

*Michel's*

**GRAVEL GUARD**

**INCLUDING ELECTRIC OPTION**

**INSTALLATION INSTRUCTIONS**

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**PLEASE READ ENTIRE INSTRUCTIONS BEFORE BEGINNING**

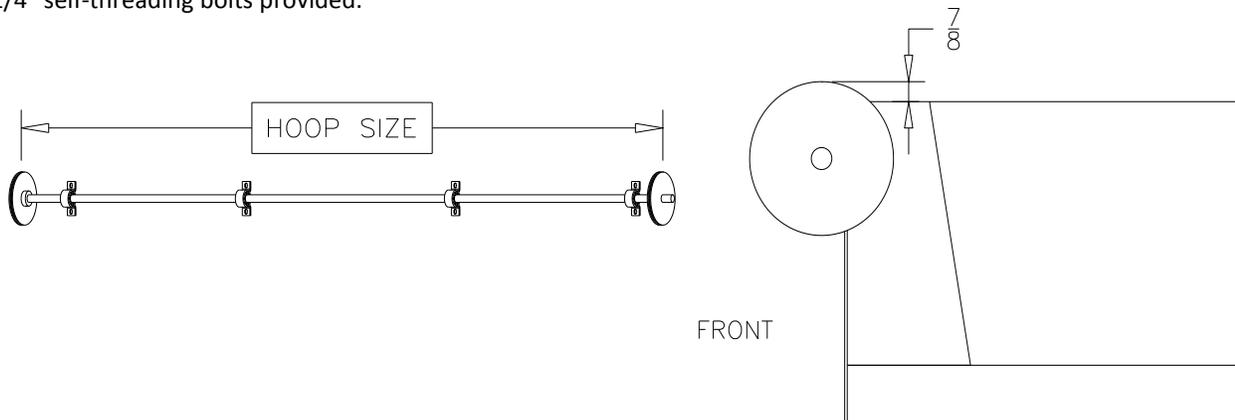
***PLEASE FORWARD ONTO TO THE END USER***

**When tarp is installed, keep the tarp all the way open or closed when driving. Failure to do so will result in premature wearing of the tarp and cables and will void warranty**

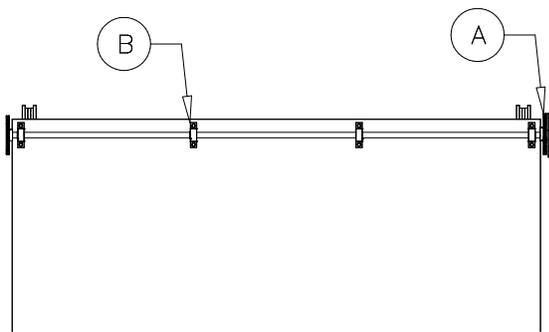
**Step 1: Front Shaft Installation**

Figure 1- 3

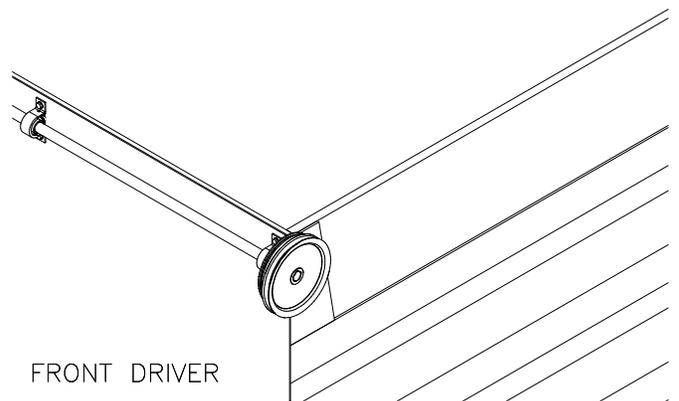
**Procedure:** Center the 7" cable pulleys on the front shaft with the center to center distance the same as your hoop size. Once in place remove the 5/16"x3/4" set screws from the cable pulleys. Mark the set screw hole locations. At the marked locations, using a 5/16" drill bit, drill into the front shaft approximately 1/4" deep. Tighten the set screws. The front shaft assembly is to be installed so that the top of both 7" cable pulleys (A) are 7/8" above the sideboards (See Figure 1). The side boards should be level along the entire length of the box. Located along the front shaft are 3 or 4 bearings and pillow blocks (B). The two outside bearings and pillow blocks are to be placed at a distance of 1" from the side of the trailer (see Figure 2). Center the remaining bearings and pillow blocks along the front shaft and mark the position of each pillow block. Using a 5/16" drill bit, drill into the front of the trailer and fasten the pillow blocks to the trailer with the 3/8" x 1-1/4" self-threading bolts provided.



