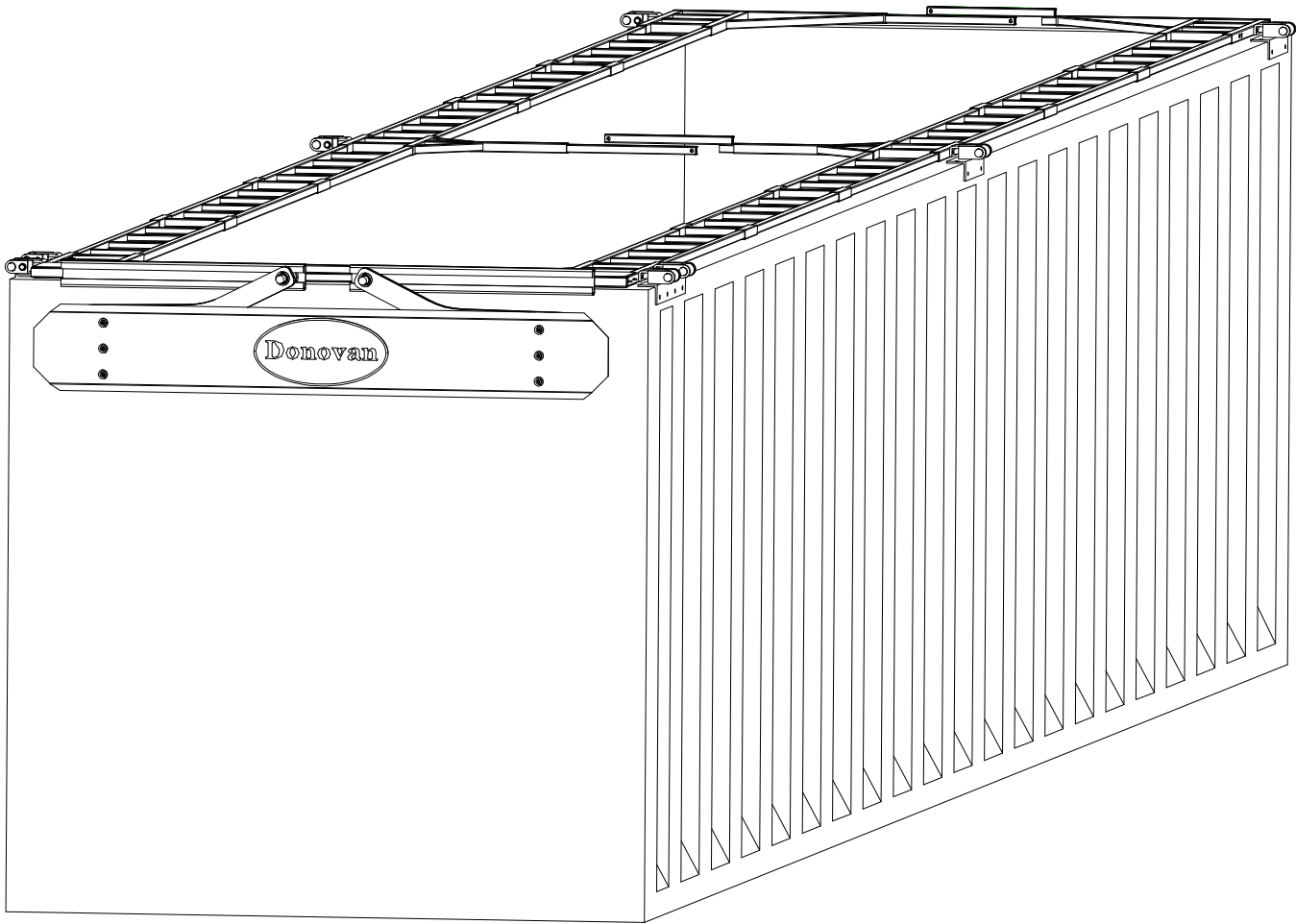


DOUBLE FLIP INSTALLATION INSTRUCTIONS & OPERATION MANUAL



PATENT PENDING

MAY 2010



DeBrovy's, 9016 Taylorsville Rd #108, Louisville KY 40299

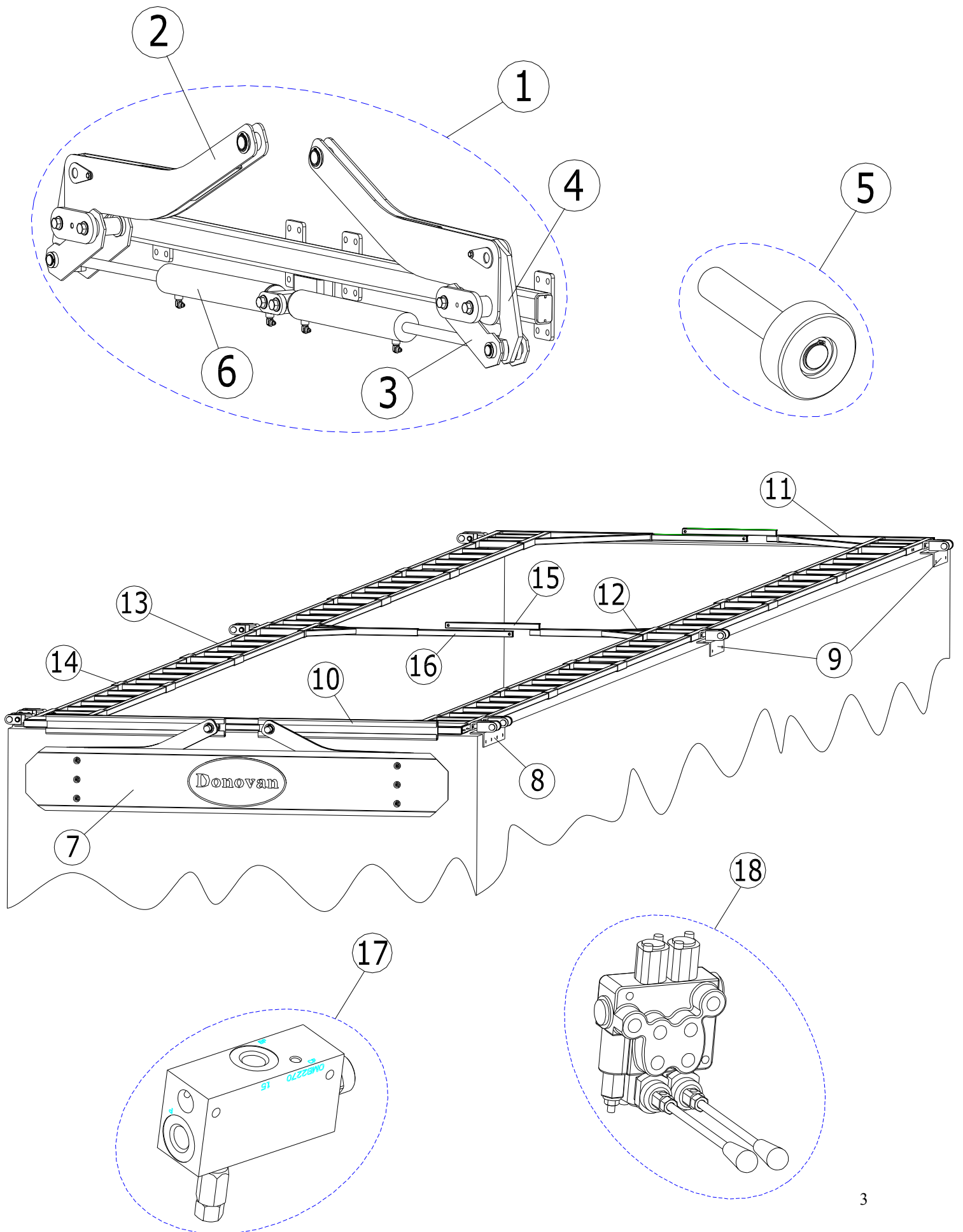
800-718-2777

www.debrovys.com

PACKING LIST FOR DOUBLE FLIP

(BALLOONS ARE SHOWN ON pg. 3 + 4)

