



ONE TOUCH CONTROL BOX
CONVERSION KIT INSTRUCTIONS

REMOVAL, INSTALLATION, OPERATION, AND
REMOTE CONTROL PROGRAMMING

INSTALLING THE THUNDER ONE TOUCH CONVERSION KIT ON AN EXISTING SHUR-CO 3500 ELECTRIC TARP SYSTEM

Tools Needed:

- ¼" Drill Bit
- Drill
- Phillips Screwdriver
- 7/16" Socket
- Socket Wrench
- Heavy Gauge Wire Cutters
- Wire Crimpers for 6ga Wire

Control Box Installation Kit – Part #101322

Part Number

031-54503
032-47918
032-48961
032-51281
034-53341
035-51333
101323
101553
577-53725
085-58360
101007

Description

Wire AY 16GA Black 8" w/ ¼" Eyelet
Nut ¼"-20 Hex UNC
Screw ¼"-20 x 1 ½" SS
Washer ¼" Split Lock Med
Grommet 7/8" ID x 1 5/8" O
Decal Warning Electric Tarp
Keypad w/ Integrated Wires
Conversion Kit Control Box
Remote Transmitter
Control Box Mounting Plate
Screw 10 x ¾" Phillips

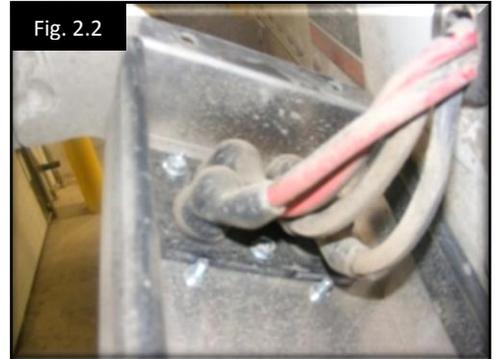
REMOVE THE OLD SYSTEM

- **DISCONNECT ALL POWER FROM THE TRAILER!**
1. Remove the Shur-Co control box from the nose of the trailer by loosening the four ¼"-20 bolts.
 2. Remove the decal right above the control box if possible.
 3. Label the motor positive wire. (Red stripe on black wire)
 4. Label the motor ground wire. (Black Wire)
 5. Label the ground wire. (Black wire)
 6. Label the positive wire. (red stripe on black wire)
 7. Detach the wires from the Shur-Co control box.

Fig. 2.1



Fig. 2.2



PREPARE EXISTING WIRING FOR NEW SYSTEM

1. Remove all protective boots from cables.
2. Pull all the wires back through the nose of the trailer.
3. Slide the boot away from the back of the plug to expose the connections.
 1. Remove the two fasteners holding the plug in the nose and slide the two-pole plug out to get access to the set- screws.
 2. Loosen screws for both of the wires and remove both of the wires. These wires will be replaced with the new installation so discard the wires.
 3. Make sure to retain the 2 pole plug and the rubber boot for later in the installation.