**Figure 1**



**Figure 2**



**Figure 3**

## Step 2: Tarp Stop Installation

(See Figure 4)

**Procedure:** Position the tarp stop (E) as close to the front of the trailer as possible (preferably 2"-3" from the front of the trailer).

**Note:** Depending on the make of the trailer the tarp stop will be fastened to either the outside or inside wall.

Predrill two 5/16" holes through the predrilled holes in the tarp stop and into the trailer wall. Fasten the tarp stops (E) to the trailer wall with the 3/8" x 1-1/4" self-threading bolts provided.

**Note:** The tarp stops must be fastened to the steel material, not the wood side boards.

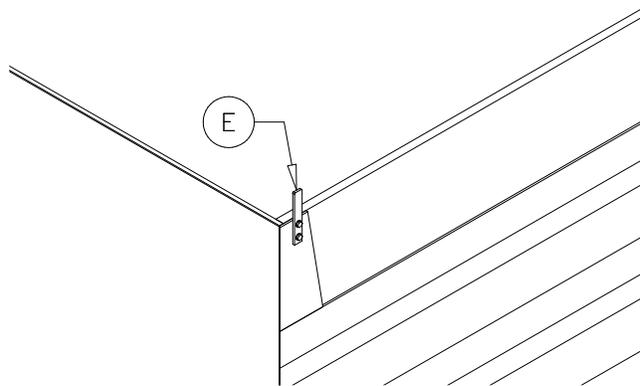


Figure 4

## Step 3: Crank Handle Installation

(See Figure 5)

**Procedure:** Slide the 8" v-belt pulley (F) onto the 1" front shaft. Hang the v-belt (H) from the 8" pulley (F). Hang the crank handle (G) from the v-belt. Stretch out the v-belt and locate the crank handle along the bottom side of the trailer. Before fastening the crank handle to the trailer align the 8" v-belt pulley (F) with the 4" v-belt pulley on the crank handle (G). Remove the 5/16"x1/2" set screws from the 8" V-belt pulley. Mark the set screw hole locations. At the marked locations, using a 5/16" drill bit, drill into the front shaft approximately 1/4" deep. Secure the v-belt pulley to the front shaft with the 5/16"x1/2" set screw. Reposition the crank handle (G). Using a 3/8" drill bit, drill through the right side of the slots in the crank handle and through the trailer all. Fasten the crank handle to the trailer with the 3/8"x1" hex bolt, 3/8" flat washers, and 3/8" nylon locknuts provided. Further adjust the crank handle to achieve the proper tension.

