# LID Hydraulic Flip Tarp System Installation and Operation Instructions

Aero Industries, Inc.

Corporate Headquarters

3010 West Morris Street
Indianapolis, IN. 46241

(800) 535-9545
FAX: (317) 244-1311

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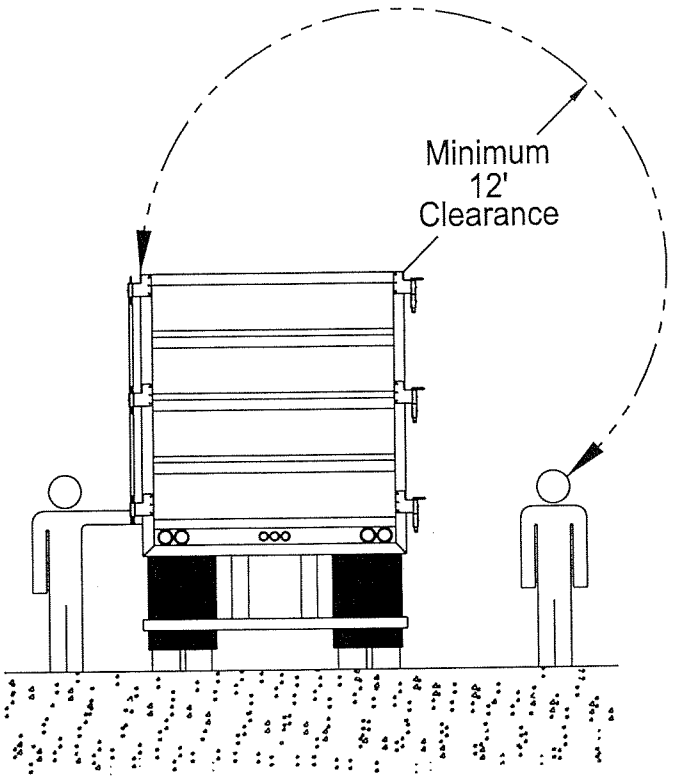
## ⚠ WARNINGS ⚠

This manual is intended for personnel who are going to install or operate the LID Hydraulic Flip Tarp System; read the manual prior to use of the LID Hydraulic Flip Tarp System in ant way or perform any actions on it. This manual contains important information about the following points: 1) system installation, 2) operating instructions, 3) recommended maintenance issues.

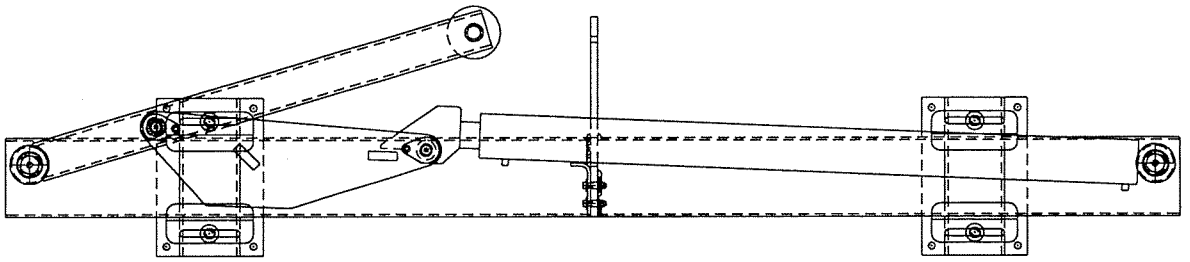
Aero Industries has used appropriate materials and construction techniques in relation to the specified use of the LID Hydraulic Traping System in order to manufacture a reliable and safe product. The use of, or subtitition of alternate materials by the person performing the installation is prohibited unless authorization is obtain from Aero Industries. Any required modifications to the trailer must be approved by the trailer manufacture prior to making those modifications.

Aero Industries hereby refuses to accept any responsibility for injury to persons or damage to equipment or property if it appears that incorrect installation or operation has taken place. Operation of this system is to be preformed by authorized personnel only. This manual only describes the operating and safety aspects which persons who are installing the system need to know. In order to understand the terminology used in this manual, it is necessary that the person performing the installation work should have specific experience in Truck/Trailer work, service/repair, and maintenance activities, and also possess the ability to explain this Installation Manual to other people. At the same time they must be aware of the general and specific safety regulations which apply. If the person performing the installation of this product is not the end user of this product. It shall be the responsibility of the person performing the installation to assure the end user has received all information contained in the manual, and is fully aware of all contents within this manual.

# ⚠ WARNING ⚠




Before operating Hydraulic Flip Tarp, ensure a minimum of 12 foot clearance exists above and alongside the trailer. Always visually inspect the swing area of the Flip Tarp System before attempting to cycle. Assure Flip Tarp is against the side of the trailer before loading. Prior to moving the trailer, the Flip Tarp System should be fully resting on the top of the trailer. **NEVER** move the trailer when the Flip Tarp System is in any other position except on top of the trailer. Hydraulic Flip Tarp System operates under high pressure. Stay clear of all moving parts. Danger / injury to the operator or bystander is possible if this information is ignored.



# Hydraulic Front Assembly Installation Instructions

**⚠ WARNING ⚠**

Before installation of the Hydraulic Front Assembly, insure you have adequate clearances on the front of the trailer for this system to work properly. If your Trailer is equipped with a Catwalk, or Ladder which was installed by the trailer manufacture. Please consult with the trailer manufacture prior to making any modifications to the Trailer, Catwalk, or Ladder.

# Step #1

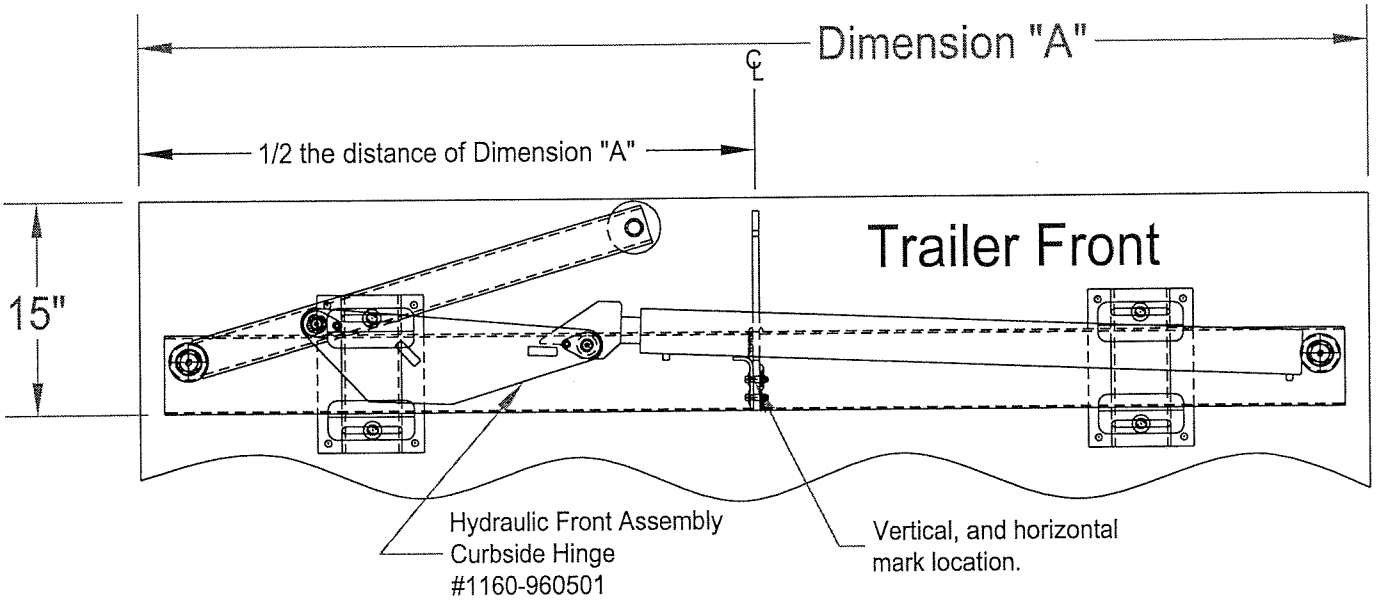



Figure 1

At the top of the trailer, measure the total overall width of the trailer. In Figure #1, the overall width of the trailer is shown as Dimension "A". Once you have measured for Dimension "A", divide that number in half to obtain the dimension which represents the center of the trailer. At the top of the trailer, measure over to the center and place a vertical mark on the trailer that represents the center of the trailer. At that location measure down from the top of the trailer 15" and place a horizontal mark on the trailer. This point represents the location at which the Hydraulic Front Assembly should be mounted.

Unpack the Hydraulic Front Assembly and lay on a flat surface. Measure the overall width of the Front Assembly and place a mark on the bottom of the main tube which represents the center of the Hydraulic Front Assembly.

Lift the Hydraulic Front Assembly up onto the front of the trailer so that the marks on Hydraulic Front Assembly line up with the marks on the front of the trailer. Make sure that the bottom of the Hydraulic Front Assembly is 15" down from the top of the trailer at both ends.

# Step #1 Continued:

Once the Hydraulic Front Assembly is in position, mark the center of all four holes in each of the Mounting Brackets. Once the hole locations have been transferred on to the trailer, remove the Hydraulic Front Assembly from the front of the trailer.

Drill all eight mounting holes through the front of the trailer using a 17/32" diameter drill bit.

# Step #2

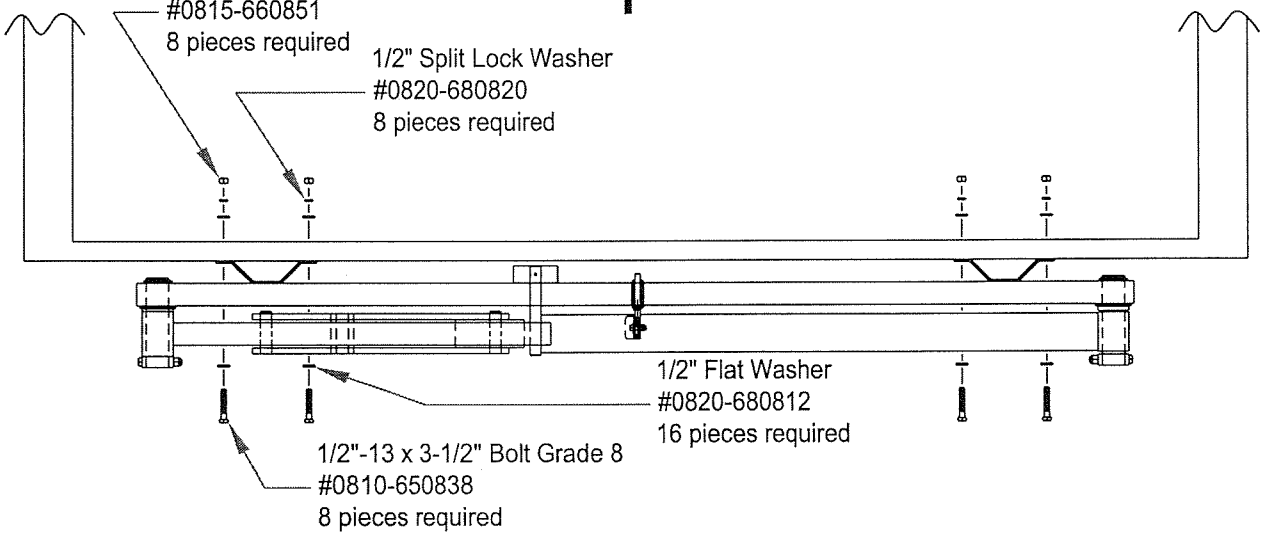



Figure 2

After all the holes have been drilled through the front of the trailer, lift the Hydraulic Front Assembly back into position on the trailer. Properly align the mounting holes in the Mounting Brackets with the holes in the trailer. Hold the Hydraulic Front Assembly in this position.

*** SPECIAL NOTE ***
All components on the Hydraulic Front Assembly are interchangable between curbside mounted hinges, or drivers side mounted hinges. Except for the Floating Link Assembly. The proper mounting side must be specified to obtain the proper Floating Link Assembly.

# Step #2 Continued:

Install 1/2" Flat Washers on all the 1/2"-13 X 3-1/2" Bolts, and then insert all the Bolts into the holes. Place a 1/2" Flat Washer along with a 1/2" Split Lock Washer onto the Bolts. Obtain the 1/2"-13 Heavy Hex Nuts and install onto the 1/2" Bolts. Tighten the Bolts down to a minimum of 80 foot pounds of torque.

***SPECIAL NOTE ***
Longer bolts may be required if the trailer is fitted with reinforcement channels across the inside front of the trailer.