Fig. 2.3

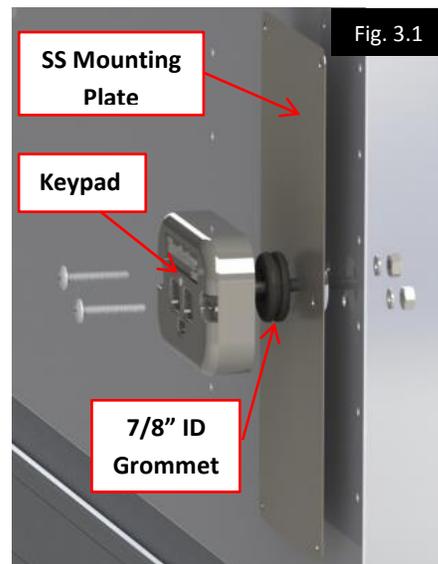


Fig. 2.4



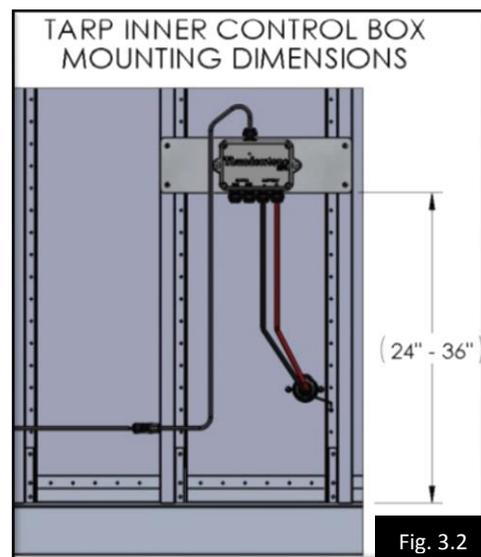
MOUNT THE TARP EXTERNAL KEYPAD

1. Place the control box SS mounting plate on the nose of the trailer making sure to cover all of the existing holes left after removing the old control box.
2. Use four #10 x $\frac{3}{4}$ " self-drilling screws to attach the plate to the nose of the trailer.
3. Drill a 1- $\frac{1}{4}$ " hole in the existing hole on the trailer nose using the stainless steel plate as a template.
4. Drill two 17/64" holes in the nose of the trailer using the stainless steel plate as a template.
5. Install 7/8" I.D. x 1 5/8" O.D. grommet into 1-1/4" hole to prevent wire damage.
6. Insert the control wire through the grommet hole and place the key pad up to the plate on the trailer and install the two $\frac{1}{4}$ "-20 x 1 $\frac{1}{2}$ " Phillips pan head screws, the $\frac{1}{4}$ " lock washers, and $\frac{1}{4}$ "-20 nuts. To hold the key pad to the nose of the trailer.
7. Make sure that all fasteners are tight.



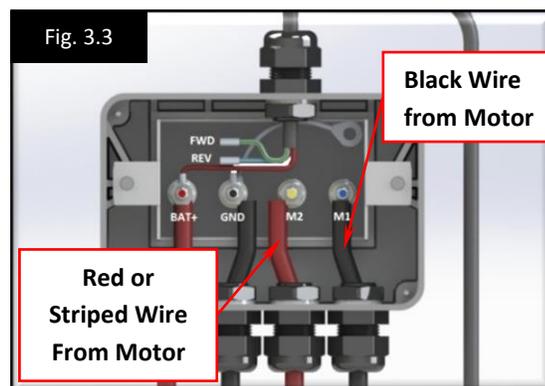
MOUNT THE INNER CONTROL BOX

1. Attach the control box to the mounting plate using two $\frac{1}{4}$ "-20 x 1 $\frac{1}{2}$ " Phillips pan head screws, the $\frac{1}{4}$ " lock washers, and $\frac{1}{4}$ "-20 nuts.
2. Make sure that all fasteners are tightened.
3. Choose a location inside the nose of the trailer between two Z-posts above the power receptacle so that all wires can reach the junction box.
4. Clamp the plate to the Z-posts using vice grip pliers or C-clamps to hold in place.
5. Use four #10 x $\frac{3}{4}$ " self-tapping screws to attach the mounting plate to the Z-posts using the predrilled hole in the plate as a guide.



WIRING THE INTERNAL CONTROL BOX

1. Remove the two unoccupied strain relief external compression and slide the two compression nuts onto the two motor wires.
2. Plug the wires from the external tarp control box to the wire coming out of the top of the box.
3. Open the control box for access to the control module inside.
4. Insert the black wire coming from the motor into M1 port and the red or striped wire into the M2 port of the control box.
5. Secure all the motor wires to the control module in the control box using the supplied 1/4" nuts. Make sure to match black wire to M1 post and red wire to M2 post.
6. Tighten the $\frac{1}{4}$ " nuts on the control module.
7. Tighten the compression fittings around all of the wires to hold them in place.
8. Install the junction box lid to the control box base using the supplied Torx screws.



WIRING THE 2 POLE RECEPTACLE USING THE 6' WIRES

1. Strip back 3/8" - 1/2" insulation on the BAT+ and BAT- wires coming from the tarp control box.
2. Place large rubber boot over the BAT wires and 8" 16GA ground wire.
3. Insert the BAT+ wire into the top terminal hole on the 2-pole receptacle and tighten the set screw securing the wire. (Use dielectric grease on the wire prior to inserting into the power receptacle)
4. Insert the BAT- wire along with the 16GA ground wire into the bottom terminal hole on the 2-pole receptacle and tighten the set screw securing both wires. (Use dielectric grease on the wires prior to inserting them into the power receptacle)
5. Slide the large rubber boot up to cover the back of the 2-pole receptacle.
6. Remove a 1/4" nut and lock washer from one of the bolts holding the doubler plate to the z-post.
7. Apply dielectric grease around the bolt and use the lock washer and 1/4" nut to attach the 8" 16GA ground wire to the z-post.