P/N	QTY	BALLOON	DESCRIPTION
761	1		COMPLETE DOUBLE FLIP SYSTEM
795	1	1	ACTUATOR ASSEMBLY, 212 lb (96.4 Kg)
818	1		BASE TUBE WELDMENT
803	2	2	ACTUATOR ARM ASSEMBLY
805	1		ACTUATOR ARM WELDMENT
756	2		1 1/2 ID x 2" (3.81cm ID x 5.04cm) BUSHING
810	1		1 1/4" ID x 2 1/2" (3.17cm ID x 6.35cm) BUSHING
811	2		1 1/2 ID x .047 THK (3.81cm ID x .12cm THK) SHIM
2589	2		1 1/2 (3.81cm) EXT RETAINING RING
784	4	3	SHORT LINK ASSEMBLY
1665	1		1" ID x 1" (2.54cm ID x 2.54cm) BUSHING
2587	1		1 1/2 ID x 1" (3.81cm ID x 2.54cm) BUSHING
796	2	4	LONG LINK ASSEMBLY
1665	1		1" ID x 1" (2.54cm ID x 2.54cm) BUSHING
2587	1		1 1/2 ID x 1" (3.81cm ID x 2.54cm) BUSHING
1196	2	5	ROLLER ASSEMBLY
779	2		UHMW ROLLER
1188	2		ROLLER SHAFT
812	2	6	HYD. CYLINDER, 2.5 BORE x 15.25 STROKE x 1" ROD (6.35cm BORE x 38.7cm STROKE x 2.54cm ROD)
880	1	7	WIND DEFLECTOR
1056	2		WIND DEFLECTOR BRACE / 1" SQR TUBE
4311	2	8	FRONT HINGE ASSEMBLY (REAR ON SIDEWINDER)
4313	4	9	CENTER AND REAR HINGE ASSY, (CENTER ON SIDEWINDER)
764	2	10	FRONT LID WELDMENT
766	2	11	REAR LID WELDMENT
762	2	12	CENTER LID WELDMENT
2601	12	13	LADDER WELDMENT
3313	2		BOX OF 4 "H" CONNECTORS
2603	8	14	"H" CONNECTOR
3587	4		CABLE, 30' WITH TURNBUCKLE
776	3	15	CABLE EXTENSION
775	3	16	CABLE EXT. INSERT TUBE, 1 1/4 SQR x 28" LONG (3.17cm SQR x 71.1cm LONG)
2631	8		3/16 X 15' (.476cm x 457cm) CABLE WITH TURN BUCKLE
826	1		HYDRAULIC KIT, DOUBLE FLIP
965	1	17	PRI FLOW CONTROL VALVE
4500	1	18	CONTROL VALVE W/RELIEF SET @ 2000 psi (138 Bar)
932	2		Tarp Strip (long)
933	2		Tarp Strip (short)



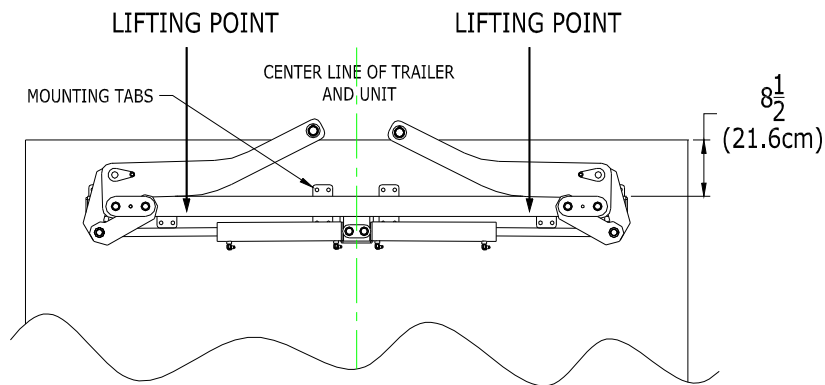
HARDWARE BAG

P/N	QTY	DESCRIPTION
2622	16	1/2"-13 x 3", GR 5
2877	16	1/2"-13 LOCK NUT
2878	50	1/2" WASHERS
2827	200	8" BLACK WIRE TIES, 120 lb
3299	50	1/4" x 3/4" SELF DRILLING SCREWS
2689	15	3/4" STEEL LOOP STRAP
2548	4	CABLE THIMBLE, 3/16"
2579	8	3/16" CABLE NUT
1144	10'	SPIRAL WRAP PE
SPLICE TAPE	6'	3M, SPLICING TAPE, 2"
916	6	BUTTON HEAD SCREW 1/2" x 2" SS
917	6	1/2" SS WASHER
2877	4	1/2"-13 LOCK NUT

1. PLACE ACTUATOR UNIT ON FRONT OF TRAILER AS SHOWN BELOW. USE THE (6) MOUNTING TABS AS A TEMPLATE, AND MARK THE HOLE LOCATION ON THE FRONT OF THE TRAILER. IF THE TRAILER IS STEEL, THE UNIT COULD BE WELDED INTO PLACE. **NOTE: IF WELDING TO TRAILER USE EXTREME CAUTION TO AVOID GETTING WELD SPLATTER ON THE CHROME CYLINDER ROD. THIS WILL CAUSE PERMANENT DAMAGE TO THE CYLINDER AND VOID THE SYSTEMS WARRANTY).**

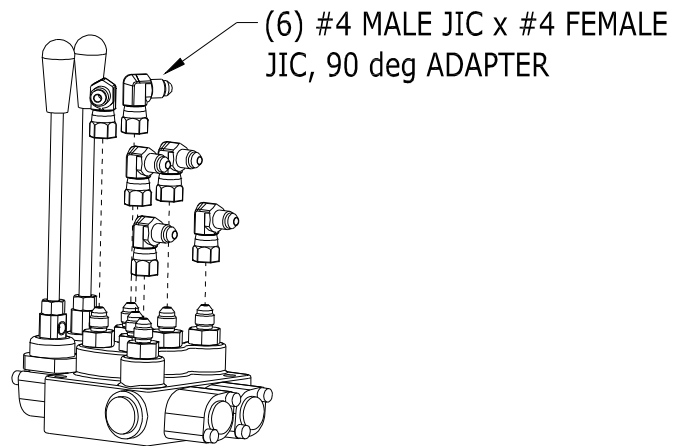
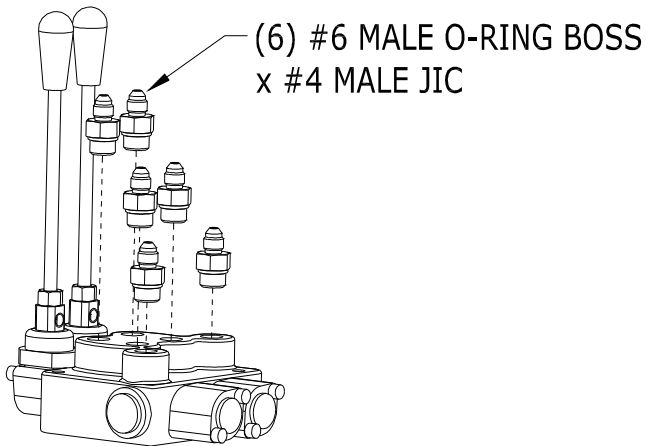
NOTE: THE ACTUATOR UNIT WEIGHS 212 lb (96.4 Kg). USE A OVER HEAD LIFTING DEVICE, AND SLING TO LIFT INTO MOUNTING LOCATION. PLACE SLING AROUND ENTIRE UNIT AT LOCATIONS MARKED “LIFTING POINT” IN DRAWING BELOW.

2. DRILL THE MARKED HOLE LOCATIONS TO ACCEPT 1/2” (1.3cm) GRADE 5 (CLASS 8.8) OR BETTER BOLTS (NOT SUPPLIED).
3. POSITION UNIT BACK INTO PLACE, AND SECURE USING 1/2” (1.3cm) BOLTS MENTIONED IN STEP #2.



NOTE: IF FRONT WALL OF TRAILER IS THIN ALUMINUM OR STEEL, USE SUFFICIENT BACKING PLATES INSIDE OF TRAILER TO SUPPORT THE UNIT.
NOTE: IF TRAILER HAS A ROUND OR 45 deg FRONT CORNER YOU MUST SUPPORT THE FULL ACTUATOR

