DC Power Pack
Installation & Owner’s Manual
# Table of Contents

## Section 1 – DCPP Installation & Operation Procedures
- 1. Mounting
- 2. Oil Recommendations
- 3. Filtration
- 4. Filling and Bleeding Air from the System
- 5. Relief Valve
- 6. Maintenance
- 7. Electrical

## Section 2 – DCPP Component Wiring Details
- Motor Wiring Details
- DIN Connector Wiring Details
- Standard Controller
- Snow Plow Controller

## Section 3 – DCPP Unit Wiring Details
- LP1A-0****-000-A
- LP1A-3****-020-C & LP1A-3****-060-C
- LP1A-4****-000-C & LP1A-4****-020-C
- LP1A-4****-100-C
- LP1A-2****-100-C
- LP1A-3****-060-M
- LP1A-4****-040-M

## Section 4 – Dimensional Details
- Central Manifold
- Optional Mounting Bracket

## Section 5 – Owner’s Manual
- Troubleshooting
- DC Power Pack Warranty
Section 1 - Installation & Operation Procedures

1. Mounting
   - Mount the power pack on a solid and level surface free of debris, collision, vibration and weather conditions to ensure proper functionality of the power pack.
   - The unit contains two 7/16-20 threaded holes located on the bottom and side of the manifold to provide flexibility in mounting the unit horizontally or vertically (see page 15-16 for details).
     **Note:** Only mount in the vertical position if the intended use of the power pack is for the vertical orientation.
   - An optional mounting bracket (5623512400CA) is available for better mounting stability of the power pack (see page 16 for details).

2. Oil Recommendations
   - Use quality hydraulic oil with additives for inhibiting rust, oxidation, anti-wear, anti-foam, etc. Oil must be compatible with BUNA-N seals. ATF is acceptable for most applications and climates.
   - Oil viscosity is important for proper operation.
     ▪ The oil’s pour point should be equal to or lower than the coldest temperature in which the unit is operating.
     ▪ Oil that is too thin (low viscosity) can result in poor performance, leaks and premature wear. This is especially true in hot climates or as the system’s oil temperature rises.
     ▪ Viscosity should stay between 400 SUS maximum and 80 SUS minimum, 210-130 SUS optimum.
   - Do not exceed 160°F. Ideal oil temperatures are 70°F - 120°F.
   - Water in the oil can cause performance issues and damage system components.

3. Filtration
   - Oil should be filtered or strained when filling the reservoir. The presence of contaminants in the fluid can effect operation and drastically reduce equipment life.
   - The pump suction line is equipped with a 60 micron suction filter strainer and should be cleaned when the oil is changed.

4. Filling and Bleeding Air from the System
   - Make sure the reservoir is free of dirt and debris before you begin to add oil.
   - Begin to add oil to the reservoir until it has been completely filled.
   - Jog the electric motor to prime the pump.
   - Initial startup should be done under a no-load condition until all lines and cylinders have been properly filled. In most cases, the pressure line(s) may need to be loosened to allow additional air (foamy oil) to be purged.
     ▪ Purge the system until a clear stream of oil is seen. Use care when doing this to avoid contact with any oil spray.
     ▪ Catch all oil in a container and dispose of properly.
     ▪ Jog the electric motor during this process and continually check the oil level in the reservoir, refilling as needed. Short cylinder strokes, followed by longer strokes while checking fluid level, works best.

5. Relief Valve
   - Setting the relief valve is critical for operational and safety reasons. After purging the system, but prior to operation, set the relief valve to the desired maximum limit (the relief valve has been preset to 2500 PSI). This is best done using a pressure gauge connected to the pressure line. Do not operate against the relief valve setting for extended periods of time.
6. **Maintenance**
   - Keep the unit clean and dry, look for any leaks and repair if needed.
   - Do not pressure wash.
   - Check the wiring for corrosion and for sound connections. Clean and tighten as necessary.
   - Check oil level and top off as needed.
   - Change annually (or as needed) and use the same type of oil that was previously used with the power pack.

7. **Electrical**
   - Make sure the power pack has been properly connected with the appropriate size wiring.*
   - Most chassis manufacturers recommend a dedicated circuit for the DC Power pack. A high amperage fuse or circuit breaker is typically required for proper protection.

*Use same gauge wire for both power and ground leads from battery to motor.