Fig. 4.1

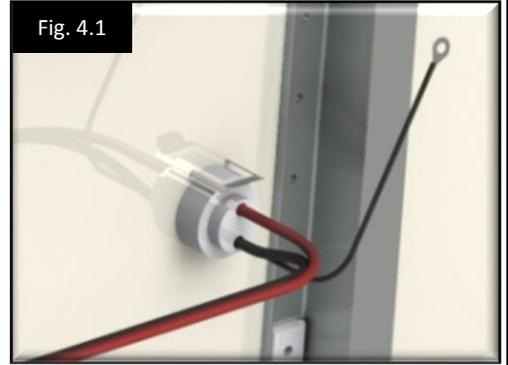


Fig. 4.2



Fig. 4.3

Place the provided warning label in clear view above the tarp control box for safety.

USE THE PROCEDURES BELOW TO OPERATE THE TARP SYSTEM

Powering up or down the system

1. To turn the system on or off, locate the **Open** and **Close** buttons on the RF control module on the front of the trailer. Push and hold both buttons simultaneously for approximately 3 – 5 seconds. The top light and the two large buttons will illuminate when power is on and ready for operation.
2. You can also press and hold buttons “**On/Open**” and “**OFF/CLOSE**” on the flip style remote transmitter for 3 – 5 seconds to power the system on or off.

One Touch Operation

The one touch function is fully automated. The system will stop when fully opened or closed.

To uncover the load, push and hold the button labeled “**Open**” on the relay module or “**On/Open**” on the flip style remote transmitter for 1 to 2 1/2 seconds then release. The Gear motor will wrap the tarp around the tarp axle causing the axle to move from the closed position to the open position. This tarp system can be opened part way and stopped. (See the incremental operation section for more instructions on how to start and stop the system.) It will not hurt the tarp system to stop part way through the opening/closing cycle. When the system shuts down automatically, the tarp will be set to the recommended tarp tension.

- **Never travel with the tarp in a partially covered position. The trailer should always be covered when traveling.**

To cover the load, push and hold the button labeled “**CLOSE**” on the relay module or “**OFF/CLOSE**” on the flip style remote transmitter for 1 to 2 1/2 seconds then release. The springs in the arm will move the tarp from the stowed position and across the trailer to the closed position. When the system shuts down automatically, the tarp will be set to the recommended tarp tension.

Incremental Operation

To inch the tarp in either direction, press the “**OPEN**” or “**CLOSE**” buttons on the relay module or remote for 1 to 2 1/2 seconds then release. When you want to stop the tarp just press the “**OPEN**” or “**CLOSE**” buttons on the relay module or remote again. This will stop the motion of the tarp system. To restart the system, press the “**OPEN**” or “**CLOSE**” buttons on the relay module or remote for 1 to 2 1/2 seconds then release to move the tarp in the desired direction. This can be done when the tarp system is in automatic operation.

Press and Hold operation

To uncover the load using the press and hold feature, push and hold the button labeled “**OPEN**” on the relay module or “**ON/OPEN**” on the RF transmitter. The Gear motor will wrap the tarp around the tarp axle causing the axle to move from the closed position to the stowed position. Release the button when the system shuts down automatically. This tarp system can be opened part way and stopped. Anytime you release the switch the tarp system will stop. It will not hurt the tarp system to stop part way through the opening/closing cycle.

- **Never travel with the tarp in a partially covered position. The trailer should always be covered when traveling.**

To cover the load using the press and hold feature, push and hold the “**CLOSE**” button on the relay module or “**OFF/CLOSE**” on the RF transmitter for greater than 2 ½ seconds. The springs in the arm will move the tarp from the stowed position and across the trailer to the closed position. Release the switch when desired during operation or when the system shuts down automatically.