4. INSTALL THE HYDRAULIC FITTINGS INTO THE CONTROL VALVE AS SHOWN BELOW.

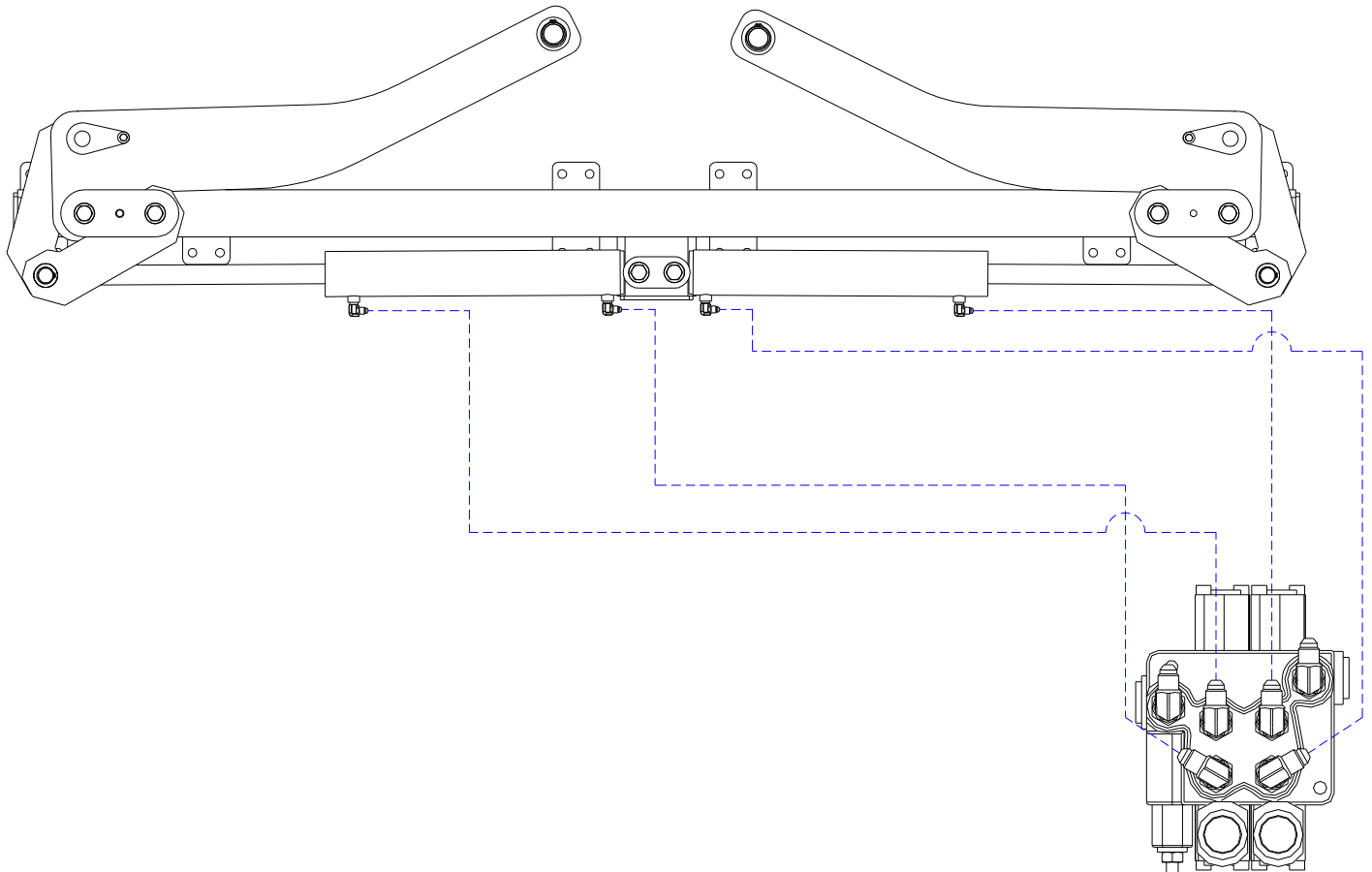


IMPORTANT:

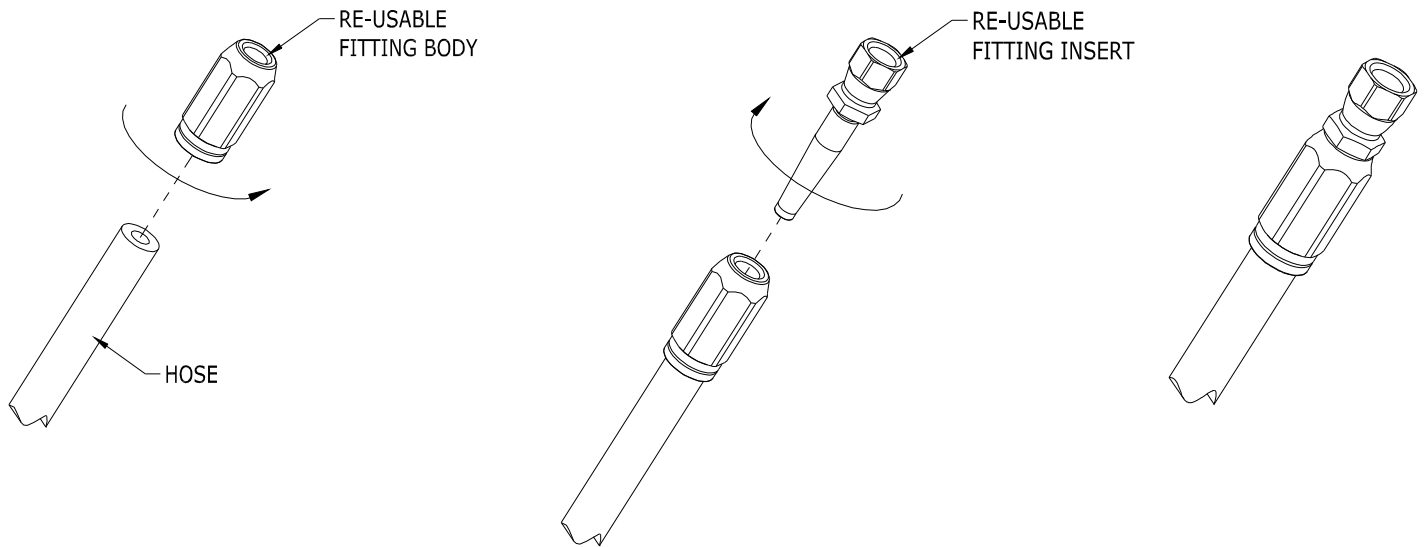
INSTALL THE CONTROL VALVE ON THE TRAILER IN AN AREA WHERE THE OPERATOR CAN SAFELY OBSERVE AND OPERATE THE SYSTEM.

INSTALL ALL SAFETY STICKERS NEXT TO THE CONTROL VALVE. SEE PAGE 17 FOR STICKER DESCRIPTION.

5. CONNECT THE CRIMPED END OF THE 15' (457cm) HYDRAULIC HOSE TO THE CYLINDER PORTS, AND ROUTE THE HOSES TO THE CONTROL VALVE AS SHOWN BELOW. MARK THE LENGTH OF EACH HOSE AND CUT AT THAT MARK.

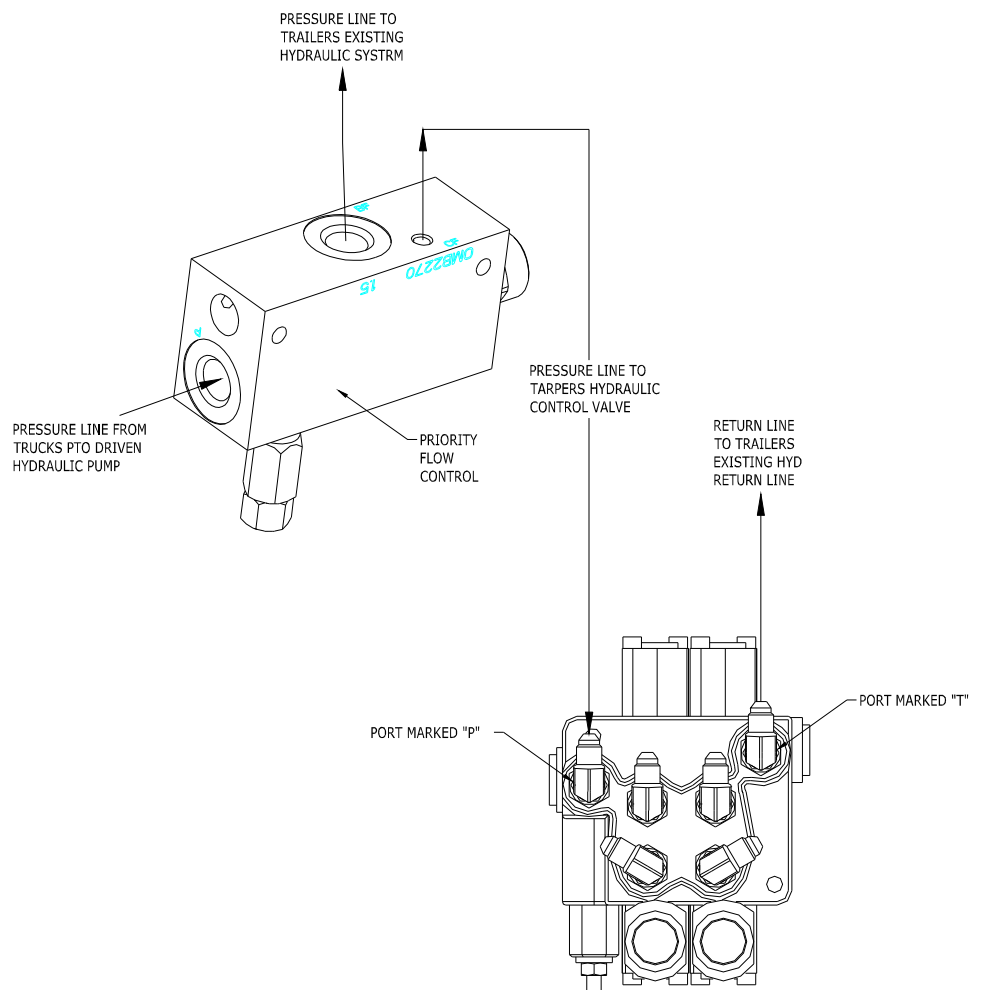


6. THREAD THE RE-USABLE FITTING BODY (COUNTER CLOCKWISE) ON THE CUT END OF EACH HOSE AS SHOWN BELOW. BODY WILL THREAD ON TO THE HOSE APPROX. 1". **NOTE: BODY MUST BE THREADED COMPLETELY ONTO HOSE TO PREVENT LEAKING.** NEXT, THREAD THE FITTING INSERT INTO THE BODY (CLOCKWISE) UNTIL IT'S SNUG AGAINST THE FITTING BODY AS SHOWN.



