



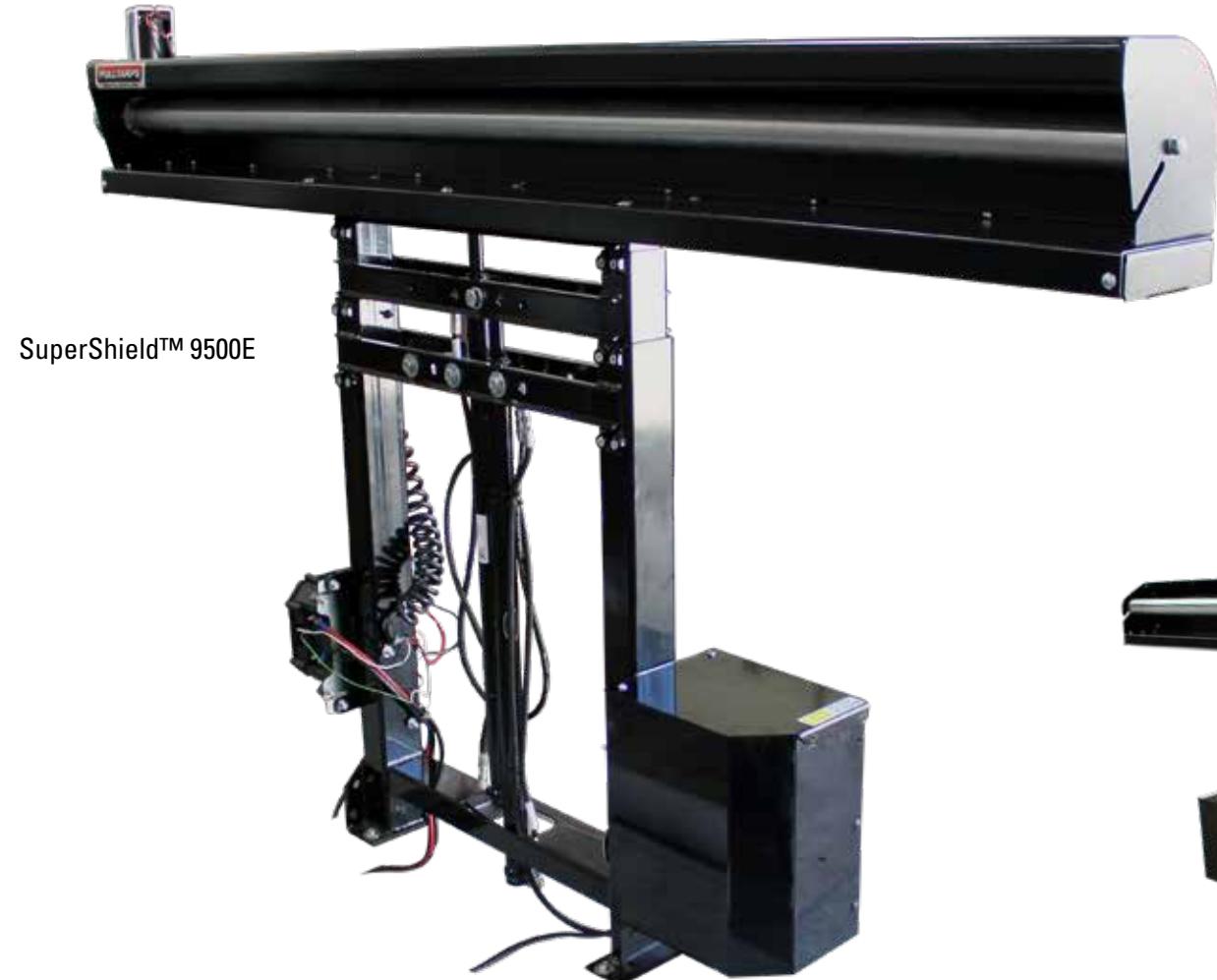
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INSTALLATION INSTRUCTIONS

Dual Stage Tower

513-0014: Dual Stage Electric Tower
513-0020: Dual Stage EDU Tower



Document #: 607-0116
Revised: 01/22/26 WLH

DURING INSTALLATION, SOME FABRICATION MAY BE REQUIRED.

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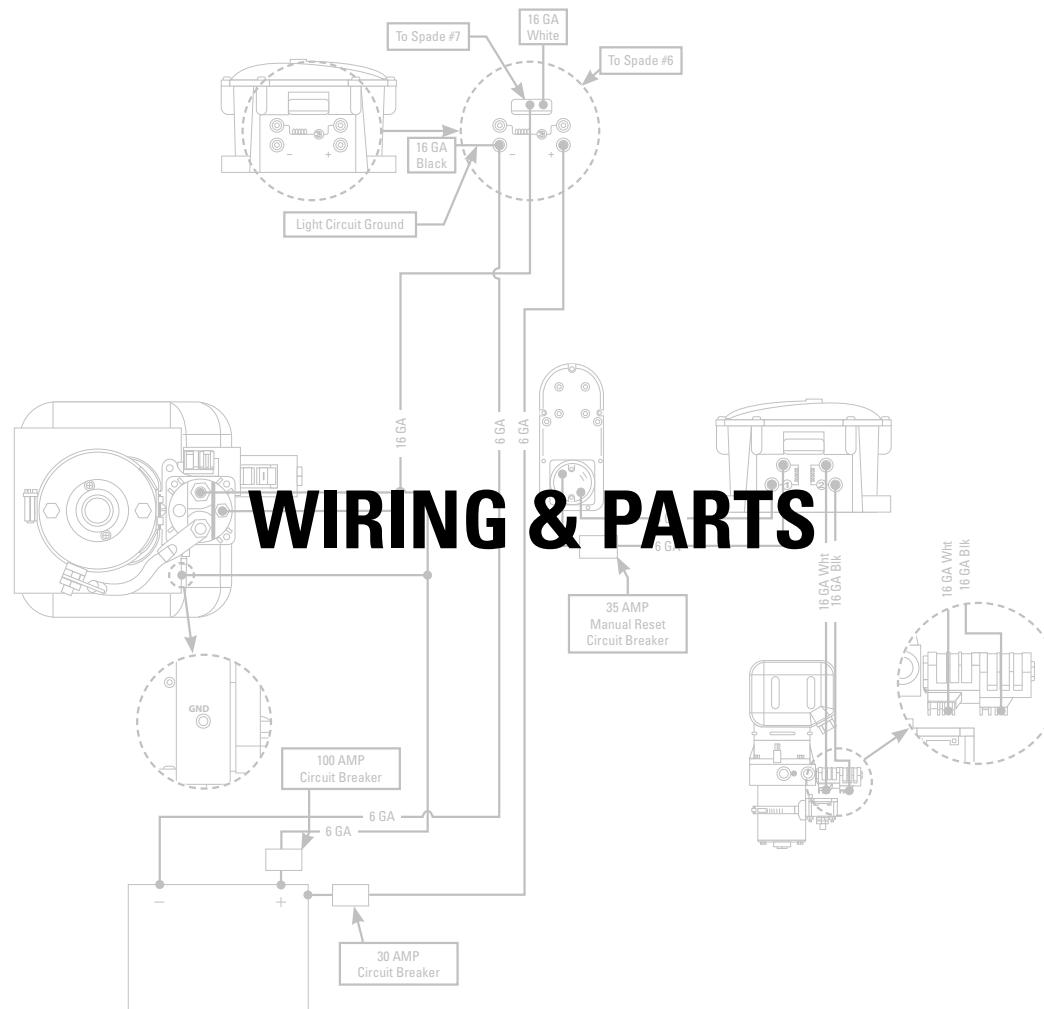
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INSTALLATION INSTRUCTIONS

Dual Stage Tower

WIRING & PARTS

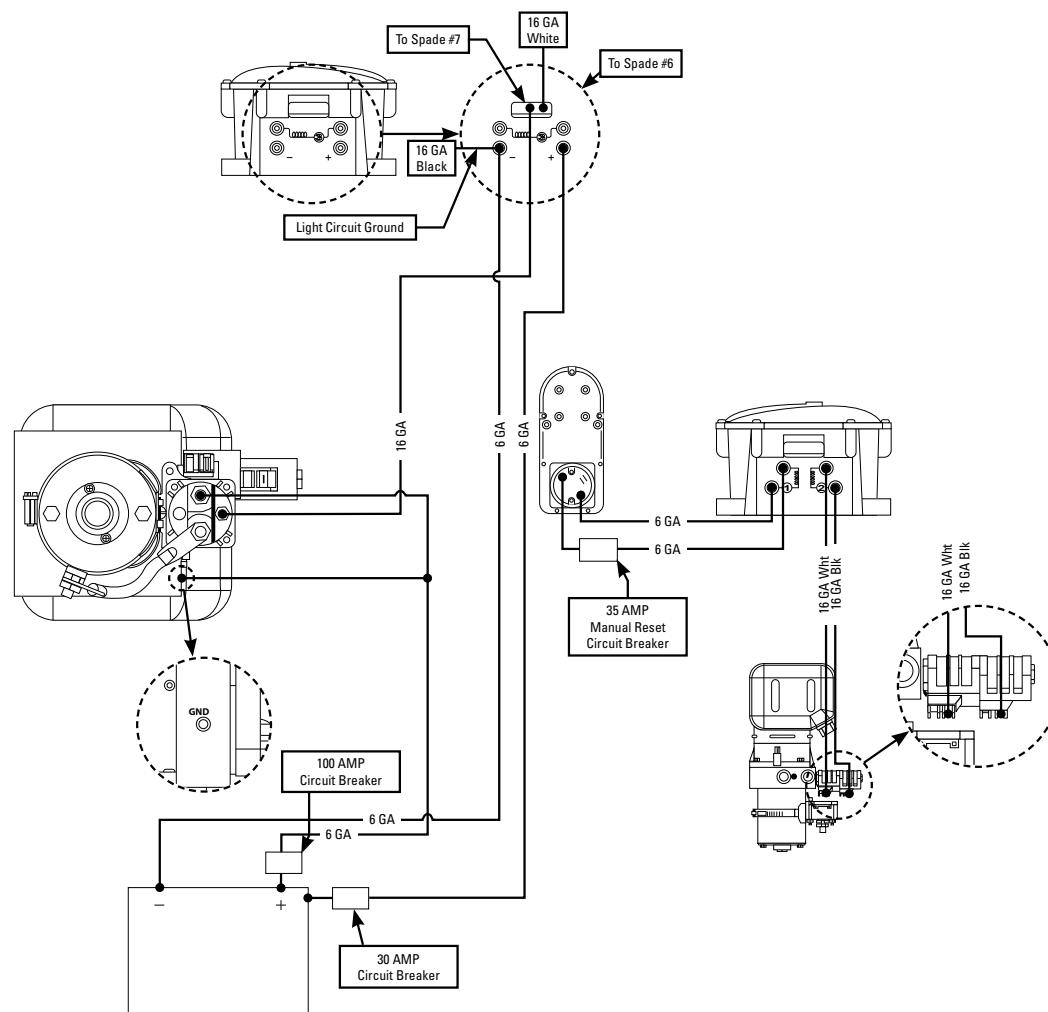


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System with Single Valve Pump