# Flip Tarp Frame

# Installation

# Instructions

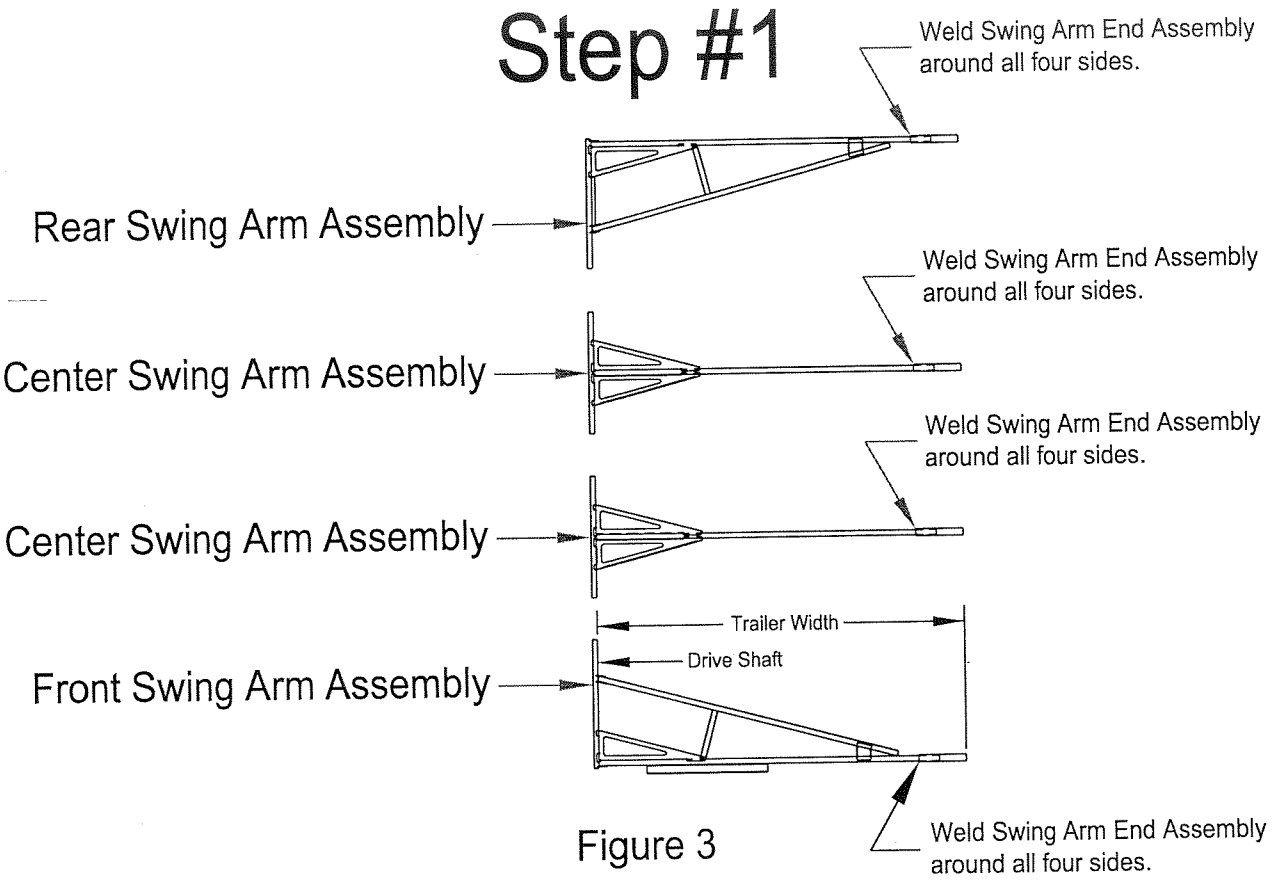



Figure 3

In Step #1 you will need the Front Swing Arm Assembly, two Center Swing Arm Assemblies, the Rear Swing Arm Assembly, and four of the Swing Arm End Assemblies.

Please read SPECIAL NOTES on Page 10 before starting work on this next step.

Measure the overall width of the trailer at each Swing Arm location. Obtain the Front Swing Arm Assembly and one Swing Arm End Assembly. Slip the Swing Arm End Assembly over the outside of the Front Swing Arm Assembly as shown above. Move the Swing Arm End Assembly to obtain proper width as measured off the trailer. Measure from the inside of the Drive Shaft out to the end of the Swing Arm End Assembly. It is recommended that the end of the Swing Arm comes to the outside edge of the trailer. It is not critical that each Swing Arm Assembly be the same length. If a trailer is bowed in the middle or tapered, these variances can be made up by adjusting width of each Swing Arm Assembly to match to dimension on the trailer. Once the Swing Arm End Assembly is in the proper location, weld around all four sides of the Swing Arm End Assembly to the Front Swing Arm Assembly. After welding grind/sand areas as required, and re-paint these areas with Black Spray Paint supplied in this Kit.

Repeat this process for both Center Swing Arms and the Rear Swing Arm.

# Step #1 Continued

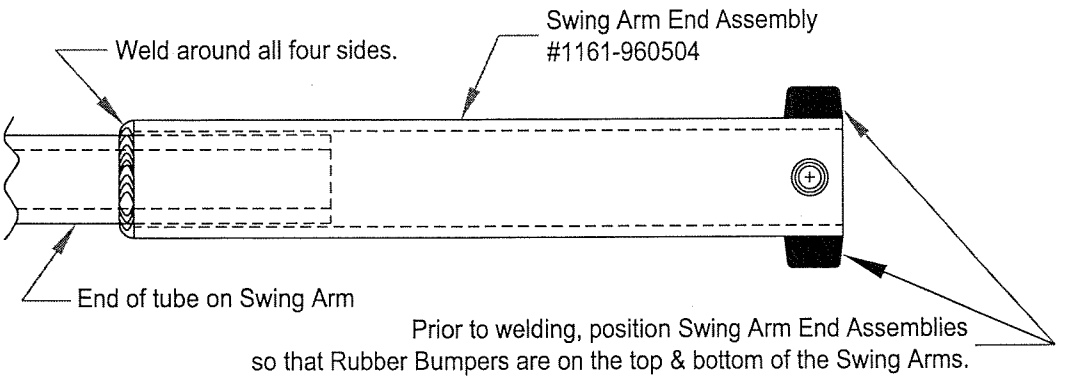



Figure 4

*** SPECIAL NOTES ***

1) Before welding the Swing Arm End Assemblies to the swing arms, make sure the rubber bumpers on the Swing Arm End Assembly are located on the top & bottom sides of the swing arms.

2) Failure to weld the Swing Arm End Assemblies around all four sides may result in premature product failure.

3) Grind welds smooth to eliminate possibility of the tarp snagging on the welds, or weld spatter.

# Step #2

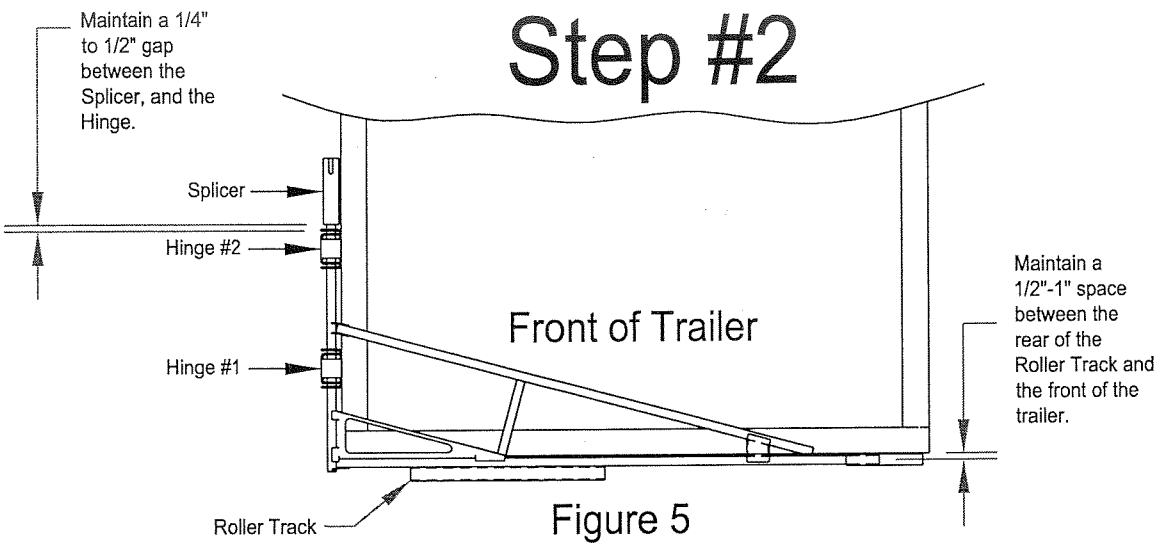



Figure 5

Position the Front Swing Arm Assembly on top of the trailer. Make sure to leave a 1/2" to 1" space between the rear of the roller track and the front of the trailer. Obtain two of the Hinge Assemblies, and position both of them as shown in Figure 5. Hinge #1 must be positioned as far forward on the trailer as possible. If the trailer has a radius front, then Hinge #1 must be located on the flat section of the trailer side rail. When installing Hinge #2, leave about a 1/4" to 1/2" gap between the Hinge and the Splicer. After the Hinges have been properly located, mark the Hinge mounting hole locations on the side of the trailer. Move the Front Swing Arm Assembly out of the way temporarily. Drill the Hinge mounting holes through the side wall of the trailer using a 17/32" diameter drill bit. Once the mounting holes have been drilled, relocate the Front Swing Arm Assembly into position. Using the hardware supplied in the Hinge Mounting Kit, permanently mount the Front Swing Arm Assembly to the trailer.

⚠ **WARNING** ⚠ When mounting all hinges to the trailer. Make sure there is adequate clearance between all Swing Arms, and Hinges. Please keep in mind clearance issues when the Swing Arms come in contact with the side of the trailer. Horizontal Bolts on the Hinges should not come in contact with the Bracing on the Swing Arms.

*** SPECIAL NOTE ***
The front Cross Member on top of the trailer may have to be moved a little to obtain the proper location for Hinge #1. If this is the case, please consult with the trailer manufacturer before relocating this Cross Member.

# Step #3

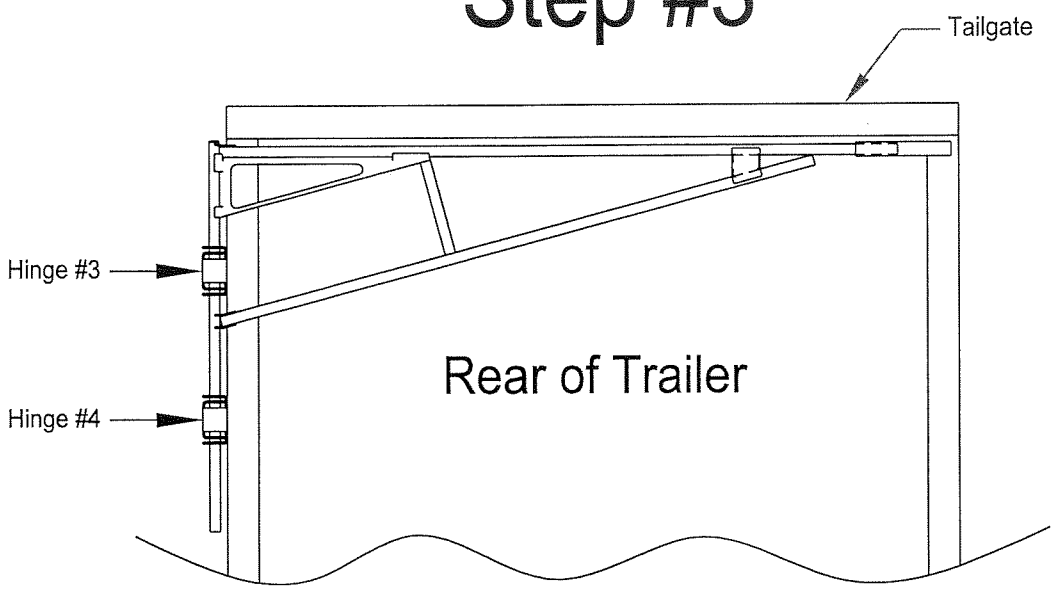



Figure 6

Position the Rear Swing Arm Assembly on top of the trailer, and as far back on the trailer as it can go. Make sure the tailgate on the trailer does not interfere with the Rear Swing Arm Assembly. Obtain two of the Hinge Assemblies, and position both of them as shown in Figure 6. Hinge #3 must be positioned as far back on the trailer as possible. When installing Hinge #4, leave about a 1/4" to 1/2" gap between the Hinge and the Splicer. After the Hinges have been properly located, mark the Hinge mounting hole locations on the side of the trailer. Move the Rear Swing Arm Assembly out of the way temporarily. Drill the Hinge mounting holes through the side wall of the trailer using a 17/32" diameter drill bit. Once the mounting holes have been drilled, relocate the Rear Swing Arm Assembly into position. Using the hardware supplied in the Hinge Mounting Kit, permanently mount the Rear Swing Arm Assembly to the trailer.

⚠ **WARNING** ⚠ Visually check for adequate clearance between horizontal Bolts on the Hinges should not come in contact with the Bracing on the Rear Swing Arm.

*** SPECIAL NOTE ***
The Rear Crossmember on top of the trailer may have to be moved a little to obtain the proper locations for Hinges #3 & #4. If this is the case, please consult with the trailer manufacturer before relocating this Crossmember.