**Note:** Follow the above procedure for installing a chain drive crank handle system.

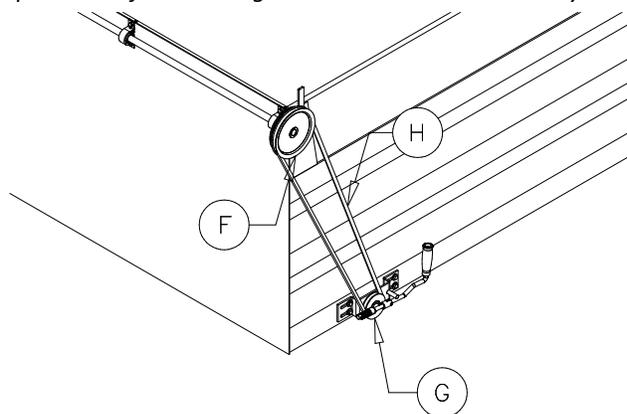


Figure 5

**Note:** For Electric Motor Installation and Wiring Schematic see Pages 7-8.

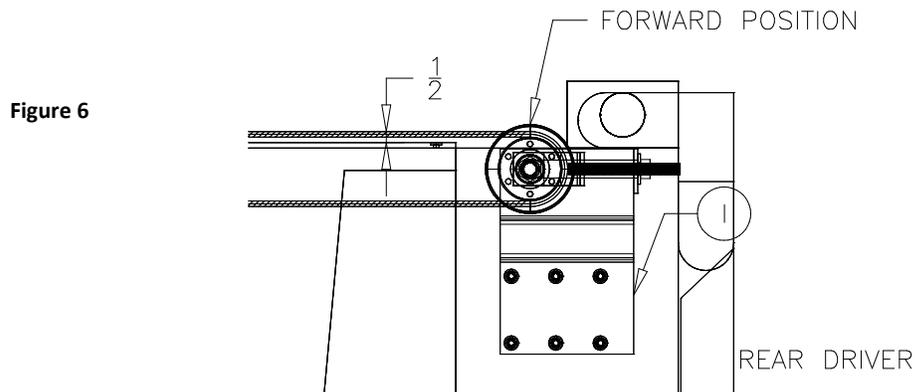
#### **Step 4: Rear 50° or 90° Bracket Installation**

(See Figure 6)

**Procedure:** Locate the rear bracket (I) as close to the rear of the trailer as possible (according to tarp length). Place the rear pulley to the forward position. Mount the rear 4" cable pulleys so they are aligned with the front 7" cable pulleys.

**Note:** The 1/4" cable must be 1/2" above the side boards (see Figure 6).

The rear brackets should not interfere with the end gate hinges.



#### **Step 5: Tarp, Hoops & Cable Installation**

(See Figure 7-12) next page

**Note:** In order for your cross-members to operate properly/smoothly, (slide back and forth on the trailer/box sidewall top) a smooth surface is required. If boards are damaged, or uneven at joints, either repair or replace as needed.

**Procedure:** Insert all hoops in tarp pockets (see Figure 7) making sure that they are between the vinyl, and not between the vinyl and mesh. The rear hoop is a double hoop (see Figure 8). If 18" rise hoops (high hoops) were ordered the first hoop is 12" rise (standard height) with rest at 18" rise. Insert a nylon tie (J) in both sides of each tarp pocket, but do not fasten the ties to the hoops until specified in Step 7. For ease of handling insert a 1/4" rod (K) through the hoop roll pins making sure that the hoops are not crossing each other (see Figure 9). The tarp material has to be wrapped around the 1" square tubing (see Figure 10) and attached to it with the 1/4"x1" lag screws provided.

**Note:** Make sure the tarp material is centered on the 1" square tubing. There are predrilled holes in the square tubing for attaching the tarp material.

The tarp and square tubing must be fastened to the top front or inside front of the trailer with the 1/2"x4" full thread hex bolts, 1/2" flat washers, and 1/2" hex nuts provided. If the square tubing, is to be fastened to the top of the box (see Figure 10-11), then the tarp stops may not be required. Remove one of the 1/4" rods (K). Position the 1/4" cable around the front 7" and rear 4" cable pulleys and through the hoops. Compress the hoops to the front of the trailer. The rear hoop should be a double hoop. Pull the cable as tight as possible and using the 1/4" cable clamps (L) provided, fasten the

**Step 5: Tarp, Hoops & Cable Installation Cont..**

two cables together directly behind and in front of the rear double hoop (see Figure 12). Follow the same procedure for the opposite side of the trailer, making sure that the distance from the rear double hoop to the tarp stop or the 1/2"x4" full thread hex bolt is the same on both sides.

