



TECHNICAL BULLETIN

Subject: **Converter Dollies**

Date: January 18, 2016 Rev: C No.: TB16001

Re.: Version 1: Frame Replacement

Priority: As Required

Background:

This procedure was developed to assist in the removal and reinstallation of components from one dolly frame to another. It consists of a two person team working together in the beginning, independently thru the middle section, and finish up working together. It was most efficient with one associate removing components, while the other installs them. A portable work table helped in keeping parts organized during the process.

Tool Requirements:

- Wrenches - 7/16", 9/16", 3/4", 7/8", 1", 1-1/8", 1-1/2"
- 3/8" Drive Sockets - 3/8", 7/16", 1/2", 9/16"
- 1/2" Drive Sockets - 11/16, 3/4", 15/16" 1-1/8", 1-1/2"
- 1" Drive Socket – 1-1/2"
- 1/2" Drive Ratchet Handle
- 1/2" Drive 6" Extension
- 1/2" Drive Breaker Bar
- 1/2" Drive Universal (swivel)
- 1/2" Drive Cone with 45 Apex bit
- Air Ratchet (cordless impact driver was also handy)
- 1/2" and 1" Drive Air Impacts
- Air or Cordless Drill
- Straight and Phillips Screwdrivers
- Side Cuts
- Hammer
- Channel Lock Pliers
- 1/4" Punch, Center Punch (or smaller to knock out center pins of monobolts)
- Mono-Bolt Gun
- Torque Wrench
- 1/4" and 3/8" Drill Bits
- Wheel Chalks
- Digital Scale

- Portable Work Table (for transferring parts between jobs)
- Propane Torch and Squeegee for Decal Application. (if needed)
- Die grinder with burr bit
- Fixed Table for Frame Assembly (4'x6'x18")
- C-Clamps



CAUTION

- Wear appropriate personal protective equipment [PPE] like gloves, safety glasses and hard hat for example, when carrying out the following procedure.
- Should welding or cutting be needed, do so in a well ventilated area and wear appropriate head/face/eye protection, welding gloves and clothing.
- Refer to adhesive manufacturer's MSDS for safe use and handling instructions if applicable.
- Follow your company's safety procedures in addition to these recommendations.
- Follow industry standards for installation and tightening of all fasteners where torque values are not called out.

Procedure:

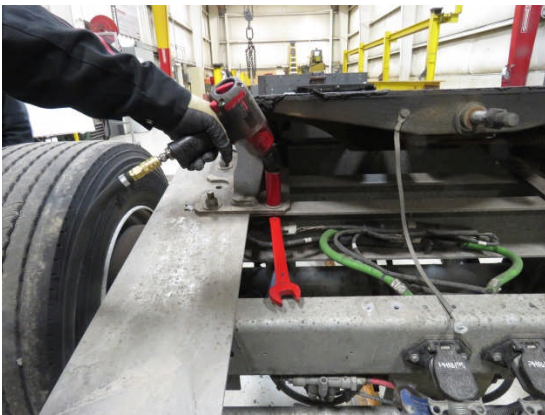
1. Stage the converter dolly and the new frame in-line with one another under an overhead hoist.



- a. Set up the new frame to install the components being transferred. (*setting dolly frame on its right side (curbside), on a table, and clamping it down will ease the transfer of components*).
- b. Use a drill and the appropriate size bit to remove galvanizing from the holes in the new frame where transferred components will be installed. This will ease fastener installation.



- c. Chock wheels on the dolly and Drain the air tank using the remote petcock located towards the front left side of the dolly frame.
 - d. Disconnect the PSI hoses from the thru-tee on both wheels. This will prevent tire deflation.
2. Remove the gladhand holders from the crossmember directly in front of the fifth wheel plate and set on table. Leave ground cable attached to fifth wheel plate.



3. Remove the fifth wheel plate.
 - a. Remove all but one fastener mounting the fifth wheel plate to the frame. (*a swivel extension will be needed for some of these bolts*)
 - b. Connect the hoist to the fifth wheel plate, remove slack in the chain, then remove the remaining fastener. **Discard all fasteners removed in steps a & b.**
 - c. Lift fifth wheel from frame and set aside for now.