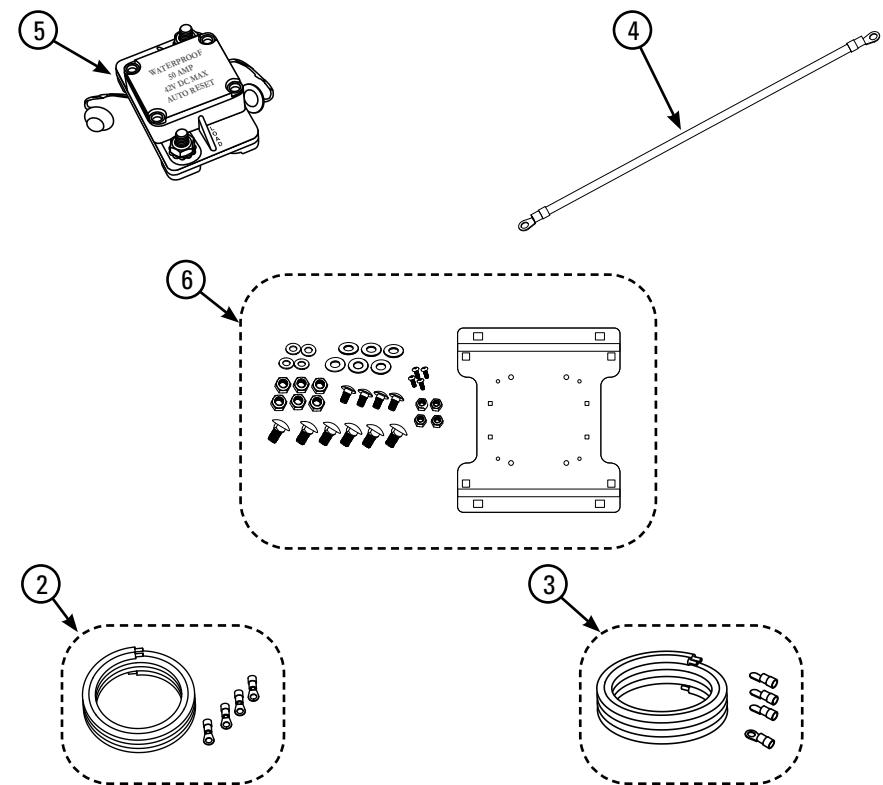
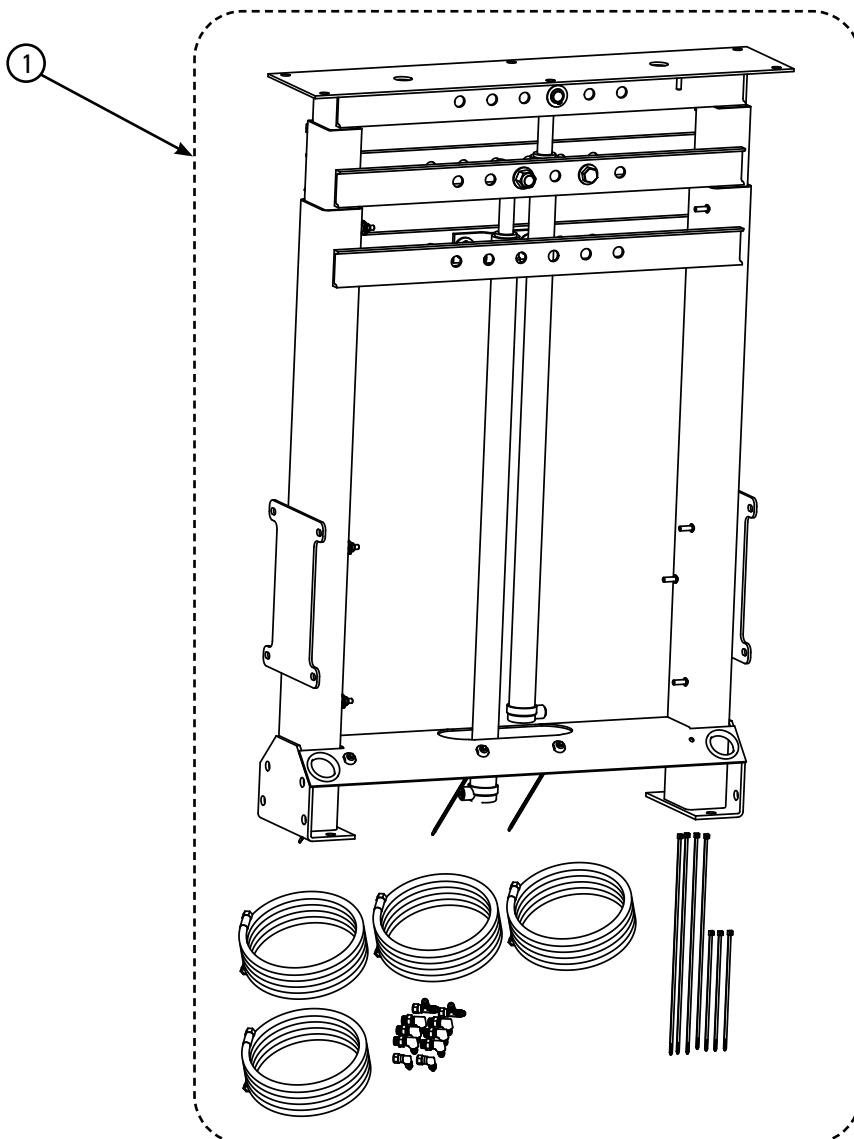
INSTALLATION INSTRUCTIONS

Dual Stage Tower

Dual Stage Electric Tower #513-0014

ITEM	PART #	DESCRIPTION	QTY
1	513-0080	Dual Stage Electric Tower	1
2	514-9986	10' Pump Power Wire	1
3	514-9989	10' Switch Power Wire	1
4	514-9987	18" Battery Wire	1
5	514-0432	50 Amp Type 1 Breaker	1
6	501-0687	Tower Tray Hardware Kit	1

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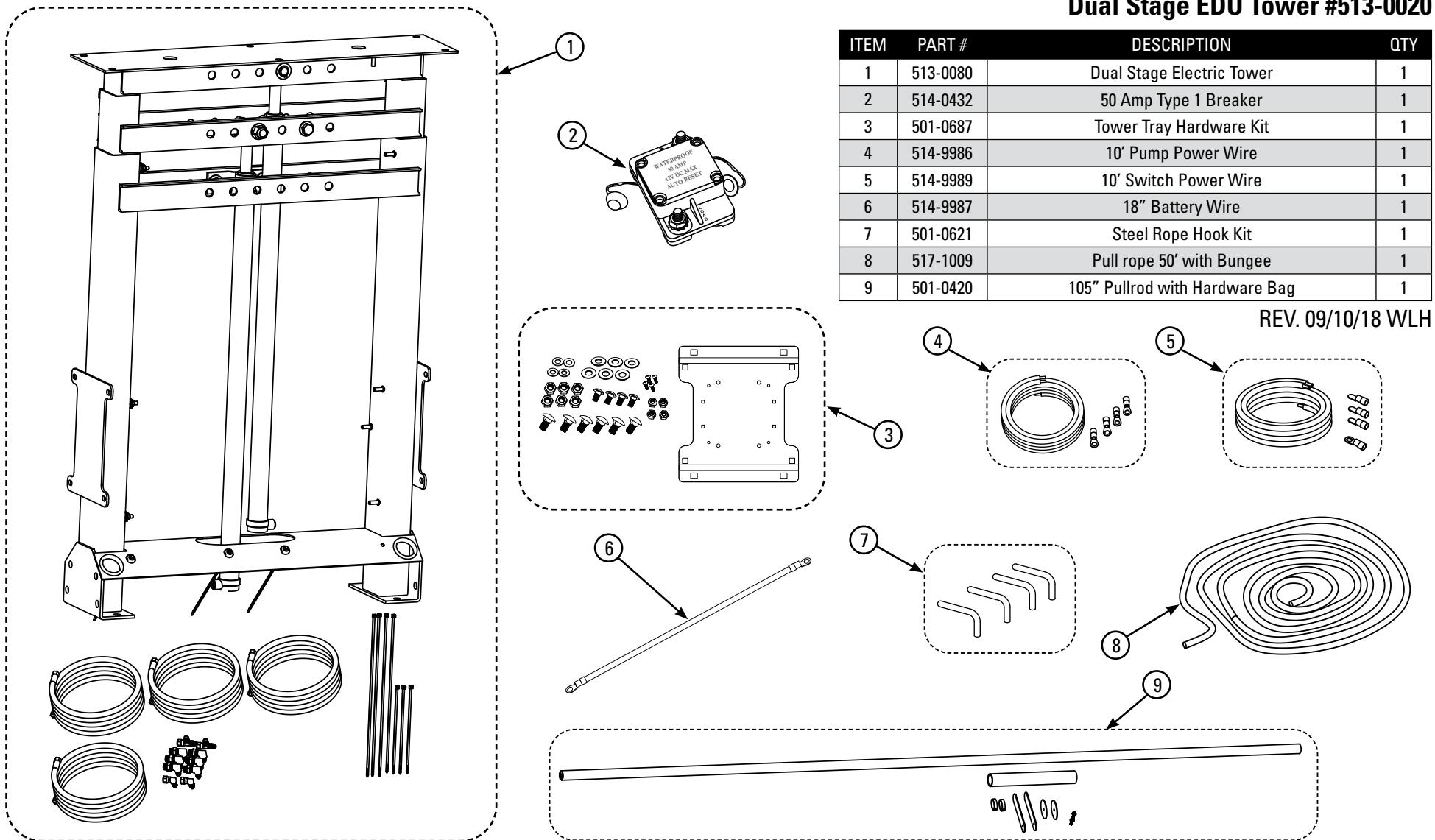




INSTALLATION INSTRUCTIONS

Dual Stage Tower

Dual Stage EDU Tower #513-0020



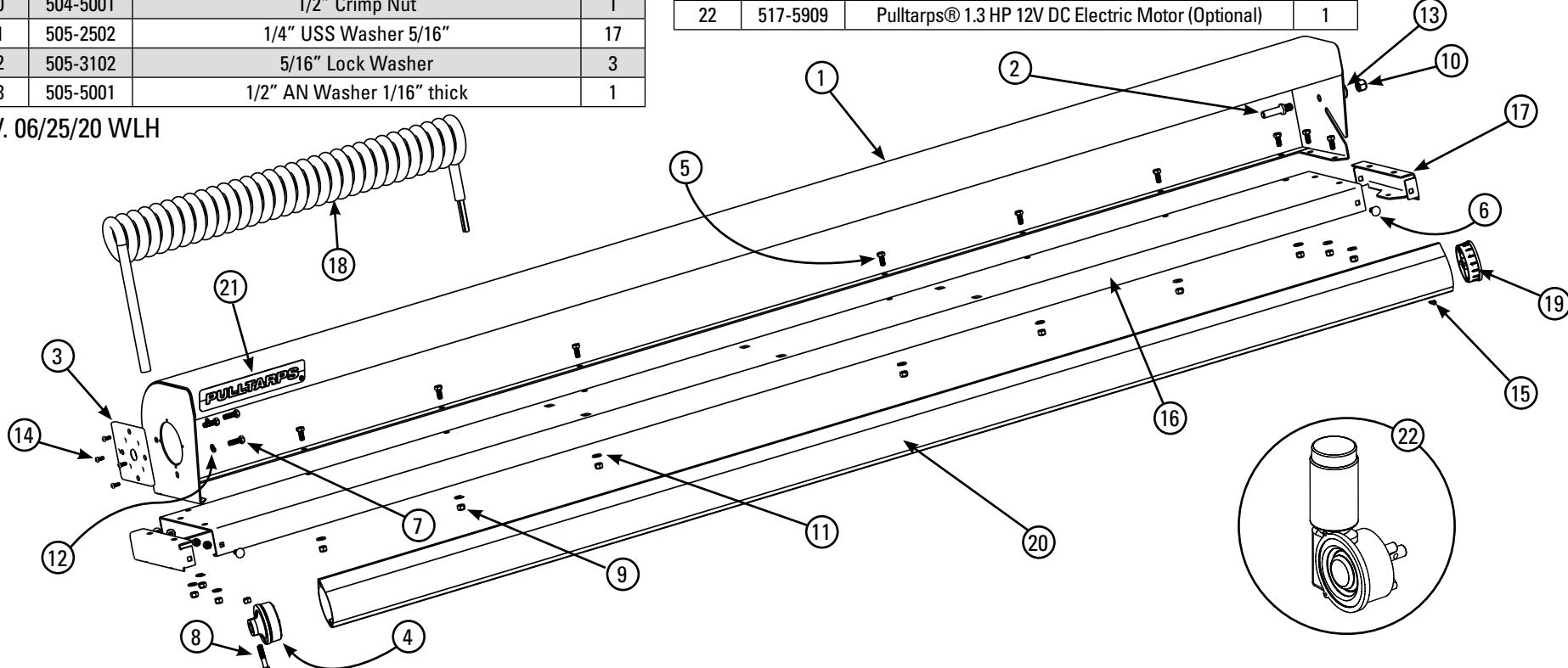
INSTALLATION INSTRUCTIONS

Dual Stage Tower

ITEM	PART #	DESCRIPTION	QTY
1	501-0121	9.5" x 100" SuperShield™ Housing	1
2	501-0801	System End Plate Stud	1
3	501-1235	Aluminum Adapter Plate	1
4	501-9915	Roller Drive Aluminum End Cap 3"	1
5	503-3103	5/16" - 18 x 3/4" Hex Bolt	12
6	503-3104	5/16" - 18 x 3/4" Carriage Bolt	4
7	503-3105	5/16" - 18 x 1" HHCS Bolt G2	3
8	503-3108	5/16" - 18 1-3/4" HHCS Hex Bolt G2	1
9	504-3103	5/16" - 18 Nylock Nut Steel	17
10	504-5001	1/2" Crimp Nut	1
11	505-2502	1/4" USS Washer 5/16"	17
12	505-3102	5/16" Lock Washer	3
13	505-5001	1/2" AN Washer 1/16" thick	1

