



## BATTERY POWERED HYDRAULIC PUMP



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# SAFETY SYMBOLS AND DEFINITIONS

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The safety signal word designates the degree or level of hazard seriousness.

 **DANGER**: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING**: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.


 **CAUTION**: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**CAUTION**: Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**IMPORTANT**: Important is used when action or lack of action can cause equipment failure, either immediate or over a long period of time.

## SAFETY PRECAUTIONS

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 **WARNING** The following procedures must be performed by qualified, trained personnel who are familiar with assembling this equipment.



- Operators/installers must read and understand all safety precautions and operating instructions included with the pump. If the operator cannot read these instructions, operating instructions and safety precautions must be read and discussed in the operator's/ installer's native language.
- These products are designed for general use in normal environments. These products are not designed for lifting and moving people, agri-food machinery, certain types of mobile machinery, or in special work environments such as: explosive, flammable, or corrosive. Only the user can decide the suitability of this product in these conditions or extreme environments. Power Team will supply information necessary to help make these decisions. Consult your nearest Power Team facility.
- Safety glasses must be worn at all times by the operator and anyone within sight of the unit. Additional personal protection equipment may include: face shield, goggles, gloves, apron, hard hat, safety shoes, and hearing protection.
- The owner of this tool must ensure that safety-related decals are installed, maintained, and replaced if they become hard to read.
- Disconnect the battery from the pump and relieve pressure before opening any connections in the system.
- The guide cannot cover every hazard or situation so always do the job with **SAFETY FIRST**.



### General

**⚠ WARNING**

To help prevent personal injury,



- This unit is not suitable for use in explosive environments. Failure to comply may result in damage, injury, or death.

- Always wear eye protection whenever operating hydraulic equipment.



- Always wear hearing protection as required. Refer to the sound level (dB[A]) chart.



- Operation, repair, or maintenance of hydraulic equipment should be performed by a qualified person who understands the proper function of hydraulic equipment per local directives and standards.

- Hydraulic equipment must be assembled correctly and then checked for proper function before use. Use hydraulic components of the same hydraulic pressure ratings. An appropriate hydraulic pressure gauge is recommended to monitor pressure.



- Never place your hands or other body parts near a hydraulic fluid leak. Never use your hands or other body parts to check for a possible leak. High pressure fluid can be injected under your skin causing serious injury and/or infection.

- High pressure fluid is present throughout a hydraulic system. Always use caution when operating, repairing, or maintaining this equipment. Before beginning any work on any hydraulic system component, stop the equipment, disconnect from its power source, and relieve all pressure in all parts of the system. Do not tamper with the internal hydraulic relief valve settings.

- Avoid exposing hydraulic equipment (especially hoses) to extreme high or low temperatures. Damage to equipment or failure may result and cause loss of control or injury to the operator.



- Exercise caution to avoid the risk of fire.

- Do not drop any hydraulic system components. Damage to the equipment and/or injury may result.

- Avoid slipping or falling by cleaning up any oil spills.

- Avoid back injury by always lifting equipment carefully.

- It is strongly recommended to view the Power Team Hydraulic Safety video tape before using hydraulic equipment.

### Power supply



- **Electrical Shock or Electrocution.**
- **Any electrical work must be done and tested by a qualified electrician per local directives and standards.**
- **Disconnect the battery from the pump and relieve pressure before removing the motor case cover or performing maintenance or repair.**
- **If wiring is exposed, replace or repair immediately.**
- **Changing the voltage on this unit is an involved, and if improperly performed, hazardous procedure. Consult the manufacturer for specific information before attempting any rewiring.**
- **Check the total amperage draw for the electrical circuit you will be using. (For example: Do not run a pump or pumps that may draw 25 amps with a 20 amp fused electrical circuit.)**
- **Do not attempt to increase the power capacity by replacing a fuse with another fuse of higher value. Overheating of the power supply and the possibility of a fire will result.**
- **To rewire a motor from one voltage to another or when a flow control valve is changed between manual and solenoid, consult the electrical schematic in the pump's parts list.**
- **Electric pumps should never be exposed to rain or water which could cause personal electrical hazard.**
- **Avoid conditions which can cause damage to the power supply such as abrasion, crushing, sharp cutting edges, or corrosive environment. Damage to the power supply can cause an electrical hazard.**

### Hydraulic hoses and lines



- **Avoid straight line tubing connections in short runs. Straight line runs do not provide for expansion and contraction due to pressure and/or temperature changes. See diagrams in "Set-up Instructions" section of this form.**
- **Eliminate stress in the tube lines. Long tubing runs should be supported by brackets or clips. Tubes through bulkheads must have bulkhead fittings. This makes easy removal possible and helps support the tubing.**
- **Before operating the pump, all hose connections must be tightened with the proper tools. Do not overtighten. Connections should only be tightened securely and leak-free. Overtightening can cause premature thread failure or high pressure fittings to split at pressures lower than their rated capacities.**
- **Should a hydraulic hose ever rupture, burst, or need to be disconnected, immediately shut off the pump and release all pressure. Never attempt to grasp a leaking pressurized hose with your hands. The force of escaping hydraulic fluid could cause serious injury.**
- **Do not subject the hose to potential hazard such as fire, sharp surfaces, extreme heat or cold, or heavy impact. Do not allow the hose to kink, twist, curl, crush, cut, or bend so tightly that the fluid flow within the hose is blocked or reduced. Periodically inspect the hose for wear, because any of these conditions can damage the hose and possibly result in personal injury. Never repair with tape.**
- **Do not use the hose to move attached equipment. Stress can damage the hose and possibly cause personal injury.**

## Safety Precautions continued

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- **Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive materials such as creosote-impregnated objects and some paints. Hose deterioration due to corrosive materials can result in personal injury. Consult the manufacturer before painting a hose. Never paint a coupler.**

### Pump


- **Do not exceed the hydraulic pressure rating noted on the pump nameplate or tamper with the internal high pressure relief valve. Creating pressure beyond rated capacities can result in personal injury.**
- **Before replenishing the fluid level, retract the system to prevent overfilling the pump reservoir or bladder. An overfill can cause personal injury due to excess reservoir or bladder pressure created when accessories are retracted.**
- **Always shut off the motor and/or disconnect power supply and relieve pressure before breaking any connections in the system.**
- **The motor is the major part of the weight of the pump. Always take this into consideration when lifting or moving the pump.**

### Hydraulic fluids

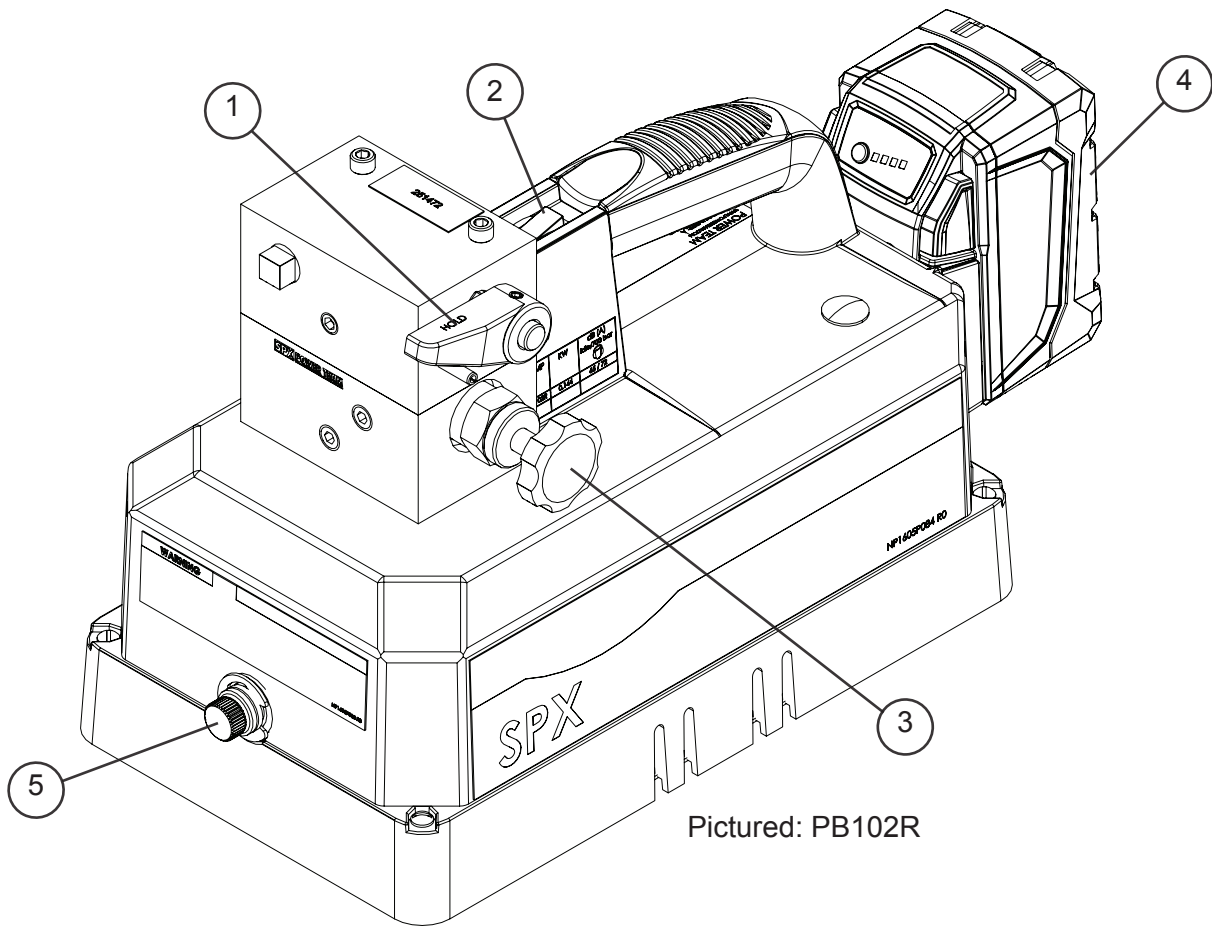
- **Properly dispose of all fluids, components, and assemblies at the end of their useful life.**
- **Hydraulic fluid should be compatible with all hydraulic components.**

# DESCRIPTION

- The PB10 Series hydraulic pump delivers hydraulic fluid under pressure through the use of an electric motor and 18VDC Li-ION battery as a power source.