4. Remove the lunette eye and place on table. A breaker bar with a 6" extension and a 1 1/8" socket on the inside with a pneumatic impact and 1 1/8" socket on the outside worked best. **Discard all fasteners removed in this step.**



5. Tip the dolly up in the front, and remove safety chain using a punch and a hammer to knock out the pin. Reinstall the safety chain in the new frame.



6. Remove the counter weight bar bolted between the uprights at rear. Set bar aside for now. **Discard all fasteners removed in this step.**
7. Disconnect the plastic airlines from the terminal block locations at the front. Then disconnect the air line from the air tank that runs to the sv4 valve. Disconnect the line at the sv4 that runs to the control valve. Remove the sv4 valve with the plastic lines and grommets attached. Place all on table.
8. Disconnect the control valve's plastic airlines from the R12 valve and the ECU valve. Remove the control valve with plastic lines and grommets in place. Place on table.

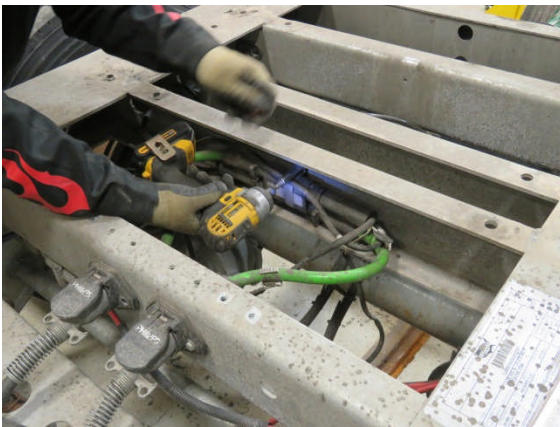
At this point, the two associates will split up and only work together if one or the other needs assistance for safe work practices. One associate will continue with the disassembly while the other will begin transferring components to the new frame.

Associate 1: Continue with disassembly on page 6

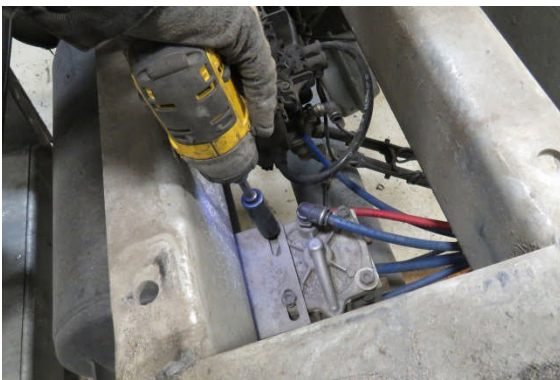
Associate 2: Begin installation of components on page 10



9. Disconnect the PSI airlines and electrical connections. Remove the PSI control box and place on table. *(residual air from the axle may escape and bleed off when disconnecting these lines)*



10. Remove the bolt holding the 4 way electrical junction block in place. Disconnect the two green 7-way cables and the ABS power harness from the junction block. Place all on table. Remove both 7 ways and place on table. *(pigtail cables can stay connected if desired)*



11. Unbolt the R-12 valve and let it hang for now. *(leave it connected to the air tank with the 5/8" airline)*



12. Remove tail lamps, chrome covers and the two upper cover plates on the rear uprights.
 - a. Using a small diameter punch or a center punch, knock the center pin out of all the fasteners before attempting to remove with a drill.
 - b. The fasteners in the lamps are stainless steel. Drill steady and straight in order to save the lamp from being damage.
 - c. Drill out the fasteners holding the cover plates, and discard the plates once they are removed.
 - d. Disconnect the lamps and place on table along with beauty rings.
13. Remove the rear harness and rubber grommets working from back to front. Place all on table.
14. Remove both mudflaps and their mounting brackets from the rear uprights. Set these aside for now.



15. Disconnect the airline and remove the air fitting from the back side of petcock, then remove the petcock and place all on table. Remove the ABS and PSI lamps and place on table. *(the ABS lamp will have a security ring around it holding it in place. This ring will have to be broken to save and reuse the lamp)*



16. Remove dolly hoses from terminal blocks at front of dolly, and then remove the terminal blocks. Mark or tag these items for reassembly and place all on table. *(reassembly will be easier when these are marked by location, i.e., upper, lower, left, right, etc) (it is easier to remove the terminal blocks using a 1 1/2" socket and impact from above, and holding with a 1" wrench from below)*

17. Remove Amtech tracking module from right side of frame and place on table.



18. Remove the 4 air tank mounting bolts and rubber mount pads and discard all. Lower the air tank and the R-12 valve and lie them on the ground behind the axle.

