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DUAL STAGE PULLTARP TOWER SYSTEMS
Mounting the Tower System

Step 1: Mount the Tower Base onto the Frame Rails and leave at least 6” of space between Cab and Tower (Fig. 1). Verify there is enough space between Cab and Tower. Mount with Weld Brackets (Fig. 2) or U-Bolt Brackets (Fig. 3).

Step 2: With a team member, lift the Housing & Support Tray then place on top of Tower Base. Secure with the supplied hardware (Fig. 4A through 4D).

Note: Make sure the Tower Base is level and secured before mounting.
Hydraulic Pump Positioning

**Step 3:** The pump for the **SuperShield™ 9500M** can be mounted on either side of the tower for Driver access (Fig. 5). The pump for **Open 9000M** can also be mounted on either side of the tower for Driver access (Fig. 6).

---

**To Increase Tension:**
1. Pull tarp out as far as possible and tie off at tailgate.
2. Remove Ratchet Lock. Turn ratchet nut clockwise 5 turns at a time.
3. Test operation and repeat steps 1 through 3 if necessary.

**WARNING:** Physical harm could occur if all tension is not removed before removing this plate.

**To Disengage Lever:**
- Remove Ratchet Lock & Insert Screwdriver Here

**To Decrease Tension:**
1. Remove Ratchet Lock. Place box end wrench on ratchet nut. Turn ratchet nut slightly to the right and don't let go.
2. Insert screwdriver to disengage lever. Hold wrench with both hands and slowly unwind spring pressure.
3. When desired tension is achieved, remove screwdriver allowing release lever to reengage ratchet gear.
4. Reinstall the Ratchet Lock.
Installing the Hydraulic Pump

**Step 4:** Secure the Hydraulic Pump to the corresponding side of the Tower Base using the supplied mounting hardware (Fig. 7A, B & C).

**Step 5:** Rotate the Hydraulic Connectors to face the tower (Fig. 8).

**Note:** Hydraulic fluid may leak when removing the caps at the end of each hose.

**Step 6:** Attach the first Hydraulic line, marked green and yellow, to the first connector (Fig. 9).

**Note:** Use a backup wrench when attaching Hydraulic line.
Installing the Hydraulic Pump

**Step 7:** Attach the second Hydraulic line (Marked Red) to the second (outer) Hydraulic connector (Fig. 10).

**Note:** Use a backup wrench when attaching Hydraulic line.

**Step 8:** Check the lines to make sure there aren’t any leaks from the Hydraulic lines (Fig. 11).
Attaching the Manual Control Box to the Tower

**Step 9:** Shown below (Fig. 12A) is the Mounting Plate installed without the Control Box. The Mounting Plate is engineered to hold four (4) different Control Systems (Fig. 12B).

**Control Box Mounting Positions (4 Mounting Holes for each)**
1. Roll-Rite Control Box (Electric Tower Only)
2. Smart Switch Control Box (Electric Tower Only)
3. Manual Control Box
4. Icarus Blue Tooth Control Box (Pending)

**Fig. 12A**

**Fig. 12B**
Attaching the Manual Control Box to the Tower

**Step 10:** Align the four (4) holes on the Control Box with the corresponding holes on the Mounting Plate (Fig. 13). See mounting guide in Step 9 for reference.

**Step 11:** Place the mounting screws through the front of the Control Box, through the mounting plate and secure with a Nylock Nut. Use a wrench to hold the Nylock Nut in place while you tighten with a Philips Screw Driver (Fig.14A-C).

**Step 12:** Place the mounted Switch on the Tower Mount (Fig. 15), see Step 3 for proper mounting position. Insert the Carriage Bolts from the back side of the Tower Mount (Fig. 16). Once all four (4) bolts and nuts are mounted, tighten securely onto the Tower (Fig. 17).

*Note:* You may need an assistant to safely mount the Control Box.
Connecting Control Box to Hydraulic Pump

Step 13: Once the Control Box is secured, take the end of the attached power cable and insert into wiring harness cover (Fig. 18).

Step 14: Pull the wires through the other end of the wire cover hole. Make sure the full wire is pulled through (Fig. 19).

Step 15: Take the White wire with the small Blue Connector and attach to the single bolt on the Distribution Box. Secure with washer and nut (Fig. 20A & B).