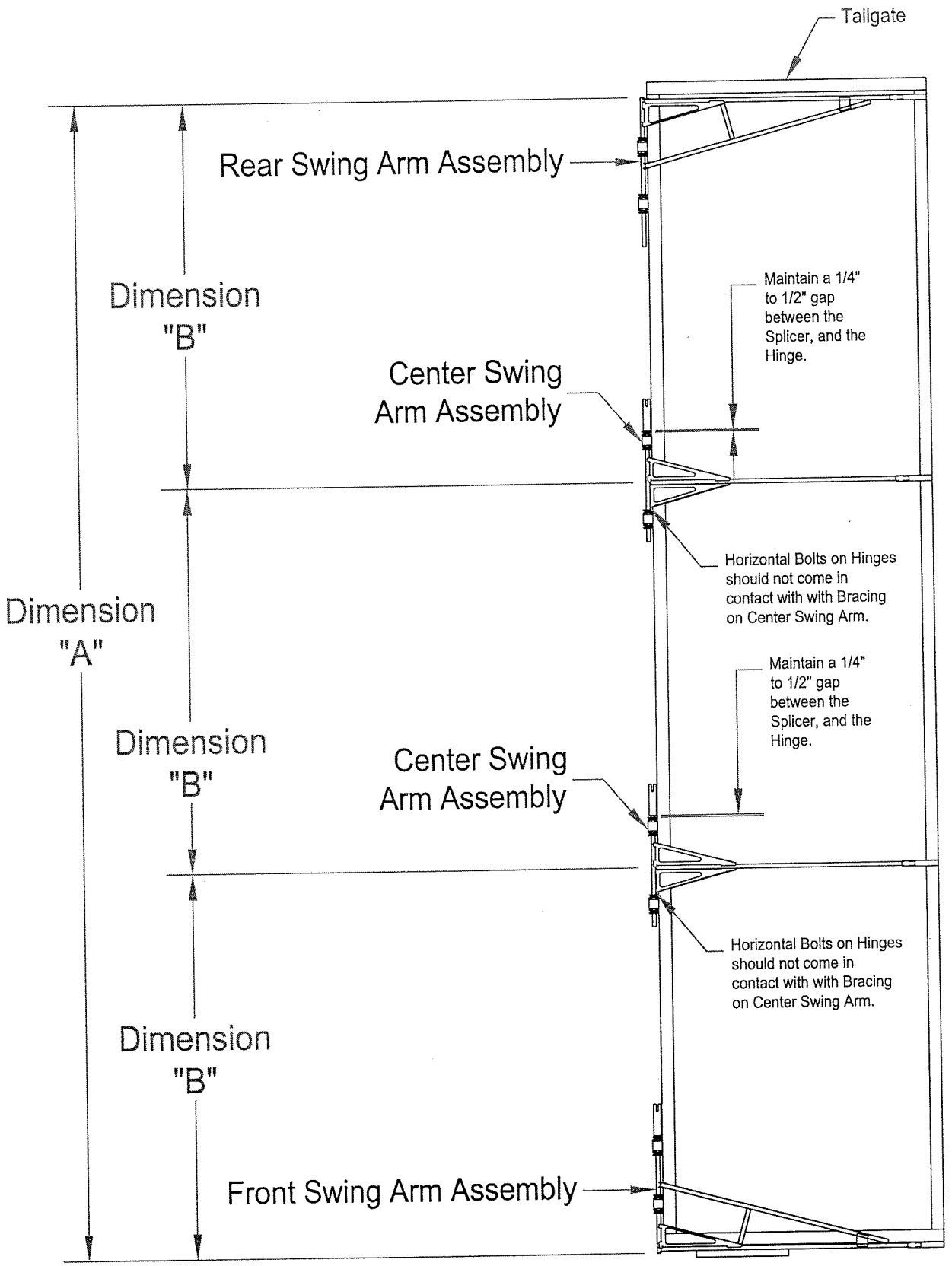

Tailgate
Rear Swing Arm Assembly
Dimension "B"
Maintain a 1/4" to 1/2" gap between the Splicer, and the Hinge.
Center Swing Arm Assembly
Horizontal Bolts on Hinges should not come in contact with with Bracing on Center Swing Arm.
Dimension "A"
Maintain a 1/4" to 1/2" gap between the Splicer, and the Hinge.
Dimension "B"
Center Swing Arm Assembly
Horizontal Bolts on Hinges should not come in contact with with Bracing on Center Swing Arm.
Dimension "B"
Front Swing Arm Assembly

Figure 7

# Step #4

Use the drawing in Figure 7 to help complete Step #4. Measure the distance from the front of the Front Swing Arm Assembly to the rear of the Rear Swing Arm Assembly. This distance shall be referred to as Dimension "A" in the Figure 7 drawing. To find the location of the Center Swing Arm Assemblies, Dimension "A" must be divided by 3. This figure is Dimension "B". Install the center of both Center Swing Arm Assemblies to the Dimension "B" location.

Position the Center Swing Arm Assemblies on top of the trailer. Obtain the Hinge Assemblies, and position both of them as shown in Figure 8. The rear Hinge must be located approximately 1/4" to 1/2" from the Splicer. The front Hinge must be located approximately 1" from sheet metal Brace located on the Center Swing Arm Assemblies, as shown in Figure 8. Once the Hinges are properly located, mark Hinge mounting hole locations on the side of the trailer. Move the Center Swing Arm Assemblies out of the way temporarily. Drill the Hinge mounting holes through the side wall of the trailer using a 17/32" diameter drill bit. Relocate both Center Swing Arm Assemblies back into position, and using the hardware supplied in the Hinge Mounting Kit, permanently mount both Center Swing Arm Assemblies back onto the trailer.

Once all Swing Arm Assemblies have been permanently mounted onto the top of the trailer, it is time to proceed to Step #5 for installation of the Drive Shafts.

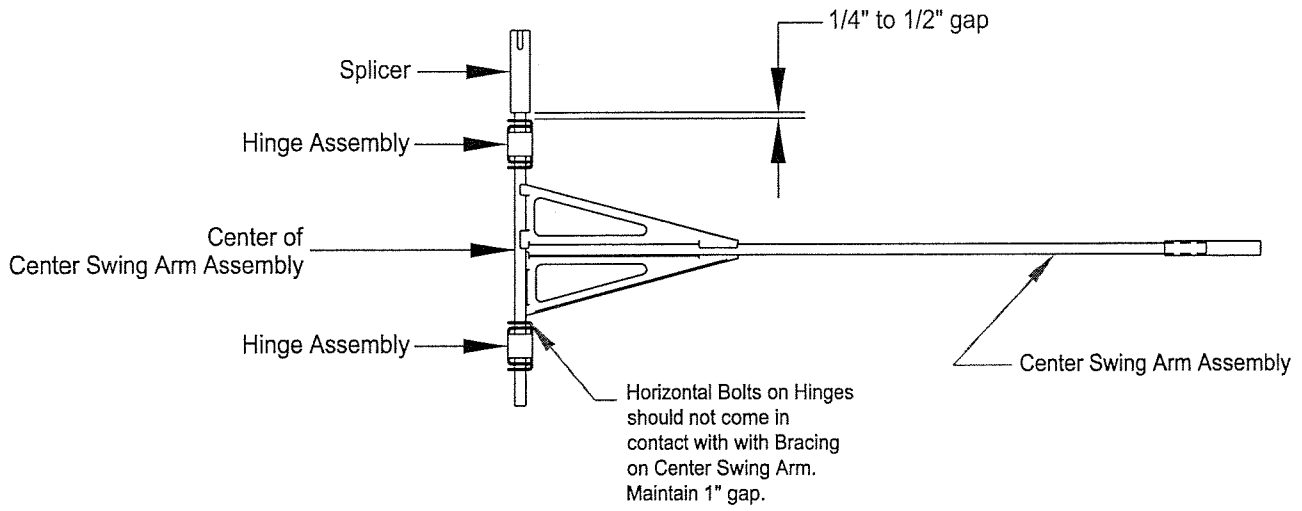



Figure 8

# Step #5

Supplied in this kit, you will find a total of six Drive Shafts. These Drive Shafts are depicted in Figure 9. A total of two Drive Shafts will be required to span between each Swing Arm Assembly.

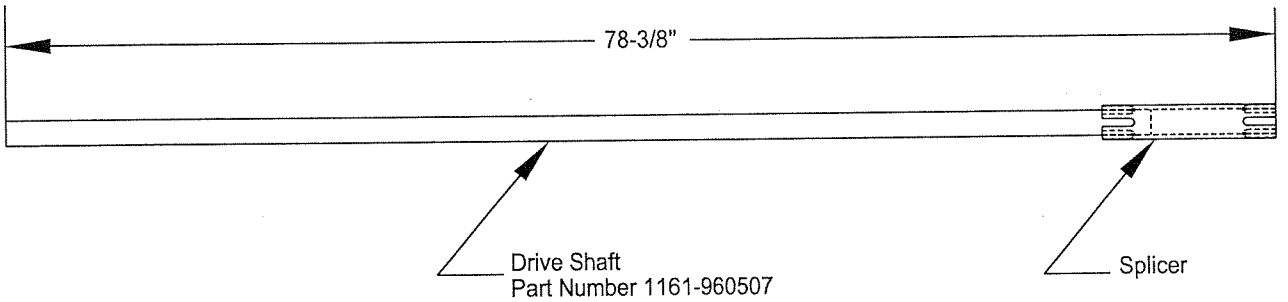



Figure 9

The six Drive Shafts supplied in this kit are long enough to accommodate a 53 foot trailer length. Measurements must be taken between each Swing Arm Assembly to obtain the actual length of each Drive Shaft. Trailers measuring less than 53 feet in length will require that the Drive Shafts be cut down to a shorter length.

The pre-welded Splicer on the end of Drive Shaft #1 must be located approximately half the distance between the Splicer on the Front Swing Arm Assembly and the front of the Center Swing Arm Drive Shaft. Reference Figure 10 for detailed drawing.

*** SPECIAL NOTE ***
When inserting all Drive Shafts into any of the Splicers, you must allow a minimum of 2" of Drive Shaft engagement into the mating Splicer.

Fit up Drive Shaft #1 & #2 to assure proper Shaft engagement before proceeding to welding operations in Step #6.