<b>PUMP SPECIFICATIONS</b>				
Pump Cat. No.	Max. Operating Pressure	Features	Kw	 <b>dB(A)</b> Idle / 700 Bar
<b>PB102-1</b> <b>*PB102-2</b>	10,152 PSI 700 Bar	2P2W Valve	.144	65/72
<b>PB102P-1</b> <b>*PB102P-2</b>	10,152 PSI 700 Bar	2P2W Valve & Hand Pendant	.144	65/72
<b>PB102R-1</b> <b>*PB102R-2</b>	10,152 PSI 700 Bar	2P2W Valve & Pressure Regulator	.144	65/72
<b>PB102A-1</b> <b>*PB102A-2</b>	10,152 PSI 700 Bar	2W Manifold	.144	65/72
<b>PB104-1</b> <b>*PB104-2</b>	10,152 PSI 700 Bar	3P4W Valve	.144	65/72

\* Models designated with (-2) include a 220-240V battery charger.



Pictured: PB102R

1. Valve control lever
2. Start button
3. Pressure regulator adjustment knob
4. Battery Pack
5. Oil Bladder Fill Port

Description continued

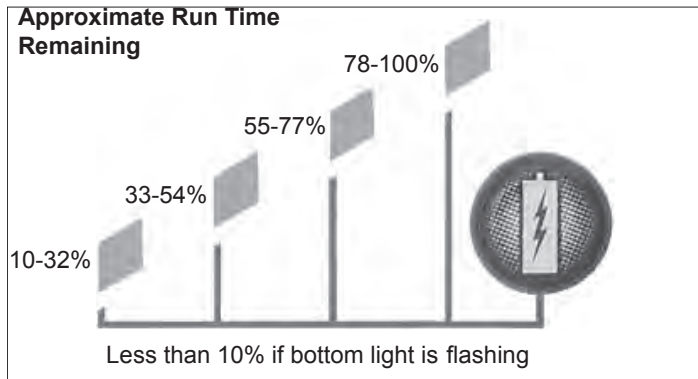
## BATTERY & CHARGER SPECIFICATIONS

(Excerpt from Milwaukee Tool operator's manuals)

Charger SPX Cat. No.	AC Input Volts	AC Input Amps	DC Output Volts	DC Output Amps	Battery SPX Cat. No.	DC Volts
2009646	110-120	2.1	12 or 18V	3	3000973	18
2009647	220-240	1.15	12 or 18V	3		

### SYMBOLOLOGY

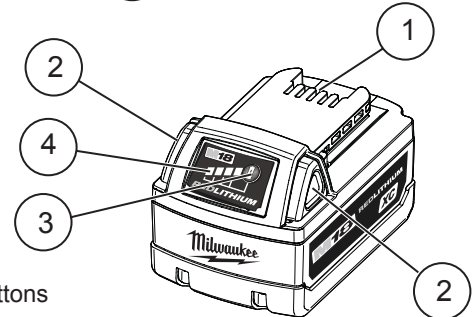
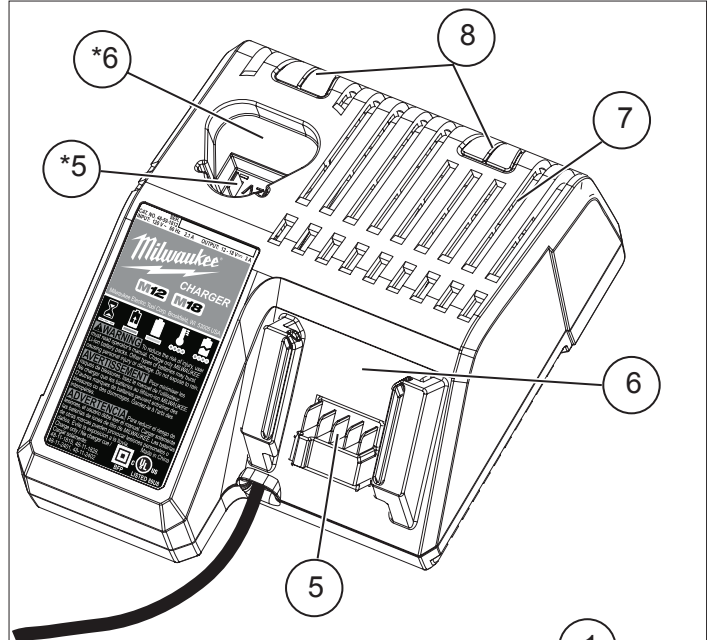
<b>V</b>	Volts Direct Current
<b>V</b>	Volts Alternating Current
	Double Insulated
<b>Hz</b>	Hertz



**IMPORTANT:** For information regarding care, use, recycling, or warranty of batteries and/or chargers, contact Milwaukee Electric Tool Corporation or see original manufacturers operating manual.



### FUNCTIONAL DESCRIPTION



1. Contacts
2. Release buttons
3. Fuel Gauge button
4. Fuel Gauge
5. Electrical contacts
6. Bay
7. Vents
8. Light indicators:



Continuous red: Charging



Continuous Green: Charging is complete



Fast flashing red: Battery is too hot/cold - Charging will begin when battery reaches correct charging temperature



\*\* Slow flashing red: Battery charge is pending - Charging will begin when first pack is fully charged.



Flashing red/green: Damaged or faulty battery pack

\* Items only on multi voltage charger models

\*\* When charging M12 & M18 packs simultaneously



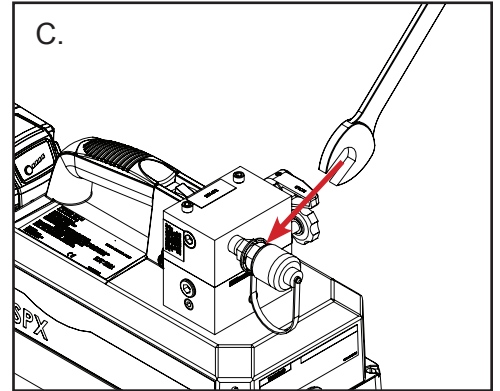
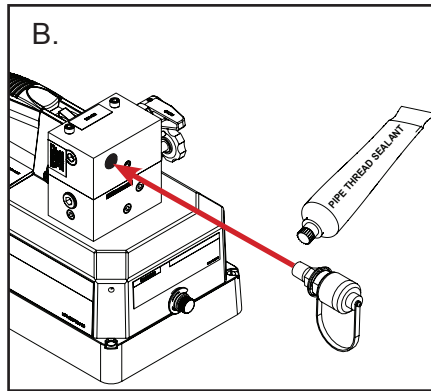
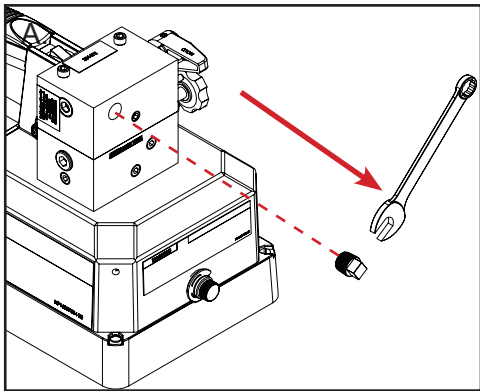
# SET-UP INSTRUCTIONS

**NOTE:** Carefully inspect the pump upon arrival. The carrier, not the manufacturer, is responsible for any damage resulting from shipment.

## 1. Hydraulic Connections

**NOTE:** Ensure areas are clean around fluid ports, and inspect all threads and fittings for signs of wear or damage before use, and replace as needed.

- A. Remove plugs and/or thread protectors/dust covers from hydraulic ports if applicable.
- B. Use an approved, high-grade pipe thread sealant to seal all hydraulic connections and connect fittings and/or hose assemblies to the pump.
- C. Tighten securely and leak-free but do not overtighten.