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SuperShield™ 9500E 100" Tower Assembly			
ITEM	PART #	DESCRIPTION (Continued)	QTY
14	506-9905	10 - 32 x 1/2" Philips Pan Head Screw	4
15	506-9916	Screw, #8 - 18 x 3/4" Self Drilling	1
16	513-0079	100" R/R Tower Tray	1
17	513-0090	Tower End Support Insert	2
18	514-0216	110" 2 Stage Tower Coil Wire	1
19	517-0102	Flanged End Cap	1
20	517-0511	SuperShield 9500 100" Electric Galv. Roller Tube	1
21	607-0061	Pulltarps Decal for System	1
22	517-5909	Pulltarps® 1.3 HP 12V DC Electric Motor (Optional)	1



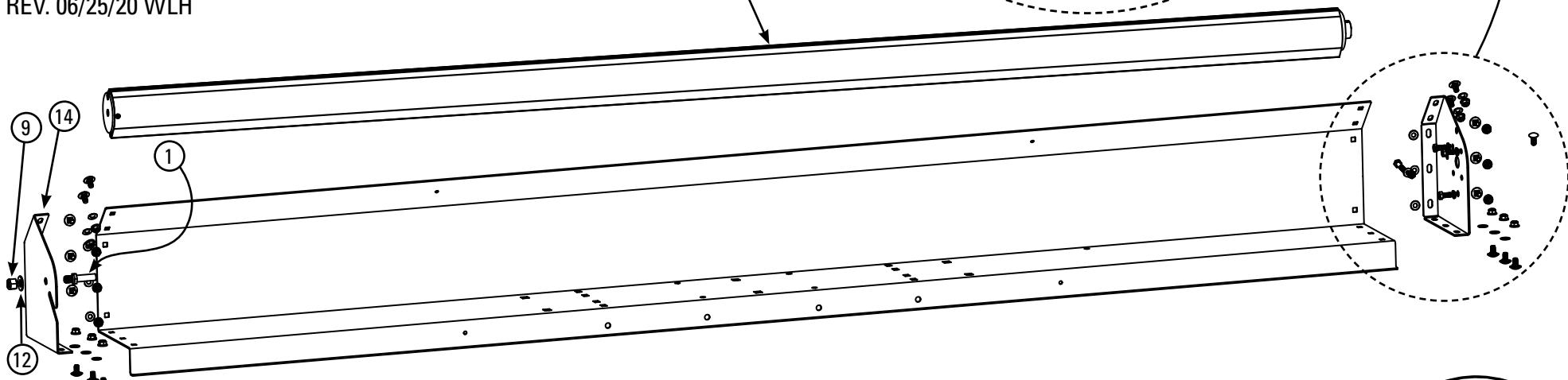


INSTALLATION INSTRUCTIONS

Dual Stage Tower

ITEM	PART #	DESCRIPTION	QTY
1	501-0801	System End Plate Stud	1
2	501-1368	102" Roller Assembly	1
3	503-3103	5/16" - 18 x 3/4" HHCS Bolt	3
4	503-3104	5/16" - 18 x 3/4" Carriage	1
5	503-3108	5/16" - 18 1-3/4" HHCS Hex	1
6	503-3118	5/16" - 18 x 5/8" Carriage	16
7	504-3102	5/16" - 18 Thin Nylock Nut	16
8	504-3103	5/16" - 18 Nylock Nut Steel	1
9	504-5001	1/2" Crimp Nut	1
10	505-2502	1/4" USS Washer 5/16"	17
11	505-3102	5/16" Lock Washer	3
12	505-5001	1/2" AN Washer 1/16"	1
13	513-0061	Tower Housing 102"	1
14	513-0062	Tower Housing End Plate	1
15	513-0063	Tower Electric End Plate	1
16	607-0061	Pulltarps Decal (Not Shown)	1
17	517-5909	Pulltarps® 1.3 HP 12V DC Electric Motor (Optional)	1

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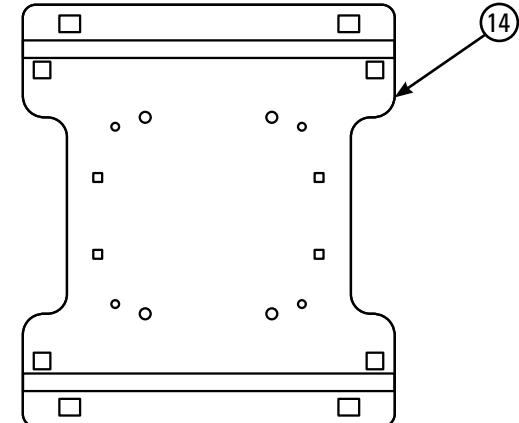
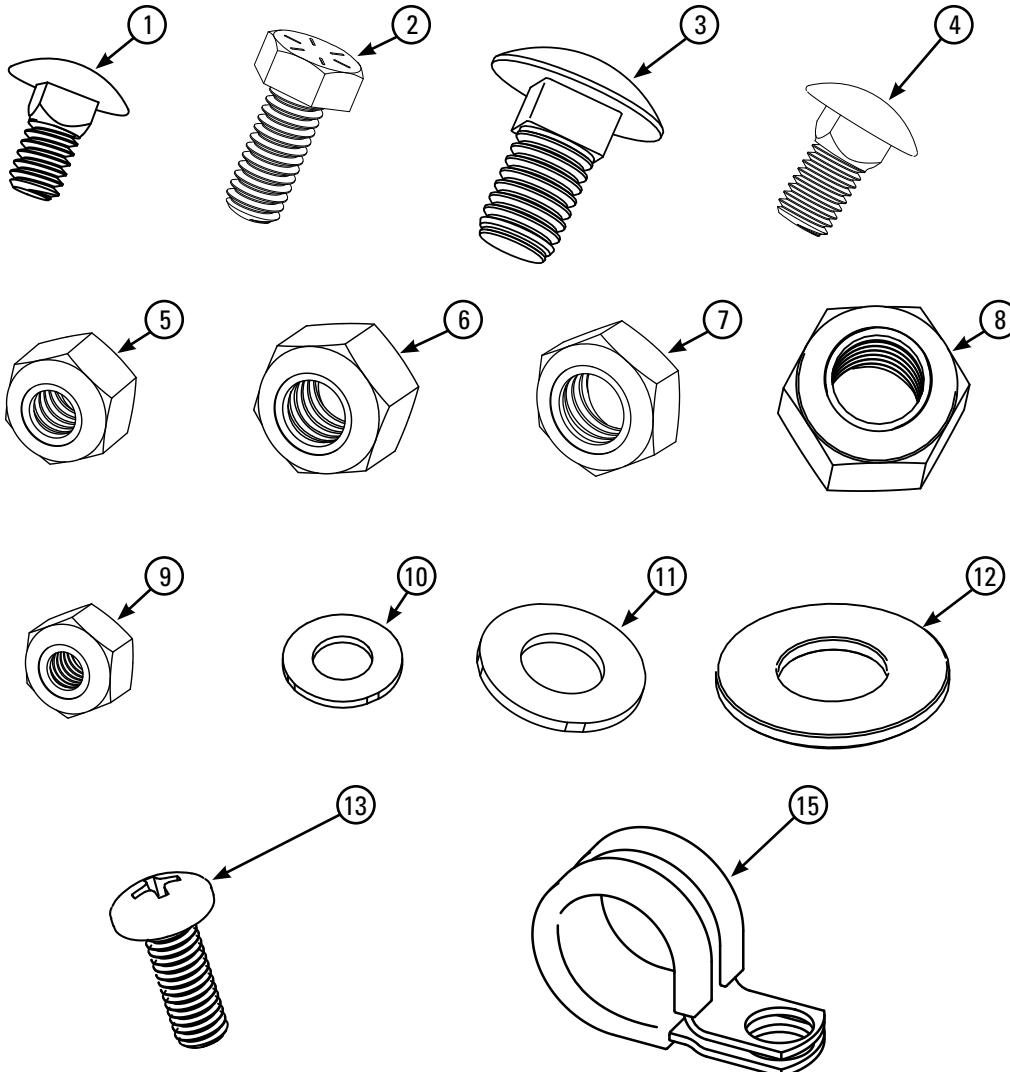




INSTALLATION INSTRUCTIONS

Dual Stage Tower

Tower Tray Hardware Kit #501-0687 (Illustrations not to scale)



ITEM	PART #	DESCRIPTION	QTY
1	503-2501	1/4" - 20 x 1/2" USS Carriage Bolt	2
2	503-3103	5/16" - 18 x 3/4" HHCS Bolt	2
3	503-3717	3/8" - 16 x 3/4" Carriage Bolt	8
4	503-5020	1/2" - 13 x 1" Carriage Bolt	6
5	504-2503	1/4" - 20 USS Nylock Nut	2
6	504-3103	5/16" - 18 Nylock Nut Steel Zinc	2
7	504-3705	3/8" - 16 Nylock Nut "Thin"	8
8	504-5004	1/2" - 13 Nylock Nut	6
9	504-9903	10 - 32 Nylock Nut	4
10	505-2502	1/4" USS Washer 5/16" Hole	4
11	505-3702	Washer 3/8" SAE Flat Zinc	8
12	505-5004	1/2" USS Flat Washer	6
13	506-9905	10 - 32 x 1/2" Philips Pan Head Screw	4
14	513-0093	Universal Tower Switch Plate	1
15	514-9977	Wire Clamps 3/4" ID	2

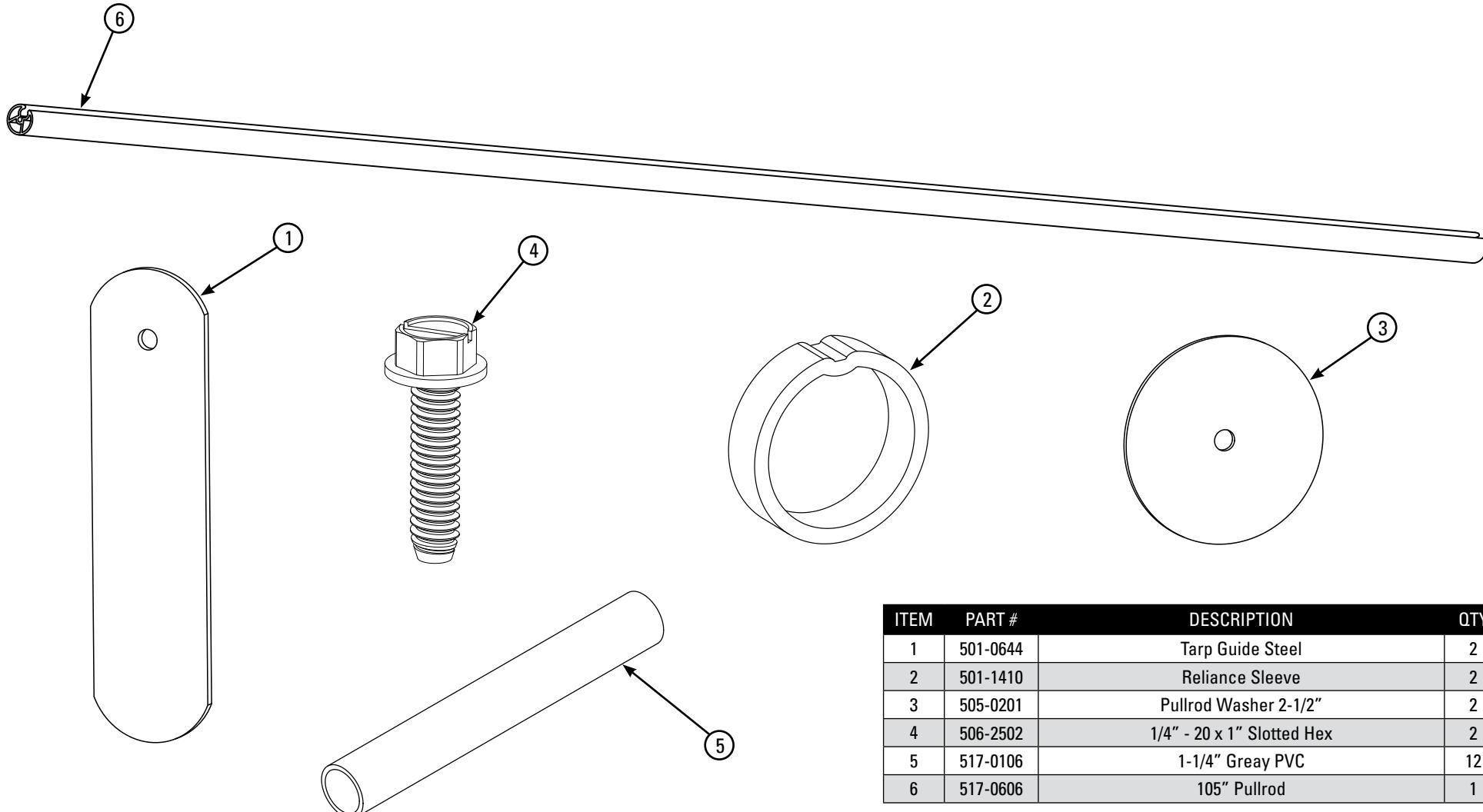
REV. 09/13/18 WLH



INSTALLATION INSTRUCTIONS

Dual Stage Tower

105" Pullrod with Hardware #501-0420 (Illustrations not to scale)