At this point, associate 1 will begin transferring the two remaining components to the new frame in step 19. Once this step is complete, associate 1 will assist associate 2 transferring the remaining components.



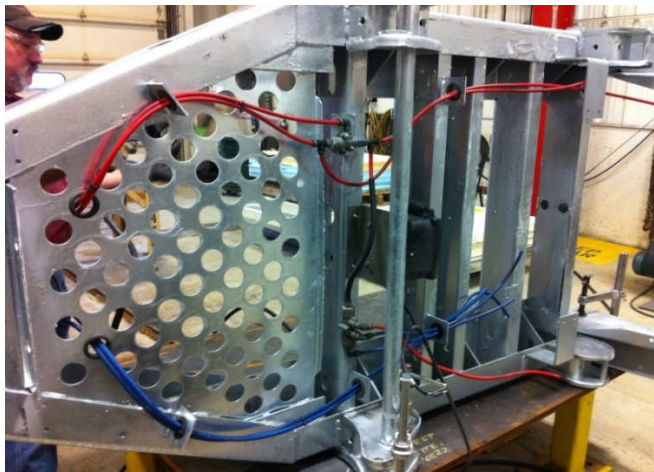
19. Raise the front and tilt dolly back, resting on its rear counter weight.
 - a. Remove both grab handles and transfer them to new frame, using new fasteners.
 - b. Remove dolly jack leg and transfer it to new frame using new fasteners. *(this area can be accessed with either an air ratchet or 1/2" impact)*

Associate 1 can now assist associate 2 with completing the installation of the remaining components and the final steps in this procedure.

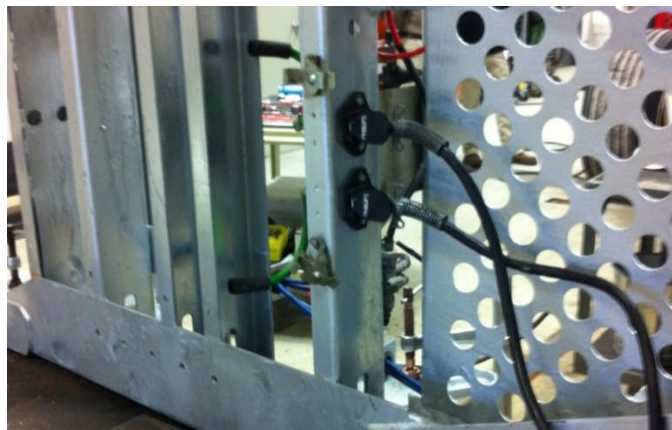
Associate 2 Installation of components:



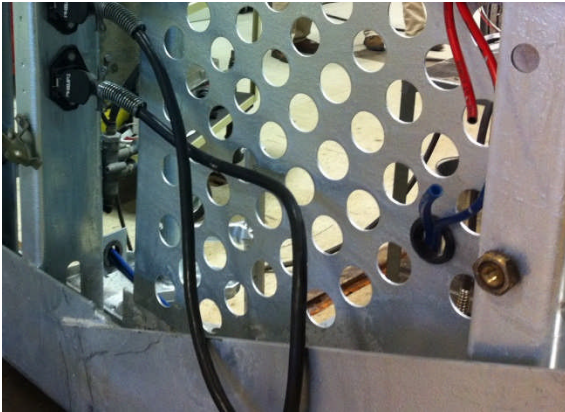
1. Install the gladhand brackets on the new frame, leaving the right (curbside) bracket loose until ground cable can be installed later.



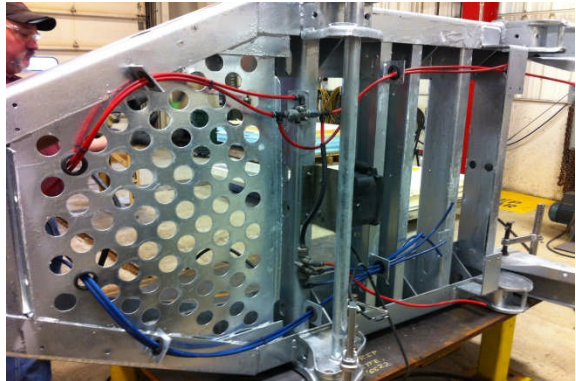
2. Begin installing the rubber grommets and plastic airlines. Mount control valve, the SV4 valve, then mount the PSI control box.