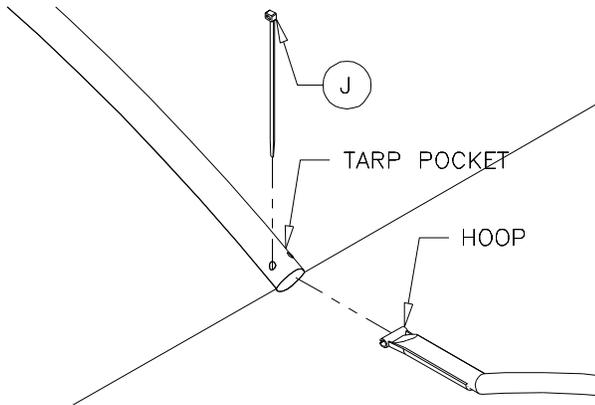


Figure 7

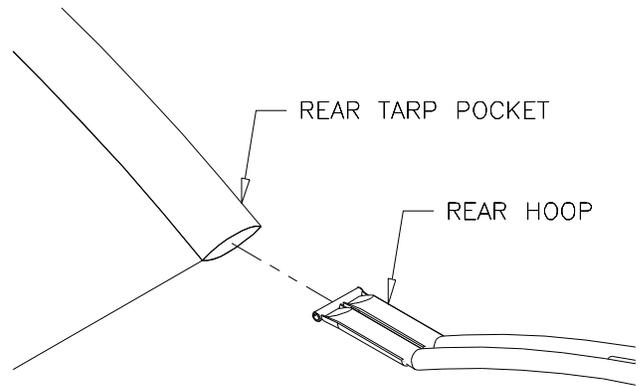


Figure 8

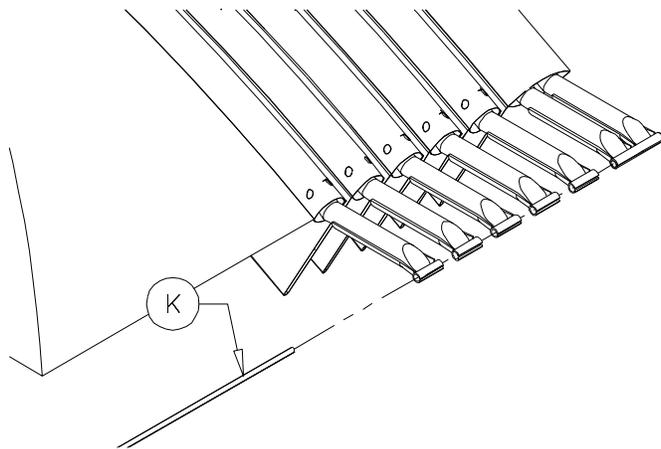


Figure 9

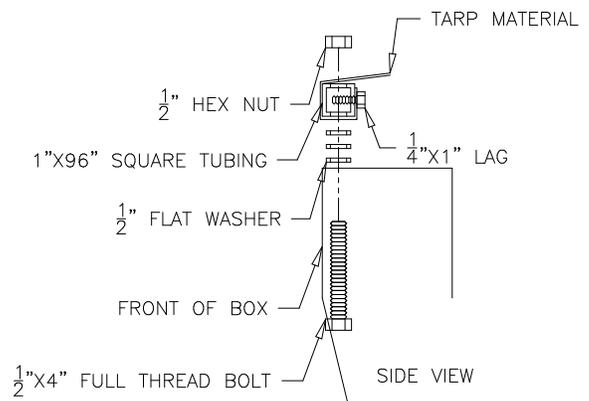


Figure 10

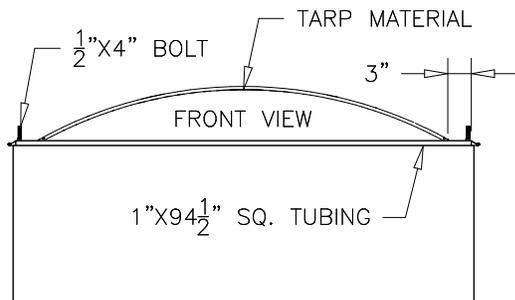


Figure 11

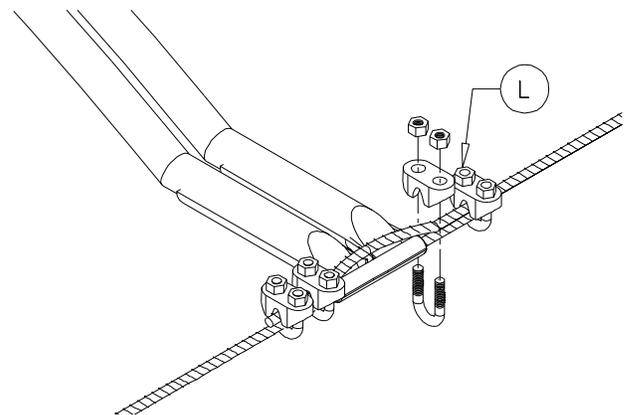


Figure 12

### Step 6: Rear Cable Pulley Adjustment

(See Figure 13-15)

**Procedure:** Loosen the 3/4" pulley hex nut (N) 1/2 a turn. Tighten the 1/2" nut (O) so the cable cannot easily touch together when squeezing with one hand 18" from the rear pulley. Retighten the 3/4" pulley hex nut (N) (see Figure 13).