ITEM	PART #	DESCRIPTION	QTY
1	501-0644	Tarp Guide Steel	2
2	501-1410	Reliance Sleeve	2
3	505-0201	Pullrod Washer 2-1/2"	2
4	506-2502	1/4" - 20 x 1" Slotted Hex	2
5	517-0106	1-1/4" Greay PVC	12
6	517-0606	105" Pullrod	1

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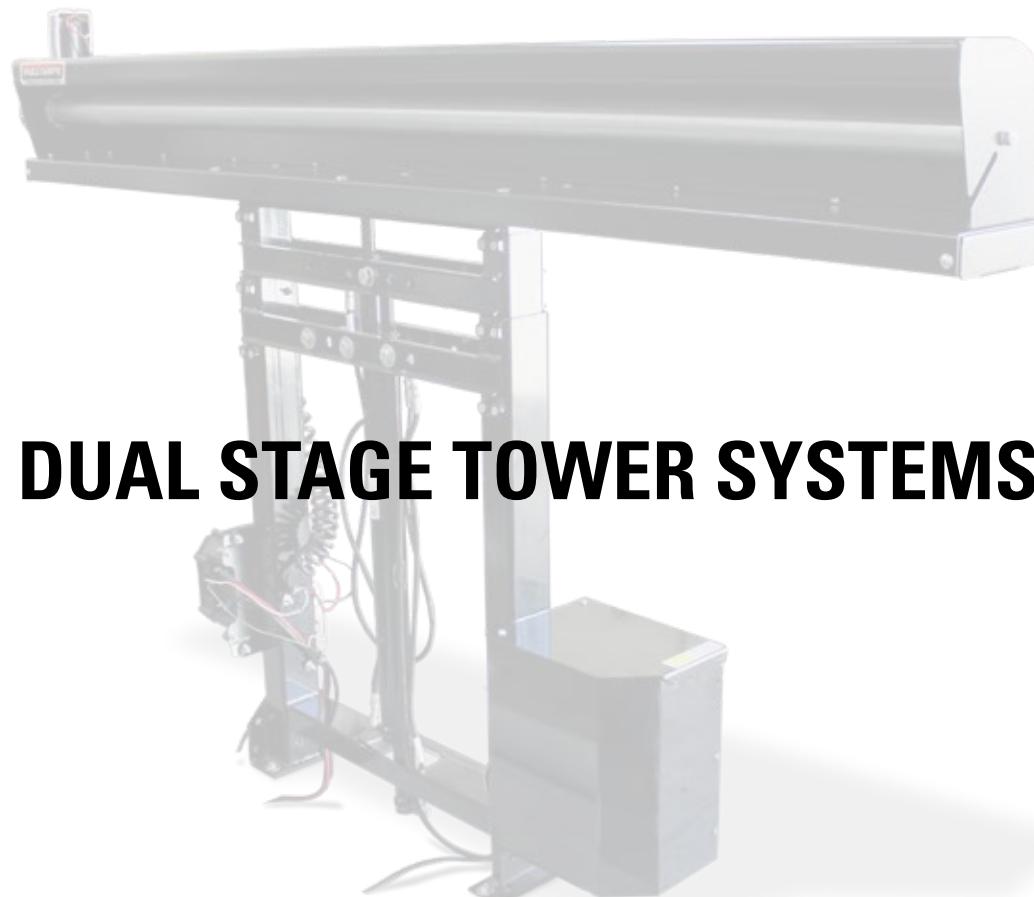


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INSTALLATION INSTRUCTIONS

Dual Stage Tower



DUAL STAGE TOWER SYSTEMS

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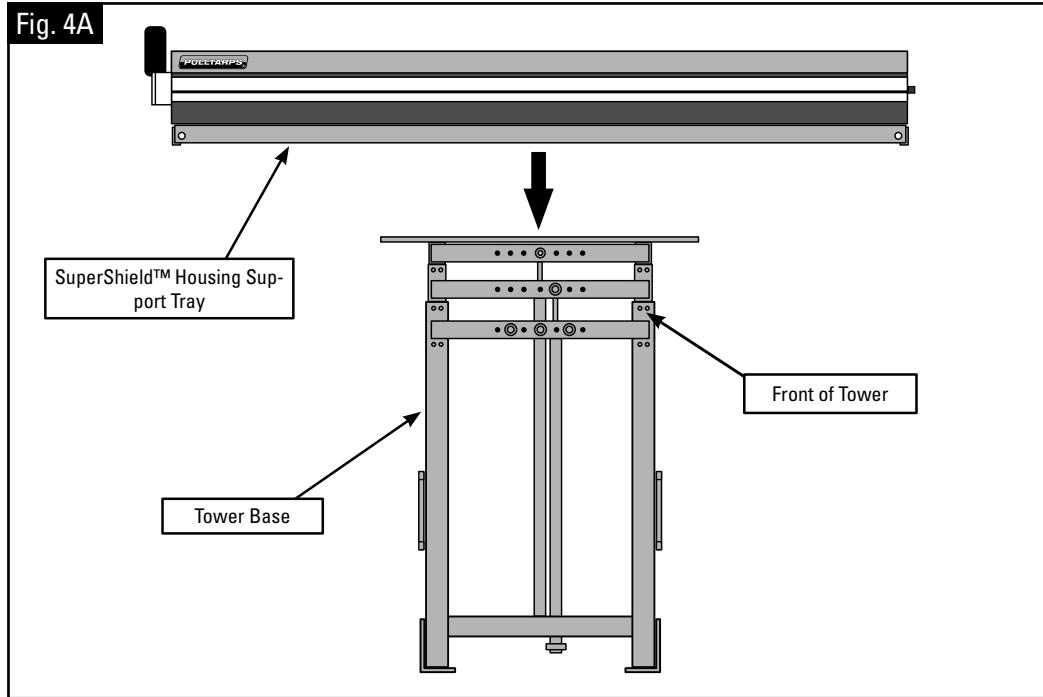
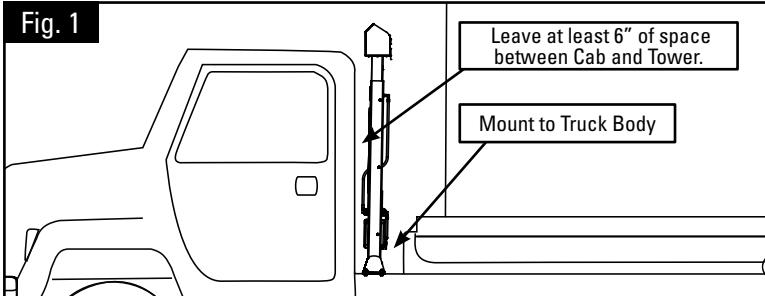


INSTALLATION INSTRUCTIONS

Dual Stage Tower

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 assembled Housing & Support Tray then place on top of Tower Base. Secure with the supplied hardware (Fig. 4A, B & C).

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





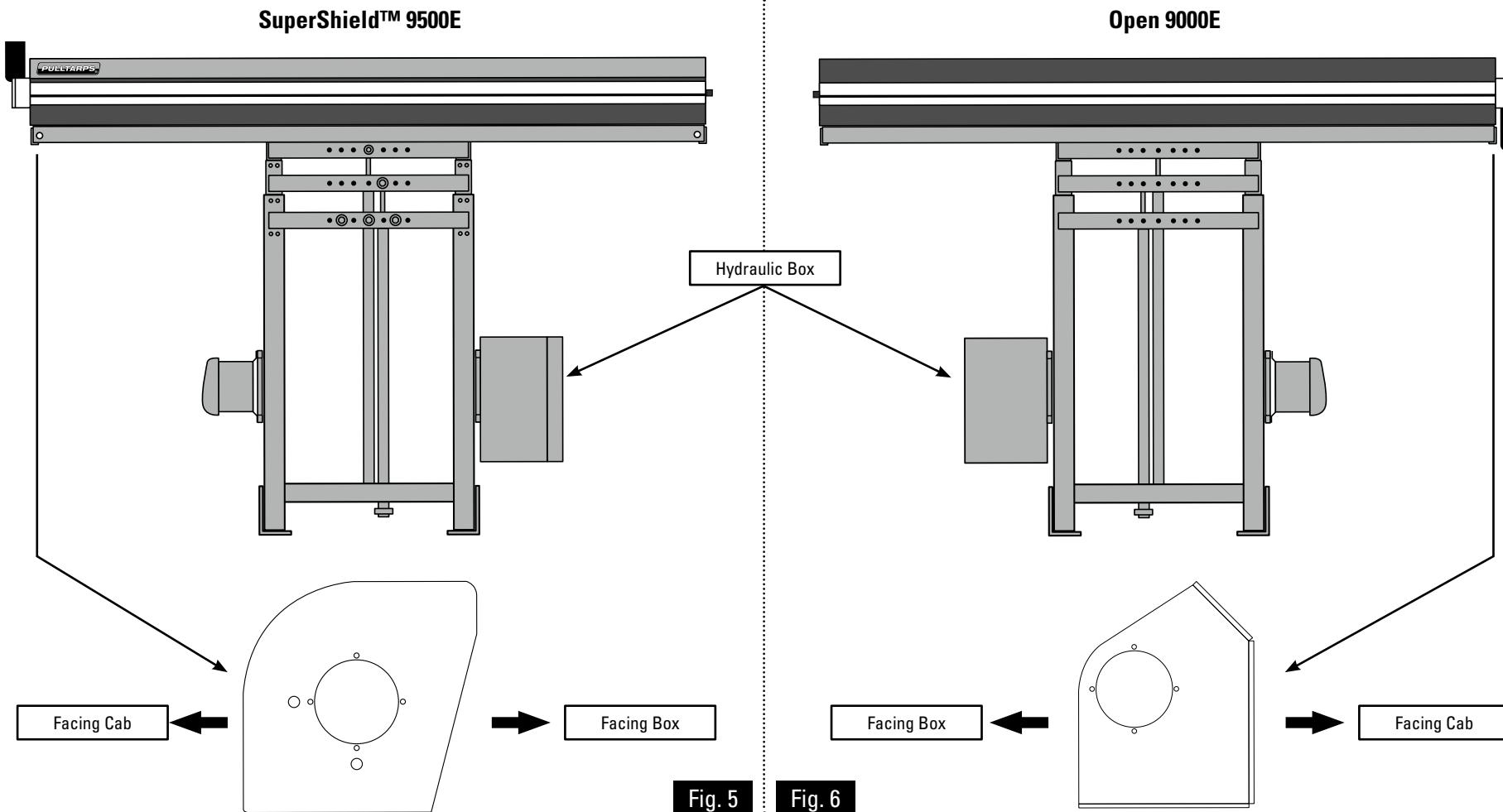
INSTALLATION INSTRUCTIONS

Dual Stage Tower

Determine Location of Hydraulic Pump Based on Housing Type

Step 3: Determine the proper position of the Hydraulic Pump on the Tower.

- **SuperShield™ 9500E:** Pump is mounted on the right or passenger side of the tower (Fig. 5).
- **Open 9000E:** Pump is mounted on the left or driver side of tower (Fig. 6).





INSTALLATION INSTRUCTIONS

Dual Stage Tower

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).

Fig. 7A



Fig. 7B



Fig. 7C



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.

Fig. 8



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.

Fig. 9



**INSTALLATION INSTRUCTIONS****Dual Stage Tower****Installing the Hydraulic Pump**

Fig. 10



Step 7: Attached 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).