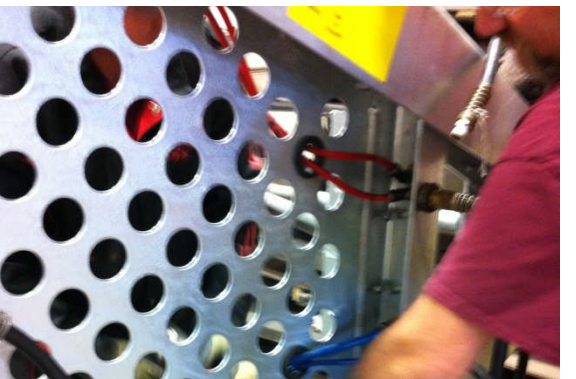
3. Install both 7-ways.



4. Install all terminal bolts for air hoses and connect red and blue airlines.



5. Install Amtech tracking module. Install terminal block, fitting, and tank drain petcock. Install additional grommet in rear gusset and route rear harness into rear crossmember housing. Install PSI and ABS lamps.



6. Apply Teflon tape on the threads of the air hoses and install into the terminal blocks.

Most all components should be transferred at this point with both associates working together until completion.



7. Connect hoist to dolly at 4 points with a 4 hook chain sling. Remove slack in chains, keeping the dolly tilted until the torque arm bolts have been removed.



8. Separate the dolly frame from the axle.
 - a. Remove the two torque arm bolts with two 1 ½" sockets, a breaker bar and a 1" impact. **Discard all fasteners removed in this step.**



- b. After torque arm bolts are removed, hoist the frame up until the weight is off the springs.
- c. With the hoist, move the dolly forward and raise until the spring clears the front hanger and the torque arms touch the floor.



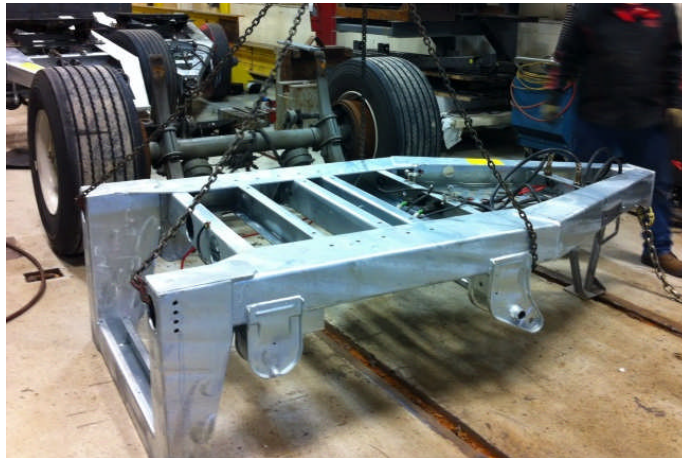
- d. Once the spring and rear hanger are free, move dolly rearward until the rear of the springs clear the rebound bolts.
- e. Lift the frame high enough to clear the springs, move out of the way and set on the floor.



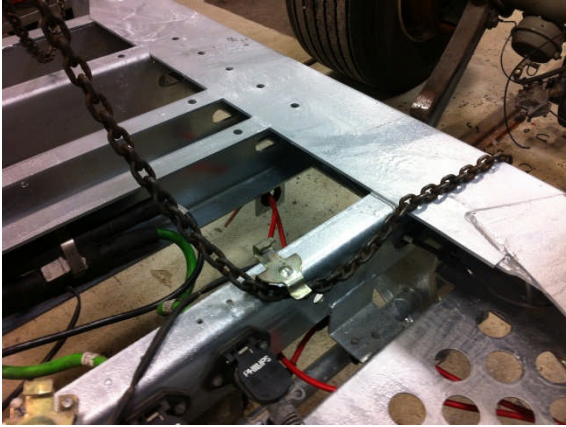
9. With everything transferred to the new frame except the fifth wheel, mudflaps, air tank, and the tail lights, you are ready to flip frame onto its upright position.
 - a. Connect the hoist and sling thru the two left side hangers as shown above. Take up the slack in the chain with the hoist, and then remove the c-clamps.
 - b. Lift frame from the table and set on floor, allowing enough room to tilt the frame towards its roadside.



