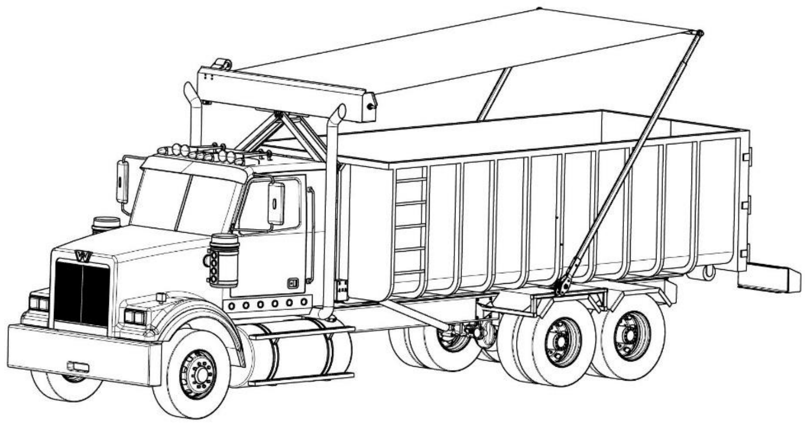
Michel's Scissor Lift Flip Tarp System



Thank you for purchasing this tarp system! Please read and understand this manual before installing and operating the tarp system. Note: All pictures and instructions are only a representative of this product and may change at any time without notice.
Pay particular attention to important safety and operating instructions. The Hazard symbol ⚠ is used to alert users to potentially hazardous conditions and is followed by Caution, Warning, or Danger messages.
Failure to READ AND FOLLOW INSTRUCTIONS could result in failure to the tarp system and/or personal injury. The requirements for your installation may have minor variations from these instructions and Caution should be taken when deviating from the following guidelines.

Safety instructions

1. Always wear safety glasses during installation and operation
2. Stay clear of moving parts. ⚠ Danger: Scissor Lift has many different Pinch Points and Crush zones.
   ⚠ Warning: When Operating or Maintaining the Flip arms, take extra precaution with the arms as they are spring loaded and can cause serious injury/death while under load.
3. ⚠ Warning: Do not operate under low-hung power lines. Always check for overhead obstacles before operation.
4. Operate tarp system only at appropriate work site.

Maintenance

- Tighten any loose bolts
- Replace damaged or worn bushings. Note: All pivot location bushings are self lubricating and do not require maintenance.
- Replace damaged or bent parts
- Replace worn or broken springs.
- Replace/repair worn or damage tarps.

Require Tools

- Ratchet Set
- Wrench Set
- Drill with 3/8" & ½" drill bit
- Tape Measure
- Center Punch
- Grinder
- Metal Saw
- Welder
- Hammer
- Electrical Tape
- 4' level

Clearance requirements – There needs to be a **Minimum** of 12" of clearance from the cab to Tilt Frame. If existing exhaust or hydraulic components are located between the tilt frame and cab, adjust the component locations as needed to achieve the required clearance.
If existing components interfere with the scissor assembly installation and if moving these components is not practical, fabricate brackets as needed to prevent interference.

⚠ **CAUTION** Welding components to the truck frame may weaken the frame and will void warranty on the truck.

Step 1 – Installing the Header onto the Tower and Wiring the Motor.

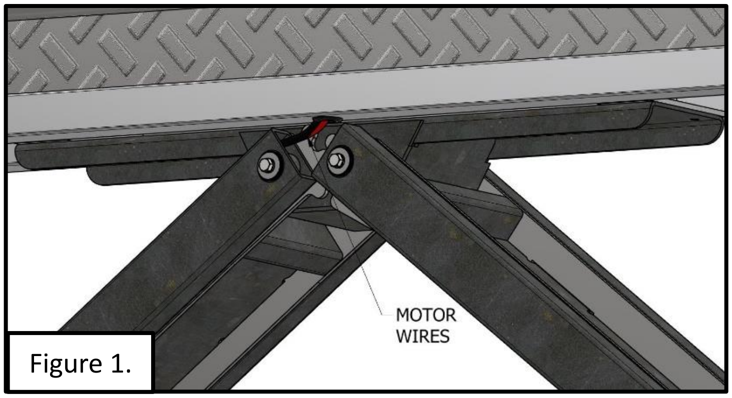


Figure 1.

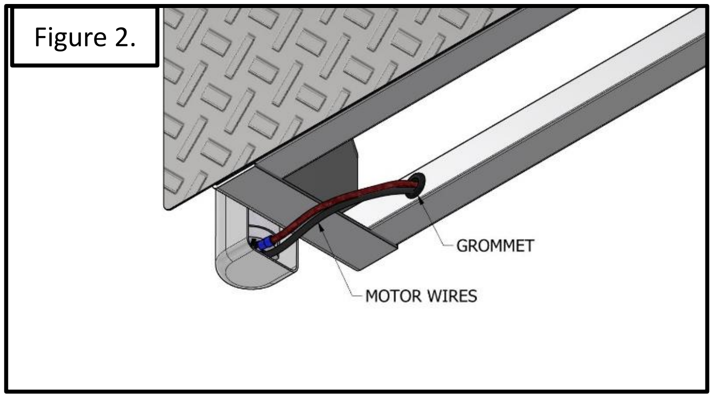


Figure 2.