# Step #5 continued

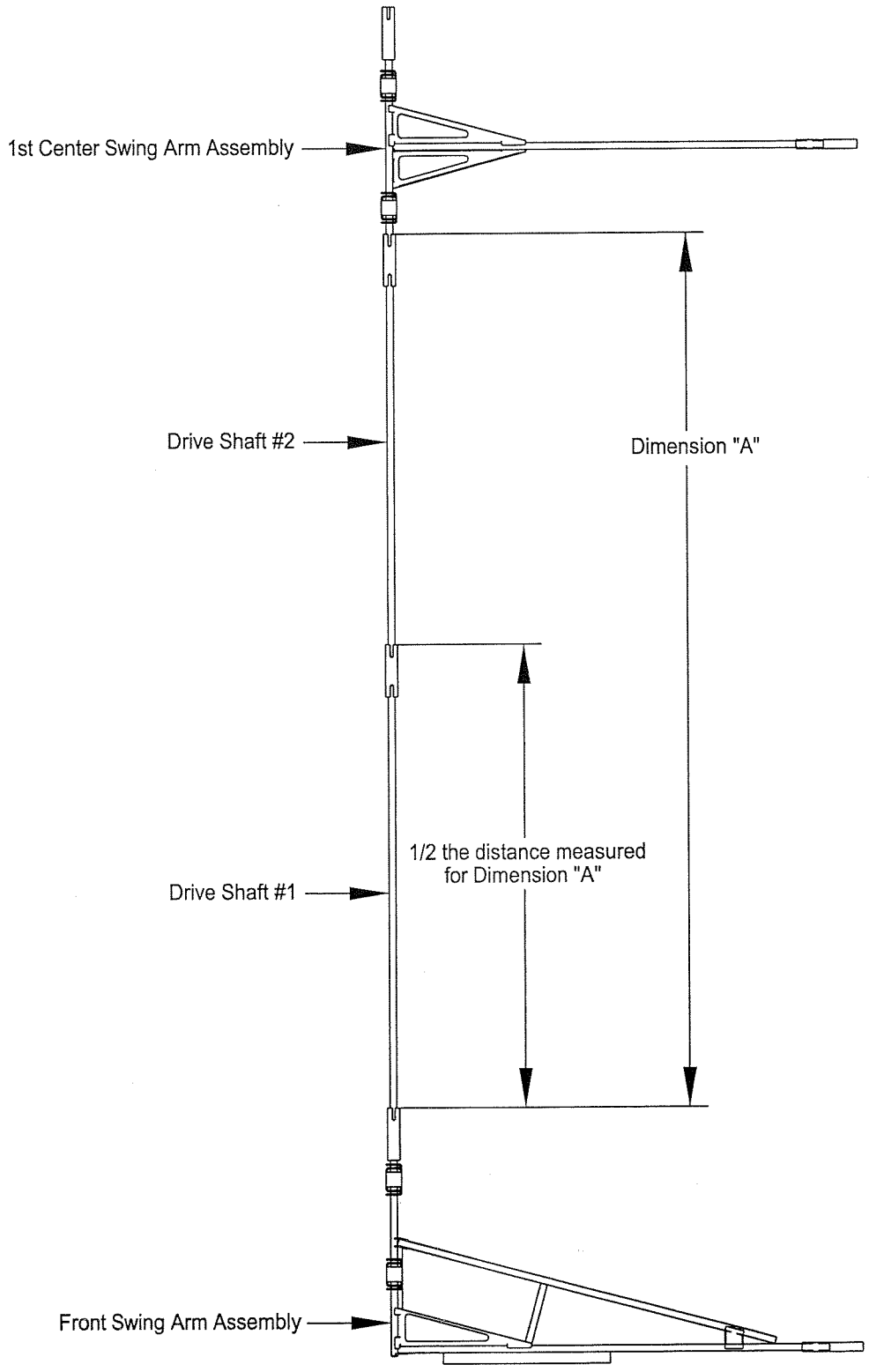



Figure 10

# Step #5

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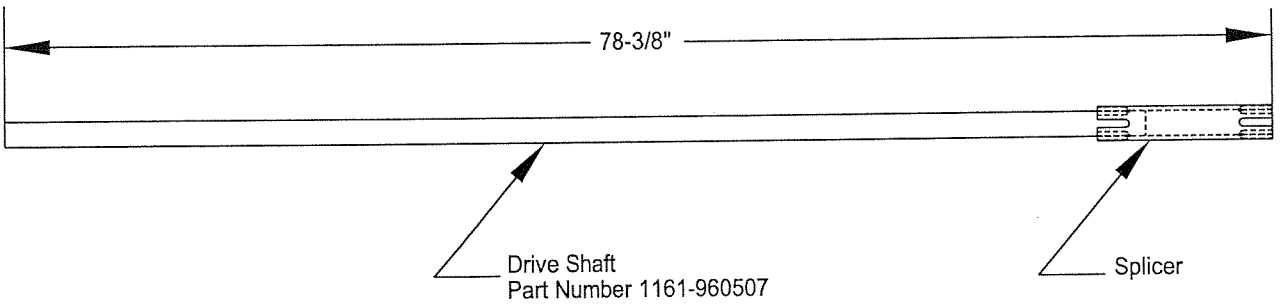


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# Step #5 continued

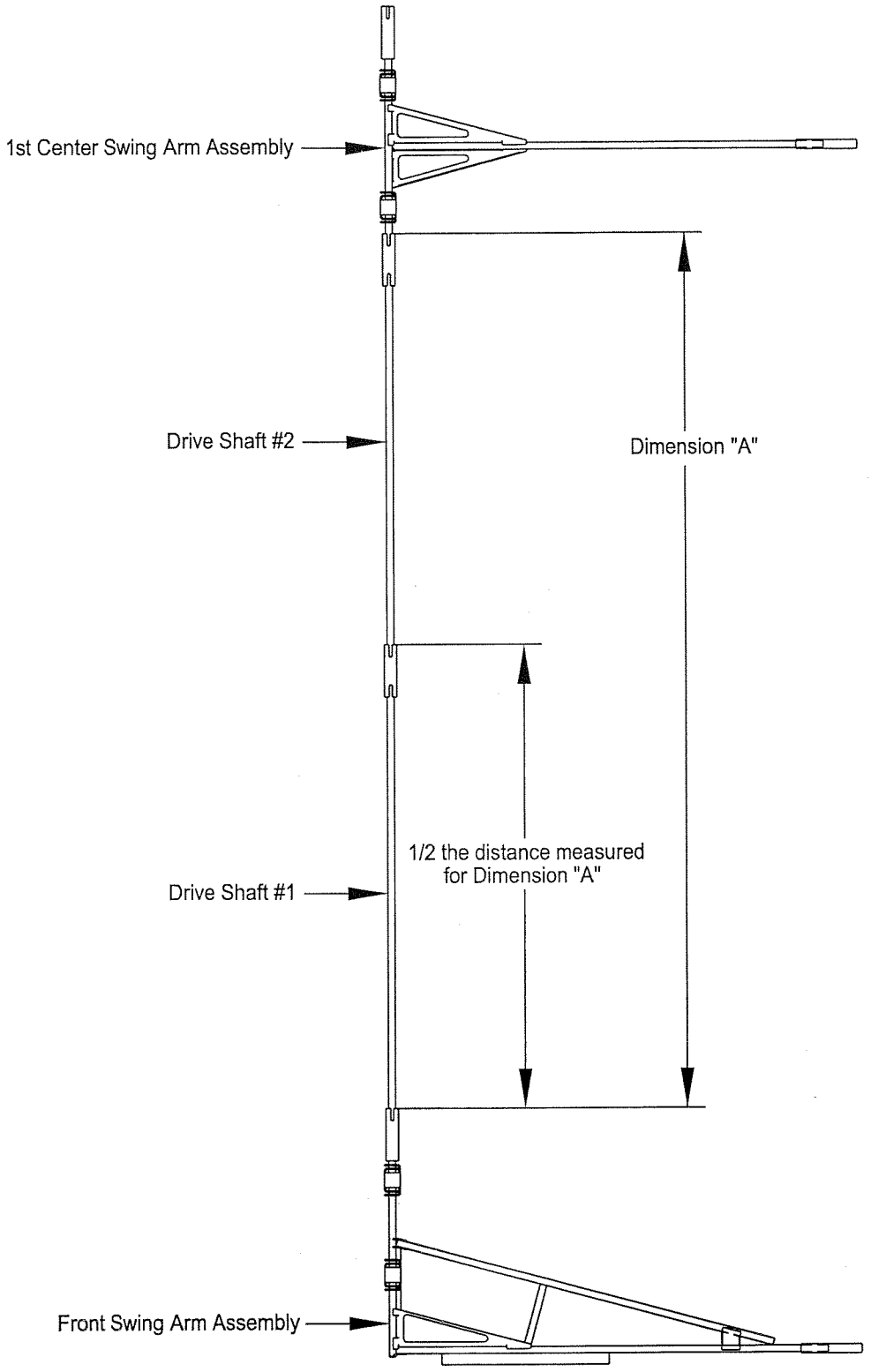



Figure 10

# Step #6

Prior to performing the welding operation to secure the Drive Shafts in place grind any paint from the area to be welded to assure adequate weld penetration. Also make sure the Drive Shafts are in proper alignment.

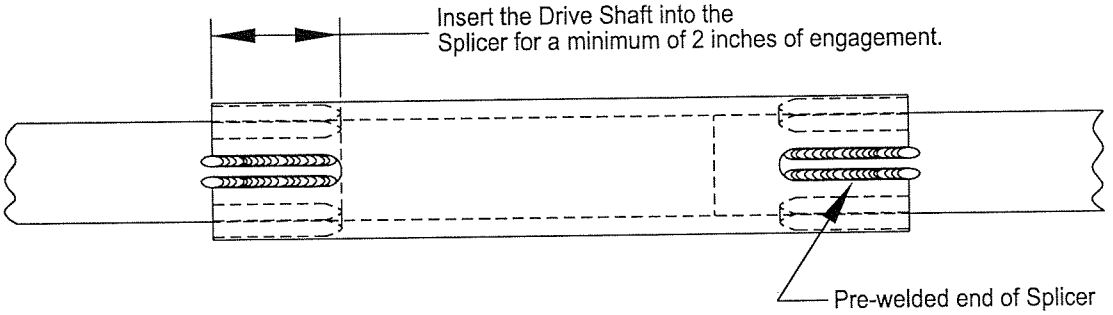



Figure 11

Weld one side of the slot the full length. Then go to the second slot and weld one side of the slot the full length. Then go to the last slot and weld one side of the slot the full length. Once this has been completed, go back to the original slot and weld the other side of the original slot the full length. Repeat this process for the other two remaining slots on the Splicer. You can use the pre-welded end of the Splicer as a pattern on how your welds need to be applied.

**⚠WARNING⚠** Prior to completing the welding operations on the Drive Shafts. Please assure that all Drive Shafts are in proper alignment with each other.

*** SPECIAL NOTE ***
Do not weld each slot solid, and do not weld each slot in its entirety at one time. Weld beads must be applied in the specified process above. Welding slots solid, or all at once may cause failure in the Drive Shaft due to brittleness caused by excessive heat damage to the Drive Shaft during the weld process.

# Step #7

Once the Drive Shafts have been installed between the Front Swing Arm Assembly and the first Center Swing Arm Assembly, repeat Steps #5 & #6 for the remaining spans on the trailer.

Once all Drive Shafts have been installed, go back to each area welded and clean thoroughly. After cleaning the welded areas properly, use the can of black spray paint supplied in the kit to touch up all areas that have been welded.

After the Flip Tarp Frame has been installed. The excess length on Hinge Bolts must be cut off inside the trailer.

# Step #8

You are now ready to install the Tarp Hold Down Cable Kit. Obtain both 3/8"x6" Eye Bolts along with two 3/8" Fender Washers and two 3/8" Hex Nuts. As shown in Figure 12, install one Eye Bolt through the hole in the Swing Arm End Assembly on the front swing arm. The Eye Bolt needs to be positioned so that the eye portion of the bolt is towards the back of the trailer. On the side closest the trailer front, slide the Fender Washer onto the threaded end of the Eye Bolt. Once the Fender Washer has been install, install the 3/8" Hex Nut onto the threaded end of the Eye Bolt. As shown in Figure #12, the Nut should be just barely installed onto the Eye Bolt as shown. Repeat this step at the rear of the trailer on the Rear Swing Arm, except position the Eye Bolt so it is facing the front of the trailer.

Obtain the 3/16" diameter Galvanized Cable, both 3/16" Thimbles, and two 3/16" Cable Clamps. Install the Cable Thimble through the eye on the Eye Bolt located on the Rear Swing Arm. Thread the Cable through the eye on the Eye Bolt and around the Cable Thimble. Install the 3/16" Cable Camp onto the Cable and tighten the Cable Clamp onto the Cable. Once this cable Clamp has been installed, install another Cable Clamp next to the one just installed.

# Step #8 continued:

Proceed to the front of the trailer and install the Cable Thimble, Cable, and Cable Clamp onto the Eye Bolt on the front swing arm. Stretch the Cable as tight as possible, then tighten the front Cable Clamp into position.

Once the Cable installation has been completed, tighten both Eye Bolts to take out any remaing slack in the Cable.

*** SPECIAL NOTE ***
The Cable must be stretched tight to keep the Tarp from "sailing" while the trailer is going down the road. But, over tensioning may cause the Front & Rear Swing Arm to bow to far inward on the trailer.

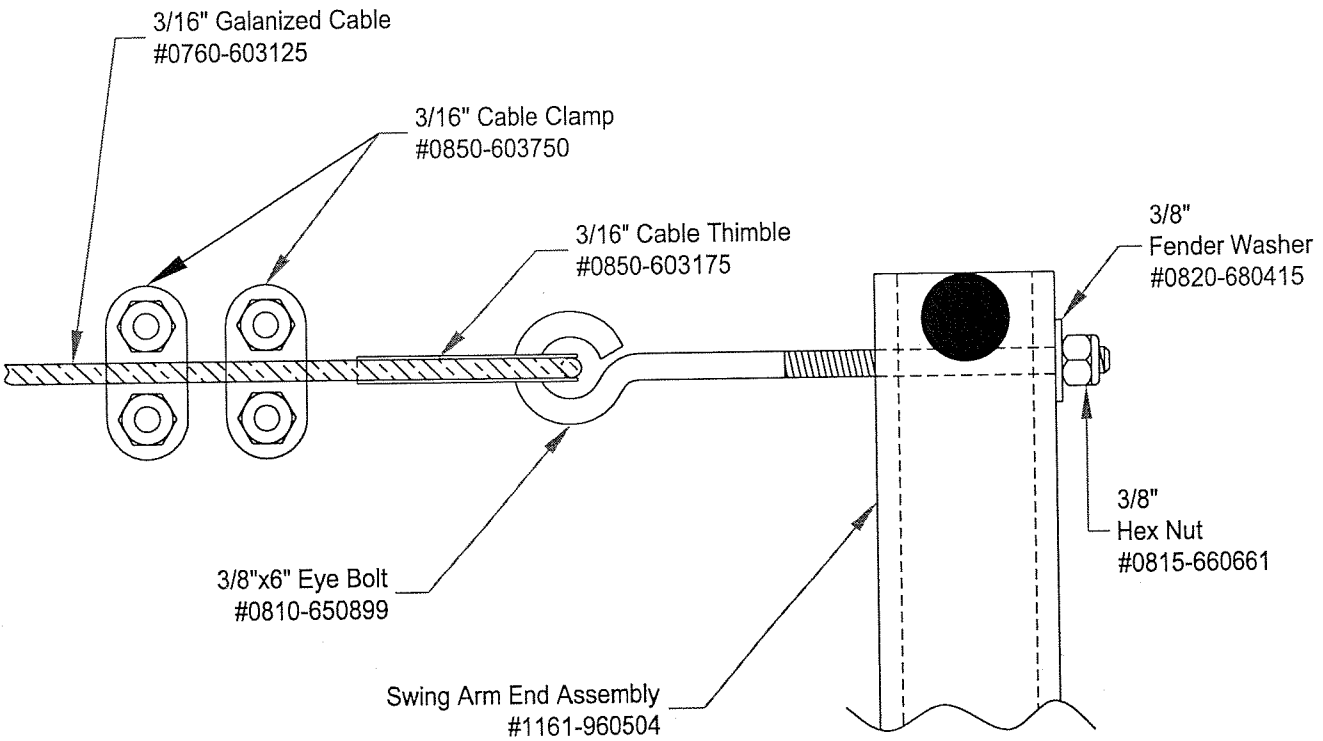



Figure 12

# Tarp Installation Instructions

You are now ready to install the Tarp onto the Hydraulic Flip Tarp Frame. The Tarp that is enclosed in this kit comes in one size, and is capable of covering Trailers up to 102" wide, and 53' in length. If your Trailer is shorter than 53, it maybe necessary to cut down the length of the Tarp.