Fig. 11



**INSTALLATION INSTRUCTIONS****Dual Stage Tower****Attaching the Control Box**

Step 9: Attach the Mounting Plate to the Tower Base on the left side facing the front of the tower (Fig. 12A & B).

Fig. 12A



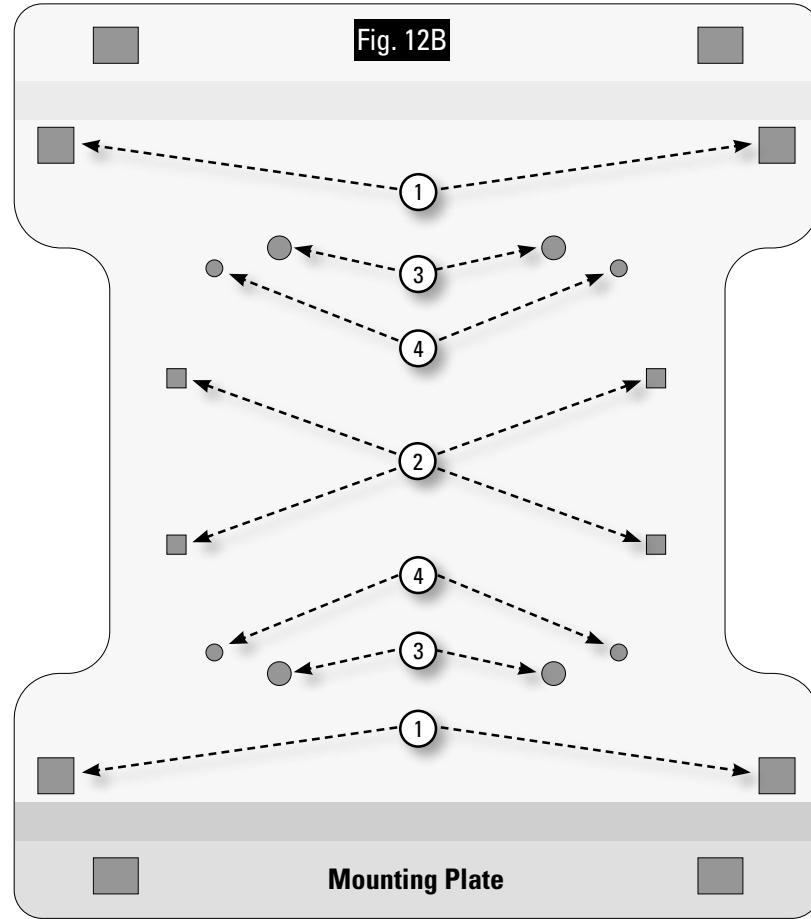
Step 10: Once the base is secure, attach the Control Box to the mounting plate (Fig. 13).

Fig. 13

**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 Bluetooth Control Box (Pending)

Fig. 12B





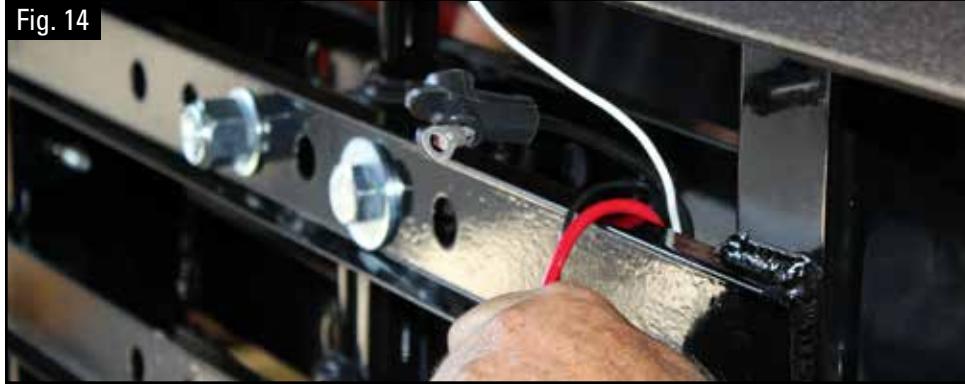
INSTALLATION INSTRUCTIONS

Dual Stage Tower

Electric Power for Housing Motor

Step 11: Place the Electric Motor wires inside of the Tower Base and thread through the top section (Fig. 14).

Fig. 14



Step 13: Once you've extended the wire to the motor and estimated the correct length, attach the wire to the Housing Base using a wire mount (Fig. 16A). Use the existing bolt to secure to the housing base (Fig. 16B). Now secure the wire underneath and on the back side to the Support Tray. Use the third mounting bolt position (Fig. 16C).

Note: For the outside mount, reverse the bolt position, so the cable can be attached to the outside of housing base.

Step 12: Take the wires on the non-coiled end and extend to the Electric Motor connectors (Fig. 15).

Fig. 15



Fig. 16A



Fig. 16B



Fig. 16C





INSTALLATION INSTRUCTIONS

Dual Stage Tower

Electric Power for Housing Motor

Step 14: Attach the wires to the motor connectors. The Red wire (Fig. 17A) attaches to one connector and the Black wire (Fig. 17B) attaches to the other connector. Secure in place (Fig. 17C).



Fig. 17A

Position 7 out of 10
Pins.

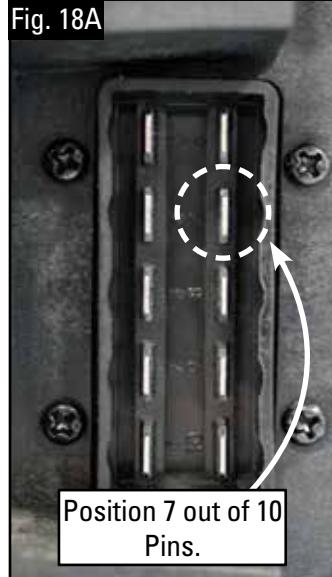


Fig. 18A



Fig. 19



Step 15: Take the wires from the coiled side of the Electric Motor wiring and attached the White Wire to the pin connector #7, on the right side facing front of tower, of the Control box (Fig. 18A & B).

Step 16: Next, take the Red (+) and Black (-) wires from the Coiled side of the Electric Motor wiring and attach to the corresponding positive (+) and negative (-) connectors on the other side of the control box. Use the top two connection points (Fig. 19).



INSTALLATION INSTRUCTIONS

Dual Stage Tower

Connecting Hydraulic System to Control Box

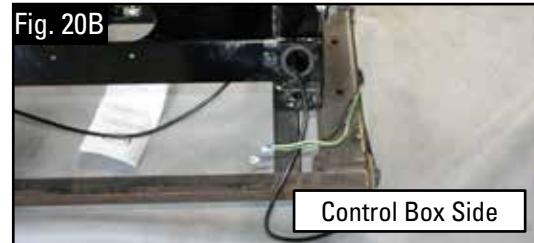
Step 17: Take the provided Hydraulic Power wires (Three Connectors) and snake the wired through the wire base, so the wires come out of the wiring holes. The wired ends should be extended out of the holes on both sides of the tower (Fig 20A & B).

Fig. 20A



Hydraulic Side

Fig. 20B



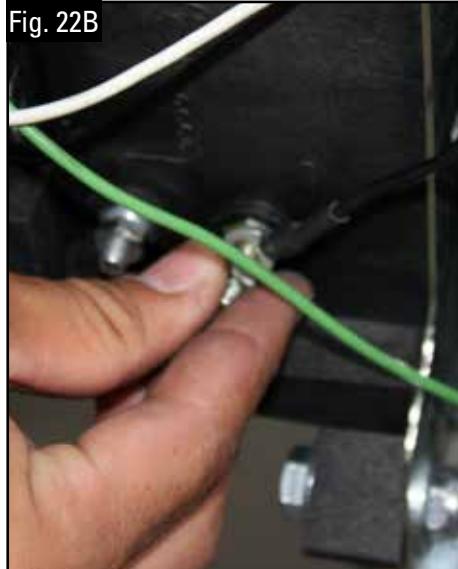
Control Box Side

Step 19: On the Control Box side, take the White Wire and attached to the connector closest to the control interface (Fig. 22A). Then take the Black Wire and attach to the connector that is at the bottom and nearest the tower (Fig. 22B).

Fig. 22A

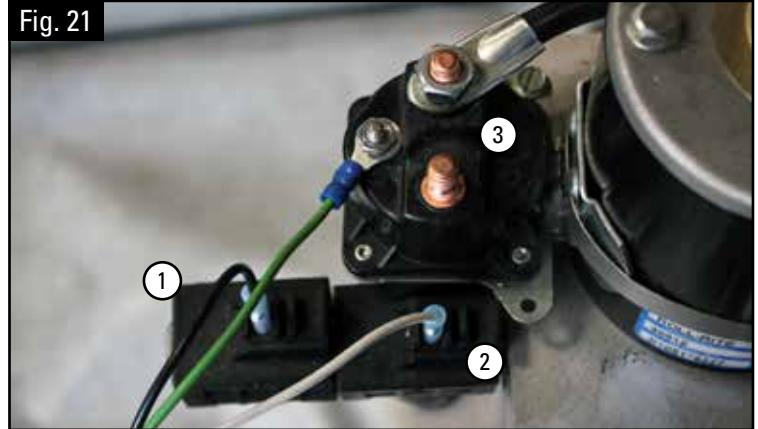


Fig. 22B



Step 18: On the Hydraulic Side, place the two flat pin connectors into the connectors on the pump. The Black wire fits into the box on the outside (#1) and the White wire fits into the box on the inside (#2). Now connect the Green wire to the outside position on the Distribution Node (#3) (Fig. 21).

Fig. 21



Step 20: Take the Black Wire and wrap around the inside of the tower base and connect to the bottom right connector (Fig. 23).

Fig. 23





INSTALLATION INSTRUCTIONS

Dual Stage Tower

Connecting Hydraulic System to Control Box

Step 21: Unit comes prewired (Fig. 24).

Note: Verify connection but do not remove wire, that will void the warrenty.

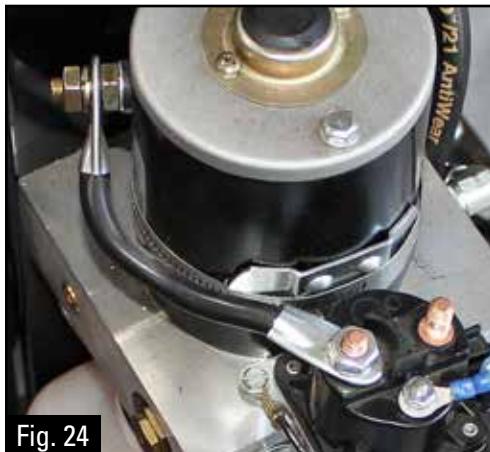


Fig. 24

Step 25: Take the other end of the Red and Black power cable and snake it through the wiring harness and pull through hole on the Control Panel side (Fig. 28).

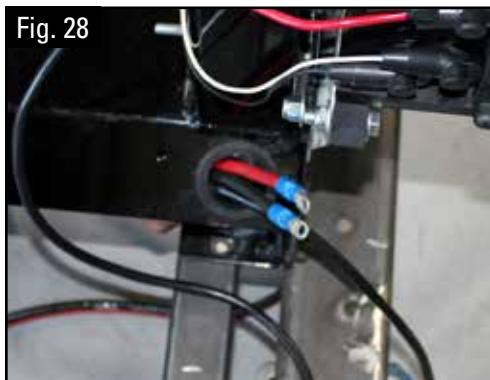


Fig. 28

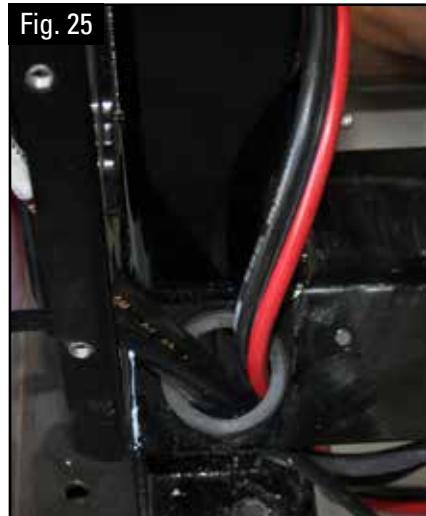


Fig. 25

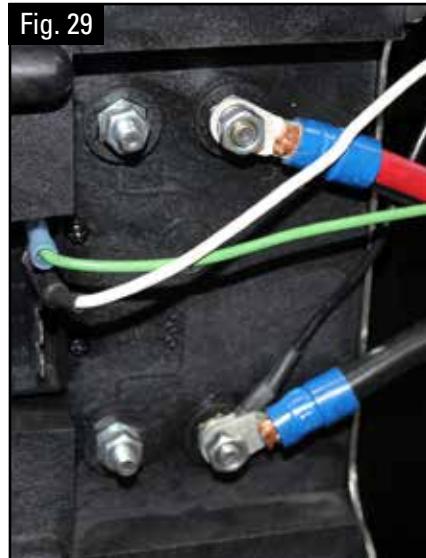


Fig. 29

Step 22: Take the Black and Red power wire from the wiring harness and wrap around tower base to connect to the Hydraulic motor (Fig. 25).