Place the header on top of the scissor tower with the center hole for the wiring on the same side as the motor wires are plumbed. Drill 3/8" holes through the aluminum angle on the header and bolt the header onto the Scissor Assembly using 3/8"x1-1/4" bolts, washers, and Nylock nuts. After the header is installed, tape the wires to the steel "fish wire" and pull them through each of the wiring holes. Make sure that there is a rubber grommet installed onto the wire before pulling the wire through the header. Cut the motor wires to length and install #6 - ¼" Ring Terminals. Connect the wires to the motor. See Figure 1 & 2 for reference.

⚠ **CAUTION** Welding components to the truck frame may weaken the frame and will void warranty on the truck.

Step 2 – Installing the Scissor Lift Tower

Place the scissor lift onto the frame of the truck approximately 3"-4" behind the cab. Center the bottom frame of the scissor to the frame of the truck, by measuring from each side of the truck frame. Place the Frame Mount Brackets against the frame and underneath the scissor frame. Drill ½" holes through the frame of the truck and 3/8" holes through the frame of the scissor lift. Use 1/2" x 2" bolts, washers, and Nylock Nuts on the frame of the truck and 3/8" x 1-1/4" bolts, washers, and Nylock Nuts on the scissor frame. Refer to Figure 3. **Note:** If needed, fabricate additional bracing to stabilize scissor assembly.

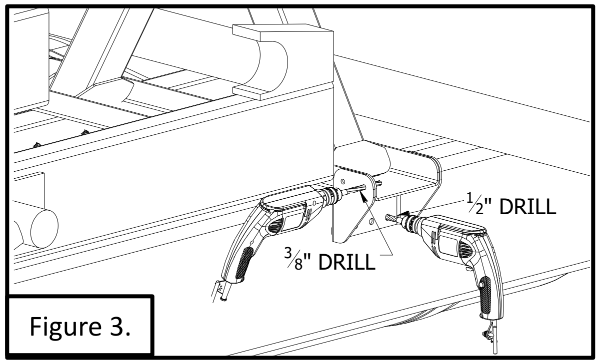


Figure 3.

Step 3 – Installing the Scissor/Tarp Control Box

The Arm to mount the control box can be mounted on the front or back side of the Tower. Position the mounting brackets at the desired height on the tower, drill and lag screw to secure. Slide the arm into the brackets and set the proper length in and out. The far end or the arm can be cut off once the length is determined. Drill and lag through the brackets to secure the arm. **Note:** There may be hydraulic controls or other objects that need to be taken into consideration when mounting the control box. Mount the control box to the arm. See Figure 4.

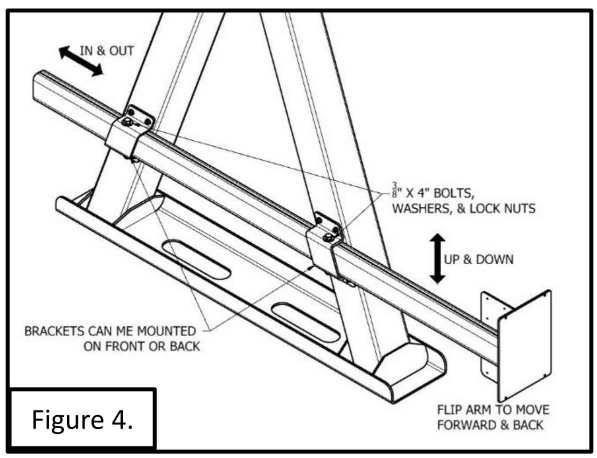


Figure 4.

Once the Control Box is mounted, route the power wires for the Control Box, across the arm, down the tower, and to the battery. Determine a suitable location for the Manual Disconnect Switch. It is recommended to either mount the switch inside of the cab or in a hidden location near the battery. There is also a bracket on the back of the Control Box Arm that the disconnect switch can be mounted to. Refer to Figures 5-7.

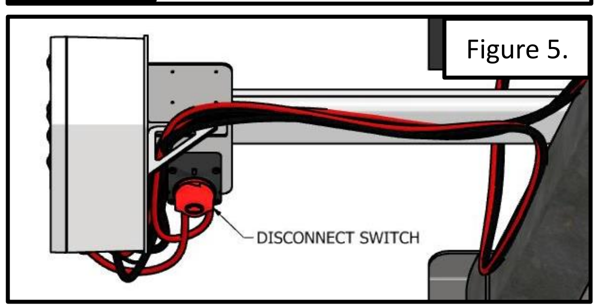


Figure 5.

Install a 50amp Circuit Breaker within 6" of the battery, between the battery and the disconnect switch.