The tarp needs to be installed on the outside of the Hydraulic Flip Tarp Frame you have just installed. When installing the tarp onto the Flip Tarp Frame, fold all excess tarp fabric to the bottom side of the frame. Attach the Trap to the top of the Tarp Frame using the Cable Ties supplied in this Kit. Once Cable Ties have been tightened, cut off all excessive length of Cable Tie.

*** SPECIAL NOTE ***
It is recommended that you leave some excess fabric folded underneath. This excess fabric hanging down will help seal the gap between the Hydraulic Flip Tarp Frame, and the top of the trailer. Use caution, and do not allow excess fabric the capability of hanging up on any other part of the trailer, which would cause the tarp to snag while the system is in operation.

# Hydraulic Plumbing

Please reference the drawings in Figures #13 through #17 for the schematics on how the Hydraulics need to be plumbed for this Tarping System.

*** SPECIAL NOTES ***
1) The hoses supplied in this Kit are intended to allow the Spool Valve to be hooked up next to the Priority Flow Divider Valve. If a different Spool Valve location is desired. Hoses with additional lengths maybe required, and are not supplied in this Kit.

2) Plumbing of the Priority Flow Divider must match the schematic shown in Figure #13. If the Priority Flow Divider is plumbed backwards, to much hydraulic pressure will be sent to the Tarping System, and not enough hydraulic oil will be sent to the Walking Floor on the trailer. This could cause damage to the Tarping System, and also slow down the movement on the Walking Floor.

3) The Hydraulic Kit is intended to be used on Trailers which are equipped with 1" FNPT connections on the Bulkhead. If the Trailer utilizes something other than 1" FNPT, additional adapter fittings are required.

# Hydraulic Schematic

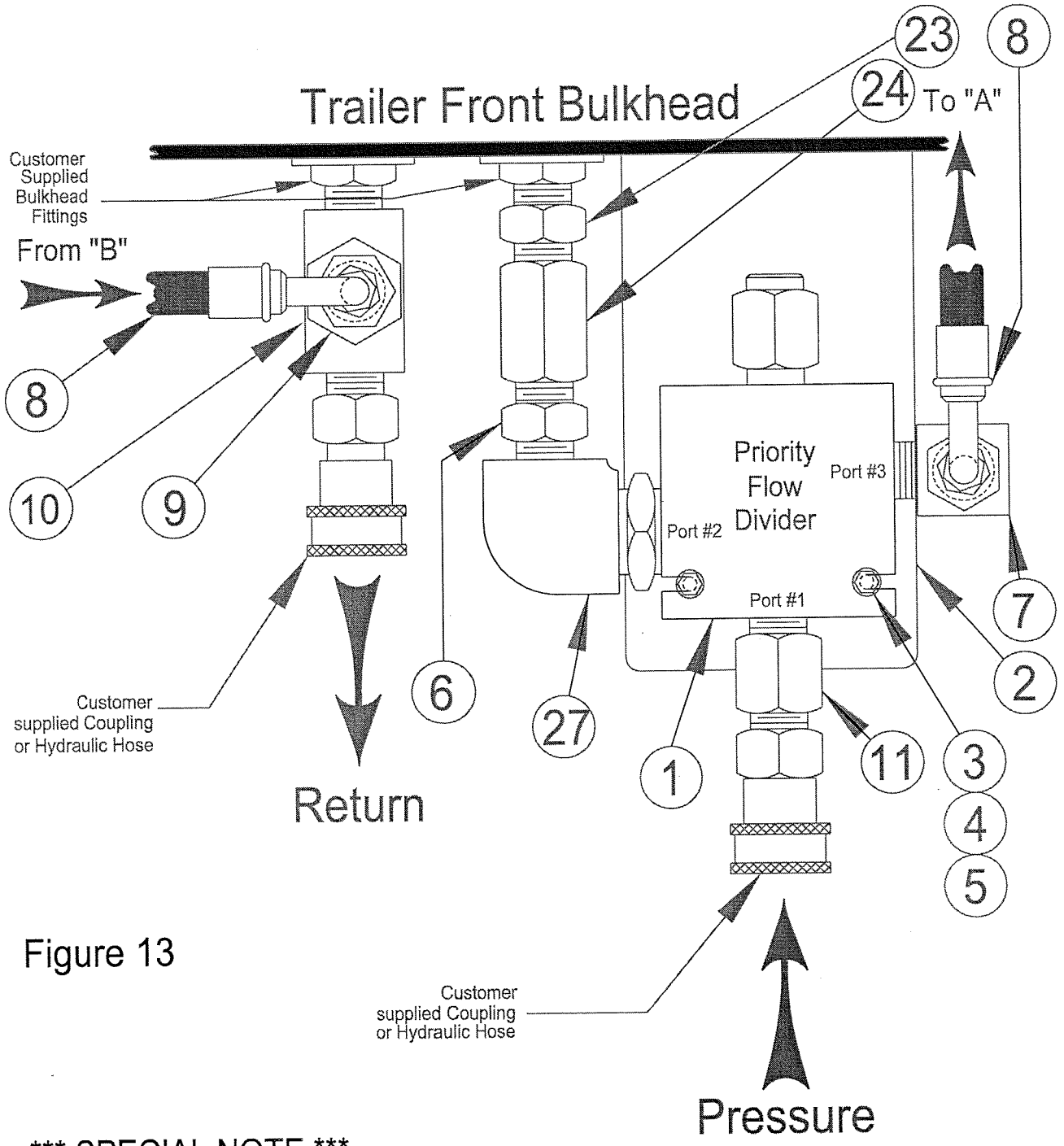
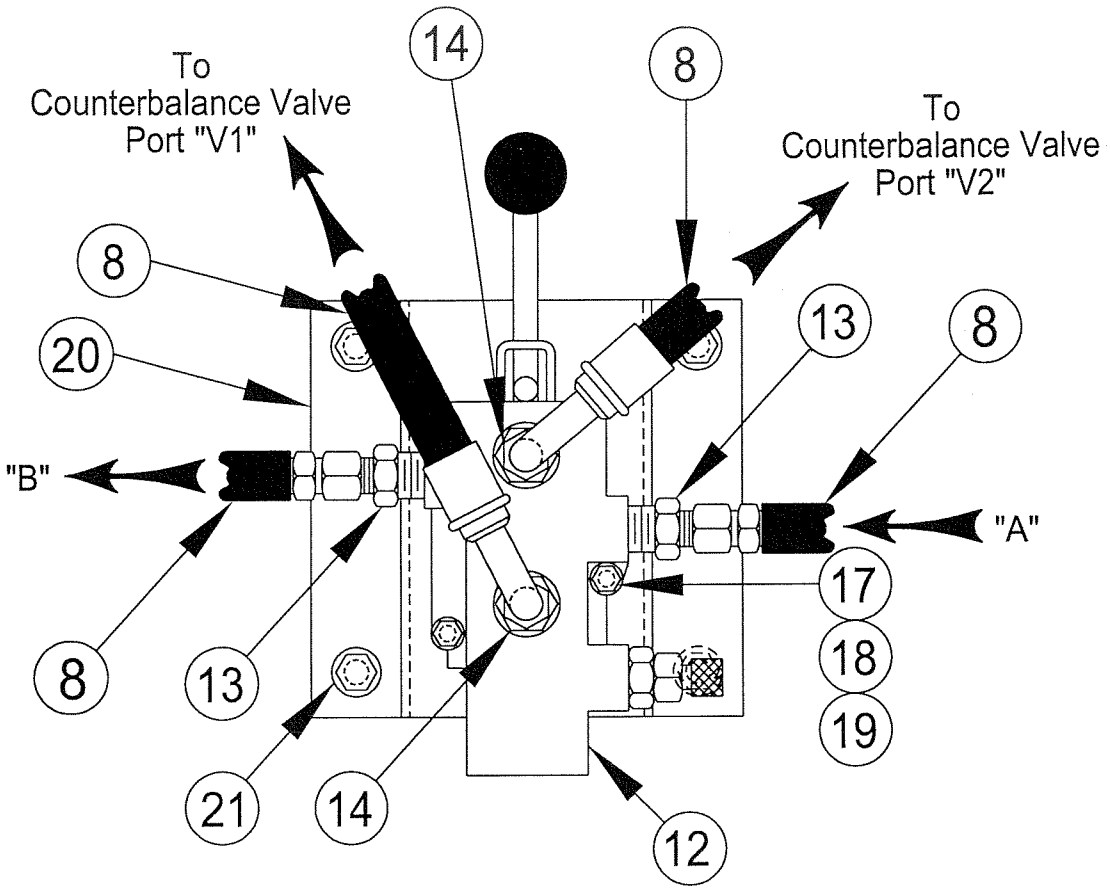



Figure 13

*** SPECIAL NOTE ***

Hydraulic components furnished with this Kit are setup for 1" Female NPT connections into the trailer. If the trailer is equipped with connections other than this, additional hydraulic fittings will be required, and are not supplied with this Kit.




Hand Valve Assembly

(Front View)

Figure 14

Hydraulic Cylinder

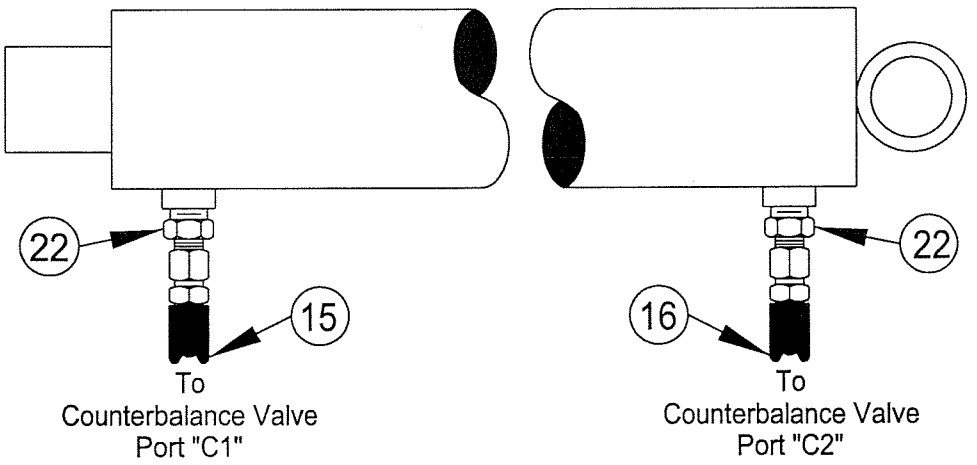
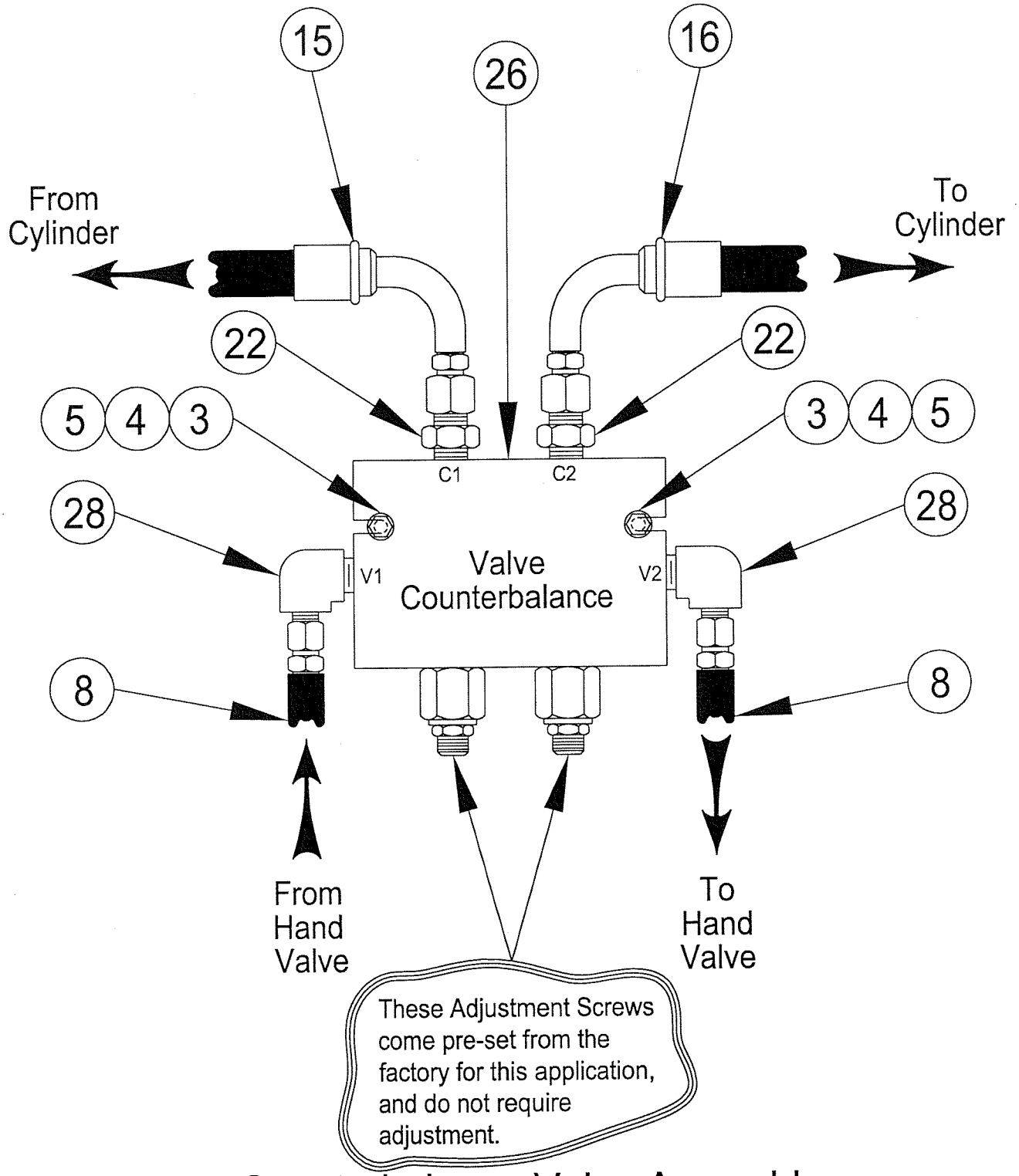



