain	Pump motor ran during charging (that is, with the main A.C. power ON), causing the system to shut down	Check primary sump pump. The BBU generally runs only when the main A.C. power is out. If there has not been any power outage and the BBU has run, the primary pump itself may have failed
Reverse battery connection	Charger is connected backwards to the battery. (That is, charger (+) to battery (-) and vice versa)	Reconnect charger (+) to battery (-)/(-) to (-)
Battery overheated	Cells in an old battery may deteriorate with age	Replace the battery with a 12-volt deep-cycle marine battery
Charging error	An internal error occurred in the charger during one of the charging states	Unplug the charger for 10 seconds and then plug it in again. If error occurs again, refer to table below

### Amp Charger Error Light Indications

**NOTE:** This chart identifies light codes indicating various charger error modes. It **only** applies when the 'Charger Mode' light flashes YELLOW/GREEN alternately. The light codes listed here DO NOT relate

directly to the legends on the charger housing (A.C. Power Status, Pump Run Status, Alarm Silence, etc.). The legends on the charger apply **ONLY** when the 'Charger Mode' light is NOT flashing yellow/green.

LED Status				
A.C. Power Status	Pump Run Status	Alarm Silence	Charge Mode	Error Mode
Flashing	Off	Off	Flashing Yellow/Green	Battery Overheated
Flashing	Off	Flashing	Flashing Yellow/Green	Charge Time Monitor
Flashing	Flashing	Off	Flashing Yellow/Green	Excessive Battery Drain
Flashing	Flashing	Flashing	Flashing Yellow/Green	Failed Pre-Qualification Test
Off	Off	Flashing	Flashing Yellow/Green	Battery Over-Voltage
Off	Flashing	Off	Flashing Yellow/Green	Reverse Battery Connection
Off	Flashing	Flashing	Flashing Yellow/Green	Output Over-Current

#### "Silence Alarm/Reset" Rocker Switch:

Push The LEFT side of the rocker switch on the front of the charger to silence the alarm. NOTE: This will NOT silence the alarm when the battery is below 8.2 volts or the system is in ERROR mode.

Push the RIGHT side of the rocker switch to reset the 'Pump System Status' LED after the pump has

run, or to reset the system from an error mode. When you reset the system, the charger will start its diagnostic procedure (pre-qualification test, etc.) from the beginning. If the cause of the ERROR mode is not corrected, the system will go into the ERROR mode again.



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Charger Light	On/Off/Flashing	Alarm Buzzer	Indicates
All LEDs	Flash ONCE	Off	Connected system to AC power or to battery; or, pressed 'Reset' when in ERROR mode
AC Power Status	On Very Slow Flash	Off Off	System is receiving AC power System is not receiving AC power
Pump Run Status	Fast Flash (2x/second) Slow Flash (1x/2 seconds) Off	Beep in synch with LED Flash Off Off	Pump is running. Press LEFT side of rocker switch to silence alarm Pump has run, but is not running now Pump has not run
Alarm Silence	On Off		Alarm is silenced Alarm is active
Battery Status	On Slow Flash Fast Flash Off	Off On On Off	System is not connected to a battery or is connected to a battery charged to less than 1 volt DC Battery voltage less than 10.9 volts. Alarm can be silenced Battery voltage is less than 8.2 volts. Alarm CANNOT be silenced System is properly connected to a battery
Charger Mode	Slow YELLOW Flash Solid YELLOW Flash Fast YELLOW Flash Solid GREEN Flashing alternately YELLOW/GREEN	Off Off Off Off On - Beeping	System is in "pre-qualification" stage. This will last from 1 minute to 5 hours, depending on the condition of your battery System is in the "Constant Current Charge" stage. This will continue until the battery voltage reaches approximately 14.3 volts System is in the "Constant Voltage Charge" stage. This could last up to 14.5 hours Battery is fully charged System is in ERROR mode. Alarm will beep in synch with one or more of the 'AC Power Status', 'Pump Run Status', or 'Alarm Silence' LEDs.

### Amp Charger Audio Alarm Indications

Audio Alarm	Mode	Indicates	Action
On - Beeping	Slow beep in synch with 'Battery Status' LED	Battery is down to about 10.9 volts	Investigate cause; battery is very low. You have limited pump run time left. Press and release LEFT side of toggle switch to silence alarm.
On - Beeping	Fast beep in sync from 'Battery Status' LED	Battery is down to about 8.2 volts	Investigate cause; battery is nearly dead. You have almost no pump run time left. Alarm CANNOT be silenced
On - Beeping	Fast beep in synch with one or more of the 'AC Power Status', 'Pump Run Status', or 'Alarm Silence' LEDs and with the 'Charger Mode' LED flashing alternately YELLOW/GREEN	System is in ERROR mode	Refer to ERROR Mode Charts
On - Beeping	Fast beep in synch with 'Pump Run Status' LED	Pump is running	None. Alarm will stop when pump stops running. To silence alarm, press and release LEFT side of toggle switch



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### LIMITED WARRANTY

StormPro 2100-DC is warranted to be free from defects in material and workmanship and to perform within applicable specifications for a period of one (1) year. Obligation under this warranty is limited to repairing or replacing any part thereof, which shall within one year be returned to us with transportation charges prepaid, and prove to be defective.

The above limited warranty takes the place of all other warranties, express or implied and correction of such defects by replacement or repair shall constitute a fulfillment of all obligations under the terms of the warranty, which specifically EXCLUDES any incidental damages caused by or associated with this product or its use. The warranty does not cover any unit which has been damaged either in transit or by misuse, accident or negligence. No warranty or representation not contained herein shall be binding.

LABOR, ETC. COSTS: Metropolitan shall IN NO EVENT be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or affixing any Metropolitan product, part or component thereof.

#### STORMPRO 2100-DC WARRANTY REGISTRATION CARD

To register your purchase, please fill in the following information:

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Purchased From: \_\_\_\_\_

Installed By: \_\_\_\_\_ Phone: \_\_\_\_\_

Please fill out and  
send back to:

Metropolitan Ind.  
Warranty Department  
P.O. Box 7266  
Romeoville, IL 60446



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www.metropolitanind.com