**Note:** Make sure that the cable is tight but do not apply excessive tension to the cable or the front shaft will deform.

**\*\*\* IMPORTANT \*\*\* IMPORTANT \*\*\* IMPORTANT \*\*\***

Roll the tarp to the closed position and check to see if the correct length has been achieved. The rear double hoop should be a minimum distance of 2" from the rear 50° or 90° bracket assembly with the tarp being as taut as possible. If the tarp is not tight the material will wear prematurely. To fine tune the length of the tarp, roll the tarp to the open position and increase the tarp wrap around the square tubing. If tarp tension is not achieved by wrapping the tarp on the square tubing 2 - 3 times you may have the incorrect tarp length. If this is the case please call Michel's Industries at (306)366-2184 for assistance immediately.

Align the tarp with the gap on either side of the dump body. Secure the hoops to the tarp with the 9" nylon ties provided (see Figure 14). Secure the rear tarp pocket to the rear double hoop with the 10-24x3/4" self-tapping wafer tek screws and 1/4" bent washers provided (see Figure 15).

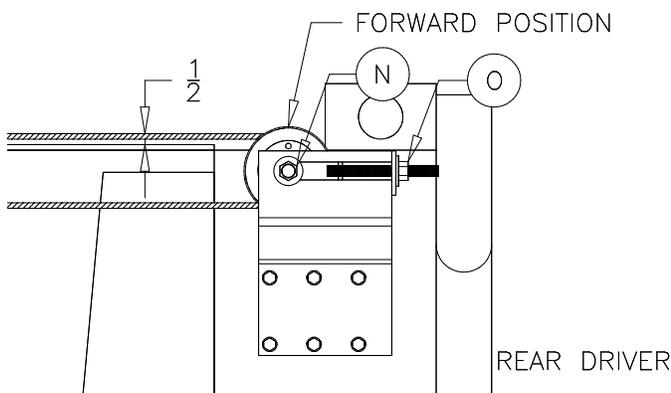


Figure 13

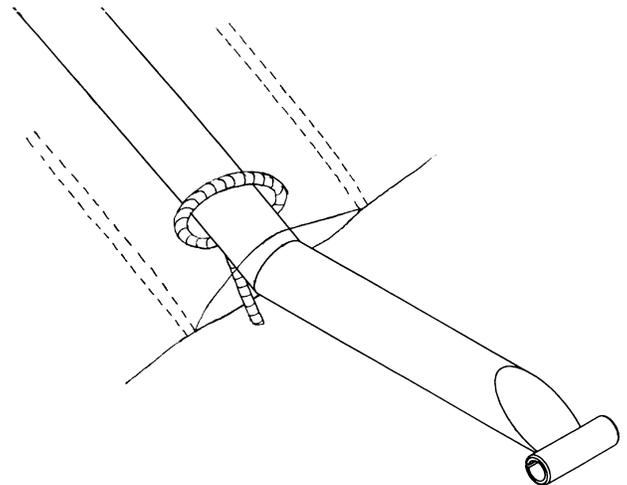


Figure 14

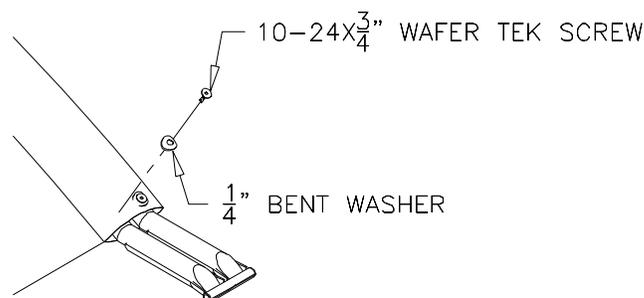


Figure 15

## Step 7: Safety Latch Installation

(See Figure 16-18)

**Note:** Before installing the safety latch assemblies make sure the tarp is timed and the tension is set properly. Depending on the length of the trailer and material you may be supplied with one, or two, hold down brackets per side (one short, & or one long)