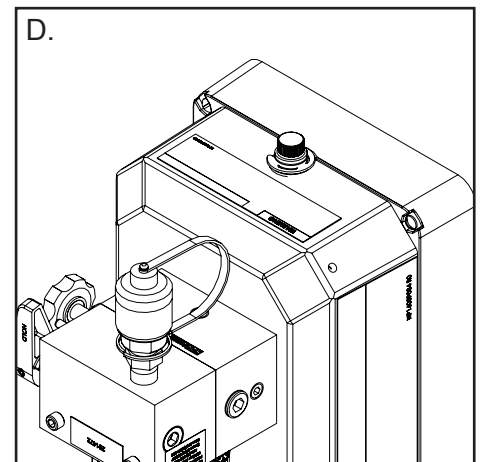
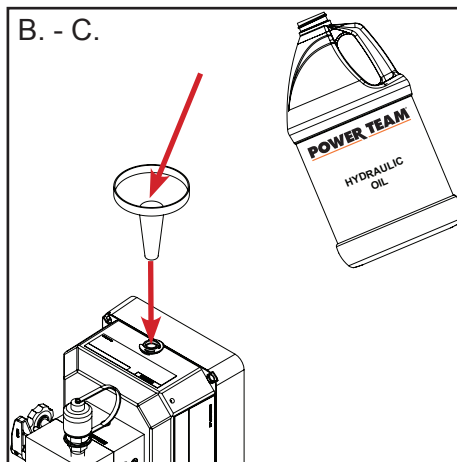
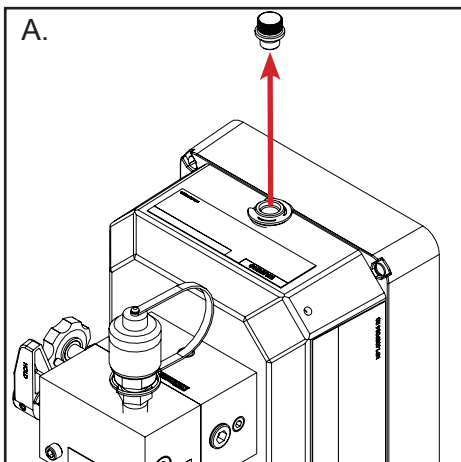


## 2. Checking Hydraulic Fluid and Filling the Bladder.

**NOTE:** Most pumps with a bladder are shipped with hydraulic fluid in the bladder. If hydraulic fluid is needed, use only approved Power Team hydraulic fluid.

- A. Remove the filler cap. (If there is no oil visible, continue to step B)
- B. Insert a clean funnel with filter or strainer.
- C. Fill the bladder completely with hydraulic fluid.
- D. Replace filler cap.

**IMPORTANT:** Tighten filler cap **ONLY 1/2 - 1 turn (MAX)** after O-ring contacts sealing surfaces. Overtightening can cause pump damage on bladder equipped pumps.

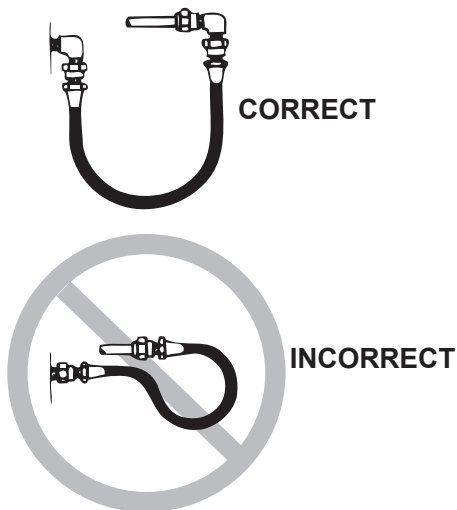


## Setup Instructions continued

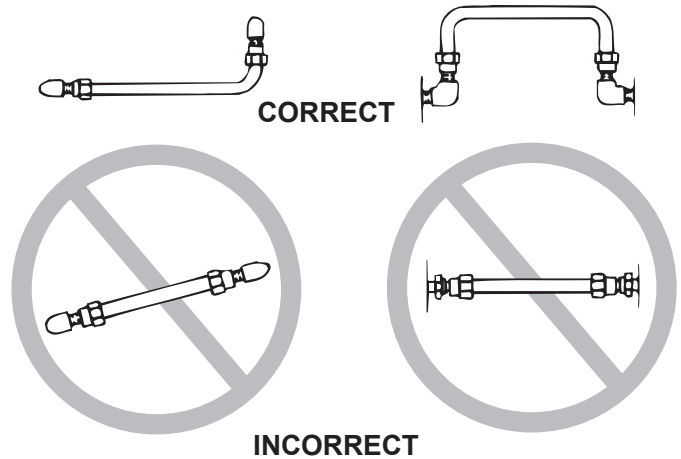
### 3. Hydraulic Lines and Fittings.

- Hydraulic lines and fittings can restrict flow to a cylinder or hydraulically actuated device. The restricting or slowing of the fluid flow causes back pressure that slows the device's return. Return speed also varies because of the application, condition of the cylinder or device, inside diameter of hose or fitting, length of the hose, and the temperature and viscosity of the hydraulic fluid.
- Tubes and Hoses should be routed in such a way that they can easily be serviced or removed as well as provide the least resistance to fluid flow. See below for recommended routing configurations.

#### HOSES



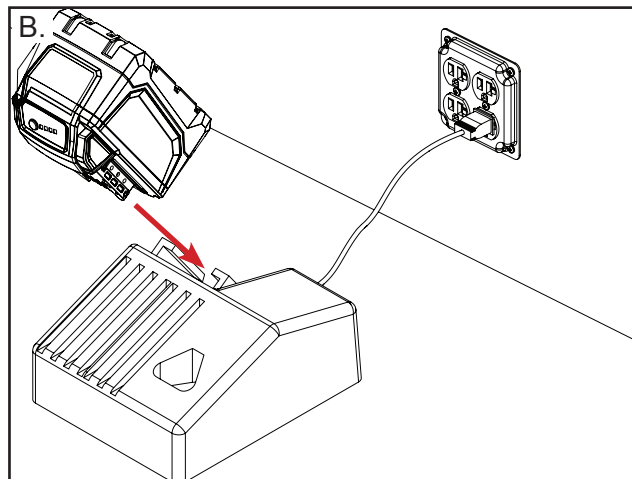
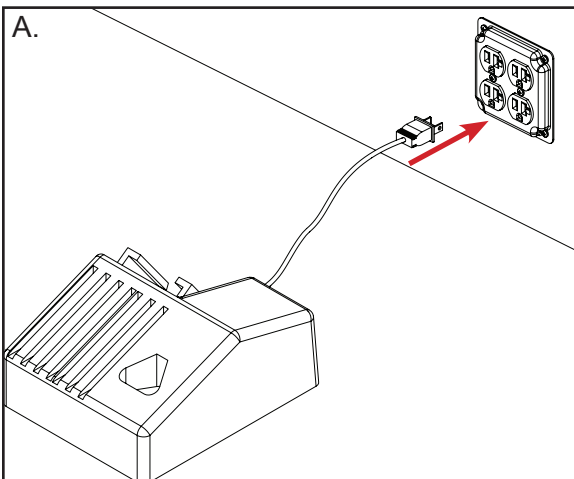
#### TUBING



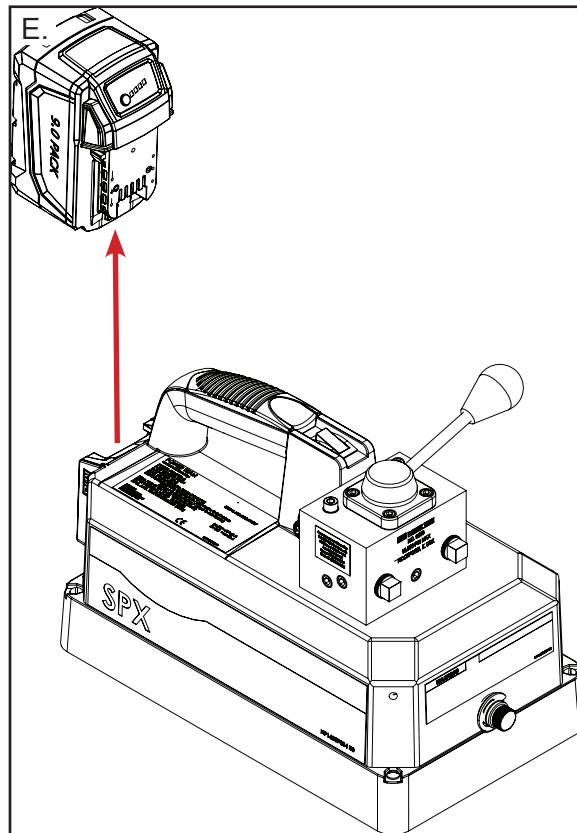
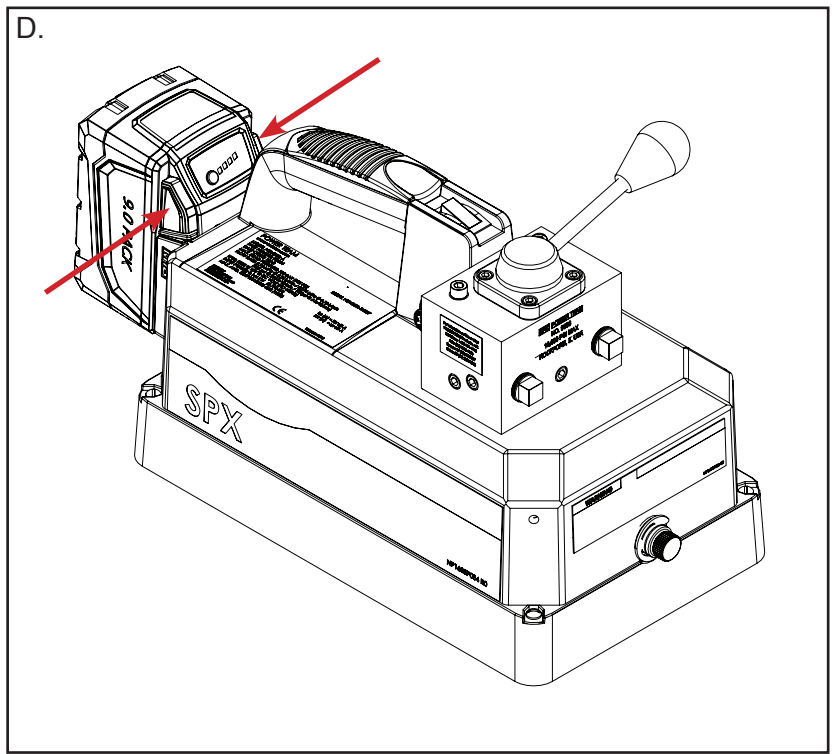
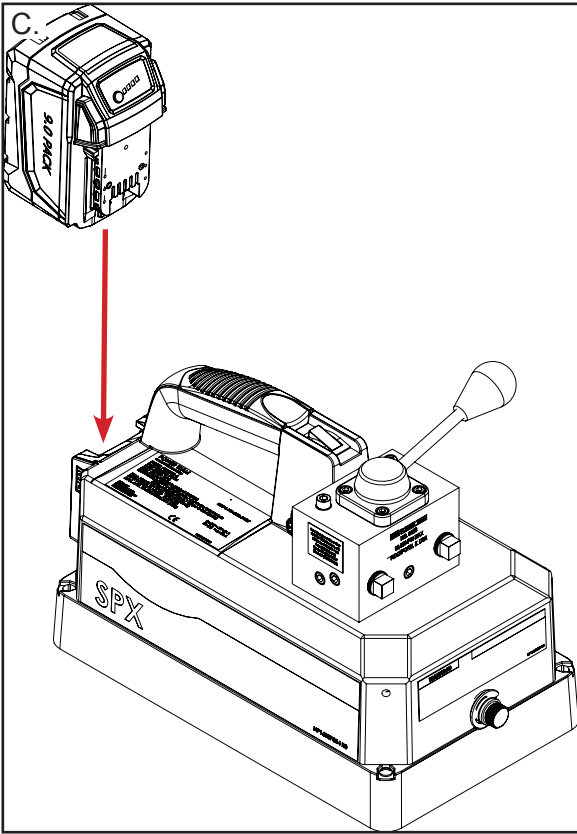
### 4. 18VDC Battery & Charger