Step 3 - Continued

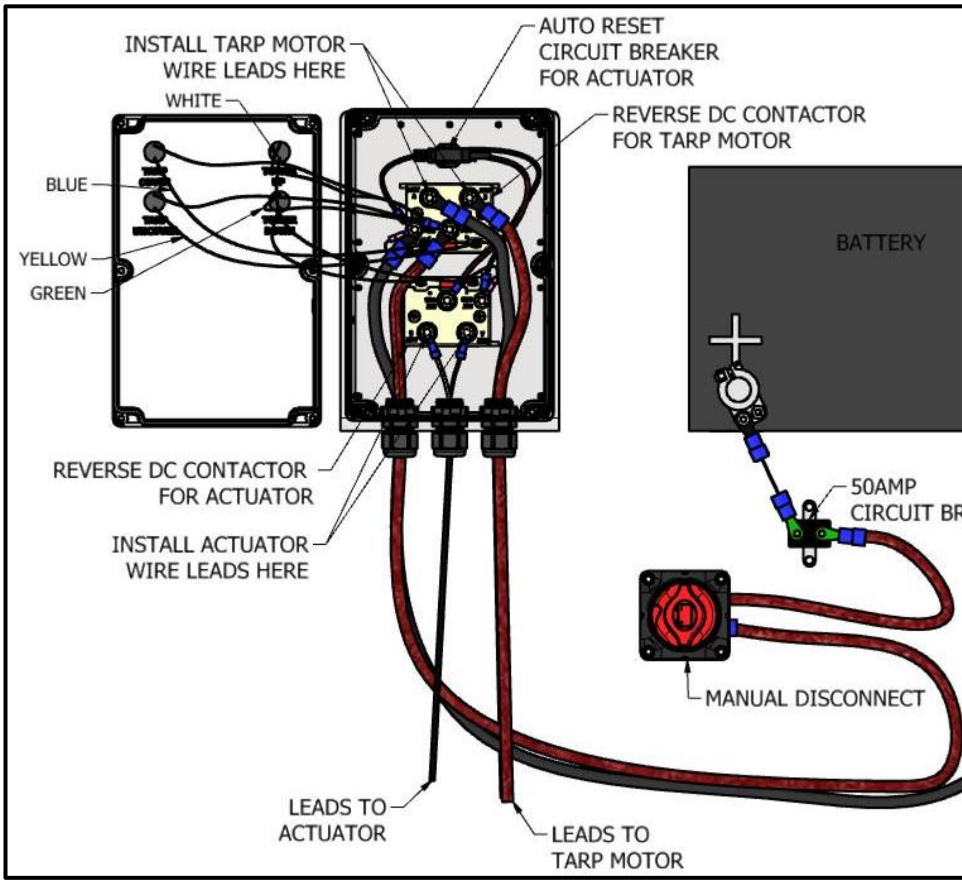


Figure 6

Remove the cover on the control box. **Caution:** Do not to damage the wiring for the buttons when removing the lid. Determine the correct length of the #6 tarp motor wires and cut to size. Route the leads from the tarp motor to the control box, down the tower and along the Control Box mounting Arm. Separate the wires and insert them through the Heyco strain relief connectors on the bottom left side of the control box**. Note:** Only one wire will go through each connector. Crimp the supplied #6 - ¼" Ring Terminals to the wires and bolt to the **Top** reverse DC contactor. See Figures 5-8.

Follow the same routing as the tarp motor wires for the wires from the Actuator. The wire from the Actuator will go through the center Heyco strain relief connector. Cut the wire to the correct length for the Actuator and remove the outer shielding covering both wires. Strip the wires and crimp a 14-16ga - ¼" ring terminals onto each wire. Bolt the actuator leads to the **Bottom** reverse DC contactor. Refer to Figure 6.

Once all the wiring is completed and before installing the lid, test the direct of each operation. If the buttons are backwards, switch the outside wires on the reverse DC contactor. Blue and Yellow wires for the Scissor Lift operation and Green and White for the Tarp operation. A pliers maybe required to remove the spade connecters. ⚠ **CAUTION: Do Not** use the wires to pull the spade connectors off. Now that everything is working correctly, install the lid.

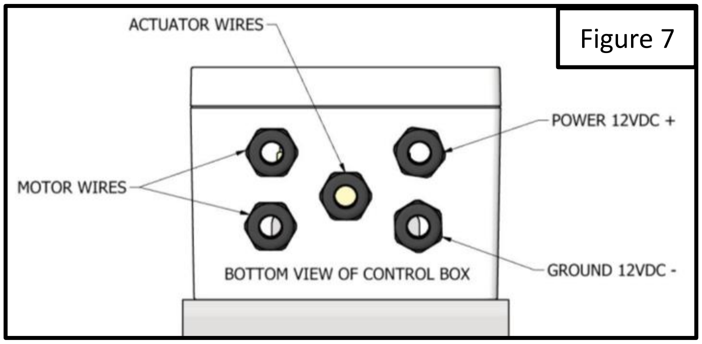


Figure 7

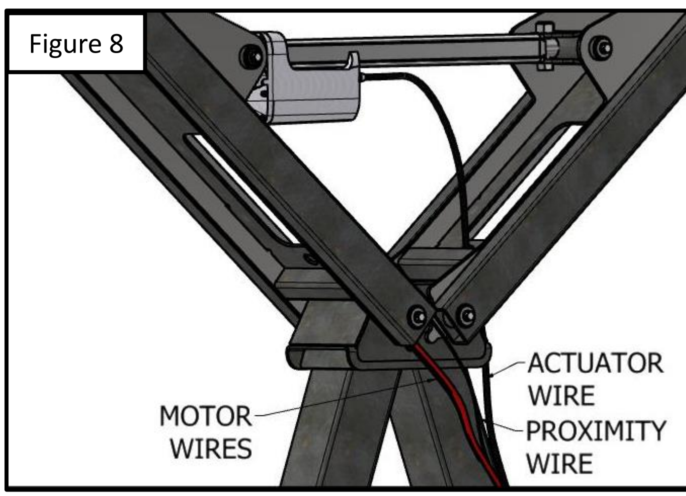


Figure 8

Step 4 – Installing the Flip Tarp Pivot Brackets

To begin with the installation of the flip tarp pivot brackets, install the longest and tallest container that will be used on the truck. Position B in Figure 9 is the location of the rear of the container that should always be maintained, whenever possible even when using smaller and shorter containers. This guaranties that the tarp will always be fully containing the contents of the container.