Step 23: Take the connector for the Red Wire and connect to the distribution node (Copper connector - Fig. 26).



Fig. 26



Fig. 27

Step 24: Now take the Black wire (ground) and connector to bolt below the distribution node (Fig. 27).

Step 26: Connect the Black ground wire and connect to the ground wire on the Control Box on the front side of tower. Next, connect the Red wire to the top power connector (Fig. 29).

Step 27: Secure the wires on both sides of Tower Base with wire harness and attach to existing tower bolts (Fig. 30A & B).



Fig. 30A



Fig. 30B

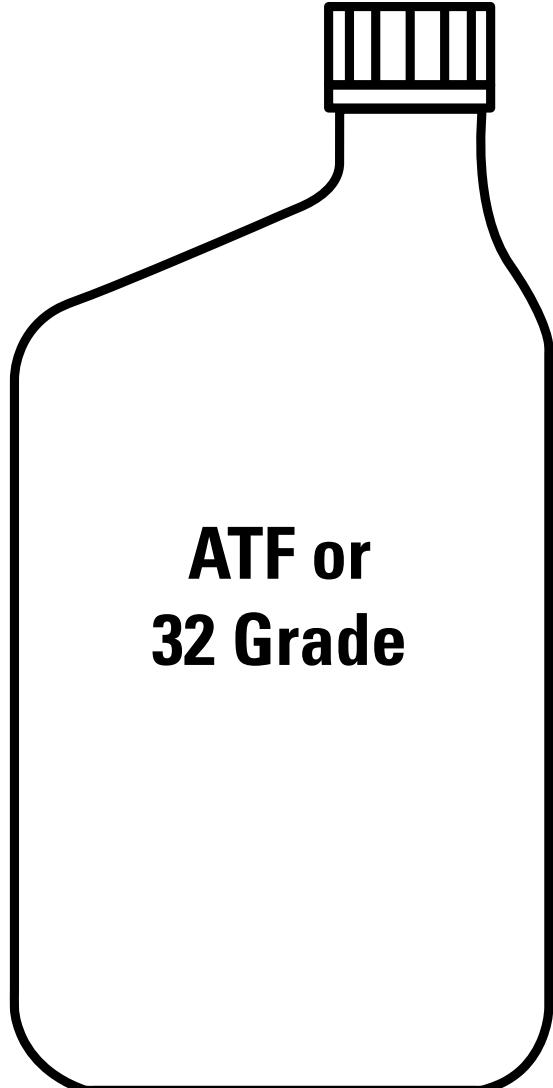
**INSTALLATION INSTRUCTIONS****Dual Stage Tower****Adding Hydraulic Fluid to Pump Reservoir**

Fig. 31



Step 28: Fill pump reservoir with two (2) quarts of Automatic Transmission Fluid or 32 Grade Hydraulic oil (not supplied) (Fig. 31).

Fig. 32



Step 29: After filling, reinsert filler cap and secure. Check system for leaks (Fig. 32).



INSTALLATION INSTRUCTIONS

Dual Stage Tower

Installing Hydraulic Protective Cover & Testing Tower

Step 30: Facing the back of the Tower System, take the Hydraulic Case back panel and attach with supplied hardware (Fig. 33).

Fig. 33



Step 31: Take the second panel that is bent at two points and attach to the back plate and tower (Fig. 34).

Fig. 34

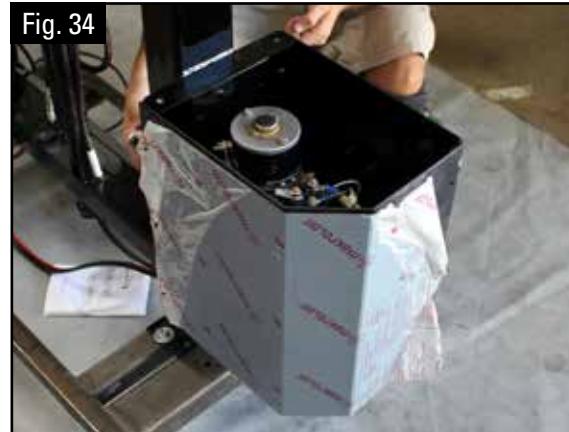


Fig. 35



Step 32: Secure the Hydraulic Cover lid and remove any remaining tape (Fig. 35).

Step 33: With power source connected, slowly raise and lower the tower. Check for any wires or lines that may get in the way and secure if needed (See Button Operation Section). Also, test the functionality of the Roller Tube (Fig 36A, B & C).



Fig. 36A

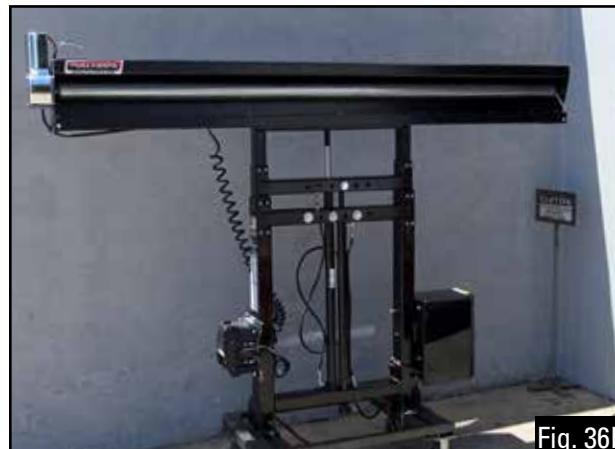


Fig. 36B



Fig. 36C



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OPERATION & MAINTENANCE

Dual Stage Tower



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**OPERATION & MAINTENANCE****Dual Stage Tower****Tower Operation**

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: Always deploy one (1) meter or three (3) feet of tarp before operating the tower. Operate the arm system in an area that will not come into contact with overhead powerlines or obstructions (Fig. 37).

Fig. 37



Step 2: Raise tower as high as possible to keep tarp from dragging on the load in the container (Fig. 38).

Note: Never operate vehicle with tower extended.

Fig. 38





OPERATION & MAINTENANCE

Dual Stage Tower

Tower Operation

Step 3: Deploy tarp over the container the rest of the way. When deploying and retracting, be sure there are no obstructions protruding from the box that will interfere with the operation of the arm system. If an object were to catch the arms when rolling in the tarp, system damage will occur (Fig. 39).

Fig. 39



Step 5: Lower the tower completely (Fig. 41).

Fig. 41



Step 4: Lower the tower so that the tarp wraps neatly around the container. Arm should drop just below top level or just past level of the container, depending on the size of the box (Fig. 40).

Fig. 40



Step 6: To retract tarp, raise tower completely. Retract arms but leave one (1) meter or three (3) feet (Fig. 42).

Note: Never operate vehicle with tower extended.

Fig. 42



**OPERATION & MAINTENANCE****Dual Stage Tower****Tower Operation**

Step 7: Lower tower completely (Fig. 43).

Note: Never operate vehicle with tower extended.

Fig. 43



Step 8: Retract the additional one (1) meter or three (3) feet of tarp until arms come to a complete stop (Fig. 44).

Fig. 44



WARNING: Never operate the vehicle with tower extended; it might cause serious injuries or damages.



OPERATION & MAINTENANCE

Dual Stage Tower

Hydraulic Pack, Oil Levels & Filtration

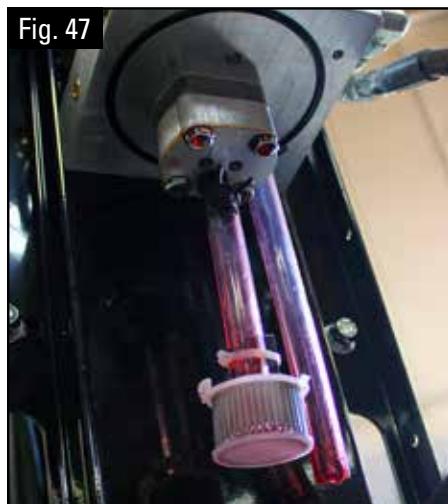
Step 1: For maintenance purposes, you will have to separate tank from the power unit (Fig. 45A & B). Be sure to have O-ring installed before assembling again. Forgetting this step will cause fluid to gush out.

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. 46).

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. 47).

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

**OPERATION & MAINTENANCE****Dual Stage Tower****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

Power Pack won't lift load.	<ul style="list-style-type: none"> Check fluid level. If there is not enough oil in the unit, you will not be able to operate the actuator. Gear Pump might not be priming. Remove relief valve, operate pump for a few seconds until fluid comes out of port, replace relief valve and rety unit (See Fig. 46). Air being introduces in system. If air is being introduced in the system, the gear pump might have some priming problems.
Motor not running.	<ul style="list-style-type: none"> Check for power connection to DC Motor. Check power to start solenoid. Check connections at the battery.
Start solenoid just clicks, Motor not turning.	<ul style="list-style-type: none"> Check for loose wire from start solenoid to DC motor. Make sure you use a minimum of 6 guage of wire from your battery to the unit. Check for cracked housing on start solenoid, if so, replace start solenoid. If an older unit, check for rust buildup inside DC motor.
Electric Motor will not stop running.	<ul style="list-style-type: none"> Low battery or poor ground connection has caused the start solenoid to weld on. Replace start solenoid and check battery and ground. Ground must be connected directly to battery.
Excessive heat from unit.	<ul style="list-style-type: none"> A bad electrical ground or poor battery performance will cause motor to generate more heat. Verify battery and ground for good performance.



OPERATION & MAINTENANCE

Dual Stage Tower

Tarp and Motor Diagnostics

Tarp will not fully extend	<ul style="list-style-type: none"> • Re-index spring pivot per install instructions. You, in most cases, have the ability to re-index the spring tension. • Check spring for breaks/damage and replace if needed. • Clean spring and replace any worn or damaged parts. • Check Pivots to ensure they are parallel to each other. • Reposition the vehicle heading into the wind.
Tarp will not fully retract	<ul style="list-style-type: none"> • Adjust arm length so that the pullbar is square to the tailgate. • Relocate pivots on each side of the bed so that they are parallel. • Repair or replace Tarp. • Reposition truck.
Motor will not turn or turns slowly.	<ul style="list-style-type: none"> • 6 Guage wire must be used from the power source to the motor. • Fully charge the battery and/or operate with the engine running. • *Motor Check out procedure included.
Arms do not extend evenly.	<ul style="list-style-type: none"> • Remove upper arm sections. Raise each Lower Arm section until the slack is just taken out of the Spring Pivot. The arm must be lined up at 180° or 150°. Re-index arm pivots as necessary. Next, attach a spring scale to the Lower Arm section. Raise the arm to height of 4" and read the scale. Readings between each side should be within 10% of each other.
Motor is not responding.	<ul style="list-style-type: none"> • Remove leads from motor & attache volt meter to the leads. • 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, recheck with engine running. • Return switch to the neutral position and reattach leads to motor (See Fig. 48).

**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, recheck with engine running. Recheck wiring and connections (minimum 6 gauge 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.