Figure 15




Counterbalance Valve Assembly

(Front View)

Figure 16

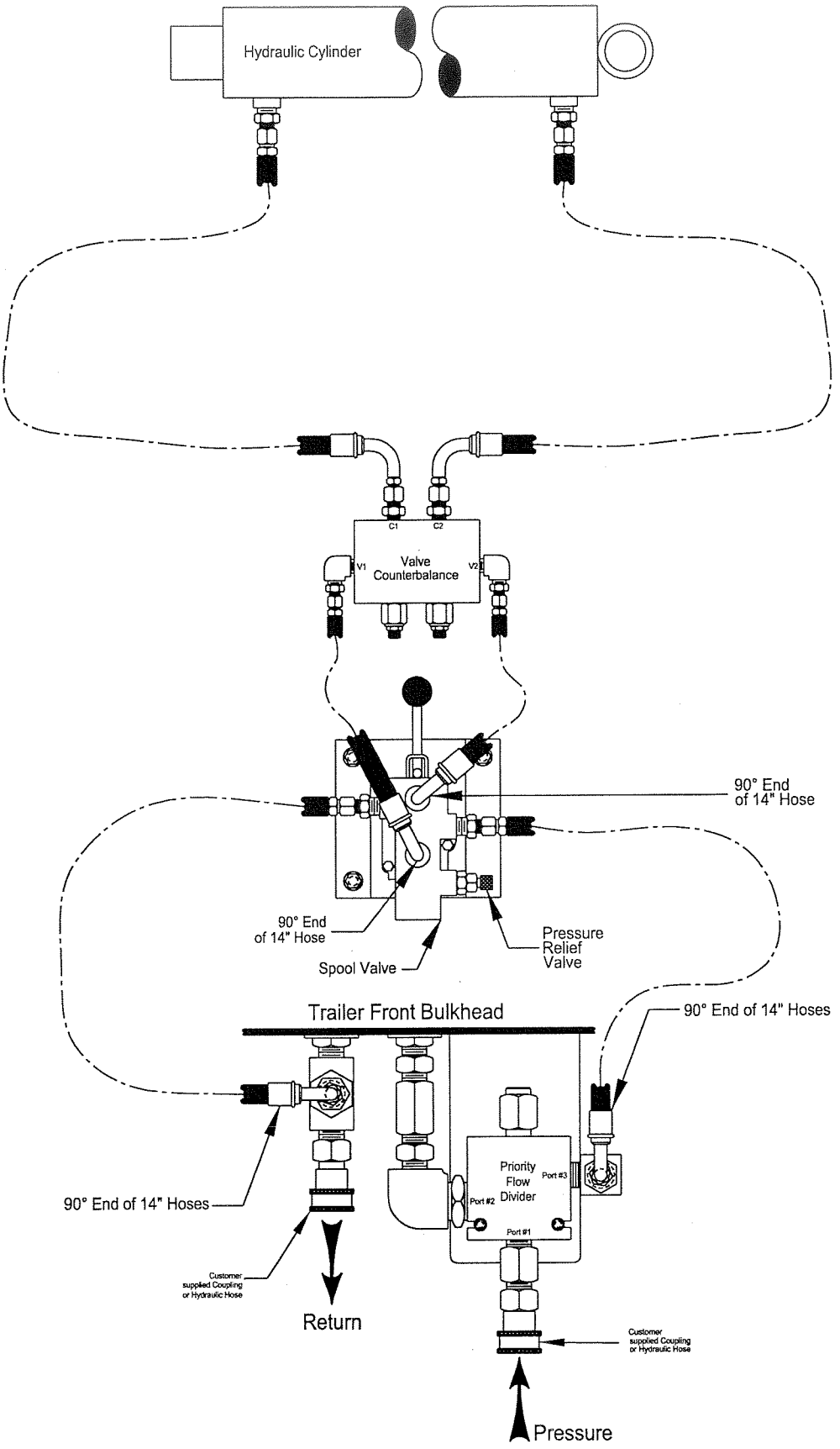

Hydraulic Cylinder
C1
C2
V1
Valve
Counterbalance
V2
90° End
of 14" Hose
90° End
of 14" Hose
Spool Valve
Pressure
Relief
Valve
Trailer Front Bulkhead
90° End of 14" Hoses
90° End of 14" Hoses
Priority
Flow
Divider
Port #3
Port #2
Port #1
Customer
supplied Coupling
or Hydraulic Hose
Return
Customer
supplied Coupling
or Hydraulic Hose
Pressure

Figure 17

# Hydraulic Parts List

| ITEM NO. | PART DESCRIPTION | PART NUMBER | ITEM QTY. |
|---|---|---|---|
| 1 | PRIORITY FLOW DIVIDER | 0790-100000 | 1 |
| 2 | FLOW DIVIDER MOUNTING PLATE | 1161-860300 | 1 |
| 3 | BOLT 1/4"-20 x 2-1/2" GRADE 2- ZINC | 0810-670454 | 4 |
| 4 | FLAT WASHER 1/4" - ZINC | 0820-680410 | 8 |
| 5 | HEX NUT 1/4"-20 - NYLOCK | 0815-660451 | 4 |
| 6 | MALE CONNECTOR 1" O-RING x 1" NPT | 0790-100001 | 1 |
| 7 | MALE ELBOW 90° 1" O-RING x 1/2" MJIC | 0790-100002 | 1 |
| 8 | HYD. HOSE 3/8" x 14" O.A.L. - 1/2"FJIC | 0790-200000 | 4 |
| 9 | MALE CONNECTOR 1" MNTP x 1/2" MJIC | 0790-100003 | 1 |
| 10 | MALE RUN TEE 1" NPT | 0790-100004 | 1 |
| 11 | MALE CONN. 1" FNPT x 1" MALE O-RING | 0790-100005 | 1 |
| 12 | SPOOL VALVE | 0790-100006 | 1 |
| 13 | MALE CONNECTOR 3/4" MNPT x 1/2" MJIC | 0790-100007 | 2 |
| 14 | MALE CONNECTOR 1/2" MNPT X 1/2" MJIC | 0790-100008 | 2 |
| 15 | HYD. HOSE 3/8" x 144" O.A.L. - 3/8" FJIC | 0790-200004 | 1 |
| 16 | HYD. HOSE 3/8" x 120" O.A.L. - 3/8" FJIC | 0790-200003 | 1 |
| 17 | BOLT 3/8-16 x 2-1/2" GRADE 2 - ZINC | 0810-650621 | 3 |
| 18 | FLAT WASHER 3/8" - ZINC | 0820-680620 | 3 |
| 19 | HEX NUT 3/8"-16 - ZINC - NYLOCK | 0815-660660 | 3 |
| 20 | SPOOL VALVE MOUNTING BRACKET | 1161-860301 | 1 |
| 21 | SCREW 5/16" x 1" TYPE F SELF TAPPER | 0825-670504 | 7 |
| 22 | MALE CONNECTOR 3/8" MNPT x 3/8" MJIC | 0790-100009 | 4 |
| 23 | MALE CONNECTOR 1" MNPT x 1" MNPT | 0790-100010 | 1 |
| 24 | COUPLING 1" FNPT x 1" FNPT | 0790-100011 | 1 |
| 25 | | | |
| 26 | COUNTERBALANCE VALVE | 0790-100014 | 1 |
| 27 | FEMALE 90 ELBOW 1" F-O-RING x 1" M-O-RING | 0790-100017 | 1 |
| 28 | 90 DEGREE ELBOW 1/2" MJIC x 3/8" MNPT | 0790-100022 | 2 |
| | | | |
| | | | |
| | | | |
| | | | |

# Decal Installation

Enclosed in the Information Pack you will find red, and yellow Warning & Operation Decals. Both of these decals must be installed next to the Spool Valve, and in clear view from the operators vantage point.

**⚠WARNING⚠** Failure to install these Warning & Operation Decals releases Aero Industries from any and all liability associated with the property damage, injury to operator, injury to other people, and or damage to the Traping System.

# Start Up Procedures

1) Double check to insure all hydraulic connections are correct when compared to the Hydraulic Schematic.

2) To operate the LID Hydraulic Tarping System, hydraulic oil pressure must be supplied to the trailer.

3) Once the trailer has hydraulic oil pressure. Using the manual Spool Valve, cycle the system so the Flip Tarp Frame raises up off the trailer to about a 90° angle. Stop the opening sequence at this point, and cycle the Tarpping System back down to the top of the trailer. Repeat this process 4 or 5 times before attempting to complete a full cycle. This will help bleed the air out of the hydraulic components in the system.

3) During the first complete cycle, observe the system to make sure you have no clearance issues which would cause the system to bind, or crash.

4) After these sequences inspect all hydraulics to assure there are no leaks in the hydraulic system. If leaks have been found, these must be fixed immediately before proceeding.

*** SPECIAL NOTE ***
It should take around 10 to 15 complete cycles to bleed all the air out of the LID Hydraulic Tarping System.