⚠ **CAUTION:** The Tarping System is designed for use with a specific container length. Containers of different lengths and heights can be used, as long as the rear of the container is located at the designated rear position.

⚠ **CAUTION:** If the flip arms of the tarp are farther back and end up behind the rear of the container when closed, it may result in premature wear or damage to the tarp system. This will not be covered under warranty.

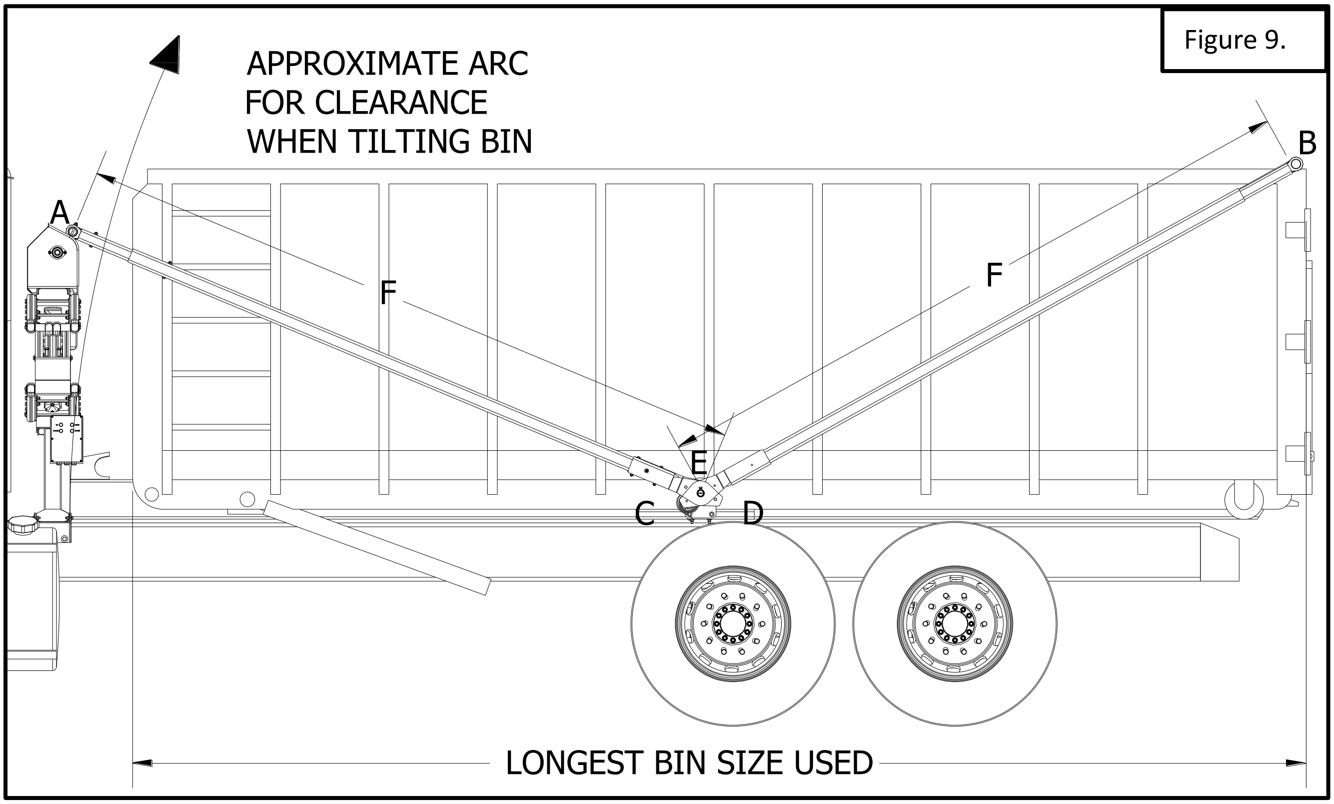


Figure 9.

Tallest Bin Size ______________. Longest Bin Size _______________.

Step 4A - Measuring for the Pivot Bracket Mounting Location.

It is easier to complete the next step with 2 people. Refer to Figure 9 & 10 for all measurement Points.

1: With the Scissor Lift in the down position, measure a distance from Point A and make a mark at Point C. Write down the measurement here. _______. The measurement is not critical it just needs to be somewhere close to the center of the bin.

2: It is recommended when the tarp is fully open, the rear cross member should rest on the rear of the bin at Point B. Using the same measurement as #1, measure from Point B to Point D and make a mark at Point D.

3: Measure from the mark at Point C to Point D and make another mark at the midpoint for Point E. __________ This is the approximate point at which the pivot brackets should be installed. Note: The pivot location should be mounted as low as possible.