**NOTE: New batteries must be charged before first use. Approx. 60 minutes of charging = 100% battery fuel.**

- Ensure battery charger is plugged in.
- Slide battery pack into charger as shown and allow battery to charge.
- Once battery is adequately charged it can be installed on pump unit as shown.
- To remove the battery from the pump unit press the release buttons on the sides of the battery.
- Slide the battery out of the pump unit as shown.



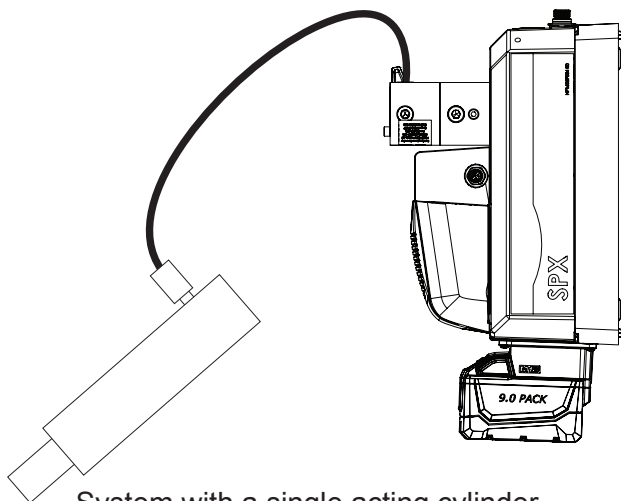
# Setup Instructions continued



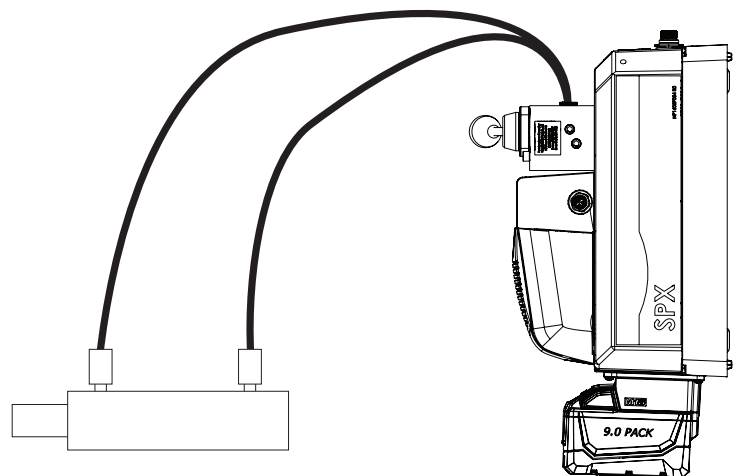
### 5. Bleeding The System

- After all connections are made, the hydraulic system must be bled of any trapped air. Refer to the diagrams below.
- With no load on the system and the pump vented and positioned higher than the accessory tooling, cycle the system several times.
- To vent the Bladder, be sure the pump is positioned upright as shown below and slowly unscrew the bladder plug. Check the bladder for possible low fluid level and fill to proper level with approved, Power Team hydraulic fluid as necessary. Refer to “Checking Hydraulic Fluid and Filling The Bladder” section under Set-up Instructions.

**IMPORTANT:** Some spring return cylinders or rams have a cavity in the rod which forms an air pocket. This type of cylinder or ram should be bled when positioned upside down or lying on its side with the port facing upward.



System with a single acting cylinder



System with a double-acting cylinder

# PUMP OPERATION

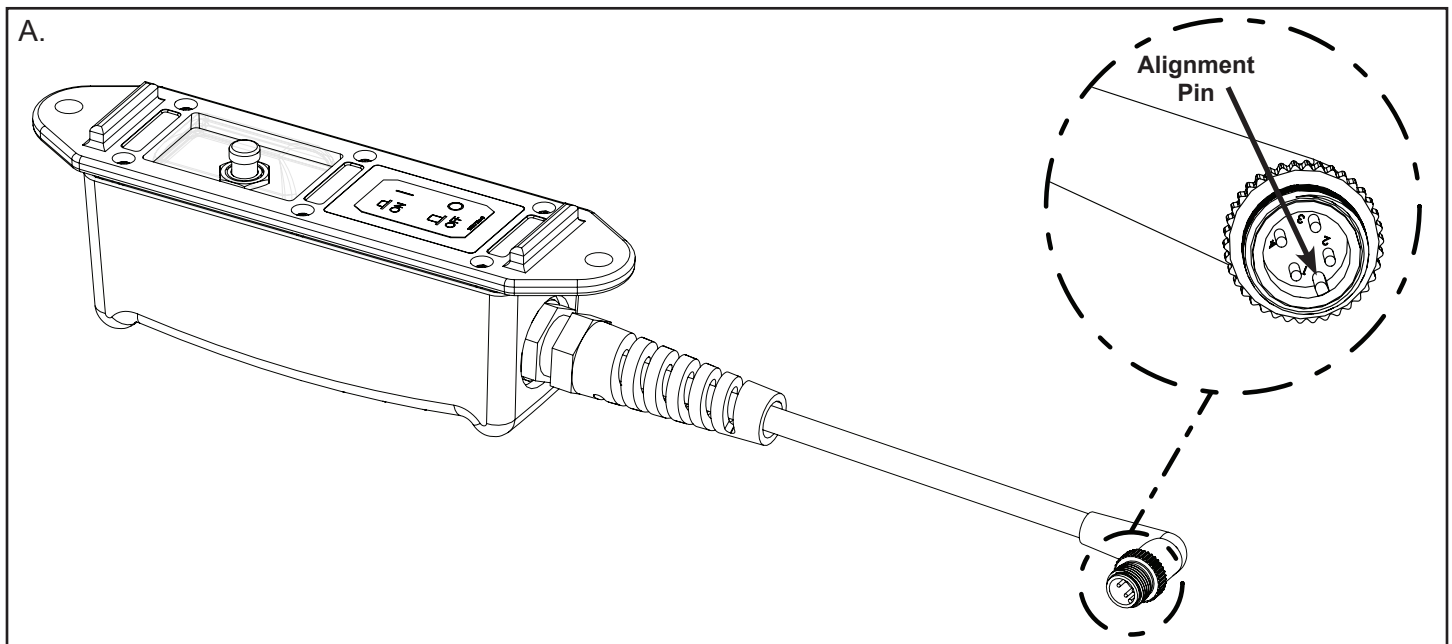
## 1. Operating The Pump For The First Time

- A. Valve and hose connections must be tight, and the bladder must be filled to the proper fluid level.
  - Refer to “Hydraulic Connections” and “Checking Hydraulic Fluid and Filling the Bladder” under Set-up Instructions.
- B. Set valve to the neutral or return position and jog the pump on and off several times by pressing the start button and allowing the pump to idle for 1 to 3 minutes.
- C. Set valve to proper position / port to Advance and retract the accessory tooling (e.g. cylinder, torque wrench, spreader, etc.) to its full travel. Do this several times to eliminate air from the system and build pressure.
  - For more complete instructions, refer to the section titled “Bleeding The System” under Set-up Instructions.
- D. With the accessory tooling retracted completely, check the fluid level in the bladder and add fluid if necessary.
  - Refer to “Checking Hydraulic Fluid and Filling The Bladder” under Set-up Instructions.
- E. The pump is now ready to be put into regular operation.