### Single Safety Latch Installation

#### Procedure:

Close the tarp and lock the crank handle. Double check the tarp tension and timing. Align the short hold down bracket (A) with the center hoop. Drill a 3/8" hole through the end of the hoop. Fasten the hold down bracket to the hoop with the 3/8"x1-1/2" button head bolt and 3/8" nylon lock nut provided. Drill a 1/2" hole at a horizontal and vertical distance of 1/2" from the inside edge of the hold down bracket (see Figure 17). Insert the 1/2"x8" hex bolt assembly (B) through the top hole in the support bracket (C) and through the 1/2" hole in the trailer side boards. Mark the location of the lower hole in the support bracket (E) along the side boards. At the marked location, drill a 1/2" hole through the side boards. Secure with the 1/2"x2-1/2" hex bolt and 1/2" nylon locknut.

**Note:** One support bracket (C) should be located on the inside and the other on the outside of the wood side boards.

**Repeat the previous procedure for the opposite side of the trailer,** making sure that the driver and passenger side hold down brackets are secured to the center hoop. Make sure the location of the 1/2"x8" hex bolt assembly is the same on both sides of the trailer.

Crank the tarp open and closed to make sure the hold down brackets are positioned properly.

### Double Safety Latch Installation

#### Procedure:

Close the tarp and lock the crank handle. Evenly space the long (D) and short (A) hold down brackets along the length of the trailer. For example, if the tarp has 15 hoops, mount the long hold down bracket on the 5th hoop from the front of the trailer and the short hold down bracket on the 10th hoop. Secure the long hold down bracket (D) to the first hoop selected. Drill a 1/2" hole through the side boards at the location shown in Figure 17. Secure the 1/2"x8" hex bolt assembly. Follow the Single Safety Latch Installation for mounting the short safety latch assembly.

**Repeat the procedure above for the opposite side of the trailer,** making sure that each hold down bracket is secured to its designated hoop and the location of the 1/2"x8" hex bolt assembly is the same on both sides of the trailer.

**Note:** The support brackets (C) are to be used with the short hold down bracket (A) only.

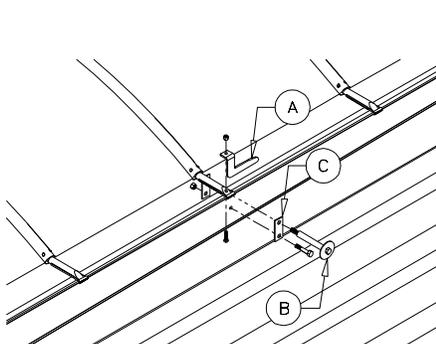


Figure 16

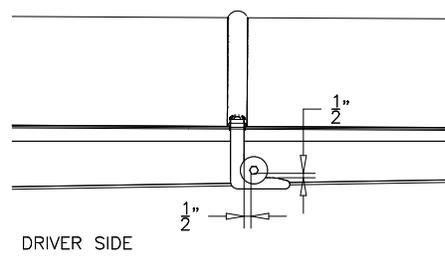


Figure 17

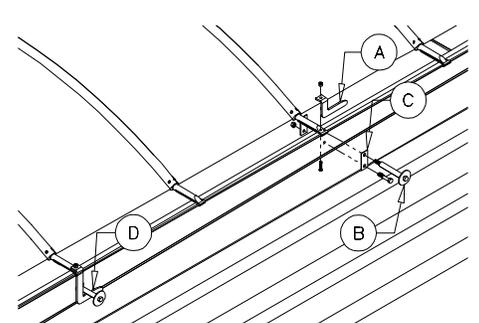


Figure 18

## Step 8: Electric Motor Installation

(See Figure 19-22)

**Note:** The 4" sprocket (S) is to be located on the passenger side of the front shaft (see Figure 19).

**Procedure:** Mount the motor bracket (Q) on the front passenger side of the trailer. Hang the chain (T) from the front shaft #40x24 sprocket and the #40x24 sprocket (R). Stretch out the chain until the appropriate tension and positioning are achieved. Align the #40x24 sprocket (R) with the #40x24 sprocket (S). Using a 3/8" drill bit, drill through the lower end of the slots in the motor bracket (Q) and through the front of the trailer (see Figure 19). Fasten the motor bracket (Q) and motor tensioner brackets (U) (top of the bracket) to the trailer with the 3/8"x1-1/2" hex bolts, 3/8" flat washers, and 3/8" nylon lock nuts provided.