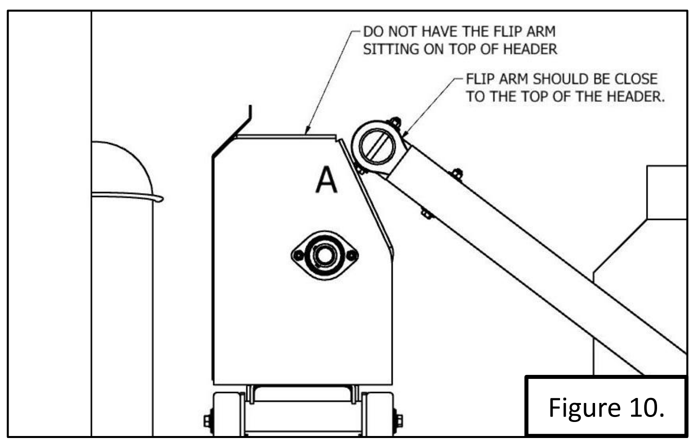


Figure 10.

<u>Step 4B – Installing Pivot Mounting Supports</u>

1. After the center pivot position is determined, the Pivot Mounting Support Brackets can be installed. Depending on the configuration of the truck and where the axles are located, it is most likely that one L-Mounting Tube will be mounted in front of the first axle, and one will be mounted in between the two axles. See Figures 12-13.

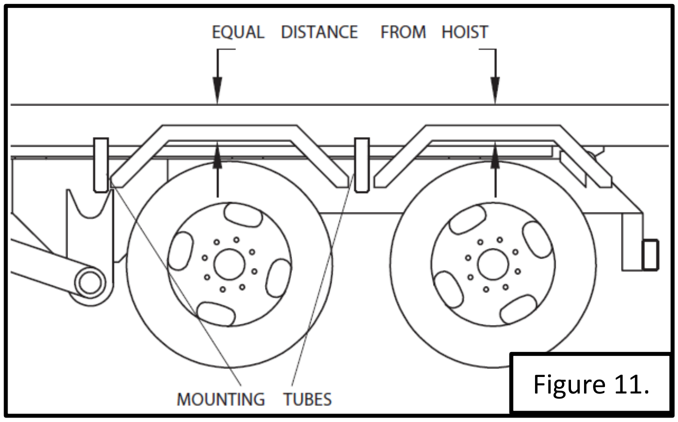


Figure 11.

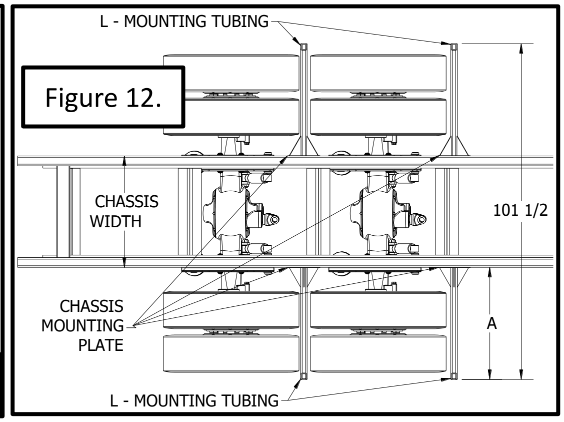


Figure 12.

⚠ **WARNING** Do not weld directly to chassis/frame as this can weaken frame. Pivot assemblies and arms must be mounted to a fabricated structure bolted to chassis/frame. Structure must extend away from the chassis/frame so pivot assemblies will have clearance to the container being carried.

2. Once the location of the tubing is determined, the mounting plates can be placed on the side of the frame. Drill ½” holes through the frame and bolt with ½” bolts, washers, and Nylock nuts. After the plates are mounted, the L-tubing can be cut to the proper length. To calculate the correct length of the L-Tubing use this formula; (101-1/2” - Chassis Width)/2.
3. The L-Tubing can be tack welded to the mounting plate. Double check that the overall measurement from side to side is 101-1/2” or less.

NOTE: Outside width from driver side pivot pin to passenger side pivot pin cannot exceed 110" to comply with federal DOT regulations. Check local DOT to determine if standards differ. Mount system in compliance with the province and local regulations. In order to provide maximum clearance for loading containers, these instructions are based on placing pivots just inside 110" maximum width allowed by Federal DOT regulations.

4. The cross tubing should be mounted as low as possible, while still leaving enough clearance for the tires to be removed. Cut the L-tubing at the proper height making sure that everything is level. Tack weld the cross tubing on and add gussets into every corner. See Figure 15. There should be no flexing of structure holding pivot assemblies. Structure must be as rigid as possible.
5. Position the pivot mounting bracket so the arm is loose when positioned at the rear of the truck.

⚠ **CAUTION:** When handling the Flip arms, take extra precaution with the arms as they are spring loaded and can cause serious injury while under load.

6. When in the correct location drill the holes through the tubing and bolt together using 3/8” x 3-1/4” Bolts, washers, and Nylock nuts.
7. Repeat for the other side.

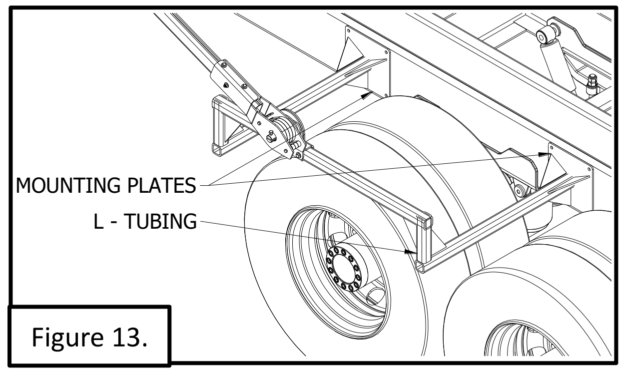


Figure 13.

$$\text{L-Tubing Length (A)} = \frac{101\text{-}1/2\text{”} - \text{CHASSIS WIDTH}}{2}$$

Figure 14.