# Hydraulic Front Assembly Parts List

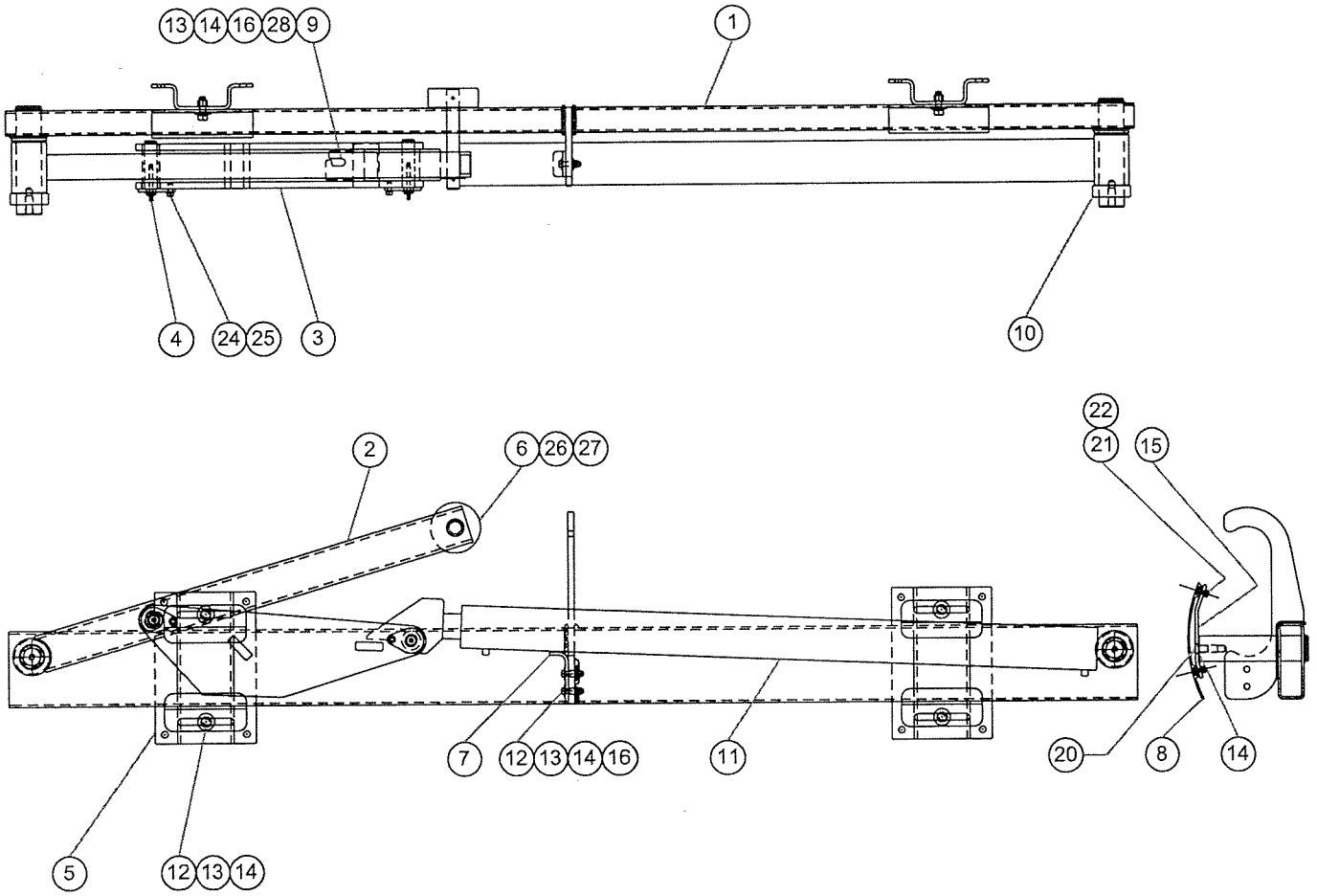



Figure 18

*** SPECIAL NOTE ***
All components on the Hydraulic Front Assembly are interchangeable between curbside mounted Hinges, or drivers side mounted hinges. All components on the Hydraulic Front Assembly can be reversed to obtain the required side of operation.

# Hydraulic Front Assembly Parts List

| ITEM NO. | Part Description | Part Number | ITEM QTY. |
|---|---|---|---|
| 1 | Front Tube Weldment | 1161-960214 | 1 |
| 2 | Single Flip Arm Assembly | 1161-960208 | 1 |
| 3 | Floating Link Weldment | 1161-960212 | 1 |
| 4 | Floating Link Pin Assembly | 1161-960213 | 2 |
| 5 | Main Mounting Bracket Assy. | 1161-960207 | 2 |
| 6 | Roller Assembly | 1161-960206 | 1 |
| 7 | Lower Stop "L" Bracket | 1161-860234 | 1 |
| 8 | Front Aluminum Cover | 1161-960237 | 1 |
| 9 | Floating Link Spacer | 1161-860216 | 3 |
| 10 | Shaft Collar Clamp | 1161-860233 | 2 |
| 11 | Hydraulic Cylinder Assy.-Single | 1161-960202 | 1 |
| 12 | Bolt HHCS 1/2"-13 x 1-1/2" Grade 8 Zinc | 0810-650816 | 6 |
| 13 | Flat Washer 1/2" - Zinc | 0820-680810 | 10 |
| 14 | Flat Washer 1/2" Split Lock - Zinc | 0820-680820 | 8 |
| 15 | Cover Bracket | 1161-860515 | 2 |
| 16 | Nut 1/2-13 Clear Zinc Plated | 0815-660850 | 3 |
| 17 | | | |
| 18 | | | |
| 19 | | | |
| 20 | Bolt FHSCS 1/2-13 x 1" Grade 5 Clear Zinc | 0810-670827 | 2 |
| 21 | Bolt Carriage 1/4"-20 x 3/4" Grade 5 | 0810-650456 | 4 |
| 22 | Hex Nut 1/4"-20 Zinc Nylon Insert | 0815-660451 | 4 |
| 23 | | | |
| 24 | Screw 5/16-18 x 3/4 Grade 8 Yellow Zinc | 0825-670657 | 2 |
| 25 | Flat Washer 5/16" Split Lock | 0820-680520 | 2 |
| 26 | Hair Pin 3/16" x 3-1/2" Zinc Plated | 0835-619111 | 1 |
| 27 | Flat Washer 1" USS Zinc | 0820-618211 | 2 |
| 28 | Screw 1/2"-13 x 2" Grade 8 - Yellow Zinc | 0825-670814 | 1 |
| 29 | | | |
| 30 | | | |

# Flip Tarp Frame

# Parts

# List

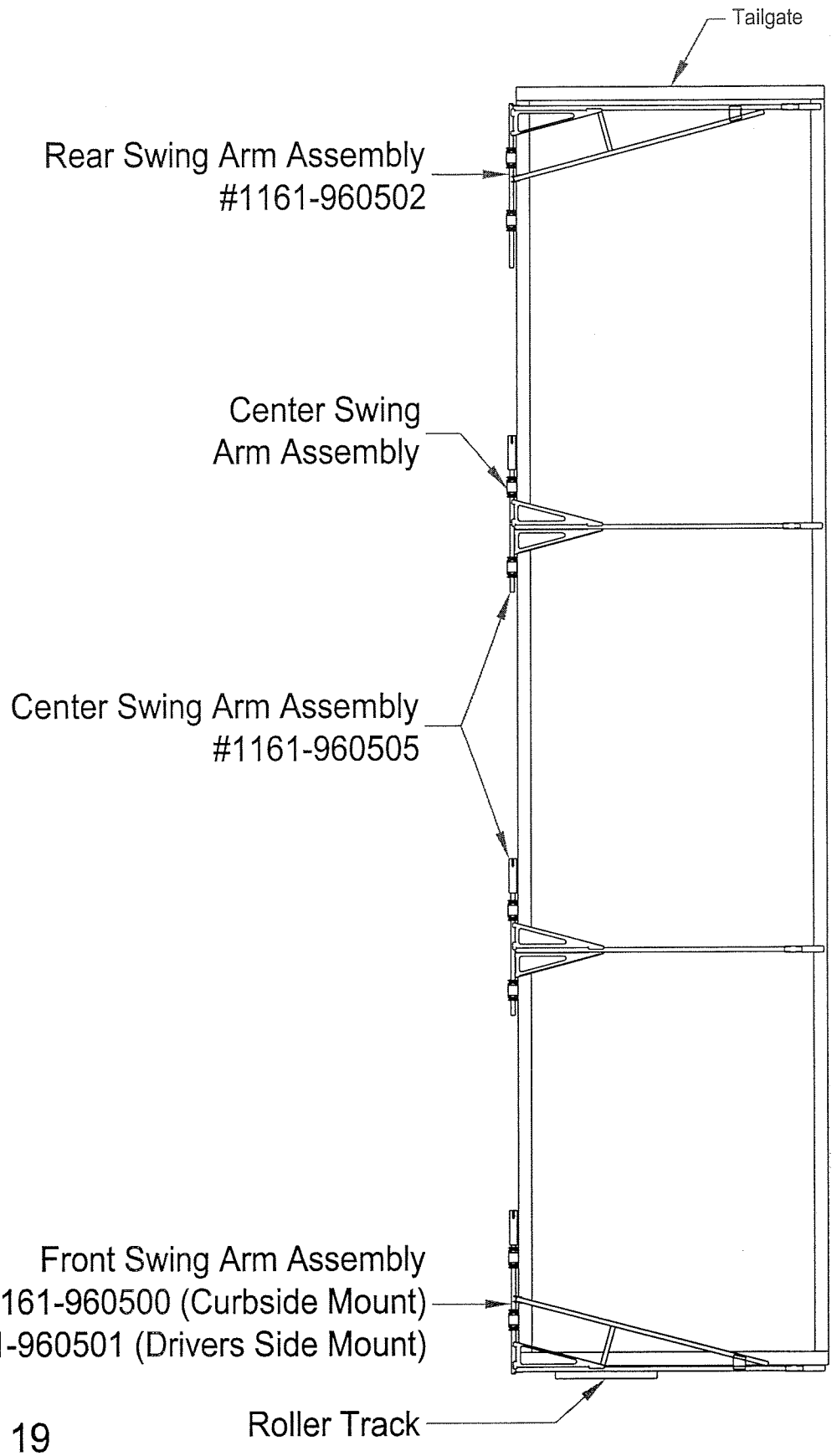

Tailgate
Rear Swing Arm Assembly
#1161-960502
Center Swing
Arm Assembly
Center Swing Arm Assembly
#1161-960505
Front Swing Arm Assembly
#1161-960500 (Curbside Mount)
#1161-960501 (Drivers Side Mount)
Roller Track