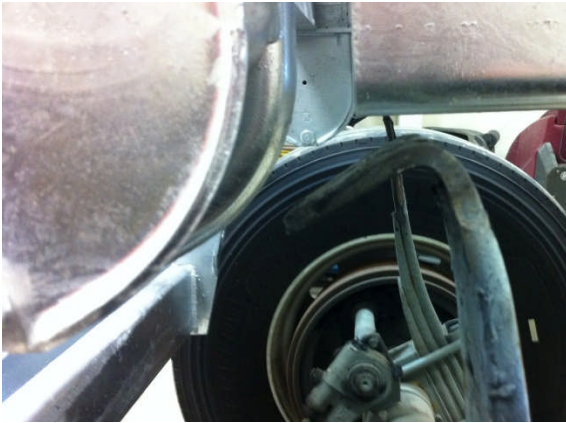
- c. Once the frame has been lowered and placed in a safe area, with the hoist still connected, start by pushing the frame in order to rotate it onto its rear bumper and front jack stand. *(the hoist will need to be slowly lowered during this process)*



10. With the frame safely resting on the floor, connect the chain sling at 4 points.



- a. Before raising the frame, assure the chains are not in a position to catch on or damage any components. *(see examples above)*



12. Hoist up the frame and position it above the axle and spring assembly.

- a. With the axle and spring assembly still positioned with the torque arms touching the floor, align the rear hooks on the leaf springs, just in front of and above the rebound bolts in both rear hangers.
- b. Move the frame forward until the leaf springs engage the rear hangers above the rebound bolts.



- c. As the frame is lowered, allow it to move backwards at the same time. As the axle rotates during this process, the torque arms will rise off the floor.
 - d. Lower the frame until the leaf springs contact the front hangers.
 - e. Align the torque arms with the bolt holes using a punch. Install the new torque arm bolts and nuts provided. Tighten with an impact for now.
13. Install the air tank and rubber mounting pads using new fasteners and torque to 12 ft. lbs. Mount the R-12 valve and connect air lines to fittings. Connect both PSI lines to the thru-tees at hub caps.



14. Using the hoist and chain sling, place the fifth wheel into position and install new fasteners.
- a. Using a tape measure, center the fifth wheel on the frame before tightening the fasteners.



- b. Torque all fifth wheel mounting fasteners to 180 ft. lbs. Install the dummy gladhand bracket and ground strap.
15. Install the counter weight bar between the up-rights at the rear with new fasteners.
(you may need to use a die grinder and burr bit on the mounting holes to help align)
16. Install mudflaps



17. Torque the torque arm bolts to 550 ft. lbs. Torque the eye bolts to 275 ft. lbs.



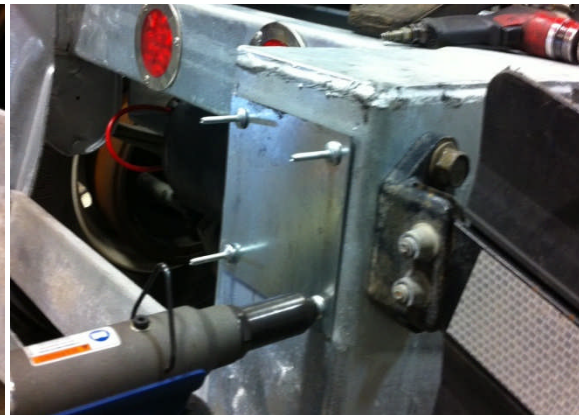
18. Hang a scale from the hoist and connect to the eye with a chain. Using the hoist, suspend the front of the dolly with the jack stand approx 1" off the floor.



19. **Completely** fill the lower bumper channel with galvanize slugs for counter weight.



20. Add galvanized slugs in thru the access holes at the top of each up-right at the rear. Place an equal amount in each side until the scale reads below 80 lbs.