7. RE-INSTALL THE HOSES BETWEEN THE CYLINDERS, AND CONTROL VALVE AS SHOWN IN STEP #15. USE THE STEEL HOSE STRAPS, SELF DRILLING SCREWS, AND BLACK SPIRAL HOSE WRAP PROVIDED TO ORGANIZE THE HOSES.

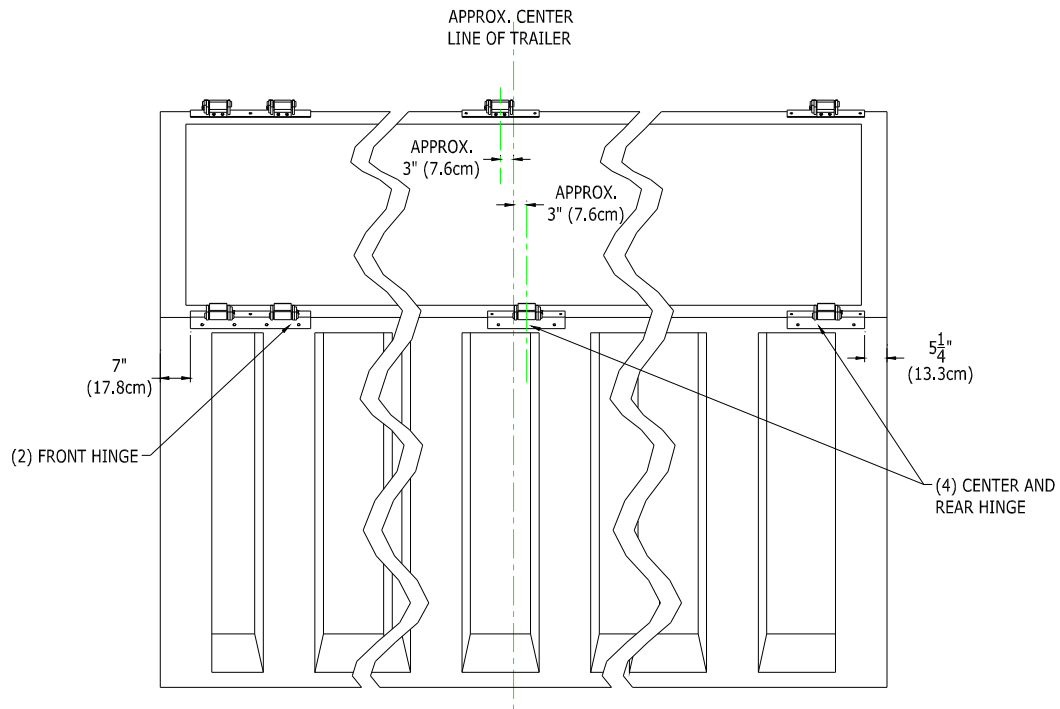
8. MOUNT THE PRIORITY FLOW CONTROL VALVE ON THE TRAILER, AND PLUM INTO TRAILERS EXISTING HYDRAULICS AS SHOWN BELOW. (MISCELLANEOUS HOSES AND FITTINGS ARE SUPPLIED WITH THE KIT. BECAUSE OF THE VARIOUS STYLES OF TRAILER HYDRAULICS, SOME LINES AND FITTINGS MAY NEED TO BE SUPPLIED BY THE CUSTOMER.)



9. PRIOR TO ATTACHING ACUATOR ARM ROLLER TO FRONT ARM ROLLER TRACK, CYCLE THE CYLINDERS (10) TIMES TO REMOVE ANY AIR IN THE SYSTEM.
FAILURE TO DO THIS COULD RESULT IN PERSONAL INJURY AND DAMAGE TO THE SYSTEM AT A LATER STAGE.

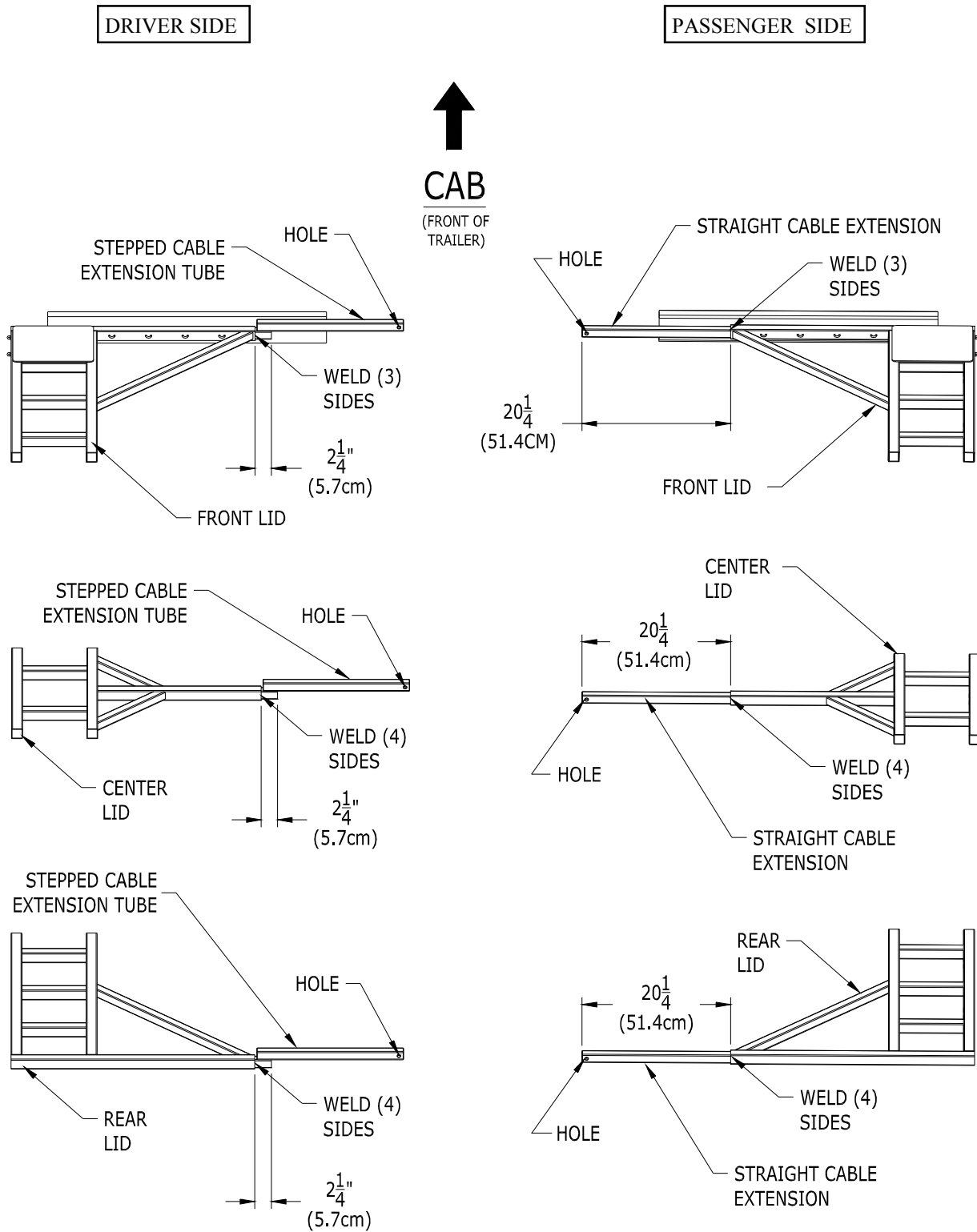
10. THE PLACEMENT OF THE HINGES IS SHOWN BELOW. IF THE TRAILER IS STEEL THE HINGES CAN BE WELDED INTO PLACE. ON AN ALUMINUM TRAILER USE THE HINGES AS A TEMPLATE, AND MARK THE HOLE LOCATIONS ON THE SIDE AND TOP OF TRAILER TOP RAIL. ON THE SIDE OF THE RAIL DRILL HOLES THROUGH TO THE INSIDE OF TRAILER TO ACCEPT 1/2" (1.3cm) GRADE 5 (CLASS 8.8) OR BETTER BOLTS (NOT SUPPLIED). ON THE TOP RAIL DRILL + TAP 1/2"-13 (M12) OR 1/2"-20 (M12) TO ACCEPT 1/2" (1.3cm) GRADE 5 (CLASS 8.8) OR BETTER BOLTS (NOT SUPPLIED).