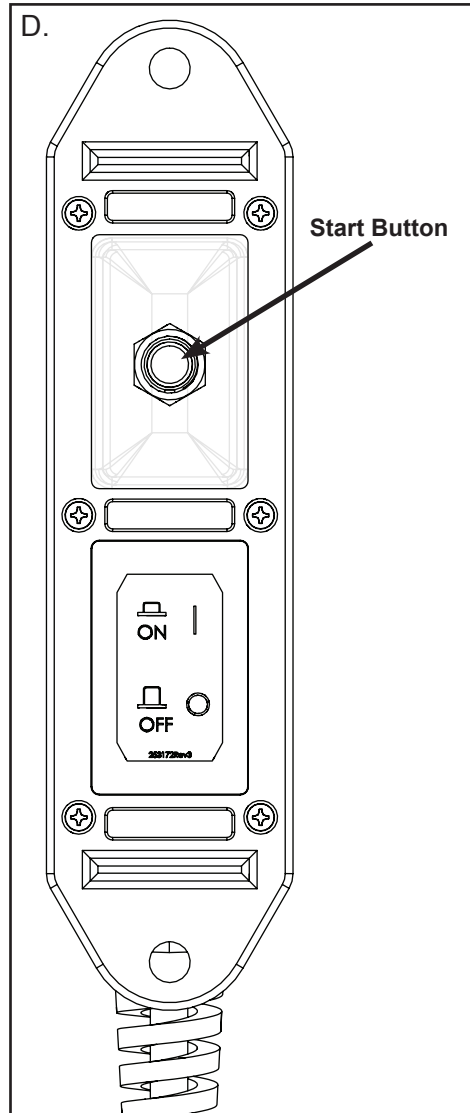
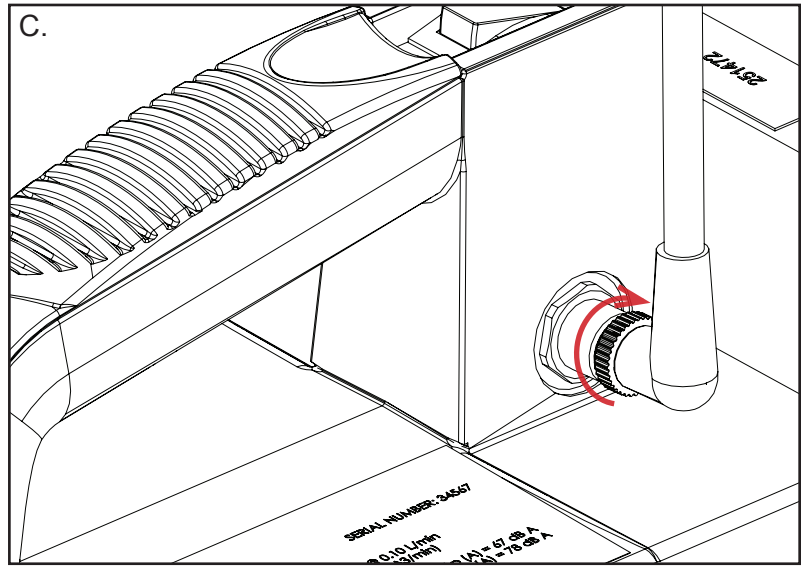
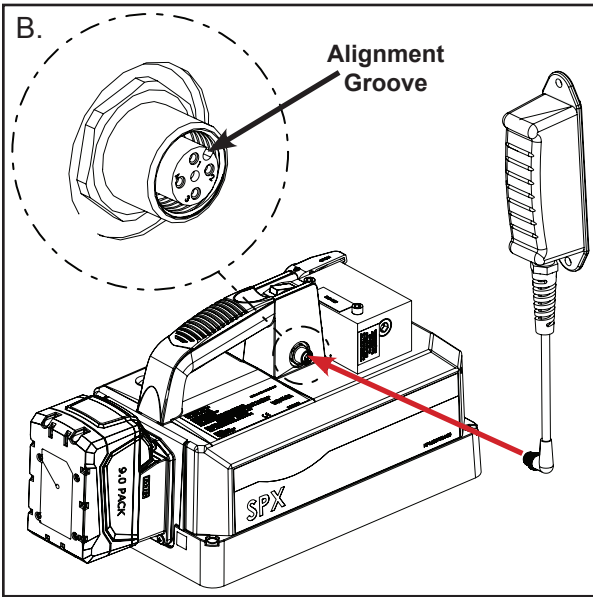
## 2. Attaching And Operating Hand Pendant.

**NOTE: Attaching a hand pendant can sometimes be a more effective way of controlling the pump unit by allowing the user to operate the unit with a remote switch.**

- The hand pendant has an 11 ft. cable and overrides the built in start button.
- A. Notice the Alignment Pin in the cable fitting on the end of the pendant cable.
  - B. Notice the Alignment Groove in the fitting on the pump unit and insert the pendant cable as shown.
  - C. Secure the connection by threading (rotating clockwise) the cable fitting into the pump unit fitting.
  - D. To activate the pump unit press and hold the start button, release the start button and the pump unit will stop running.



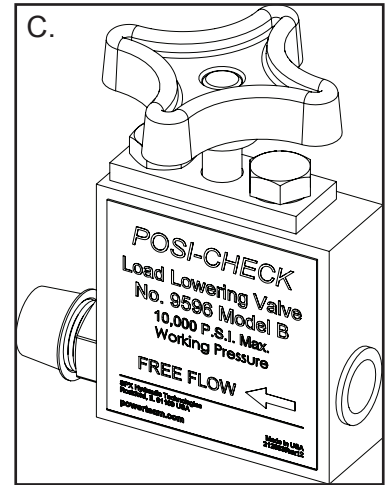
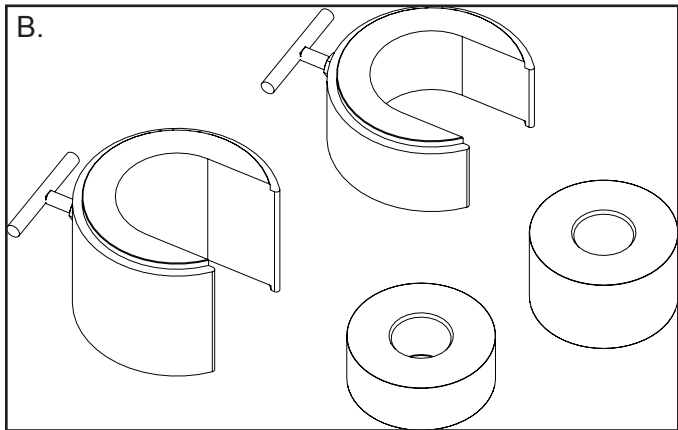
# Pump Operation continued



## Pump Operation continued

### 3. Lifting or lowering a load with a hydraulic cylinder.

- A. The load must be under operator control at all times and other personnel must be clear of the load.
- B. The use of blocking and cribbing is recommended to help prevent a falling load.
- C. The use of a load lowering or metering valve is recommended in addition to the correct directional control valve to help prevent a falling load.



# DIRECTIONAL CONTROL VALVE OPTIONS

## 1. 2-Way Manifold Used With Single-acting Cylinders or Remote Mounted Valves (Figure 1)

- A. Activate the pump unit by pressing the start button to advance the cylinder/accessory tooling.
- B. When the cylinder or tool has advanced to the desired position the pump start button can be released and the cylinder/tool will retract.