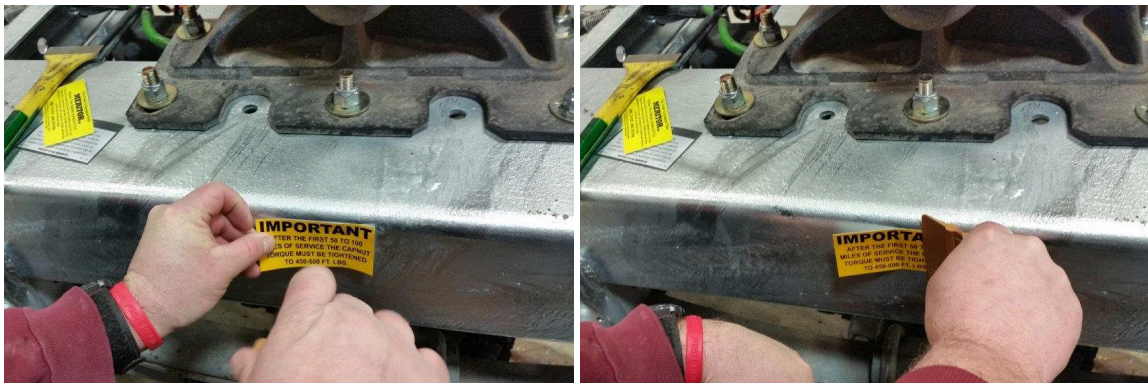
21. Install bumper and up-right covers when the proper counter weight has been achieved. Use a punch to help align holes. *(when installing pull fasteners, apply pressure with gun to head of fastener. Maintain pressure while pulling to seat head of rivet against part being fastened)*



22. Install decals per the layout provided on page 21. Install vin plate and stamp frame.



- a. Warm the surface to be decal.



- b. Remove back from decal and place on warm surface working from the center out with a squeegee.
- c. Install VIN plate on top of frame above the roadside front hanger. Stamp the last six digits of the vin, and the six digit unit number, into the frame above roadside hanger. Both vin tag and stamp locations are shown on page 21.



23. Connect tail lamps and let hang. Perform electrical check. Correct any non-conformances that may exist, then install the tail lamps and chrome covers.

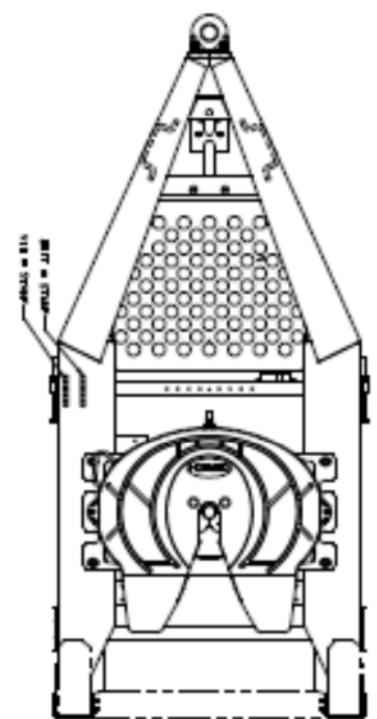
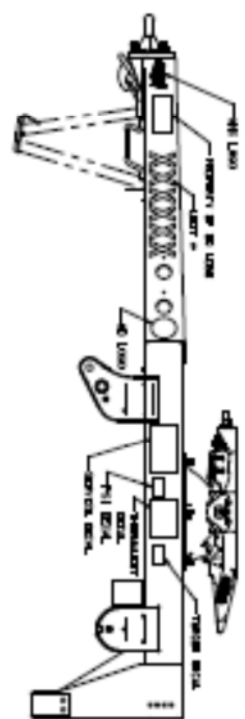
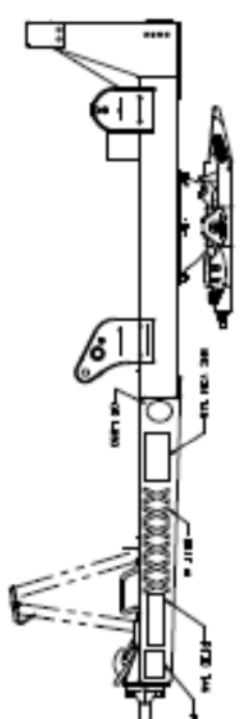