NOTE: TRAILERS WITH A CENTER SUPPORT ABOVE THE TOP RAIL MUST OFFSET THE CENTER HINGES TO EITHER SIDE OF THE SUPPORT.

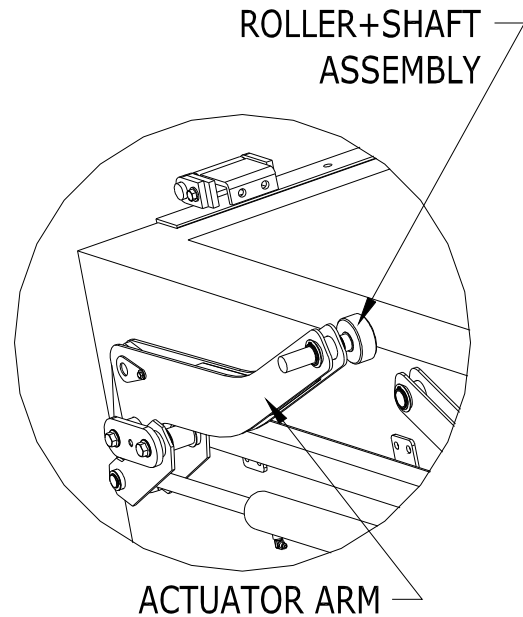


11. REPEAT STEP #10 ON THE OPPOSITE SIDE OF TRAILER.

12. BELOW ARE THE LIDS WITH THE CABLE EXTENSIONS WELDED INTO PLACE. THE LIDS ARE THE SAME FOR DRIVER AND PASSENGER SIDES OF THE TRAILER UNTIL THE EXTENSION ARE WELDED ON. THE DRIVER SIDE GETS THE STEPPED EXTENSION, AND THE PASSENGER SIDE GETS THE STRAIGHT EXTENSION. WELD THE EXTENSION TO THE LID AS SHOWN BELOW.

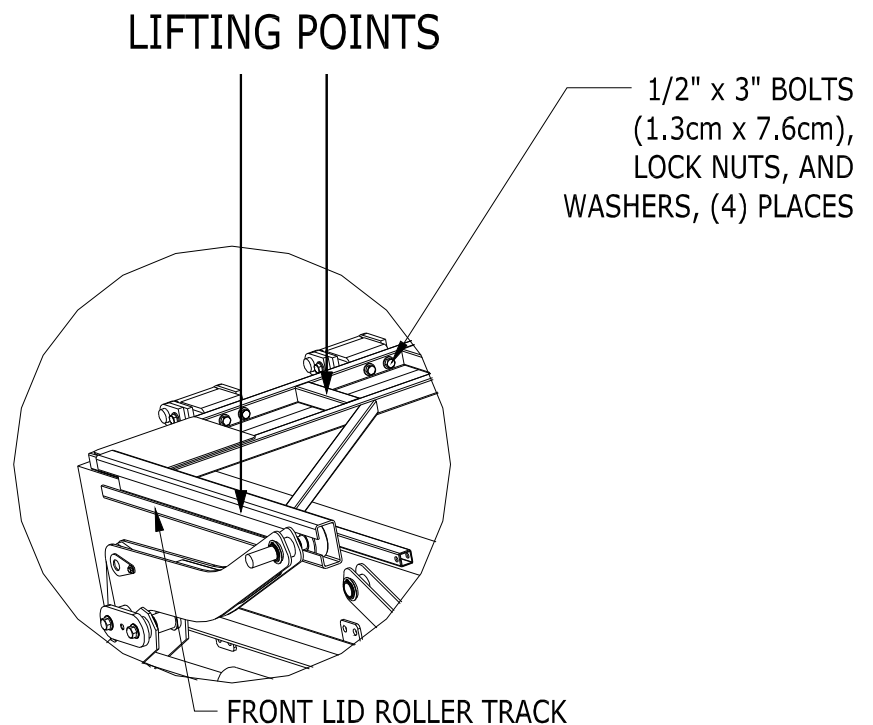


13. SLIDE ROLLER + SHAFT ASSEMBLY INTO ACTUATOR ARMS AS SHOWN.



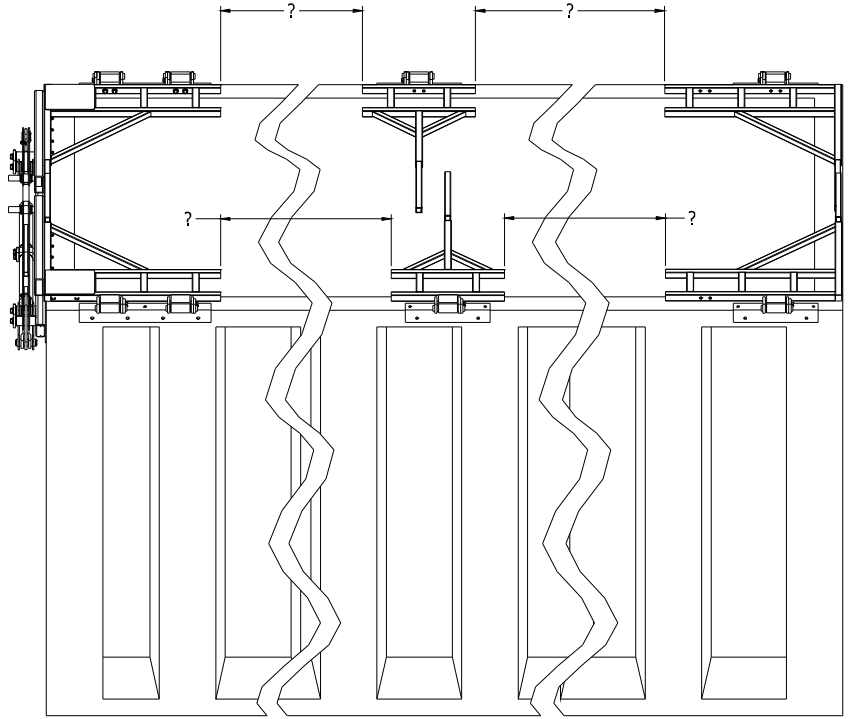
14. SLIDE FRONT PASSENGER LID ROLLER TRACK OVER THE ROLLER, AND ATTACH THE LID TO THE HINGES USING 1/2" x 3" (1.3cm x 7.6cm) BOLTS, LOCK NUTS AND WASHERS PROVIDED. THE FRONT LID AND HINGES (SHOWN) USE (4) BOLTS, THE CENTER AND REAR EACH USE (2) BOLTS.

NOTE: EACH FRONT LID WEIGHS 49 lb (22.3 Kg). USE A OVER HEAD LIFTING DEVICE, AND SLING TO LIFT INTO MOUNTING LOCATION. PLACE SLING AROUND ENTIRE UNIT AT LOCATIONS MARKED "LIFTING POINT" IN THE DRAWING.



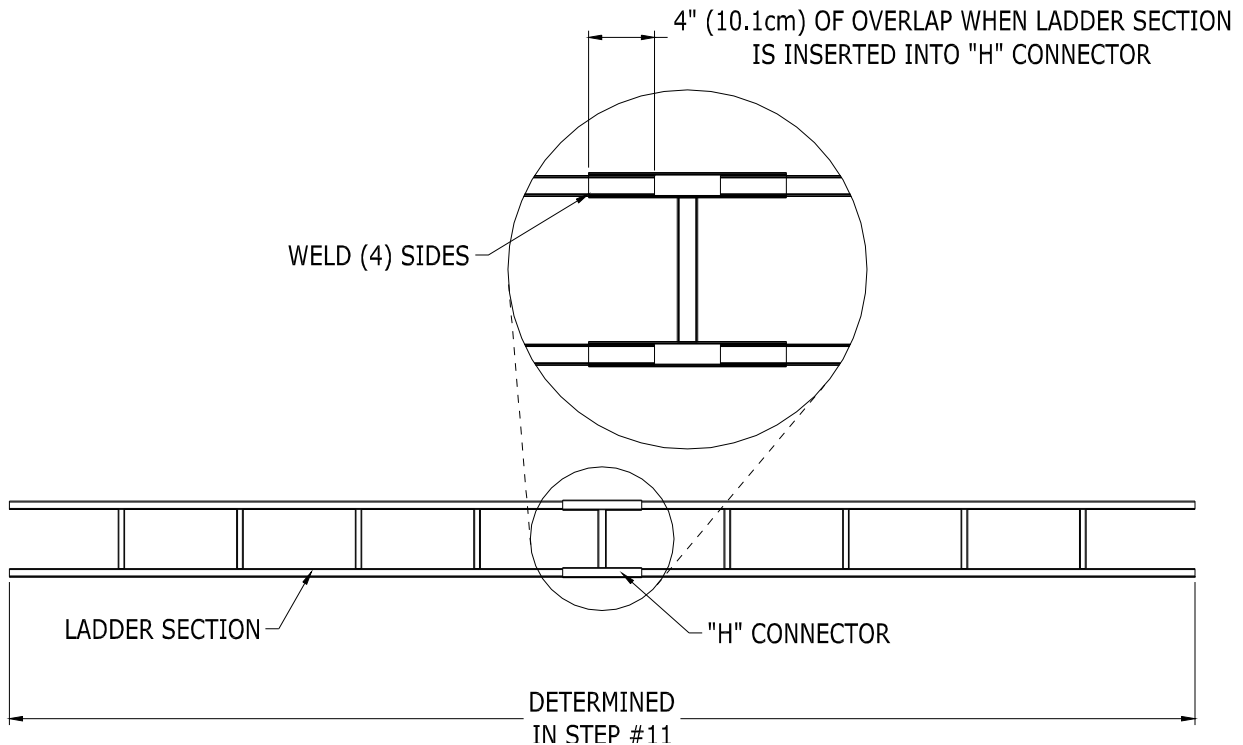
15. REPEAT STEPS #13 and #14 ON THE OPPOSITE SIDE OF TRAILER