![Graph](image_url)

**CABLE GAUGE SIZE (INCHES)**
(COPPER BUNDLE-NO INSULATION)

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Diameter (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4</td>
<td>0.20</td>
</tr>
<tr>
<td>#2</td>
<td>0.25</td>
</tr>
<tr>
<td>#1</td>
<td>0.28</td>
</tr>
<tr>
<td>#0</td>
<td>0.30</td>
</tr>
<tr>
<td>#00</td>
<td>0.35</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Current (Amps)</th>
<th>#4</th>
<th>#2</th>
<th>#1</th>
<th>#0</th>
<th>#00</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 2 – DCPP Component Wiring Details

Motor (12V DC) – 56250A180L0H

1. Disassemble the DIN connector.
2. Using two pieces of 16 gauge insulated wire, pass one end of the wire through the DIN connector in the following order:
   a) Bushing
   b) Bushing Gasket
   c) Cover
3. Strip ¼” of insulation from the end of each wire.
4. Loosen the terminal screws from T1 “+” & T2 “–” on the connector.
5. Insert one of the stripped ends into T1 “+” through the hole in the top of the connector and tighten the screw; repeat for T2 “–”.
6. Carefully slide the cover down over the connector and insert the top screw.

DIN Wire Connection Procedure

DIN Connector – 78C00100500A

Controller – 150123019A0U*

Note: Black wire and ring terminal shipped loose.

*Controller shown is the standard controller; the weather resistant controller is P/N 15012304001S.
1. Select the rocker switch that controls the single acting function.

2. Remove the female spade conversion connector from the rocker switch spade. Do NOT cut the wires from the connector.

3. Insulate the connector with an insulated male spade connector or electrical tape. Insure that the connector or wire cannot short against any other terminal.

**Note:** Converting to a single acting function allows the solenoid valve to shift without activating the electric motor/pump during "lower" or "down" switch operation. The new style controller will operate on BOTH 12VDC & 24VDC.
To ensure proper installation of your DCPP unit, begin by wiring each DIN connector equipped with your DCPP unit by completing steps 1-6 on page 5. After the DIN connectors have been wired, begin to connect the proper controller wires to your DCPP unit. Refer to pages 13-14 for manual valve wiring.

*Where Applicable*
Solenoid 1: 2-Position 2/3-Way Single Acting

See page 5 for motor wiring details

*Where Applicable
Muncie Power Products, Inc.

Hydraulic Schematic

Solenoid Valve

Solenoid 1: 2-Position 4-Way Single Acting

Note: Not for use on truck mounted dump body applications that require a downside relief for proper hoist structure protection; see LP1A-4****-100-C.

Connecting Harness – 78XK01C03020

See page 5 for motor wiring details

12V DC Battery

12V DC Motor

Relief Valve

Motor

Check Valve

Suction Filter

Reservoir

Breather Cap

Breather Cap

Central Manifold

Drive Coupling

Pump

Suction Filter

Reservoir

See page 5 for motor wiring details

Motor "-"

Motor "+

Relief Valve

Check Valve

Pump

Suction Filter

Reservoir

Breather Cap

Prepared by: JSB/ENG/29 - March 2011

IN11-00 (DCPP Installation Manual) - Preliminary.doc
See page 5 for motor wiring details.

Jumper Harness – 78XX01C03020

Connect To Controller - Brown Wire

Connect To Controller - Blue Wire

Connect To Relay Spade Terminal

Connect To Wire 1

Connect To Wire 3

Connect To Jumper Harness - Connector C

Connect To Motor “~” Terminal

Solenoid 1 Torque Nut to 60 in. lb

Port “C1”

Port “C2”

Reservoir

12V DC Motor

Motor “~”

Relay “4”

Central Manifold

Suction Filter

Relief Valve

Wire 1

Wire 2

Wire 3

Wire 4

Flow Control

Pump

Breather Cap

Reservoir
Hydraulic Schematic

Solenoid Valve Angle

Check Valve

Cross Over Relief Valve

Solenoid Lower

Solenoid Raise

Relief Valve 2000 psi

Pump

Suction Filter

Reservoir

Breather Cap

Drive Coupling

Motor

Solenoids 1 & 2: 3-Position 4-Way Double Acting

Solenoids 3 & 4: 2-Position 3-Way Single Acting

Black Connect To Motor "-" Terminal

Black Connect To Relay "-" Terminal

Black Connect To Spade Terminal

Connect To Relay "+" Terminal

Connect To Wire #5

Connect To Wire #6

Connect To Wire #7

Connect To Wire #3

Connect To Wire #4

12V DC Battery

See page 5 for motor wiring details

See page 5 for motor wiring details
*Torque nut to 60 In. Lb.
Muncie Power Products, Inc.

Preliminary
Manual Hand Valves

LP1A-3****-060-M

Hydraulic Schematic

Motor
Central Manifold
Check Valve
Manual Solenoid Valve
Drive Coupling
Breather Cap
Pump
Suction Filter
Reservoir
Relief Valve

2-Position 3-Way Double Acting

Connect to Motor *-*" Terminal
Connect to Relay *+" Terminal

12V DC Battery
See page 5 for motor wiring details

Motor *-*
Relay *-
Relief Valve
Central Manifold
Pump
Suction Filter
Check Valve
Wire 2
Connect to Relay *+" Terminal
Wire 1
Connect to Relay Spade Terminal
Reservoir
Breather Cap

See page 5 for motor wiring details
3-Position 3/4-Way Double Acting

See page 5 for motor wiring details.
Section 4 - Dimensional Details

Central Manifold Details

5620121031AB – Used in LP1A-4****-100-* & LP1A-4****-101-*

5620121031BT – Used in all other DCPP models

*Check Valve Cavity is N/A for the 562012031AB central manifold.