Fig. 48

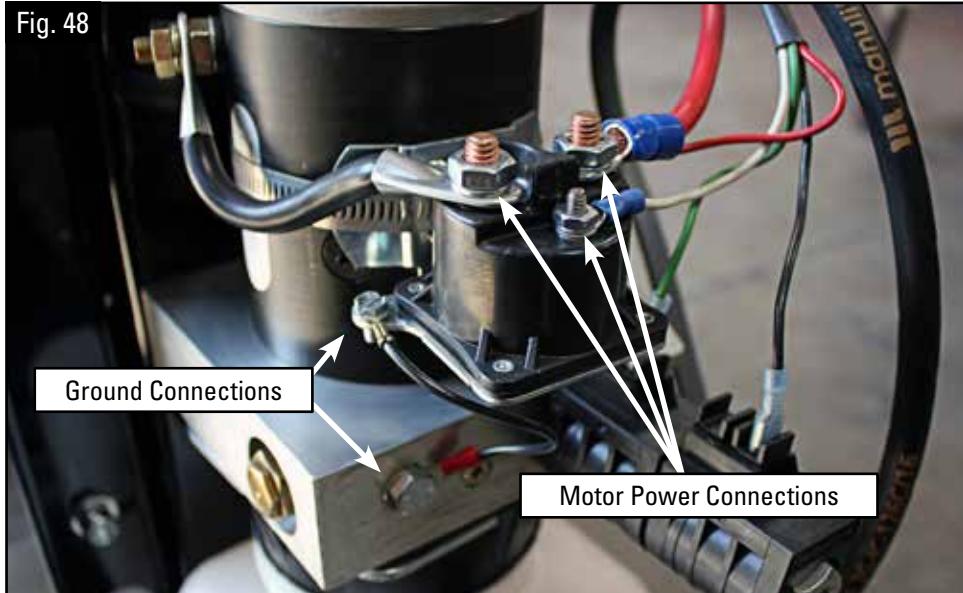
**Power Wire Connections**

Figure 48 shows the proper wire connections.



A Roll-Rite Brand



DC SERIES CONTROL BOX

Dual Stage Tower



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DC SERIES CONTROL BOX

Dual Stage Tower

Arm Systems - To Cover Container

Step 1: To activate (power up or down) the control box you must press and hold buttons one (Ch. 1) and two (Ch. 2) on the control box or the key fob (I, II) for three (3) seconds (Fig. 49).



Fig. 49

Step 2: Deploy 2-3 feet of tarp before moving the tower. To deploy tarp, press and hold button one (Ch. 1) on the control box or the key fob (I) (Fig. 50), or on non-remote systems, there will be a switch to wind and unwind your tarp.

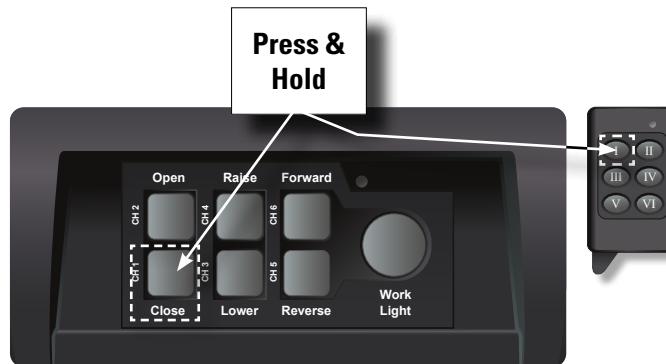


Fig. 50

Step 3: Raise the tower as high as possible to keep tarp from dragging on the load in the container. To raise the tower, press and hold button four (Ch. 4) on the control box or the key fob (IV) (Fig. 51).

Note: It's best to not pull the container all the way forward, until after raising the tower and deploying at least three feet (3') of tarp (See Step 2).

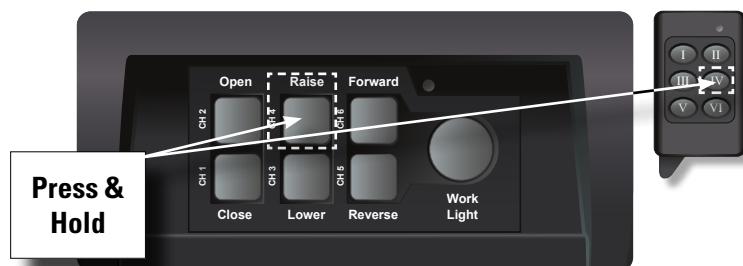


Fig. 51

Step 4: Lower the tower so that the tarp wraps neatly around the front of the container. To lower the tower, press and hold button three (Ch. 3) on the control box or key fob (III) (Fig. 52).

On short cans, you may have to pull the tarp down to the top of the container and secure it with a strap.

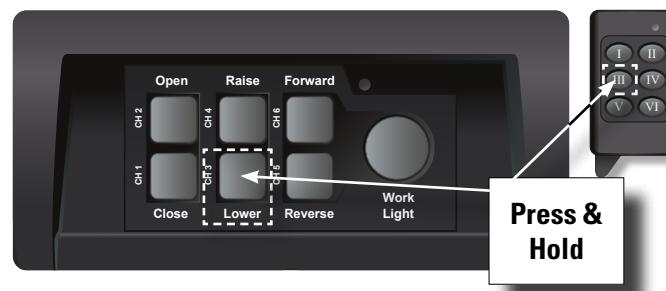


Fig. 52

WARNING: Always watch for overhead hazards, tower and arms can potentially come into contact with overhead wires.



DC SERIES CONTROL BOX

Dual Stage Tower

Arm Systems - To Uncover Container

Step 1: Let some tarp material out to take any tension off the tarp and raise the tower to the maximum height to prevent the tarp from dragging on the load. To raise the tower, press and hold button four (Ch. 4) on your control box or key fob (IV) (Fig. 53).

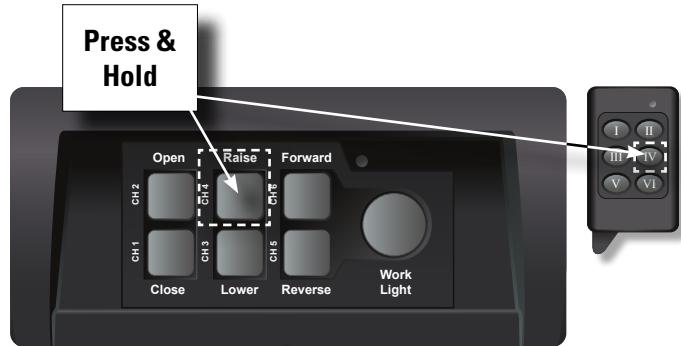


Fig. 53

Step 2: Retract the tarp in far enough to clear the container as it is dumped or unloaded. To retract the tarp, press and hold button two (Ch. 2) on the control box or key fob (II) (Fig. 54).

If you are dropping the can and traveling with no can or an empty can, return the tarp system to its home position. A standard home position is with the tower all the way down.



Fig. 54

Armless Systems - To Cover Container

Step 1: To activate (power up or down) the control box, you must press and hold buttons one and two (Ch. 1 & Ch. 2) on the control box or the key fob (I, II) (Fig. 55).



Fig. 55

Step 2: Raise the tower as high as possible to keep the tarp from dragging on the load in the container. To raise the tower, press and hold button four (Ch. 4) on the control box or on the key fob (IV) (Fig. 56).



Fig. 56



DC SERIES CONTROL BOX

Dual Stage Tower

Armless Systems - To Cover Container

Step 3: Unwind the Pullrope, then press and hold button one (Ch. 1) on the control box or the key fob (I), while walking the tarp to the rear of the container (Fig. 57).



Fig. 57

Step 4: Secure the tarp at the rear of the container. Then lower the tower by pressing and holding button three (Ch. 3) on the control box or the key fob (III) (Fig. 58) until tight. This should give you the proper tension on the tarp.

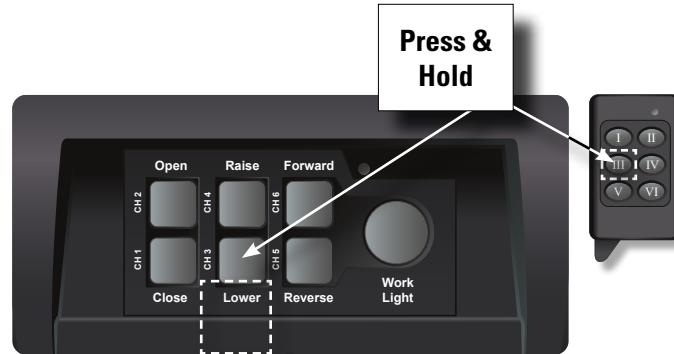


Fig. 58

Step 5: Tighten the tarp by pressing and holding button 2 (Ch. 2) on the control box or on the key fob (II) until the tarp is tight (Fig. 59).

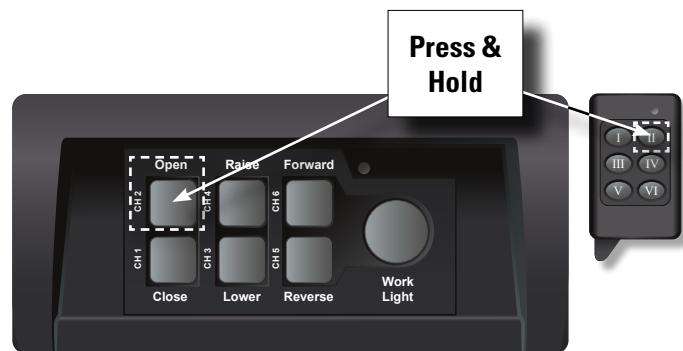


Fig. 59



DC SERIES CONTROL BOX

Dual Stage Tower

Armless Systems - To Uncover Container

Step 1: Loosen the tarp, uncoil several feet of tarp. To loosen, press and hold button one (Ch. 1) on the control box or the key fob (Fig. 60).

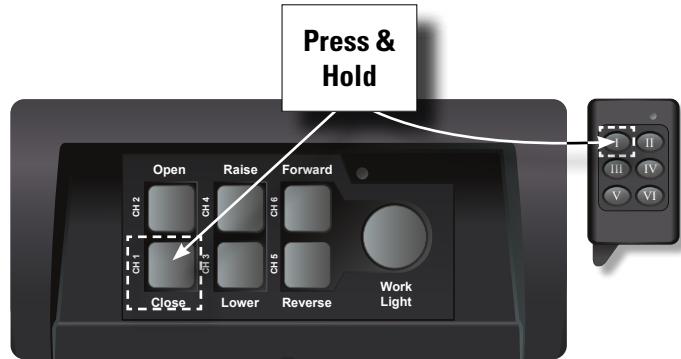


Fig. 60

Step 2: Raise the tower as high as possible to keep the tarp from dragging on the load in the container. Press and hold button four (Ch. 4) on the control box or key fob (IV) (Fig. 61).

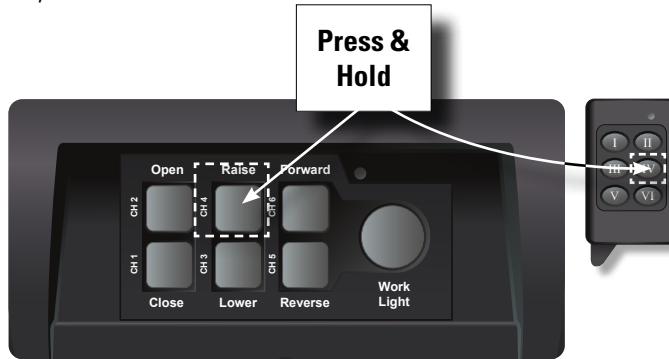


Fig. 61

Step 3: As you walk in the tarp with the Pullrope, press and hold button two (Ch. 2) on the control box or on the key fob (II) (Fig. 62).

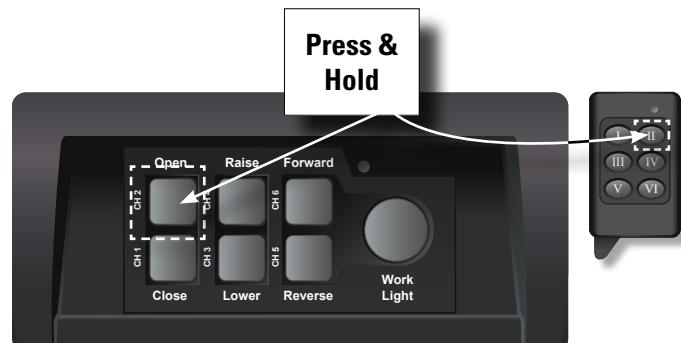


Fig. 62

Step 4: Unload or dump container. To lower the tower, press and hold button three (Ch. 3) on the control box or the key fob (III) (Fig. 63).

Note: Lower Tower before Traveling.