Figure 19

# Front Swing Arm Assembly

## #1161-960500 (Curbside Mount Shown)
## #1161-960501 (Driverside Hinge)

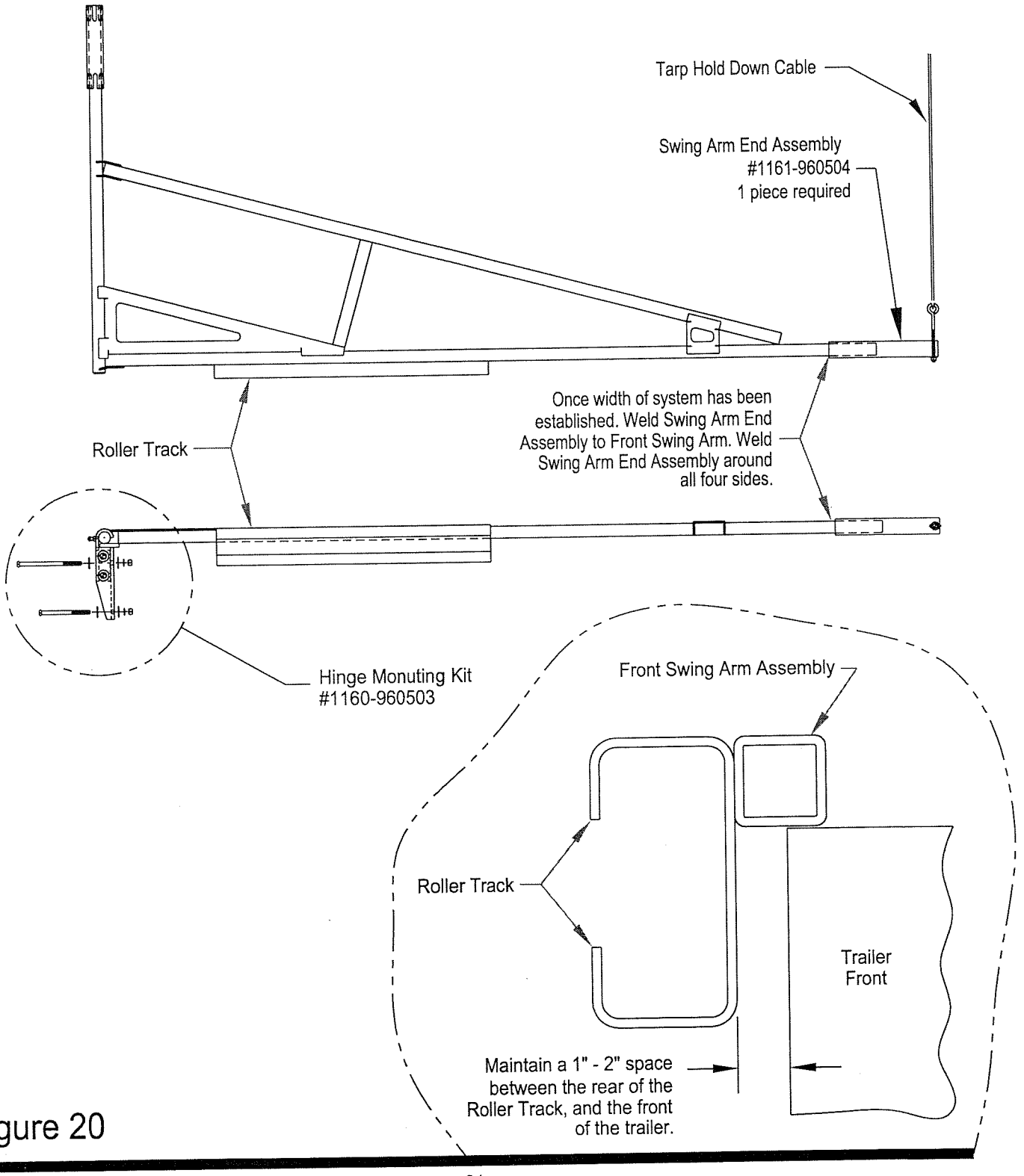



Figure 20

# Center Swing Arm Assembly

## #1161-960505

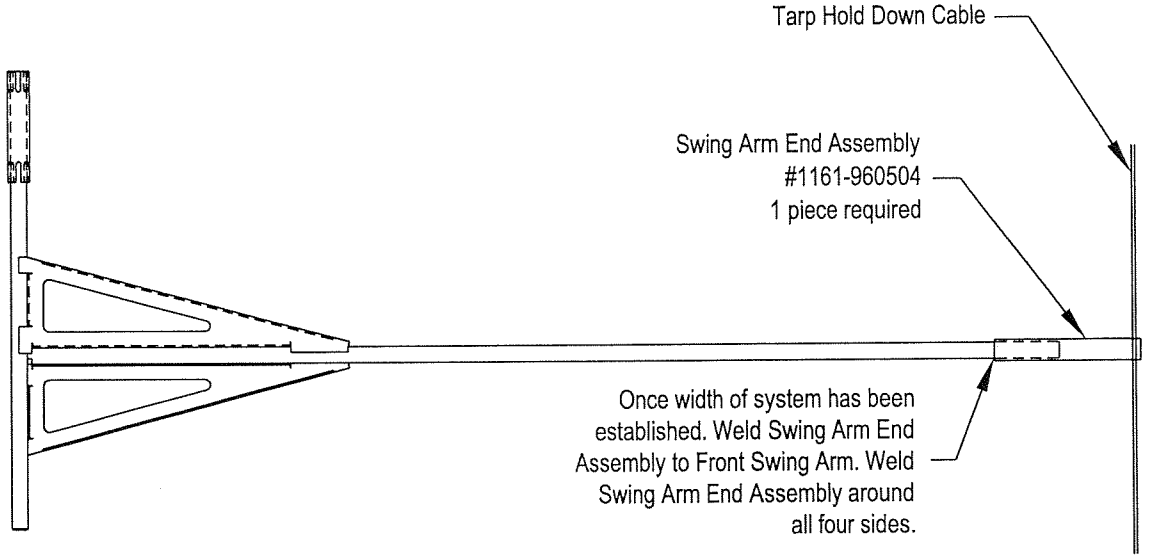



Figure 21

# Rear Swing Arm Assembly

## #1161-960502

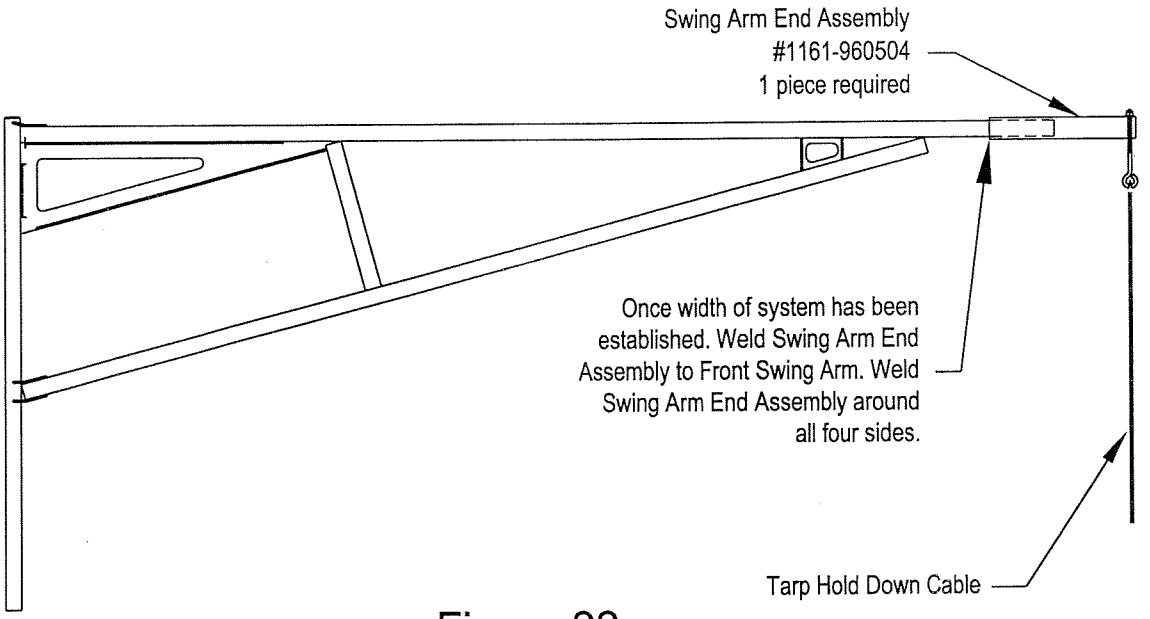



Figure 22

# Hinge Kit
## #1160-960503

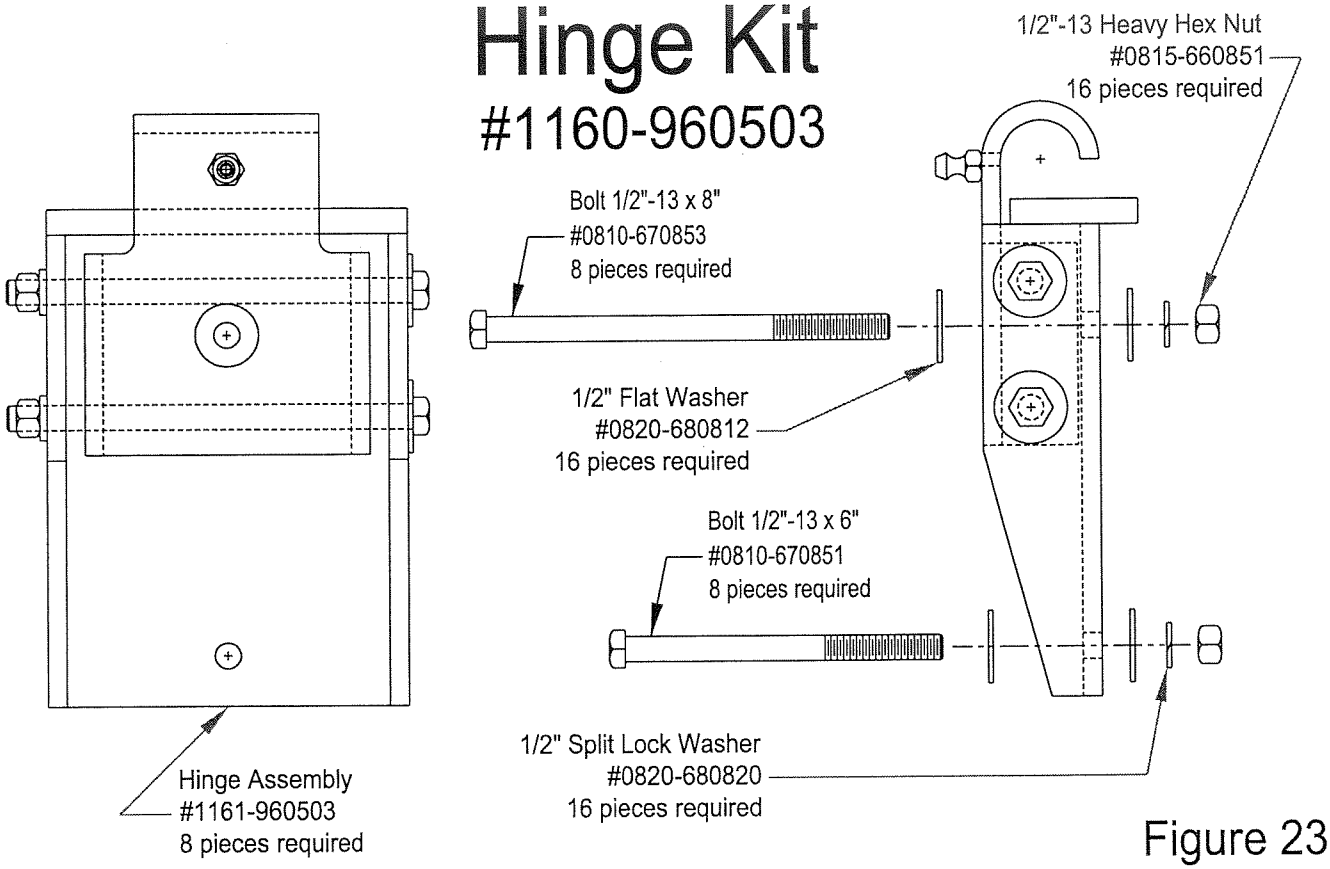



Figure 23

# Tarp Hold Down Cable Kit
## #1160-960502

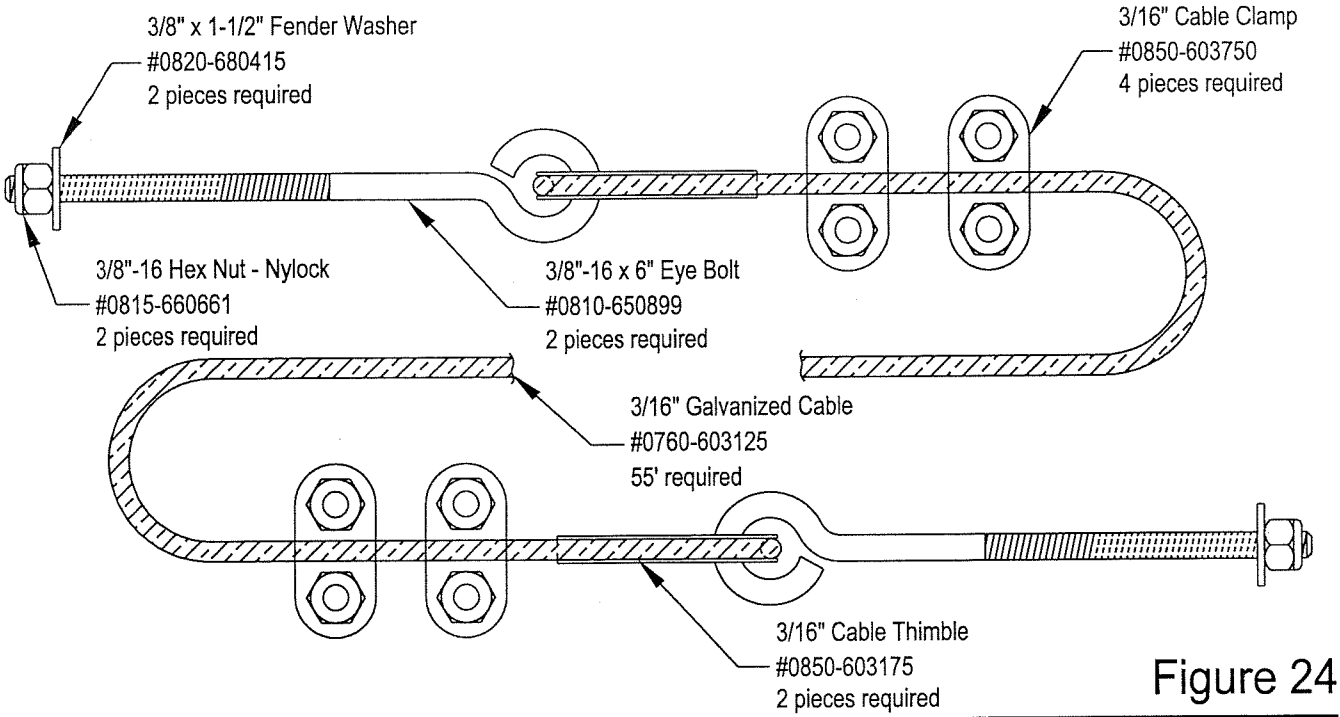



Figure 24

# Drive Shaft
## #1161-960507

Figure 25

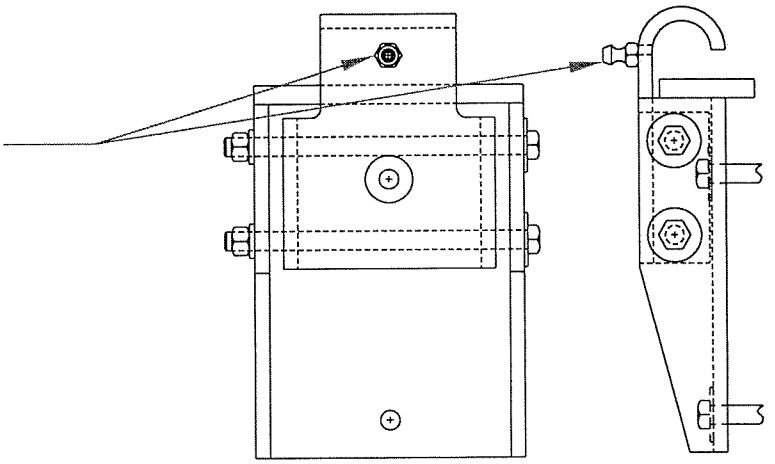
# Periodic Maintenance Schedule

DAILY INSPECTION:

1) Check for tears in tarp, missing electrical tie wraps.
2) Check Tarp Cable tension.
3) Visual check to make sure Tarp Frame has not been bent.

Bi-MONTHLY INSPECTION:

1) Grease fitting on all Hinges.



MONTHLY INSPECTION:

1) Check all hydraulic components for oil leakage.
2) Check all Hydraulic Hoses for excessive wear.
3) Check all bolts for proper tightening.
4) Verify all components and mechanisms are not damaged.
5) Check Roller and Roller Track for cleanlyness, and proper functioning.
6) Grease all four grease fittings located on the Front Hydraulic Assembly: #1 on pivot end of Flip Arm Assembly, #2 on the pivot end of the Hydraulic Cylinder, #3 & #4 located on the Floating link Pin Assemblies.