PROGRAMING THE REMOTE TO THE RF TRANSMITTER

1. Four transmitters can be programmed to each keypad so four inputs are required. Have all of the remote control units that are to be programmed ready.
2. To program the flip style remote control, open the lid and make sure the remote is set to channel one (the first red light is flashing).
3. Turn the keypad on. Press and hold the two large buttons (**Open** and **Close**) for approximately 3 seconds – the top light and the two large buttons will illuminate when power is on.
4. Push and hold the slotted button and the large **Open** button (See Figure 6.1) simultaneously and hold for approximately 10 seconds. The top light will flash blue rapidly and will continue to flash for approximately 10 seconds. If the light on the control box stops flashing before all the remotes are programmed you will need to restart and reprogram all the remotes
5. Press the **On/Open** button on the flip style for the first remote control to be programmed for 1 second (see Figure 6.2). The blue light on the keypad will stop flashing for a moment and then start flashing again.
6. Repeat this for all the remote controls that need to be programmed while the light on the control box is still flashing. **If one transmitter is being programmed, the "ON/OPEN" button will be pushed four times.** If two transmitters are being programmed then the "ON/OPEN" button of the second transmitter will be pushed three times. If three transmitters are being programmed then the "ON/OPEN" button of the third transmitter will be pushed two times. When four transmitters are programmed press the "ON/OPEN" button of each transmitter once. The light on the control module will stop flashing when the four inputs have been received.

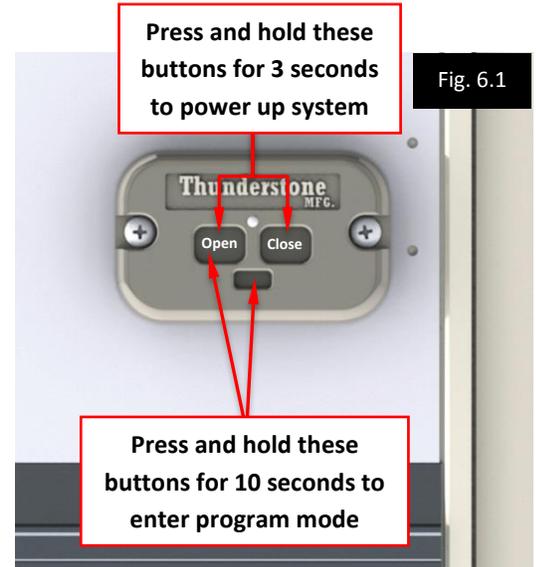


Fig. 6.1



Fig. 6.2

The control box resets the list of remotes it remembers every time you enter the programming mode to program a remote. Remotes that were previously programmed are removed from the control box memory and will no longer be able to control the system. This is why all remotes need to be programmed at the same time.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
 (1) This device may not cause harmful interference, and
 (2) This device must accept any interference received, including interference that may cause undesired operation.
 This device complies with Industry Canada licence-exempt RSS-xxx standard. Operation is subject to the following two conditions:
 (1) This device may not cause interference, and
 (2) This device must accept any interference, including interference that may cause undesired operation of the device.

SETTING FUNCTIONS ON THE REMOTE

Setting function allows functions to be blocked if not required /not going to be used.

1. Open transmitter. Observe flashing light.
2. Press and hold "MODE" button for 10 - 12 seconds until the top light stays lit.
3. Press the "ON/OPEN" button if this function will be used. Select and press the "OFF/CLOSE" button if you want this function to be skipped.
4. Repeat Step 3 for all five functions.

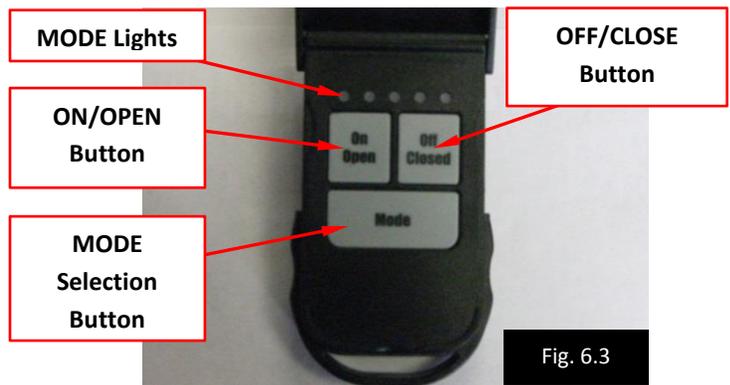


Fig. 6.3

- a. 1 LIGHT - TARP SYSTEM
- b. 2 LIGHTS - FRONT HOPPER
- c. 3 LIGHTS - REAR HOPPER
- d. 4 LIGHTS - AUXILIARY
- e. 5 LIGHTS - AUXILIARY

5. When the last function has been selected, the light on the first mode function will stay lit for approximately 3 seconds to indicate active and return to flashing when process is complete.

Recommended maintenance:

- All electrical connections should be checked regularly for corrosion. If any connections are found with corrosion, clean the connection and apply dielectric grease before reconnecting. Electrical connections can be found at all motors, control boxes and batteries. All mounting hardware should be checked to insure all system components are securely fastened. Visually inspect all moving parts for abnormal or excessive wear.