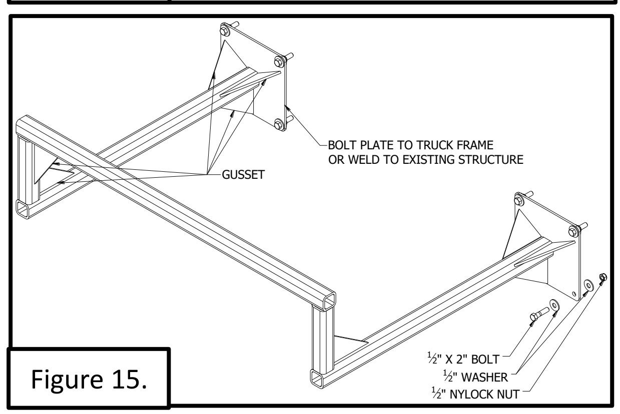


Figure 15.

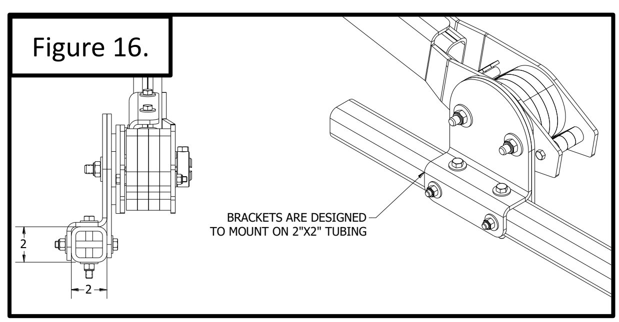


Figure 16.

Step 5 – Setting the Flip Arm Length

1. Bolt the Inside Mounting Plate, Outside Mounting Plate, and the Four Spring Mounting Plate together with the ½" counter sunk bolts.
2. Slide a Spacer Disc onto the Four Spring Mounting Plate.
3. Slide the inside Arm Bracket on with a Nylon Bushing.
4. Slide 4 springs into the slot of the Four Spring Mounting Plate. **Note:** Build one side and then for the other side, by flip the springs around to create a left and right (mirrored) assembly.
5. Slide the outside Arm Bracket on with a Nylon Bushing. Note: Arm Brackets are the same just flipped over.
6. Bolt the Spring Spacer in-between the brackets loosely. There are 2 per assembly, above and below the spring. Hook the spring onto the Spring Spacers.
7. Bolt the Large Bottom Arm into the Arm Brackets.
8. All the bolts can now be tightened up.

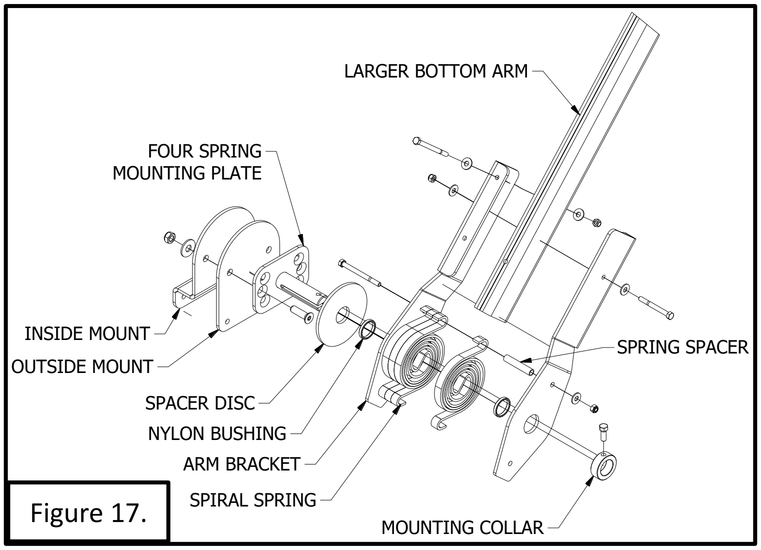


Figure 17.

Step 6 – Setting the Flip Arm Length

Referring to Figure 9, Measure from Point A to Point E. This will be the length of the Flip Arms. Insert the Rear Cross Member Holder into the Top Arm and bolt together using 5/16" x 3" bolt, washers, and Nylock nut. Slide the Top arm into the Bottom Arm and measure the center distance from the pivot point to the Rear Cross Member Holder. It may be necessary to shorten one or both arms to achieve the correct length of arm. Once the correct length is set, drill a 5/16" hole and bolt together using 5/16" x 3-1/2" bolt, washers, and Nylock nut. See Figure 18. Repeat for the other arm.

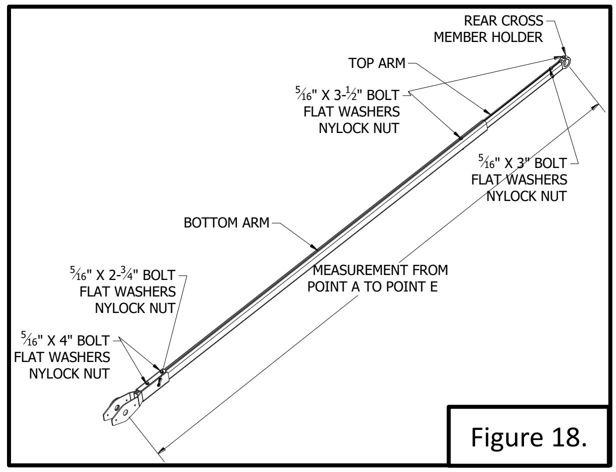


Figure 18.