Note: Surface machined to accept either port fitting or adapter blocks for adding Cetop valves.

Note: Manifold must be used with 56285608546B/C port relief valve block.
Bottom View – Both Manifolds

Optional Mounting Bracket - 5623512400CA
Listed below is a trouble shooting guide for DC power packs. Analysis and proper repair can be shortened with the use of a hydraulic pressure gauge (0-5000) and an electric multi-meter (Volts, Ohm). All work should be done by qualified personnel. Before starting, make sure:
- All electrical connections have been properly made.
- The reservoir is full of oil.
- Battery(s) are fully charged and functional.
- Remove all jewelry and metal that may come in contact with electrical connections.

**Note:** The DC motor is protected from overheating as a result of electrical overload with the use of a thermocouple set to kick out at 203°F, +/- 5%.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor does not run</td>
<td>Low voltage</td>
<td>Check battery charge/functionality</td>
</tr>
<tr>
<td></td>
<td>Poor Ground</td>
<td>Check wiring and connections</td>
</tr>
<tr>
<td></td>
<td>Pump seized</td>
<td>Repair or replace</td>
</tr>
<tr>
<td></td>
<td>Heat overload</td>
<td>Let thermocouple reset</td>
</tr>
<tr>
<td>Pump noisy</td>
<td>Low oil supply</td>
<td>Fill to proper level</td>
</tr>
<tr>
<td></td>
<td>Heavy oil</td>
<td>Change to proper oil</td>
</tr>
<tr>
<td></td>
<td>Strainer plugged</td>
<td>Clean or replace</td>
</tr>
<tr>
<td>Cylinders Drift (Power off)</td>
<td>Leakage at pump check valve</td>
<td>Clean or replace</td>
</tr>
<tr>
<td></td>
<td>Leakage through solenoid valve</td>
<td>Clean or replace</td>
</tr>
<tr>
<td></td>
<td>Cylinder internal leakage</td>
<td>Rebuild or replace</td>
</tr>
<tr>
<td></td>
<td>Air trapped in cylinder</td>
<td>Purge trapped air</td>
</tr>
<tr>
<td>Motor runs but cylinders do not move or are slow</td>
<td>Low voltage</td>
<td>Check battery charge/functionality</td>
</tr>
<tr>
<td></td>
<td>Poor ground</td>
<td>Check wiring and connections</td>
</tr>
<tr>
<td></td>
<td>Solenoid coil</td>
<td>Check coil for damage/operation</td>
</tr>
<tr>
<td></td>
<td>Solenoid damage</td>
<td>Clean or replace</td>
</tr>
<tr>
<td></td>
<td>Insufficient relief valve pressure</td>
<td>Set to correct pressure</td>
</tr>
<tr>
<td></td>
<td>Low oil supply</td>
<td>Fill to proper level</td>
</tr>
<tr>
<td></td>
<td>Leakage through solenoid valve</td>
<td>Clean or replace</td>
</tr>
<tr>
<td></td>
<td>Cylinder internal leakage</td>
<td>Rebuild or replace</td>
</tr>
<tr>
<td></td>
<td>Load too heavy</td>
<td>Set RV to correct pressure w/ gauge</td>
</tr>
<tr>
<td></td>
<td>Air trapped in cylinder</td>
<td>Lighten load</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Purge trapped air</td>
</tr>
</tbody>
</table>
Muncie’s DC power pack is warranted against any defect in material and workmanship which existed at the time of sale by Muncie, according to the following provisions, subject to the requirements that the product must be used only in accordance with catalogue and package instructions.

The DC power pack is warranted for a period of one year from the date of installation*, or eighteen months from the marked date code, whichever comes first. If during the warranty period the DC power pack fails to operate to Muncie’s specifications due to defect in any part in material or workmanship that existed at the time of sale by Muncie, the defective part will be repaired or replaced, at Muncie’s election, at no charge, if the defective part is returned to Muncie with transportation prepaid.

**Warning:** The above warranty shall terminate if any alterations or repairs are made to the DC power pack other than by Muncie Power Products, or if the DC power pack is used on any equipment other than the equipment upon which it is first installed.

The foregoing warranties are in lieu of all other obligations and liabilities, including negligence and all warranties of merchantability and suitability, expressed or implied and state Muncie’s entire and exclusive liability and buyer’s exclusive remedy for any claim of damages in connection with the sale, repair or replacement of the above goods, their design, installation or operation. Muncie will in no event be liable for any direct, indirect, special, incidental or consequential damages whatsoever, and our liability under no circumstances will exceed the contract price for the goods for which liability is claimed.

*Normal maintenance items such as connectors, motor, motor relay, etc. are limited to a 90 day warranty period.