TROUBLESHOOTING GUIDE

• Tarp system will not power on.

1. Make sure that the 2-pole power cord is plugged into the trailer and has the proper polarity and voltage to the tarp system.
2. Check that the tarp system circuit breaker near the tractor side battery is reset, if applicable.
3. Turn on the tarp system by pressing the (Open) & (Close) buttons on the keypad for 3-5 seconds until the blue LED and buttons illuminate.
4. Test the remote functions of the tarp system by pressing the (Open) & (Close) buttons on the remote 3-5 seconds to verify keypad button failure.
5. Check for grease, dirt, and corroded connections at the battery terminals, circuit breaker and also at the trailer power receptacle plug and outlet.
6. Disassemble the inner control box, located in the nose of the trailer, and check for proper voltage at the BAT+ side on the amp relay module while inspecting the control box wiring for breakage, moisture or corrosion.

➤ Replace the defective RF keypad. Test functions before re-installation to verify.

• Tarp system powers on but does not function when pressing either (Open) or (Close), no amp relay flash codes, located in the nose of the trailer, are present.

1. If the blue LED light is flashing rapidly, check for low voltage & loose connections.
2. Test the remote functions of the tarp system to verify keypad button failure.
3. Check for loose & corroded connections at the motor terminals and inspect the wires from the motor to the inner control box located in the nose of the trailer.
4. Perform a motor bump test by unplugging then re-plugging the tarp system power cord, making note if the motor tries to "bump" or run automatically.

➤ Replace the defective RF keypad. Test functions before re-installation to verify.

• Tarp system does not function and a red flashing light is present on the inner control box, located in the nose of the trailer, indicating an error code. See error code explanations below:

- a) **Four** flashes indicates an **overheat protection** issue. This typically occurs if the system has been started and stopped rapidly in a short period of time. Also can indicate increased drag in the tarp system causing excess amperage. Re-check the tarp system after a cool down period.

➤ Replace the tarp motor if a motor brake failure is creating excess drag causing overheating or premature stoppage.

- b) **Five** flashes indicates an **over voltage protection** issue. Using a voltmeter, check the tractor batteries & alternator for voltage exceeding 15.5 volts.
- c) **Six** flashes indicates an **under voltage protection** issue. Using a voltmeter, check the system for low voltage. Also check all connection points for looseness and corrosion including battery terminals, circuit breaker, power cord, and receptacle plug. The blue light on the keypad may also be blinking rapidly when there is an under voltage condition present. Connect a separate power source to verify.
- d) **Seven** flashes indicate a **ground fault**. This can be caused by moisture intrusion to the inner control box, motor or amp relay defect, and also wiring faults. To determine which failure has occurred please follow the below steps:
- (1) Remove the motor lead wires from the motor. Touch the ends together completing the circuit and observe if the flashing stops or continues. This will require 2 people.

➤ If flashing stops, there is internal motor wire damage. Replace the defective tarp motor. Test functions before completing installation to verify.

- (2) If the 7 flashes continue after the wires are touched together, inspect the wiring from the inner control box to the motor for any frays, pinched areas, or insulation being worn through. Fix or replace any areas that show insulation wear.
- (3) Disassemble the inner control box located in the nose of the trailer and inspect for water intrusion. Green corrosion around the amp control relay terminals is a positive sign of relay failure due to moisture.

➤ If moisture is present, replace the defective amp relay module. Test functions before re-installation to verify.

- (4) While the inner control box is disassembled, remove the M1 & M2 leads from the amp control module. Using a screwdriver or conductive source, bridge the M1 & M2 terminals together and make note if flashing stops.

➤ If flashing continues, replace the defective amp relay module. If flashing stops, re-inspect or replace the wiring between the inner control box and motor. Test functions before re-installation to verify.

● **Tarp system does not make a full cycle or closes/opens intermittently.**

- a) **Three** flashes indicate an **overcurrent protection** issue. Check for obstructions in the operation of the tarp such as snow or ice buildup. Also could indicate increased drag in the tarp motor by a failing brake causing premature tarp stoppage.
- b) Remove the motor terminals and connect to a battery source using jumper cables to determine if the motor labors or stops with direct current indicating a motor brake failure causing excess drag.

➤ Replace the tarp motor if motor brake failure is found to be the cause of premature tarp stoppage.