16. MEASURE THE DISTANCE BETWEEN THE LIDS IN THE (4) PLACES SHOWN.



17. ADD 8" (20.3cm) TO EACH OF THE (4) MEASUREMENTS TAKEN IN STEP #10. THIS WILL BE THE LENGTH OF THE LADDER SECTIONS BETWEEN THE LIDS. WELD THE "H" CONNECTORS AND LADDERS ON THE GROUND AS SHOW BELOW. THE LADDER SECTION MAY NEED TO BE CUT, AND/OR EXTRA "H" CONNECTORS AND LADDERS (SUPPLIED) MAY BE USED TO OBTAIN THE DESIRED LENGTH.

NOTE: WHEN LADDER SECTIONS ARE WELDED TOGETHER THEY CAN WAY AS MUCH AS 70 lb (31.8 Kg). USE A OVER HEAD LIFTING DEVICE AND SLING TO LIFT INTO PLACE. LOCATE SLING AT THE CENTER OF THE WELDED LADDER SECTIONS TO EVENLY DISTRIBUTE THE WEIGHT.



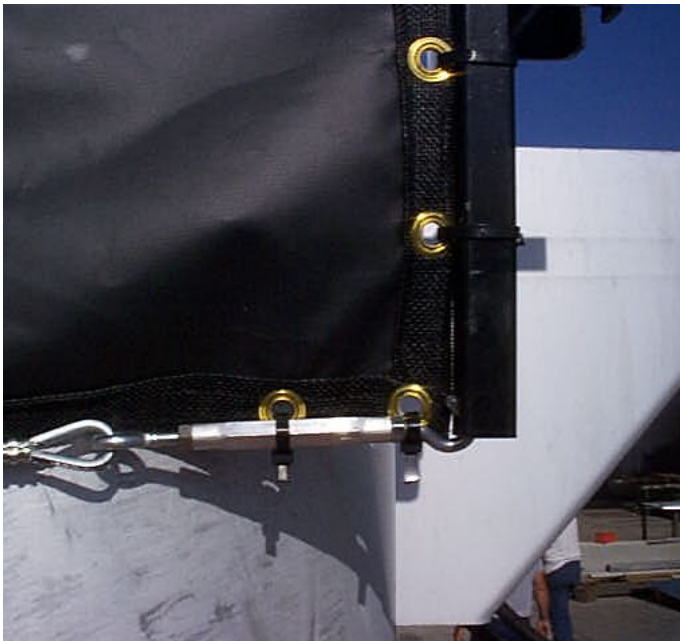
18. OPEN THE SYSTEM SO THE LID LAYS FLAT ON THE SIDE OF THE TRAILER TO INSTALL THE TARP CABLES AND TARP.

THERE WILL BE TWO 30' LENGTH OF CABLE WITH TURNBUCKLES ATTACHED. EXTEND THE TURNBUCKLES SO THEY ARE FULLY EXTENDED. ATTACH EACH TURNBUCKLE TO THE CENTER LID AS SHOWN.



19. ATTACH ONE CABLE FROM THE CENTER LID TO THE FRONT LID EXTENSION. ATTACH THE OTHER CABLE FROM THE CENTER LID TO THE REAR LID EXTENSION. ATTACH THESE CABLES TO THE FRONT AND REAR EXTENSIONS USING ONE 3/16" THIMBLE AND TWO 3/16" CABLE NUTS PER END. PULL CABLES AS TIGHT AS POSSIBLE BY HAND AND SECURE THE CABLE NUTS (TIGHTEN TO APPROX. 30FT.-LB (40.6NM))
20. TIGHTEN BOTH TURNBUCKLES UNTIL THE CABLES ARE TAUGHT. **NOTE: DO NOT OVER TIGHTEN THE TURNBUCKLES**. THIS COULD CAUSE EXCESS STRESS ON THE LIDS AND HINGES. TIGHTEN THE JAM NUTS ON EACH TURNBUCKLE TO PREVENT LOOSENING (USE OF A LIQUID THREAD LOCKER IS RECOMMENDED ON THE JAM NUTS).
21. REPEAT STEPS #19, 20 AND 21 FOR THE OPPOSITE SIDE OF THE TRAILER.

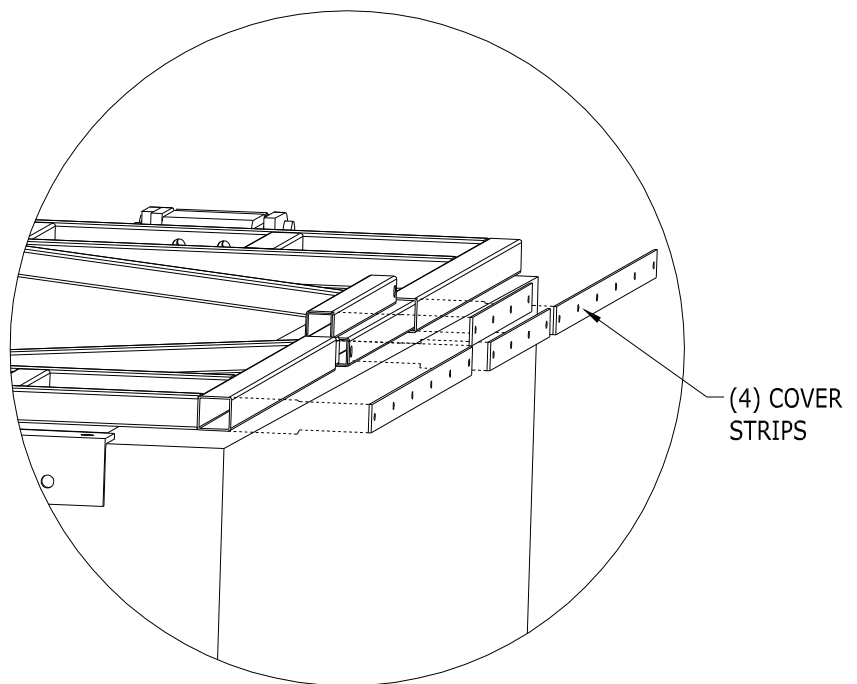
22. ATTACH THE TARP STARTING AT THE FRONT LID WORKING YOUR WAY TO THE BACK USING A ZIP-TIE AT EACH GROMMET AS SHOWN BELOW. USE THE WELDED CHAIN LINKS WHERE NEEDED.