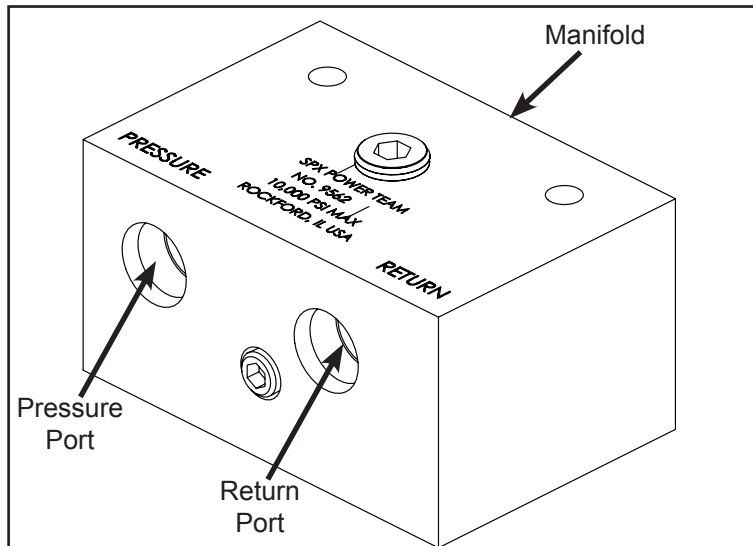
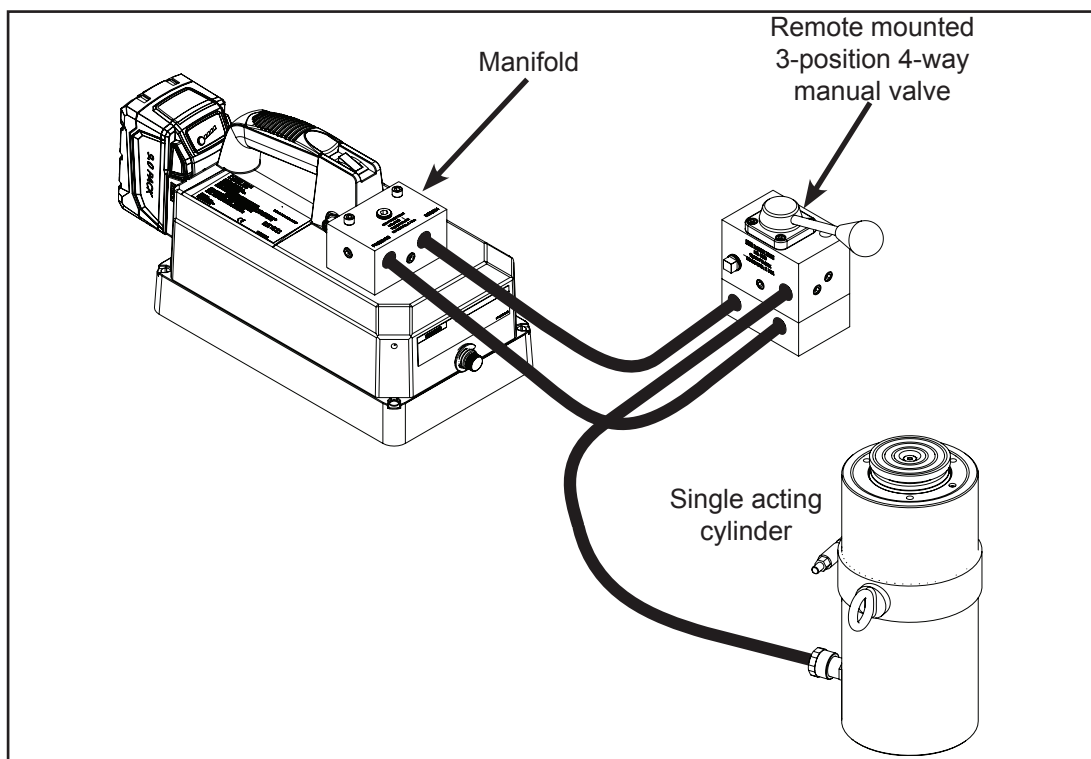


Figure 1

### Example of remote mounted valve:



To prevent sudden, uncontrolled descent of a load as it is being lowered, use Load Lowering Valve (No. 9596) or Counter Balance Valve (No. 9720) in conjunction with the 4-way manual valve in your application

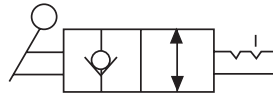


## 2. 2-Position, 2-Way Manual Valve Used With Single-acting Cylinder (Figures 2 & 3)

**NOTE:** Some valves return fluid to the reservoir or bladder when the pump is not running or when the valve control lever is shifted. The correct valve must be used per application, especially when lifting a load.

**⚠ WARNING** Valve (No. 9561) works the same as a manifold if the pump is operated with the valve in the RETURN position. In this position, the cylinder will advance when the pump is running and retract when the pump is not running.

**⚠ DANGER** Never use valve (No. 9561) in the RETURN position when lifting a load!



9561

- To HOLD pressure, turn the valve control handle counterclockwise (CCW), (See Figure 2)
- Activate the pump unit to advance the cylinder/accessory tooling.
- When the cylinder or tool has advanced to the desired position the pump start button can be released and the cylinder will HOLD pressure.
- To retract the cylinder, turn the valve control handle clockwise (CW) slowly, (See Figure 3)

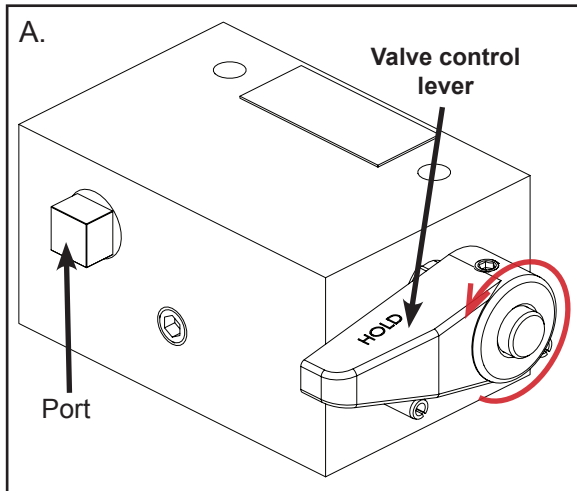


Figure 2

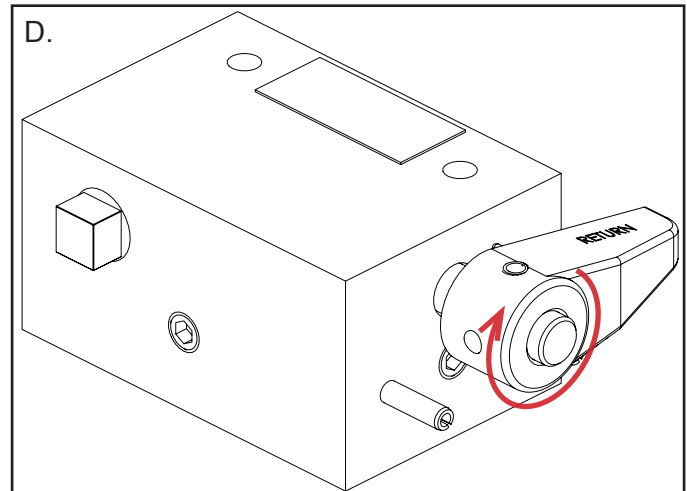
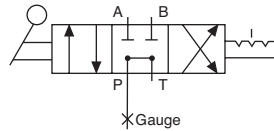


Figure 3

3. 3-Position, 4-Way Manual Valve used with Double-acting Cylinders (Figure 4)



9563  
(non posi-check)

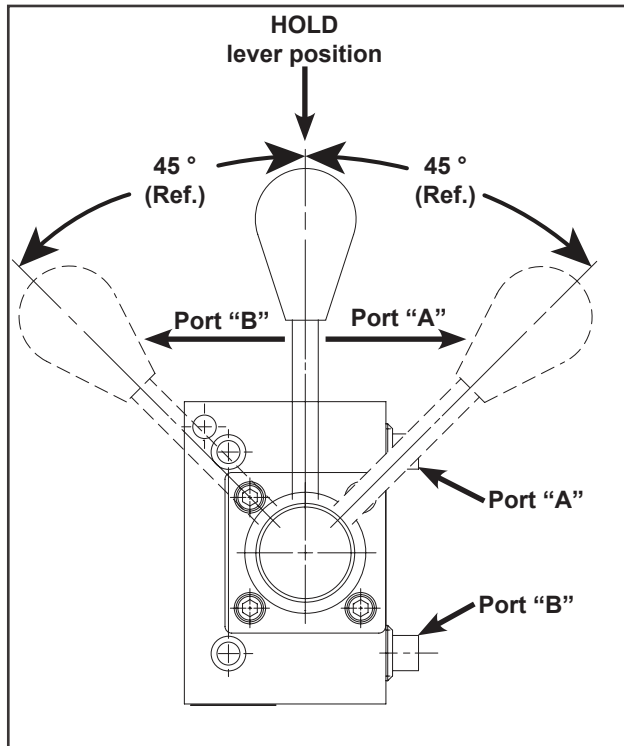


Figure 4

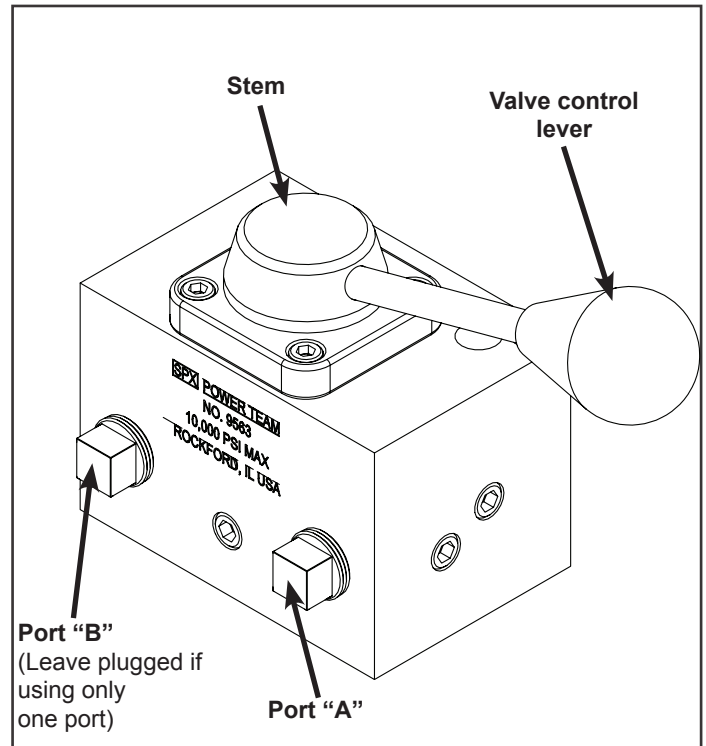


Figure 5

**NOTE:** This valve is a low torque design for use with double-acting or single-acting cylinder(s).

- If this valve is to be used as a 3-way with single-acting cylinder(s), one port must remain plugged (use steel plug). (Figure 5)