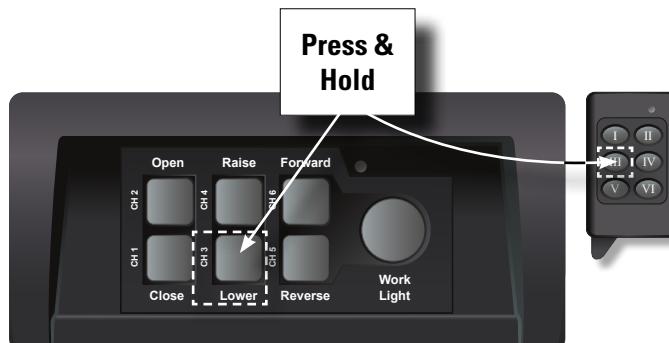


Fig. 63



DC SERIES CONTROL BOX

Dual Stage Tower

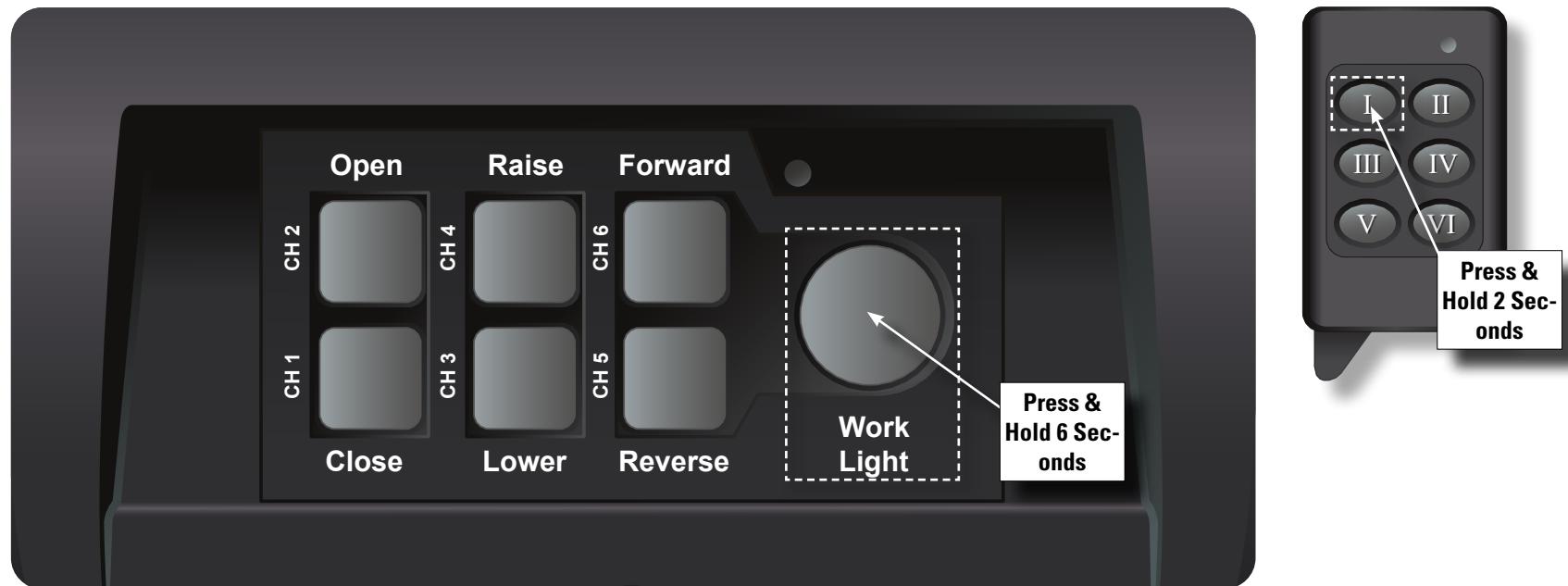
Key Fob Programming

The control box comes preprogrammed to the two (2) supplied remote key fobs. If for any reason you should need to re-program them, or additional key fobs, follow the steps and image below (Fig. 64).

1. Confirm that the box is turned on (the status LED should be lit green).
2. Press and hold the round work light button for 6 seconds. The LED will flash red three (3) times to indicate program mode.
3. Press and hold button one (I) on the first key fob for two (2) seconds then release. Press button one (I) for two (2) seconds on the second (2nd) key fob. Repeat for each additional key fob that is to be programmed.
4. Let box stand until Status LED returns to green. Programming is complete.

The control box will learn a maximum of four (4) key fobs. All key fobs must be programmed at the same time. Programming an additional key fob at a later date will erase all previously stored key fobs.

Fig. 64





DC SERIES CONTROL BOX

Dual Stage Tower

Automatic Shut Down Feature

The control box (Fig. 65) incorporates a safety feature to shut off automatically after a period of inactivity*. Press buttons 1 & 2 simultaneously on the box or remote for two seconds (as described above) to power the unit back up.

To shut the box down manually (shut off), press 1 & 2 simultaneously on the box or remote for two seconds as described above. *Boxes produced after 8-10-09 may have programmable time out feature.

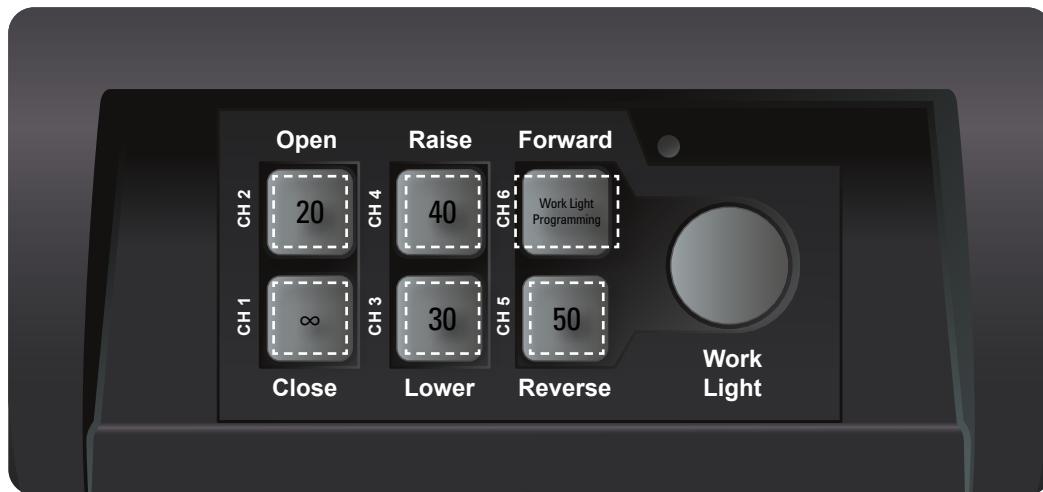
*Boxes shipped after 12/14 (SN – 11,505 and up) have extended programmable time out. For earlier boxes call for assistance.

To adjust the time delay before automatic shut off:

1. Turn the box on.
2. Press and release the work light button 6 times, wait until the light stops flashing press the Ch. 6 Button, the LED will flash once, press the Ch. 6 Button again, LED will flash once – you are now in the program mode you need to be in to adjust the automatic shut down time and work light on/off conditions.
3. Reference diagram below, # indicated on the button represents minutes until the box automatically shuts down. “∞” means it will not power down automatically.
4. After selecting shut down time wait for the LED to return to green. Programming complete.

REV. 08/10/09

Fig. 65



Button	On Time before Auto Shutdown
1	On Indefinitely
2	2 minute on time
3	4 minute on time
4	6 minute on time (default)
5	8 minute on time
6	10 minute on time

REV. 31 - 11/12/14 (Serial# 11505 & Up)

Button	On Time before Auto Shutdown
1	On Indefinitely
2	20 minute on time
3	30 minute on time
4	40 minute on time
5	50 minute on time
6	Work light on after box auto-shutdown (one blink) Work light off after box auto-shutdown (default) Two Blink



DC SERIES CONTROL BOX

Dual Stage Tower

Control Box Troubleshooting

LED Diagnostics, Unit at Rest (Fig. 66)

No Light	---	No Power or box is shut down (see Auto shut Down feature).
Green	Continuous	Everything is OK.
Green	Single Blink	Low Battery Warning. Recharge your Battery soon.
Green	Double Blink	Battery is nearly dead and must be recharged before unit will operate.
Yellow	Continuous	Fuse 1 (5 Amp, Board Circuit - see Fig.52) is Blown
Yellow	Single Blink	Fuse 2 (10 Amp, Onboard Relay - see Fig. 52) is Blown
Yellow	Double Blink	Fuse 3 (15 Amp, Pump Signal Wire - see Fig. 52) is Blown
Yellow	Triple Blink	Fuse 4 (15 Amp, Work Light Circuit - see Fig. 52) is Blown
Red	Continuous	Unit is in Program Mode

LED Diagnostics, Unit in Operation (Fig. 67)

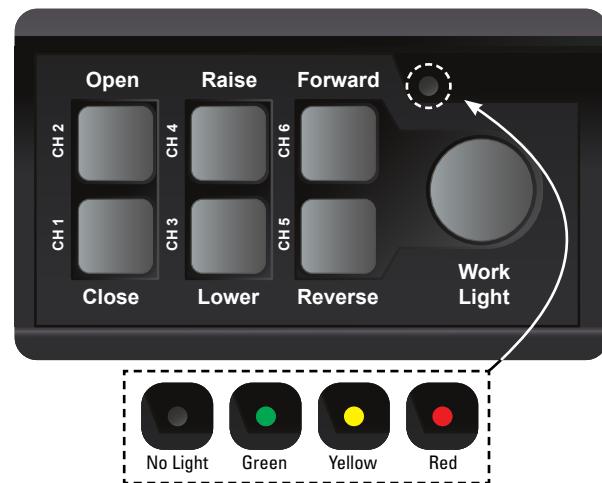
Red	Continuous	Confirms it is in operation
Green	Single Blink	Low Battery warning. Recharge soon.
Green	Double Blink	Battery is nearly dead - unit will not operate until charged.

Fuse Replacement (Steps)

- 1) Using the codes above to diagnose which fuse is blown.
- 2) Remove the 10 bolts that hold the lid in place.
- 3) Carefully lift lid and unplug switch leads
- 4) Do not touch circuit board any more than necessary.
- 5) Carefully locate (Fig. 67) & remove the blown fuse & replace it with a fuse that is the same size.
- 6) Replace the lid.
 - a. Plug switch leads in.
 - b. Arrange so that they will not be pinched as lid is replaced.
 - c. Insure that gasket is in place in groove in lid.
 - d. Press lid back into place and replace 10 lid bolts.
 - e. Tighten lid bolts in a star pattern to insure lid tightens evenly.

Fig. 66

Button Interface with LED Diagnostic Light



Fuse Replacement (1-4)

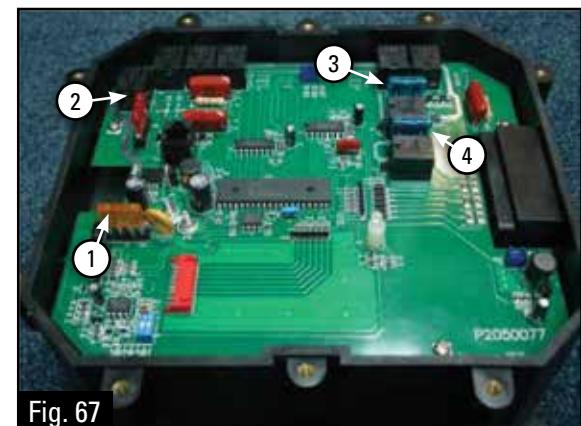


Fig. 67

**DC SERIES CONTROL BOX****Dual Stage Tower****Quick Reference Guide - Detach and put in truck****Black Box Operation**

- **ON/OFF** – To turn the control box on or off, press CH1 and CH2 simultaneously for 2 seconds. This can be done from the box itself (see figure 6) or from the key fob (see figure 7) by pressing buttons I & II simultaneously.
- **Work Light** – If your system is equipped with work lights, turn the control box on and then press the Work Light button to turn them on or off. **THIS IS NOT THE ON/OFF BUTTON FOR THE CONTROL BOX!**
- **CH1 and CH2** – control buttons for output #1 on the control box (typically connected to the tarp motor). These two buttons correspond to buttons I and II respectively on the remote key fob. Pressing these two buttons at the same time and holding for 2 seconds will turn the control box on and off.
- **CH3 and CH4** – control buttons for output #2 on the control box (typically controls the tower raising and lowering). These two buttons correspond to buttons III and IV respectively on the remote key fob. Press and release these two buttons at the same time on the key fob to operate the work light from the remote.
- **CH5 and CH6** – control buttons for output #3 on the control box (additional equipment). These two buttons correspond to buttons V and VI respectively on the remote key fob.

Shut Down Feature

The control box incorporates a programmable safety feature which shuts it off automatically after a given period of inactivity. This feature is programmable, see "Automatic Shut Down Feature" section in your operating instructions.

Press buttons 1 & 2 simultaneously on the box or remote for two seconds (as described above) to power the unit back up.
To shut the box down manually (shut off), press 1 & 2 simultaneously on the box or remote for two seconds as described above.