Step 16: Connect Red Wire and Power Plug Wire with Blue Connector to Copper Bolt. Then place washer and nut on bolt and secure (Fig. 21A & B).

Step 17: Connect the Power Plug Ground Wire and Black Ground Wire to the positions shown (Fig. 22A). Securely tighten with nut (Fig. 22B).

Step 18: Connect the Black and Green wires with the Pin Connectors to the Black Box next to the Distribution Box (Fig. 23A & B).
Adding Hydraulic Fluid to Pump Reservoir

**Dextron II ATF**

or

**32 Grade Hydraulic Oil**

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**Step 19:** Fill pump reservoir with two (2) quarts of Automatic Transmission Fluid or 32 Grade Hydraulic oil (not supplied) (Fig. 31).

**Step 20:** After filling, reinsert filler cap and secure. Check system for leaks (Fig. 25).
Installing Hydraulic Protective Cover

**Step 21:** Facing the back of the Tower System, take the Hydraulic Case back panel and attach with supplied hardware (Fig. 26).

**Step 22:** Take the second panel that is bent at two points and attach to the back plate and tower (Fig. 27).

**Step 23:** Secure the Hydraulic Cover lid and remove any remaining tape (Fig. 28).
RATCHET & ROLLERTUBE OPERATION

To Increase Tension:
1. Pull tarp out as far as possible and tie off at tailgate.
2. Remove Ratchet Lock. Turn ratchet nut clockwise 5 turns at at time.
3. Test operation and repeat steps 1 through 3 if necessary.

WARNING:
Physical harm could occur if all tension is not removed before removing this plate.

To Disengage Lever, Remove Ratchet Lock & Insert Screwdriver Here

To Decrease Tension:
1. Remove Ratchet Lock. Place box end wrench on ratchet nut. Turn ratchet nut slightly to the right and don’t let go.
2. Insert screwdriver to disengage lever. Hold wrench with both hands and slowly unwind spring pressure.
3. When desired tension is achieved, remove screw driver allowing release lever to reengage ratchet gear.
4. Reinstall the Ratchet Lock.
Installing Tarp and Adding Spring Tension to Ratchet

**Step 1:** Align the Roller Tube groove with the Slot in the Housing (Opposite of the Ratchet Plate). Take the end of the tarp with the Hemtube and insert it into the system housing (Fig. 29).

*Note: Make sure the Pulltarps logo is facing up.*

**Step 2:** Carefully slide the tarp through the Roller Tube groove until the tarp is centered.(Fig. 30).

**Step 3:** Fully extend tarp and tie off on the Tailgate (Fig. 31).

**Step 4:** Remove the Ratchet Lock Nut and Star Lock Washer (Fig. 32A, B & C).

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Installing Tarp and Adding Spring Tension to Ratchet

Step 5: With the included Ratchet Wrench, turn the ratchet nut clockwise 35 - 40 winds (Fig. 33).
Note: Insert 3/8” bolt into Lock Nut hole for added safety.

Step 6: Test the spring tension by having a team member hold the end of the tarp while the other team member removes the 3/8” bolt holding the Roller Tube in place. Let go of tarp while holding Pullrope, and if tarp returns to the housing, no more winds are needed. If more winds are needed, repeat Steps 3-5 then add 5 winds and test again. (Fig. 34).

Step 7: Reinstall the Ratchet Lock (Fig. 35A & B).

NOTE: Tarp must be fully extended when adding tension to the spring.
Removing Spring Tension from Ratchet

**Step 1:** Remove the Ratchet Lock Nut and Star Lock Washer (Fig. 36A & B).

**Step 2:** Insert screwdriver to disengage lever (Fig. 37). Hold wrench and slowly unwind spring pressure (Fig. 38).

**Step 3:** When desired tension is achieved remove screwdriver, allowing release lever to reengage ratchet gear (Fig. 39A & B).

**Step 4:** Reinstall the Ratchet Lock (Fig. 40).
TOWER OPERATION
Extending & Retracting Tarp

**IMPORTANT:** Thank you for purchasing your new Pulltarps Tower. Before you start using your new tower, please ensure that you carefully read and understand these instructions and make sure that you always operate this equipment in a safe manner.