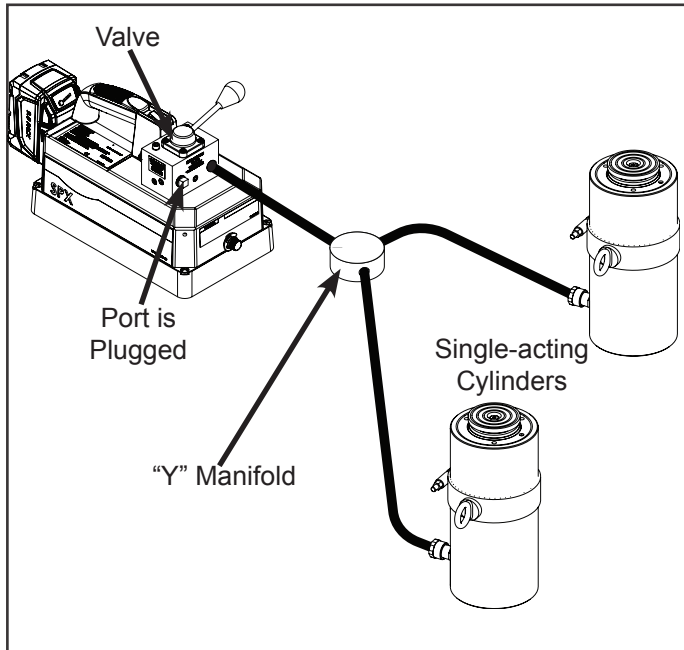
- Position the valve control lever in the HOLD position.
- Activate the pump unit.
- Advance the cylinder by shifting the valve control lever to the ADVANCE (Port A) position.
- When the cylinder has advanced to the desired position, turn the pump unit OFF, or shift the valve to the HOLD position.

**NOTE:** Non “posi-check” valves will momentarily lose pressure when shifting to HOLD position.

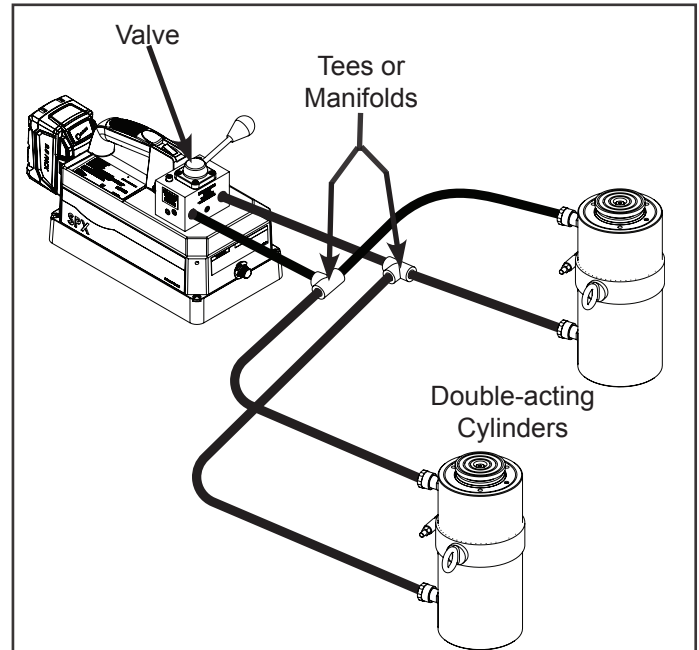
- Retract the cylinder by shifting the valve control lever to the RETRACT (Port B) position.
- Activate the pump unit if using double-acting cylinders.

## Directional Control Valve Options continued

Examples of typical work holding applications:



**SINGLE-ACTING CYLINDER(S) IN THE CIRCUIT  
CONTROLLED BY A PUMP-MOUNTED VALVE**



**DOUBLE-ACTING CYLINDER(S) IN THE CIRCUIT  
CONTROLLED BY A PUMP-MOUNTED VALVE**

Other valves are available.  
Consult your dealer, catalog or valve  
operating instructions for details of operation.

# ADJUSTING THE PRESSURE REGULATING CONTROLS

The pressure regulating valve and pressure switch are shown in Figure 6. The pressure regulating valve can be adjusted to bypass fluid at a given pressure setting while the pump continues to run. The pressure switch can be adjusted to stop the pump at a given pressure setting. To ensure accuracy and low pressure differential (approx. 300 PSI [21 BAR]) throughout the pressure range (1,000 to 10,000 PSI [70 to 700 BAR] depending on the pump model), the pressure switch should be used with the pressure regulating valve. The pressure switch must be set at a pressure lower than the pressure regulating valve to work properly.

## 1. Adjusting The Pressure Regulating Valve

**NOTE:** For easy adjustment of the pressure regulating valve, always adjust the pressure by increasing to the desired pressure setting.

- A. Loosen the locknut (B) on the pressure regulating valve, and back the adjusting screw or knob (A) out a few turns by turning it in a counterclockwise (CCW) direction. This will *decrease* the setting to a lower than desired pressure.
- B. The pump must be completely connected electrically and hydraulically. Start the pump.
- C. Slowly turn the adjusting screw or knob (A) in a clockwise (CW) direction. This gradually *increases* the pressure setting. When the desired pressure is reached, lock the adjusting screw (A) in position by tightening the locknut (B). Shut off the pump.

**IMPORTANT:** The pressure range is from 1,000 to 10,000 PSI (70 to 700 BAR) depending on the pump model.

- The pressure switch must be set at a higher pressure than working range to prevent shut down during adjustment.

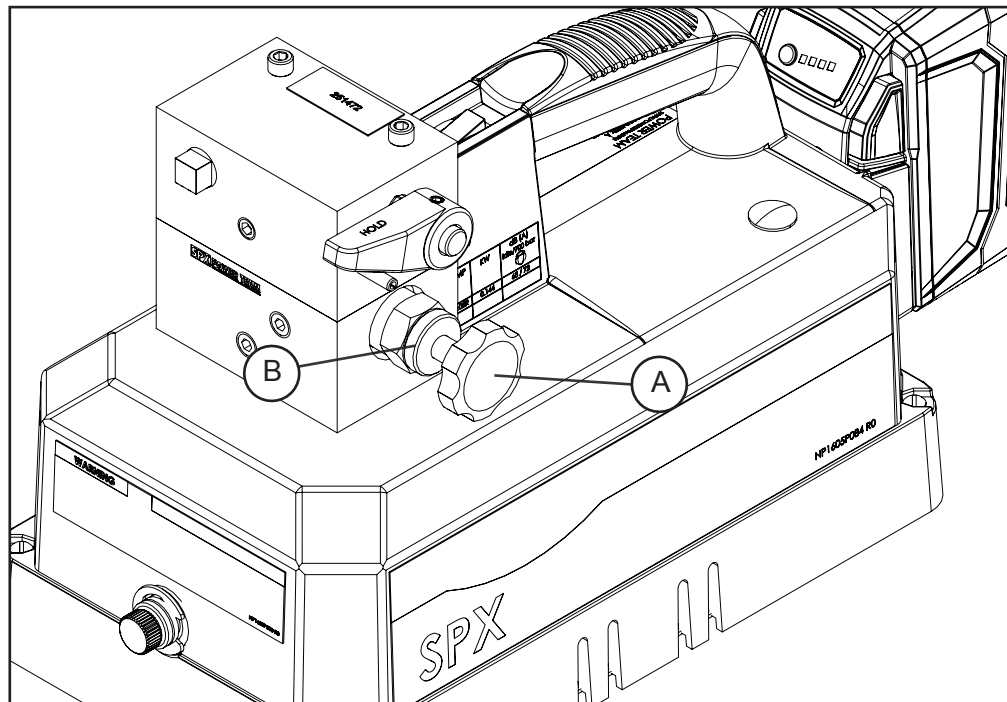


Figure 6

# PREVENTIVE MAINTENANCE

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**⚠ WARNING** To help prevent personal injury,

- Disconnect the battery from the pump before performing maintenance or repair procedures.
- Repairs and maintenance are to be performed in a dust-free area by a qualified technician.
- The frequency of fluid changes will depend upon the general working conditions, severity of use, and overall cleanliness and care given the pump.
- Three hundred hours of use under general shop conditions is considered a standard change interval. Drain, clean, and refill the reservoir only with approved Power Team hydraulic fluid

## 1. Checking Hydraulic Fluid and Filling the Bladder

**NOTE:** The hydraulic fluid level should be checked after initial set-up and after each ten hours of use.

- A. Thoroughly clean the area around the filler cap with a clean cloth to prevent contamination of the hydraulic fluid.
- B. Cylinder(s)/accessory tooling must be fully retracted and the power supply to the pump disconnected. Position the pump with the filler plug in the upright (or vertical) position.
- C. Remove the filler cap and insert a clean funnel with filter. Fill the bladder completely full with approved Power Team hydraulic fluid.
- D. Replace filler cap.

**IMPORTANT:** Tighten filler cap **ONLY 1/2 - 1 turn (MAX)** after O-ring contacts sealing surfaces. Overtightening can cause pump damage on bladder equipped pumps.