**Note:** Do not tighten the 3/8"x1-1/2" bolts until the correct chain tension is achieved.

Remove the 5/16"x3/4" set screws from the #40x24 sprocket (R). Mark the location of the set screw holes. At the marked location, using a 5/16" drill bit, drill into the chrome shaft approximately 1/4" deep. Tighten the set screws.

**Note:** Grind a small area of chrome off the shaft where drilling is required.

Adjust the positioning of the motor tensioner bracket (U) until the chain is tight. Tighten the top bolt closest to the sprocket to tighten the chain. Also tighten the bottom bolt furthest away from the sprocket to keep the bracket square with the shaft. Tighten the 3/8"x1-1/2" motor bracket bolts and tighten the 3/8" hex nuts on both motor tensioner brackets (U) locking the bolts in place. After the motor bracket has been fastened to the trailer, attach the motor bracket cover (V) using the 1/4"x1" lag screws provided (see Figure 24). Do not put a lag screw on the front face on the motor side since you will drill into the motor

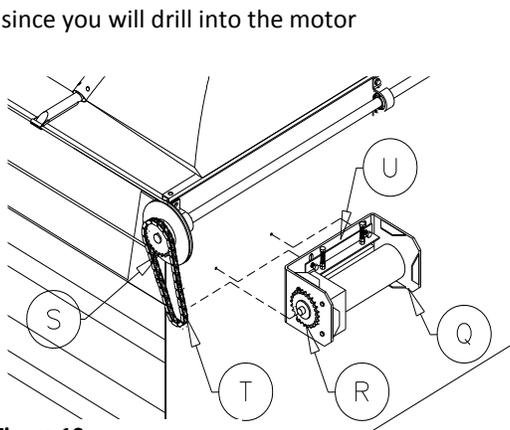


Figure 19

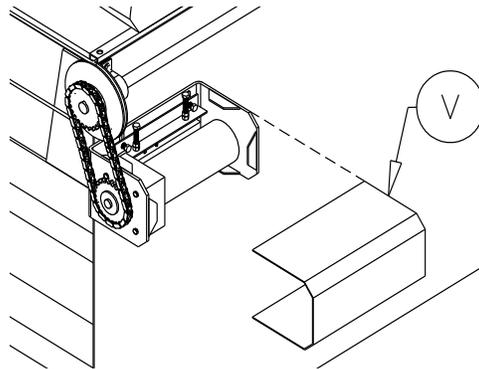


Figure 20

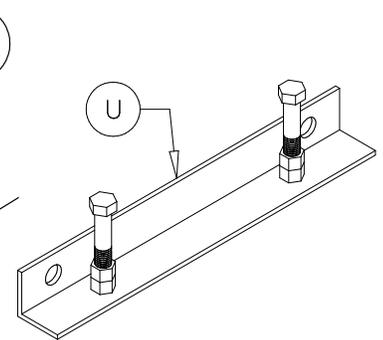


Figure 21

## Step 9A: Rocker Switch Electrical Installation

(See Figure 22)

**Note:** Apply the supplied Dielectric lubricant to all wire connections when each wire is hooked up. The Dielectric lubricant will help to prevent corrosion.

**Procedure:** Attach the longest length of #6 double strand wire to the electric motor. There are four wires coming out of the motor. Connect a 14G wire with a 22G wire and then to one of the #6 wires running to the cab/trailer socket. Repeat for the other two wires. The 22G wires are to release the brake and the 14G wire supplies the motor with power. Splice a 25amp circuit breaker in line with one of the #6 wires at the motor. Run the wire down the front of the gravel trailer and along the box frame to the rear pivot point of the trailer. Fasten the wire with the 3/4" wire clips and 1/4" lag screws provided. Space the wire clips at approximately 3ft apart. From the pivot point run the wire along the trailer frame to the front of the trailer. Fasten the female 2 pole connector (W) to the front of the frame (see Figure 22). Attach the #6 double strand wire to the female connector. Note: Fasten the #6 double strand wire in obstruction free areas or else the wire will be severed when the hoist is raised. Mount the solenoid on the truck frame near the batteries / cab. Run #6