**WARRANTY:** Pulltarps warrants that the products are free from defect in workmanship and material under normal and proper use and on condition that the machine has been used in accordance with the operating instructions. The warranty period is 12 months or time of operation corresponding to this, from the date the machine is installed by the customer.

The tarp itself is not guaranteed for tearing or wearing out; however, it is guaranteed against defects in workmanship and materials for a period of six months from the date of purchase.

**Step 1:** Raise tower as high as possible to keep tarp from dragging on the load in the container (Fig. 40). Ensure Pull Rope is untied and accessible. **Note: Never operate vehicle with tower extended.**

**Step 2:** Pull the tarp over the container past the tarp return ramps. When deploying and retracting, be sure there are no obstructions protruding from the box that will interfere with operation of the tarp system (Fig. 41).

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Extending & Retracting Tarp

Step 3: Pull the Pullbar past the Tarp Return Ramps, then slowly seat the Pullbar into the Tarp Return Ramps (Fig. 42).

Step 5: Slowly lower the tower so that the tarp wraps neatly around the container (Fig. 44).

Step 4: Secure the Pull Rope on the Rope Hooks at the end of the container. (Fig. 43).

Step 6: To retract the tarp, raise the tower completely, then pull the Pull Rope until the Pullbar clears the Tarp Return Ramps and let the spring tension retract the tarp into the housing. Flip the rope over the box towards the rope hooks on the front of the container (Fig. 45).
Extending & Retracting Tarp

Step 7: Lower tower completely (Fig. 46). After Tower is fully lowered, secure Pull Rope and Rope Hooks (Fig. 47).

Note: Never operate vehicle with tower extended.

WARNING: Never operate the vehicle with tower extended; it might cause serious injuries or damages.
TOWER MAINTENANCE
Hydraulic Pack, Oil Levels & Filtration

**Step 1:** For maintenance purposes, you will have to separate tank from the power unit (Fig. 48A & B). Be sure to have O-ring installed before assembling again. Forgetting this step will cause fluid to gush out.

*Note:* There are 4 bolts and brackets in between valve block and tank.

**Step 2:** The level of oil inside the reservoir should be verified daily and topped up if necessary (Fig. 49).

If you see a change in the need to add oil to the system, there may be a system problem where oil is leaking from the hydraulic circuit.

**Step 3:** Each system comes equipped with a filtered filler-breather to help prevent foreign material from contaminating the hydraulic oil reservoir. Over time, the breather can become clogged and it should be replaced regularly. In addition, a suction strainer is mounted to the intake side of the hydraulic pump, and is located inside the reservoir (Fig. 50).

*Note:* The suction filter should be cleaned or replaced as part of a regular maintenance routine.
Recommended Scheduled Maintenance

### Daily Maintenance
- Check hydraulic hoses for wear, tear and leaks.
- Check mechanism for any damage.
- Check tarpaulin for tears.
- Check if the system operates smoothly.

### Weekly Maintenance
- Check mechanism for any excessive wear and tear.
- Check hydraulic hoses and components for leak and damage.
- Check arm spring tension.
- Check hydraulic fluid in power unit. Check the level with tower fully lowered, to top of the side indents.

### Monthly Maintenance
- Verify the tightness of hydraulic fittings, do not over tighten.
- Verify the tightness of the fasteners.
- Check welds and other joins for cracks.
- Apply grease to inner stages.

### Two Year Maintenance
- Clean and wipe tank.
- Flush out Oil.
- Replace Intake Strainer.
### Hydraulic Pack Diagnostics