**NOTE:** For more complete instructions, reference “Checking Hydraulic Fluid and Filling the Bladder” under **SETUP INSTRUCTIONS**.

## Preventive Maintenance continued

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### 2. Maintenance Cleaning

**IMPORTANT:** Never use a high pressure washer to clean hydraulic components!

- A. Keep the pump's outer surface as free from dirt as possible.
- B. Seal all unused couplers with thread protectors.
- C. Keep all hose connections free of dirt and grime.
- D. The breather-hole in the filler cap must be clean and unobstructed at all times.
- E. Equipment connected to the pump must be kept clean.
- F. Use approved Power Team hydraulic fluid in this pump. Change as recommended (every 300 hours). Some conditions may require the use of different viscosity hydraulic fluids.

### 3. Draining And Cleaning The Bladder

**IMPORTANT:** Clean the area around the filler hole to prevent contamination of the hydraulic fluid.

- A. Remove the filler plug and drain hydraulic fluid completely.
- B. Fill bladder half full with clean hydraulic fluid. Flush bladder with clean fluid and drain.

**IMPORTANT:** Never use solvents to clean the bladder! Never disassemble the bladder from the pump!

- C. Fill the bladder completely full with clean approved Power Team hydraulic fluid.

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## TROUBLESHOOTING GUIDE

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**WARNING** To help prevent personal injury, any repair work or troubleshooting must be done by qualified personnel familiar with this equipment.

- Use the proper gauges and equipment when troubleshooting.

**NOTE:** For a detailed parts list or to locate a Power Team Authorized Hydraulic Service Center contact your nearest Power Team facility.



**WARNING** It is best to check for system leaks by using a hand pump and applying pressure to the suspect area. Watch for leaking fluid and follow it back to its source. Never use your hand or other body parts to check for a possible leak.

## Troubleshooting Guide continued

PROBLEM	CAUSE	SOLUTION
<b>Electric motor does not run.</b>  <div style="border: 1px solid black; background-color: #f4a460; padding: 2px; display: inline-block; margin-bottom: 10px;"> <b>⚠ WARNING</b> </div> <p>To help prevent personal injury, disconnect power supply before removing cover. Any electrical work should be performed by a qualified electrician.</p>	1. No voltage supply.	1. Check battery voltage. (Ensure battery is charged)
	2. Pressure switch not set properly.	2. Refer to “Adjusting The Pressure Switch” information under “Adjusting The Pressure Regulating Controls” section.
	3. Broken lead wire or defective internal wiring.	3. Contact a Power Team Authorized Hydraulic Service Center.
	4. Overheated motor has caused over current protection to disengage.	4. Wait for motor to cool before restarting.
	5. Battery does not have sufficient charge	5. Charge or replace battery.
<b>Electric motor will not shut off.</b>	1. Defective motor controls.	1. Disconnect from power supply and contact a Power Team Authorized Hydraulic Service Center.
<b>Electric motor stalls, surges, overheats or will not start under a load.</b>	1. Low voltage.	1. Refer to the “Electric Pump” information under “Pump Operation” section.
<b>Electric overload protector keeps tripping.</b>	2. Excessive load.	2. Allow to cool then restart.
	3. Damaged wires or components.	3. Return to service center.
<b>Pump is not delivering fluid or delivers only enough fluid to advance cylinder(s) partially or erratically.</b>	1. Fluid level too low.	1. Fill reservoir or bladder according to directions “Filling The Pump Bladder” under “Set-up Instructions” section.
	2. Quick disconnect couplings are not completely coupled.	2. Check quick-disconnect couplings to cylinders to ensure that they are completely coupled. Occasionally couplers have to be replaced because the ball check does not stay open due to wear.
	3. Air in system.	3. Refer to the section titled “Bleeding the System” under “Set-up Instructions” section.
	4. Cold fluid or fluid too viscous.	4. Hydraulic fluid is of a higher viscosity than necessary. Change to a lighter fluid.

## Troubleshooting Guide continued

PROBLEM	CAUSE	SOLUTION
<b>Pump builds pressure but cannot maintain pressure.</b>	5. Bladder capacity is too small for the size of cylinder(s) used.	5. Use smaller cylinder(s) or larger bladder if possible..
	1. External leaks.	1. Seal leaking pipe fittings with pipe sealant. Replace leaking pipes or hoses.
	2. Internal or external leakage on hydraulic cylinder.	2. Remove the cylinder from pump. If the pump builds and maintains full pressure, the cylinder is defective. Contact a Power Team Authorized Hydraulic Service Center.
	3. Leaking control valve or check valve	3. Contact a Power Team Authorized Hydraulic Service Center.
<b>Pump will not build full pressure.</b>	1. Faulty pressure gauge.	1. Calibrate gauge.
	2. Check for external leakage.	2. Seal faulty fittings with sealant. Replace leaking pipes or hoses.
	3. Improperly adjusted external pressure regulator setting.	3. Refer to “Adjusting The Pressure Regulator Valve” information under “Adjusting the pressure Regulating Controls” section.
	4. Internal or external leakage on hydraulic cylinder.	4. Remove the cylinder from the pump. If the pump builds full pressure, the cylinder is defective. Contact a Power Team Authorized Hydraulic Service Center.
	5. Inadequate power supply.	5. Refer to “Pump Operation” section.
	6. Leaking control valve or defective pump.	6. Contact a Power Team Authorized Hydraulic Service Center.



## Troubleshooting Guide continued

PROBLEM	CAUSE	SOLUTION
Cylinder(s) will not retract or extend.	1. Quick disconnect couplings are not completely coupled.	1. Check quick disconnect coupling to cylinders to ensure that they are completely coupled. Occasionally couplers have to be replaced because the ball check does not stay open due to wear.
	<p><b>⚠ DANGER</b></p> <p><b>A Double acting cylinder or ram must have <i>both</i> hoses and all couplers securely connected to both ports. If one of the two ports is restricted or becomes disconnected, pressure will build and the cylinder, hose or coupler can burst, possibly causing serious injury or death.</b></p>	
Pump delivers excess oil pressure.	2. Broken return spring in spring return cylinder or seals blown in double-acting cylinder.	2. Contact a Power Team Authorized Hydraulic Service Center.
	1. Faulty pressure gauge.	1. Calibrate gauge.
	2. Relief valve not properly set.	2. Contact a Power Team Authorized Hydraulic Service Center.

## EC DECLARATION OF CONFORMITY

We declare under our sole responsibility that our Electric Pump Model:

PB102, PB102P, PB102R, PB102A, PB104, PB102-1, PB102P-1, PB102R-1, PB102A-1, PB104-1, PB102-2, PB102P-2, PB102R-2, PB102A-2, PB104-2

to which this declaration relates are in conformity with the following:

### EN, EN-ISO, ISO standards

### Title

#### **Per the provisions of the Machinery Safety Directive**

#### **2006/42 EC**

EN\_ISO 12100:2011

Safety of machinery, basic concepts, general principles for design, risk assessment & risk reduction

EN 4413:2010

Hydraulic Fluid Power – general rules and safety requirements for systems & their components

#### **Per the provisions of the EMC Directive**

#### **2014/30 EU**

EN\_61000-4-2:2008

Electromagnetic Discharge Immunity test

EN\_61000-4-3:2006

Radiated, Radio Frequency, Electromagnetic Field Immunity test

+A2:2010

EN\_61000-4-4:2012

Electrical Fast Transient / Burst Immunity test

EN\_61000-4-5:2014

Surge immunity test

EN\_61000-4-6:2014

Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields

EN\_61000-4-11:2004

Voltage Dip and Interrupt test

EN 55011:2016

Industrial, Scientific and Medical (ISM) Radio Frequency Equipment-Electromagnetic Disturbance Characteristics-Limits and Methods of Measurement

#### **Per the provisions of the Battery Directive**

#### **2006/66/EC**

IEC 61960

Secondary Lithium Cells and Batteries for Portable Applications

#### **Per the provisions of the Noise Emission**

#### **2000/14 EC**

#### **in the Environment by Equipment for Use Outdoors Directive**

EN\_3200L0014

Noise emission in the environment for use outdoors

ISO 3744:2010

Sound Power Level Measurements

#### **SPX Hydraulic Technologies**

5885 11<sup>th</sup> Street  
Rockford, IL 61109-3699  
United States of America

measured sound power level on an equipment representative for this type :

68 dB(A)

guaranteed sound power level for this equipment :

74 dB(A) or less

#### **Per the provisions of the RoHS Directive**

#### **2015/863 EU**

Restriction of the use of certain hazardous substances in electrical and electronic equipment

#### **SPX Hydraulic Technologies**

Andreas J. Klemm  
SPX Hydraulic Technologies  
Albert Thijsstraat 12  
NL-6471 WX Eyselshoven  
The Netherlands

We hereby declare that the equipment specified conforms to the above European Communities Directive(s) and Standard(s).

The Netherlands

March 26, 2017



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Andreas J. Klemm, Eng. & Ops. Site Leader

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[www.spxflow.com](http://www.spxflow.com)


SPX Flow Powerteam Customer Service:  
 (800) 541-1418

## MILWAUKEE TOOL CORPORATION CONTACT

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[www.milwaukeetool.com](http://www.milwaukeetool.com)

Milwaukee Tool Customer Service:  
 (800) 729-3878

## California Proposition 65 Warning

This product contains or may contain chemical(s) known to the state of California to cause cancer or other reproductive effects.