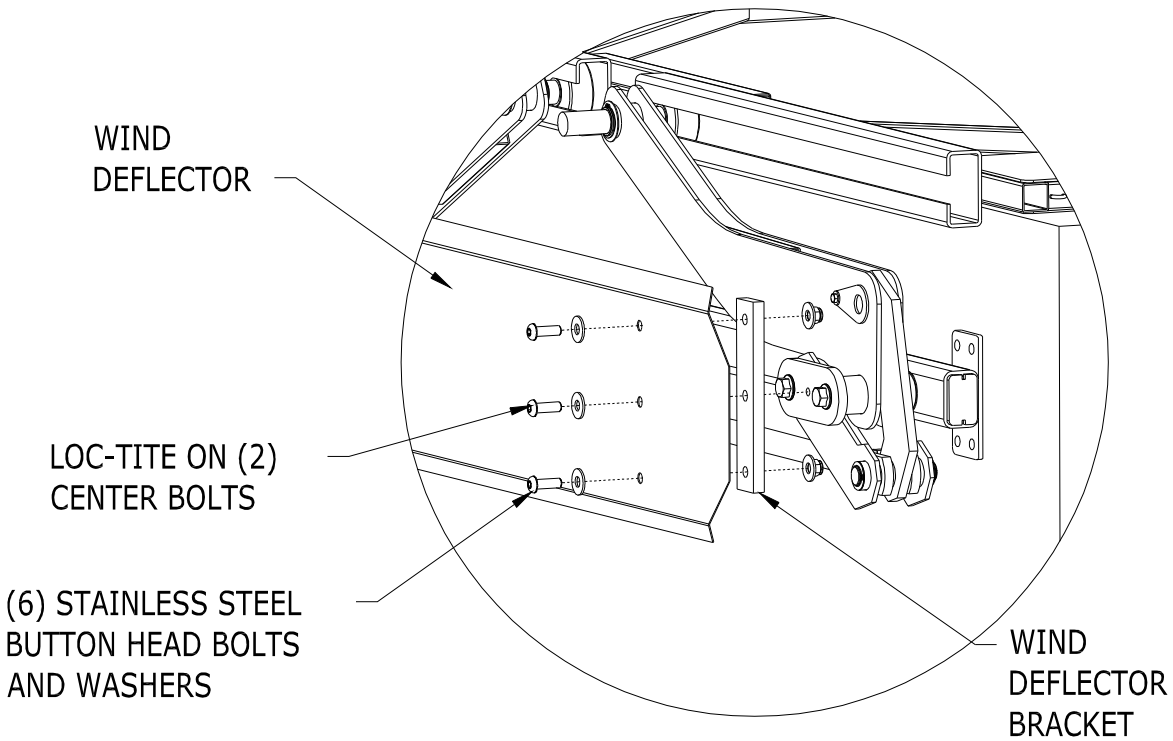
23. FOR TRAILERS THAT ARE SHORTER THAN THE TARP LENGTH, CUT THE TARP AT THE BACK OF THE TRAILER, BUT LEAVE APPROX. 6" to 8" (15cm to 20cm) EXTRA MATERIAL. FOLD OVER THE EXCESS MATERIAL, AND USE THE ALUMINUM COVER STRIPS WITH SELF DRILLING SCREWS PROVIDED TO ATTACH THE TARP TO THE REAR LID AS SHOWN BELOW. **NOTE:** COVER STRIPS ARE SHOWN BELOW FOR PLACEMENT, TARP IS NOT SHOWN.

TIP: IF THERE IS A GAP BETWEEN THE REAR LID, AND THE TRAILER REAR DOOR, DO NOT CUT THE EXCESS TARP MATERIAL. ROLL THE EXCESS TARP MATERIAL UP AND ZIP-TIE IT TO THE REAR LID TO HELP COVER THE GAP.

NOTE: 2" (5cm) WIDE SPLICING TAPE IS SUPPLIED, AND CAN BE USED TO PROTECT THE TARP BY WRAPPING A SMALL LENGTH AROUND ANY SHARP POINTS ON THE SYSTEM.



24. INSTALL THE WIND DEFLECTOR OVER THE HYDRAULIC UNIT USING THE (6) STAINLESS STEEL BUTTON HEAD BOLTS, AND THE (2) WIND DEFLECTOR BRACKET AS SHOWN BELOW. USE THE LOC-TITE PROVIDED ON THE (2) MIDDLE BOLTS, AND LOCK NUTS ON THE (4) REMAINING OUTER BOLTS.



PERIODIC MAINTENANCE and INSPECTION:

-Daily:

- Check mechanism for any damage or cracks.
- Check tarpaulin for excessive wear and tear.
- 3. If equipped, check electrical cables for insulation damage.
- Check hoses and fittings for cracks and leaks.
- Check tarpaulin cable and adjust if loose.

- Weekly:

- Check cylinders for leaks or excessive wear.
- Check tightness of the fasteners.
- Check hinges for excessive wear.
- Check hydraulic actuator for any cracks, damage or excessive wear.

- Monthly:

- Operate system to verify proper safe operation.
- Check roller trolley and bearing for damage in front lid.

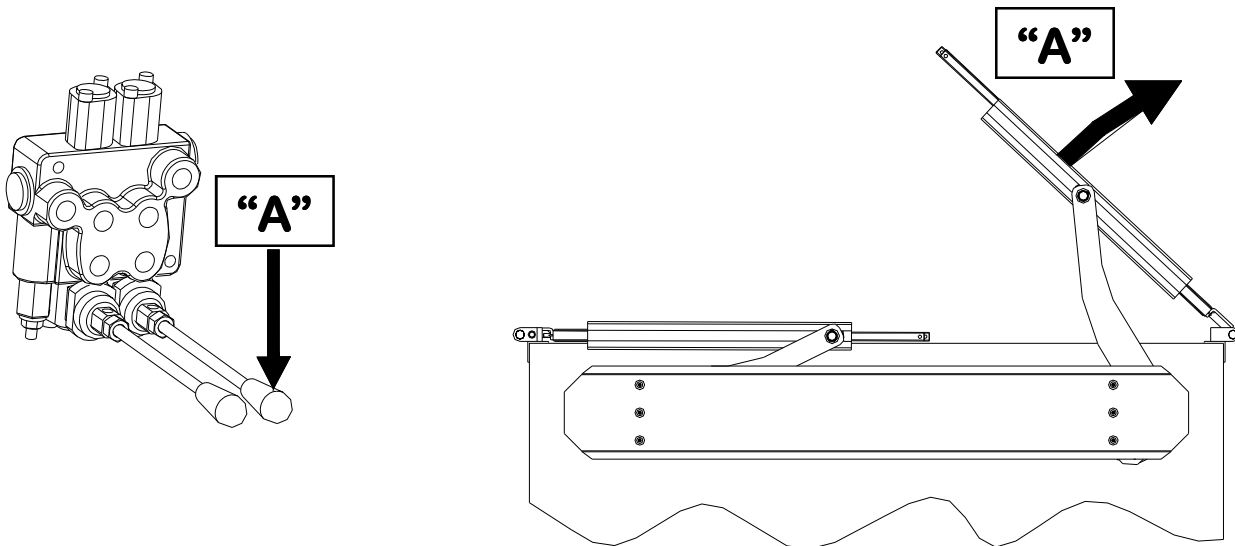
OPERATING INSTRUCTIONS

CAUTION: BEFORE OPERATING THIS OR ANY TARDER, CHECK YOUR SURROUNDINGS. LOOK FOR OVERHEAD POWER LINES, TREE LIMBS, ETC.. DO NOT OPERATE SYSTEM WHEN DANGER OF LIGHTNING STRIKE IS PRESENT.

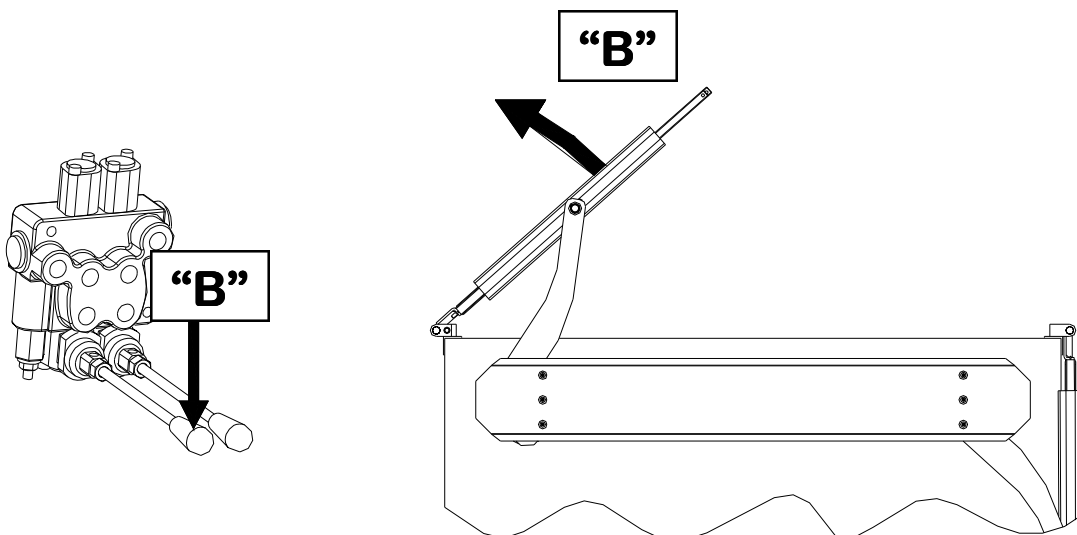
CAUTION: When servicing or repairing the Double Flip system, turn off the vehicles engine, and disconnect power to the components from the vehicles battery.

TO OPEN TARP

STEP#1- PRESS DOWN ON LEVER MARKED "A" BELOW TO OPEN LID "A".