Step 6 – Installing the Tarp

⚠ **CAUTION:** When handling the Flip arms, take extra precaution with the arms as they are spring loaded and can cause serious injury while under load.

1. The tarp is installed onto the rolltube inside of the header from the factory. The rear cross member needs to be installed into the Rear Cross Member Holders in the flip arms.
2. Open the tarp all the way and pull it to the back of the truck.
3. Slide the Rear Cross Member through the tarp and through the Rear Cross Member Holder. Leave ¾" sticking out past the Holder.
4. Drill 5/16" holes from both sides of the Rear Cross Member Holder.
5. Bolt together with 5/16" x 3-1/2" Bolts, washers, and Nylock Nuts
6. Insert the Plastic Cap into the Rear Cross Member

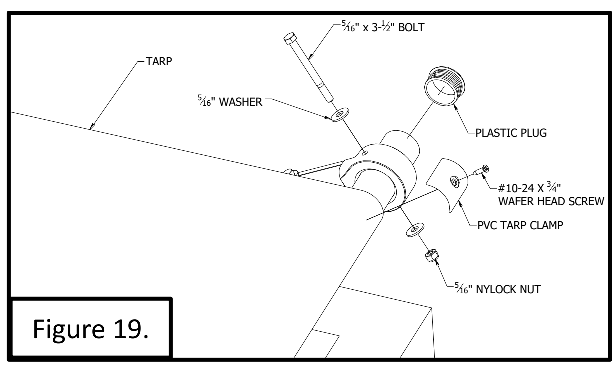


Figure 19.

Tensioning the Flip Arm Springs Adjustment and Maintenance

⚠ **CAUTION:** When handling the Flip arms, take extra precaution with the arms as they are spring loaded and can cause serious injury while under load.

1. Close the tarp all the way. Note: All the way out.
2. Remove the bolt from the rear cross member and the remove the flip arm and cross member holder. Take caution as arms are under spring pressure. Set arms onto the ground at the rear.
3. Remove the locking collar at the pivot and pull the flip arm assembly off the pin.
4. Remove the counter sunk bolts and rotate the mounting plate. On the passenger side counter clockwise tightens the spring and clockwise loosens the spring. See Figure 20.
5. Inspect springs for sings of damage or fatigue.
6. Reinstall countersunk bolts.
7. Line the springs up with the slot in the pivot shaft and slide on. Make sure that the plastic bushings are installed in on the side plates.
8. Install locking collar.
9. Lift arm carefully and reinstall onto cross member in the rear of the tarp.
10. Bolt the crossmember holder onto the cross shaft.

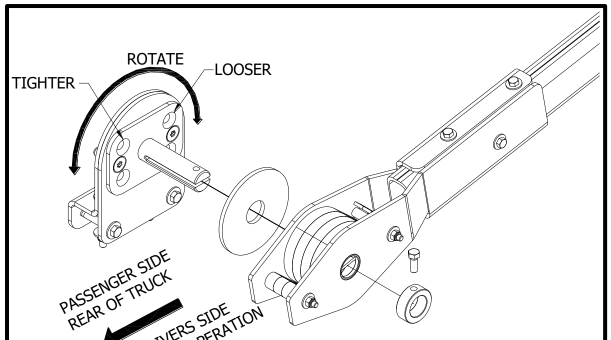


Figure 20.

Operating the Waste Refuge Scissor Lift Flip Tarp System

Safety instructions

1. Always wear safety glasses during installation and operation
2. Stay clear of moving parts. ⚠ Danger: Scissor Lift has many different Pinch Points and Crush zones.
3. ⚠ Warning: When Operating or Maintaining the Flip arms, take extra precaution with the flip arms as they are spring loaded and can cause serious injury/death while under load.
4. ⚠ Warning: Do not operate under low-hung power lines. Always check for overhead obstacles before operation.
5. Operate tarp system only at appropriate work site.

Tarp Cover

When the tarp is fully open (Uncovered), the scissor lift should be all the way down, the flip arms will be near the top of the header, and the tarp will be completely rolled up onto the roll tube. See Figure 21.

1. To Cover the tarp over a container, Press and Hold **TARP COVER** to start closing the tarp. After the tarp is extended out a minimum of 5 feet.
2. Press and Hold **TOWER UP**. ⚠ **CAUTION:** Never lift the tower unless if the flip arm is in the RED ZONE. Refer to Figure 22. The tarp and flip arm should never be straight inline with each other. Never lift the tarp if the flip arms are lower than the header.

Note: The actuator on the scissor assembly and the motor on the tarp can be operated at the same time.

Note: The scissor lift only needs to be raised high enough to keep the tarp from dragging across the container and/or its contents.