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<tr>
<th>Issue</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Pack won’t lift load.</strong></td>
<td>Check fluid level.</td>
<td>If there is not enough oil in the unit, you will not be able to operate the actuator.</td>
</tr>
<tr>
<td></td>
<td>Gear Pump might not be priming.</td>
<td>Remove relief valve, operate pump for a few seconds until fluid comes out of port, replace relief valve and rety unit (See Fig. 46).</td>
</tr>
<tr>
<td></td>
<td>Air being introduced in system.</td>
<td>If air is being introduced in the system, the gear pump might have some priming problems.</td>
</tr>
<tr>
<td><strong>Motor not running.</strong></td>
<td>Check for power connection to DC Motor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check power to start solenoid.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check connections at the battery.</td>
<td></td>
</tr>
<tr>
<td><strong>Start solenoid just clicks, Motor not turning.</strong></td>
<td>Check for loose wire from start solenoid to DC motor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Make sure you use a minimum of 6 gauge of wire from your battery to the unit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check for cracked housing on start solenoid, if so, replace start solenoid.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If an older unit, check for rust buildup inside DC motor.</td>
<td></td>
</tr>
<tr>
<td><strong>Electric Motor will not stop running.</strong></td>
<td>Low battery or poor ground connection has caused the start solenoid to weld on.</td>
<td>Replace start solenoid and check battery and ground. Ground must be connected directly to battery.</td>
</tr>
<tr>
<td><strong>Excessive heat from unit.</strong></td>
<td>A bad electrical ground or poor battery performance will cause motor to generate more heat.</td>
<td>Verify battery and ground for good performance.</td>
</tr>
</tbody>
</table>
Motor Check Out Procedure

1. Remove leads from motor and attach volt meter to leads.
2. With the switch in the ON position, the volt meter should read 12 on 12 volt system and 24 on 24 volt system. If voltage is low, re-check with engine running and inspect wiring and connections (minimum 6 gauge wire must be used).
3. Return switch to the neutral position and reattach leads to motor.
4. Attach volt meter to leads at the motor.
5. With the switch in the ON position and the leads attached, the volt meter should read 10.5 on 12 volt system and 18.5 on a 24 volt system. If voltage is low, re-check with engine running. Recheck wiring and connections (minimum 6 guage wire must be used).
6. Return switch to the neutral position and attach amp meter to leads at the motor.
7. With the switch in the ON position, the amp meter should read approximately 30 amps. A constant amperage reading of over 50 amps indicates binding in the system and/or low voltage.
8. Check 100 amp breaker for failure.

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**Power Wire Connections**

Figure 51 shows the proper wire connections.

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**Fig. 51**

*Ground Connections*

*Motor Power Connections*
COMPONENTS
Dual Stage Pulltarp Tower - #513-0019

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<td>Tower Tray Hardware Kit</td>
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<td>514-9986</td>
<td>10’ Pump Power Wire</td>
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<td>Steel Rope Hook Kit</td>
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<td>Pull rope 50’ with Bungee</td>
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<td>105” Pullrod with Hardware Bag</td>
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Dual Stage Pulltarp Tower
Installation Instructions

SuperShield™ 9500M 100” Tower Assembly with Tray - #513-0082

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<td>501-0801</td>
<td>System End Plate Stud</td>
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<td>5/16” - 18 Nylock Nut Steel</td>
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Open 9000M 102” Tower Assembly with Tray - #513-0073

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<td>System End Plate Stud</td>
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<td>501-1369</td>
<td>102” Roller Assembly</td>
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<td>5/16” - 18 x 5/8” Carriage Bolt</td>
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<td>1/2” AN Washer 1/16” Thick (Not Shown)</td>
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Tower Tray Hardware Kit - #501-0687 (Illustrations not to scale)

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<td>1/4&quot; - 20 USS Nylock Nut</td>
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<td>3/8&quot; - 16 Nylock Nut “Thin”</td>
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<td>504-5004</td>
<td>1/2&quot; - 13 Nylock Nut</td>
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<td>Washer 3/8&quot; SAE Flat Zinc</td>
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<td>505-5004</td>
<td>1/2&quot; USS Flat Washer</td>
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<td>13</td>
<td>506-9905</td>
<td>10 - 32 x 1/2&quot; Philips Pan Head Screw</td>
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<td>Universal Tower Switch Plate</td>
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WLH 09/25/18
105" Pullrod with Hardware - #501-0420 (Illustrations not to scale)

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<td>Reliance Sleeve</td>
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<td>505-0201</td>
<td>Pullrod Washer 2-1/2&quot;</td>
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<td>506-2502</td>
<td>1/4&quot; - 20 x 1&quot; Slotted Hex</td>
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<td>1-1/4&quot; Greay PVC</td>
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<td>517-0606</td>
<td>105&quot; Pullrod</td>
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WLH 10/08/18

For technical support call us at (877) 861-6265 or visit our website at Pulltarps.com.