24. Perform air leak check.

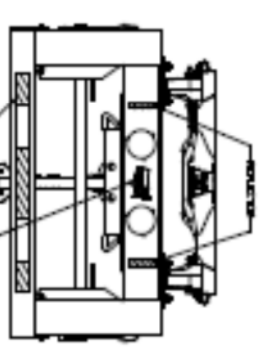
- a. Connect one emergency and one service hose to the dummy gladhands on the crossmember directly in front of the fifth wheel.
- b. Connect air to the open emergency hose (red) with a gladhand equipped with a gauge and ball valve. Open the ball valve and completely fill air tank.
- c. Once tank is full, close the ball valve and observe the gauge. If pressure drops more than **one pound** in 5 minutes, search for leak and repair, then perform leak test once again. *(drain air system before attempting to repair any leaks that are found)*
- d. Connect air to the open service hose (blue) with a gladhand equipped with a gauge and ball valve. Open the ball valve and completely charge the lines.
- e. Once the lines have been charged, close the ball valve and observe the gauge. If pressure drops more than **five pounds** in 5 minutes, search for leak and repair, then perform leak test once again. *(draining air tank not required to repair a leak in the service air system)*

25. Check alignment before placing in-service. Adjust if needed.

ITEM NUMBER:
☐ 25400939

**INSTALL DECALS AND CONSPICUITY SPACED
EVENLY AND CENTERED IN AREAS SHOWN**



REV.	DATE	BY	SCALE	REV. NO.	SCALE	REV. NO.	SCALE
F	4/10/10	01/28/2010	TGS	MATERIAL			
E	3/10/10	04/23/2010	TGS				
D	3/10/10	11/02/2011	TGS				
C	2/10/10	5/1/2010	DMC				
B	2/10/10	2/10/2010	DMC				
A	2/10/10	1/19/2010	MS				

WABASH NATIONAL

CALCULATED, DRAWN

OLD DOMINION

DOLLY DECAL INSTALLATION

SHEET 1 OF 1

ITEM NUMBER
25400939

Supplied Parts and Where Used

P/N	DESCRIPTION	QTY	USED FOR
WSH00106	5/8";HARDENED FINISHED WASHER	10	FIFTH WHEEL
NUT00013	5/8-18;HEX;NYLON LOCK NUT	10	FIFTH WHEEL
BLT00644	5/8-18-2 HHCS GD8 BOLT	10	FIFTH WHEEL
WSH00166	3/4" SAE HARDENED FLAT WASHER	4	LUNETTE EYE
BLT00877	3/4-16 x 2.5 HHCS, GD8 BOLT	4	LUNETTE EYE
NUT00072	3/4-16;HEX;LOCKNUT;SAE GD8	4	LUNETTE EYE
BLT00151	1/2-13-2 HHCS GD8 BOLT	4	COUNTER WEIGHT BAR
WSH00005	1/2" FLAT WASHER	4	COUNTER WEIGHT BAR
NUT00120	1/2-13;STOVER LOCK NUT;GD8	4	COUNTER WEIGHT BAR
15S01197	COUNTERWEIGHT COVER-48" FRAME	1	COVERS THE LOWER BUMPER CHANNEL
15S00899	CAP-COUNTERBALANCE	2	COVERS THE HOLES IN THE UP RIGHTS
PRV00004	1/4D-.080/.375G STL MONOBOLT	14	FASTENS THE CAPS AND COVER
BLT00470	3/8-16-1 TRX HEAD BOLT	16	GRAB HANDLES AND JACK STAND
BLT00245	3/8-16-1 1/4 HHCS GD5 BOLT	4	AIR TANK MOUNTING
NUT00001	3/8-16; HEX;NYLON LOCK NUT	20	G/H, J/S, AND A/T MOUNTING
12600037	AIR TANK RUBBER MNT PAD	2	AIR TANK MOUNTING
14200699	ABS LAMP SECURITY FLANGE	1	ABS LAMP INSTALLATION
PRV00016	1/4D-.080/.375G S/S MONOBOLT	6	S/T/T LAMP FASTENERS
15S00094	BALLAST SLUG	100	USED AT REAR FOR COUNTER WEIGHT
10300091	1-14 GD5 BOLT	2	RADIUS ROD (TORQUE ARM)
10300092	1-14 NUT	2	RADIUS ROD (TORQUE ARM)

ADDITIONAL SUPPLIES

12800002	3/8" RED NYLON AIR LINE
12800003	3/8" BLUE NYLON AIR LINE
12800010	1/4" BLACK NYLON AIRLON
14200606	S/T/T LAMP

Reference Photos for Airline Routing and Valve Plumbing