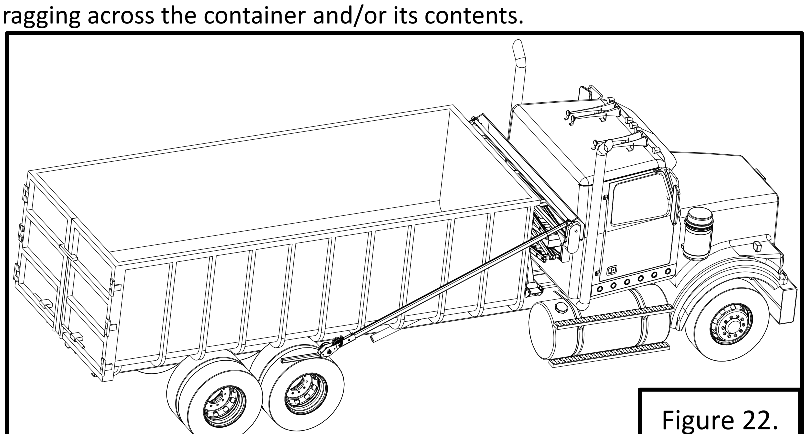


Figure 22.

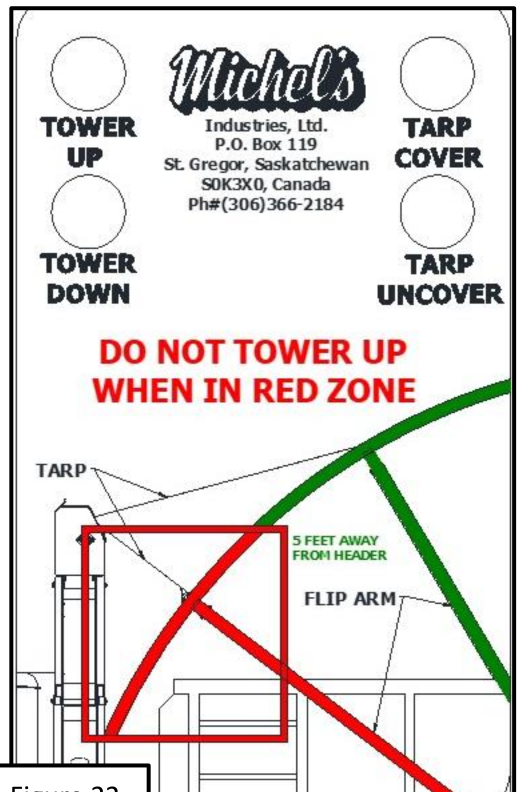


Figure 22.

3. Press and Hold **TARP COVER** until the tarp is fully closed.
4. Press and Hold the **TOWER DOWN** button until the tower is all the way down. **Note:** It may be required to adjust the tarp in or out to achieve the proper tarp tension on the covered load. See Figure 23 & 24.

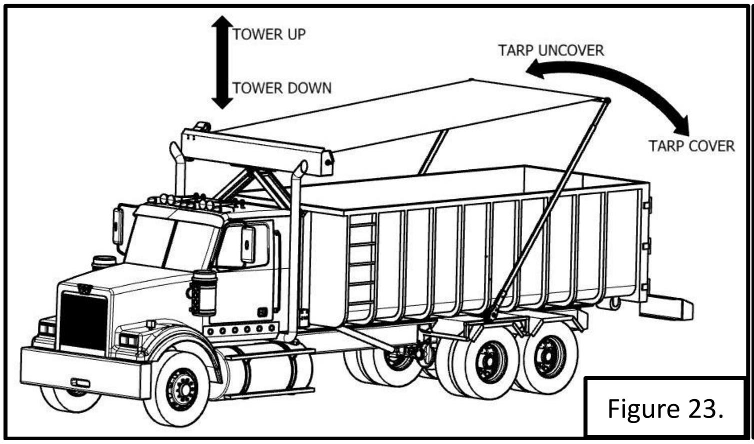


Figure 23.

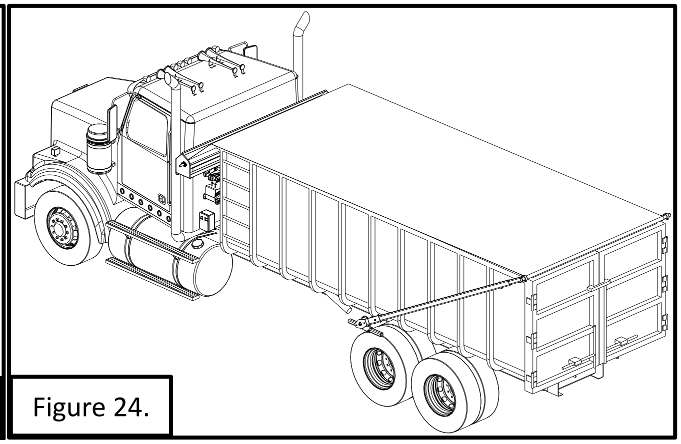


Figure 24.

<u>Tarp Uncover</u>

1. Lift the Scissor assembly up by Press and Holding **TOWER UP**, until the tarp does not touch the container/contents.
2. Start Uncovering the tarp by Press and Hold **TARP UNCOVER**, pulling the tarp closer to the header
3. Once past halfway, simultaneously start to lower the Scissor assembly by Pressing and Holding the **TOWER DOWN** button and **TARP UNCOVER** button. ⚠ **Important!** Lower tower completely **<u>BEFORE</u>** fully opening the tarp.
4. Continue Pressing and Holding **TARP UNCOVER** until tarp is completely open.

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