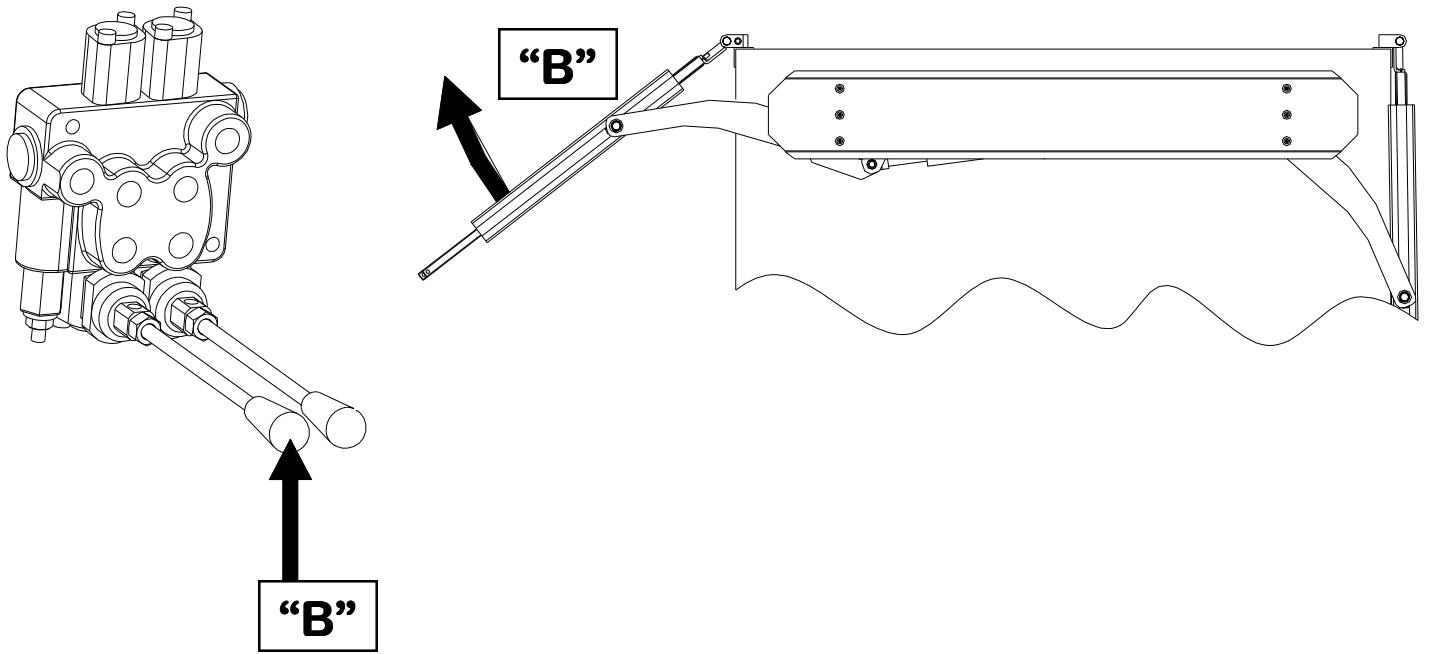


STEP#2- PRESS DOWN ON LEVER MARKED "B" BELOW TO OPEN LID "B".

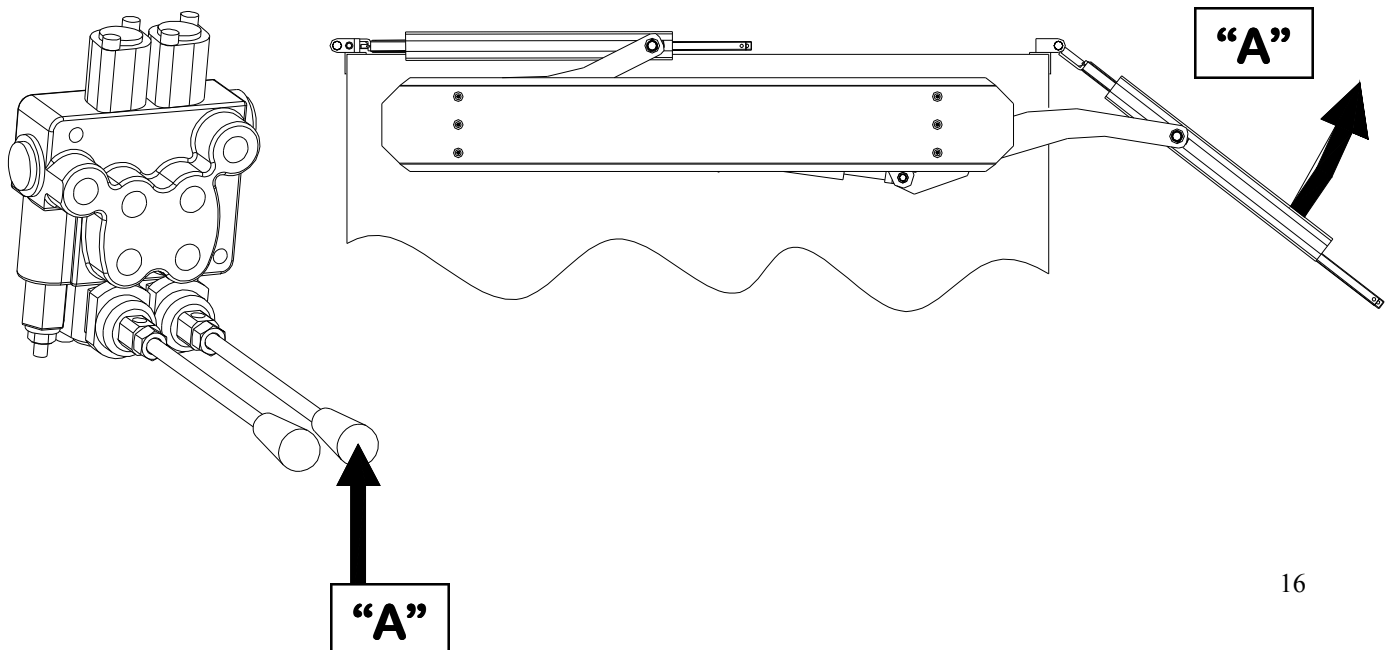


TO CLOSE TARP

STEP#1- LIFT UP ON LEVER MARKED "B" BELOW TO CLOSE LID "B".



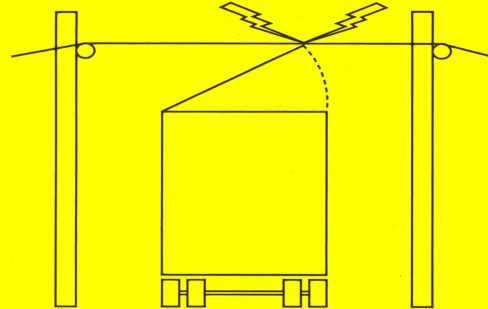
STEP#2- LIFT UP ON LEVER MARKED "A" BELOW TO CLOSE LID "A".





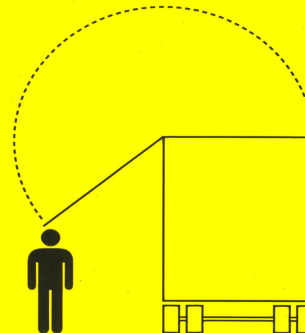
CAUTION

BEFORE OPERATING TARPING MECHANISM, ENSURE ADEQUATE CLEARANCE ABOVE AND ALONGSIDE TRAILER. ACCOUNT FOR FULL WIDTH AND LENGTH OF TARP.



DO NOT USE A SOLID OR HEAVY TARP ON THE SIDEWINDER. THE SYSTEM WAS DESIGNED FOR USE WITH THE TARP SUPPLIED. THE USE OF ANY OTHER TARP MAY CAUSE SYSTEM FAILURE, INJURY, AND VOID THE WARRANTY. IF YOU NEED A REPLACEMENT TARP OR HAVE QUESTION ABOUT USING A DIFFERENT STYLE TARP, PLEASE CONTACT:

DONOVAN ENTERPRISES AT [1-866-498-6937](tel:1-866-498-6937) OR [1-800-327-8287](tel:1-800-327-8287)



POSITION TARP FLUSH AGAINST SIDE OF TRAILER BEFORE LOADING. ENSURE TARP IS RESTING COMPLETELY ON TOP OF TRAILER PRIOR TO MOVING TRAILER.

CAUTION

BEFORE OPERATING TARP SYSTEM, ENSURE AREA ABOVE AND BESIDE VEHICLE IS CLEAR OF ELECTRICAL LINES OR OTHER OBSTRUCTIONS. ENSURE ADEQUATE LIGHTING WHENEVER OPERATING YOUR TARP COVERING SYSTEM.

CAUTION

TO PREVENT RISK OF INJURY, KEEP HANDS AWAY FROM MOVING PARTS WHILE TARP SYSTEM IS IN OPERATION.

CAUTION

DO NOT MOVE VEHICLE WITH TARP SYSTEM IN RAISED POSITION.

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