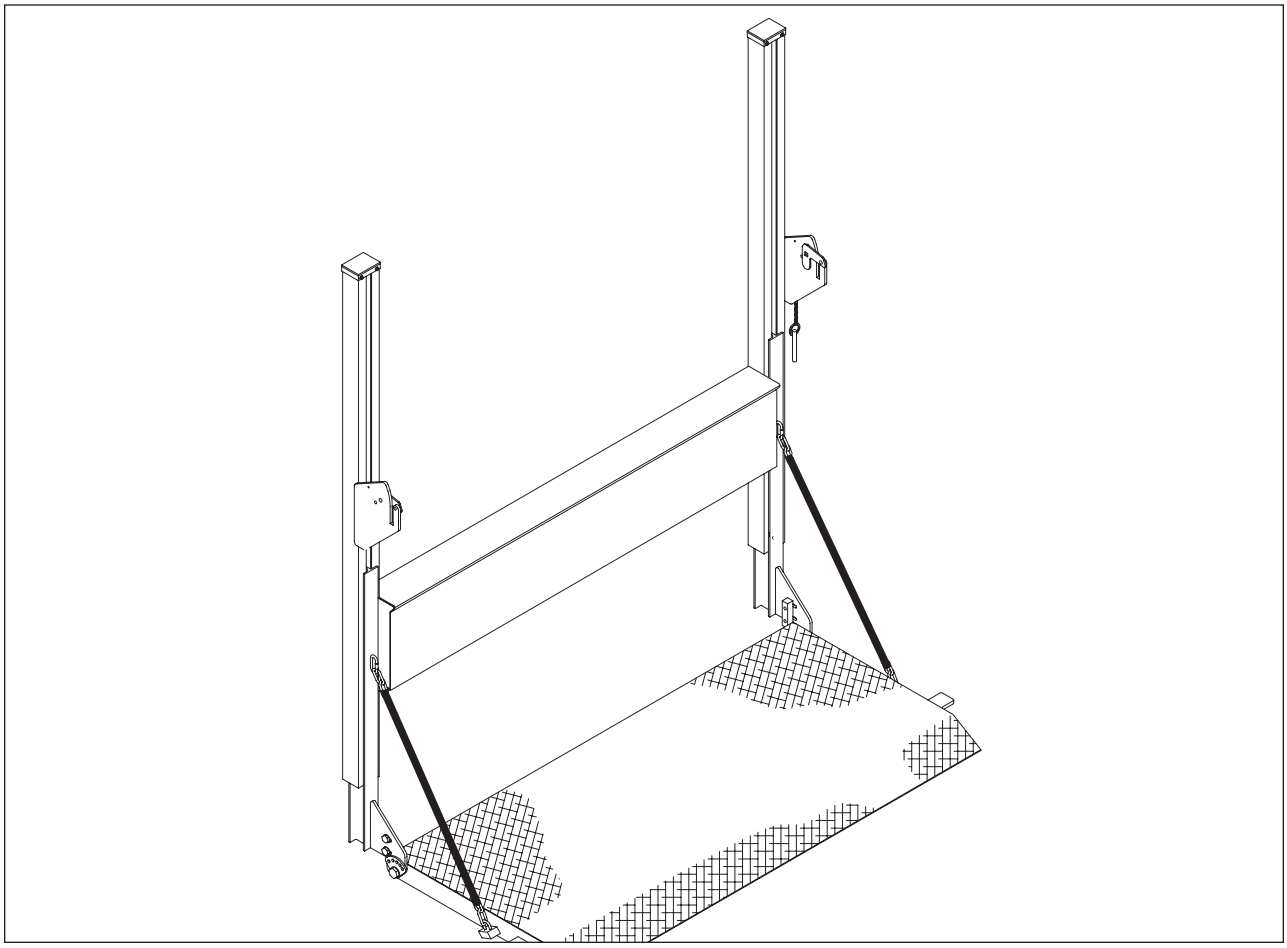
TVLR SERIES

Railgates By THIEMAN

TVLR 125, 16, 20, 30
INSTALLATION INSTRUCTIONS



! IMPORTANT! KEEP IN VEHICLE!

PLEASE READ AND UNDERSTAND THE CONTENTS OF THIS MANUAL BEFORE OPERATING THE EQUIPMENT.

NTEA THE ASSOCIATION FOR THE WORK TRUCK INDUSTRY MEMBER

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ATTENTION INSTALLERS:

Changes are made periodically to the installation procedure to comply with engineering changes. To ensure proper liftgate operation, it is VERY IMPORTANT to read and understand the installation instructions before attempting an installation. Installers also **MUST** read and understand the liftgate's Owner's Manual before installing the liftgate, so they can operate the liftgate safely as required during different stages of the installation process. **NEVER** perform a modification on the liftgate, which is not specifically covered in this manual or which is unauthorized by Thieman. Modifications may result in failure of the liftgate and may create hazards for liftgate installers, operators, or maintainers. Serious damage, equipment failure, or operator injury could result from improper installation. This equipment **MUST** have all decals applied properly. **FAILURE** to apply all decals properly will **VOID** all warranties! Any installer with questions or doubts should contact Thieman before proceeding.

NOTES:
1. All maximum mounting dimensions are shown with the vehicle empty; all minimum mounting dimensions are shown with the vehicle loaded.
2. Check the bed height when vehicle is parked on a level surface.
3. Refer to figure 1 and table 1 for overall dimensions of liftgates and bed height ranges for different models.
4. The TVLR series railgates are all level ride, which means when the vehicle is located on a level surface, the rails should be perpendicular to the ground. When mounting, consideration should be given to the platform position with the truck both empty and loaded. See figure 2 and 3.

TVLR 125/16/20/30				
MODEL TYPE	RAIL HEIGHT "A"	FRAME WIDTH "B"	BED HEIGHT RANGE	ABOVE BED RANGE
STANDARD	85	80	33-54	NA
STANDARD	85	90, 95, 100	33-56	NA
ABOVE BED	89	80	33-40 41-44	16-14 15-10
ABOVE BED	89	90, 95, 100	33-40 41-46	16 15-10
LOW BED	83	80	33-40	16-14
LOW BED	83	90, 95, 100	33-40	16

Table 1.

NOTES:
1. All bed height ranges shown in table 1 allow installer to provide a minimum of 18" of ground clearance by cutting off the lower end of the rail as needed unless otherwise stated. Rails must NOT be cut more than 25" above the ground (Note: 25" measurement must be made with truck unloaded. See Step 12 of Installation Instructions. On special orders, consult factory as the allowable trim dimensions may vary from what is shown here).
2. Optional light covers in which the lights are below the cylinder housing will not allow the total 18" inches of ground clearance on standard bed models in the bed height range of 33-36".

INSTALLATION INSTRUCTIONS

Step 1 Inspect entire package of your new liftgate for obvious damage. Report any damage to the freight line who delivered your liftgate. DO NOT REMOVE ANY BANDING!

Step 2 Locate the vehicle on which the liftgate is to be mounted on a dry and level floor and open the rear door on the vehicle.

Step 3 Raise gate and place it against the rear of the vehicle and remove any obstructions where possible. If obstruction can not be removed, use 4 spacers 12" long x 3" wide by depth of interference and weld to top and bottom of rails. See figure 2. (If structural angle or tubing is used for spacer, it must have a .25" minimum wall thickness). The depth of the spacers may vary from top to bottom to enable a perpendicular mounting to the ground. See figure 3.

Step 4 If the gate width does not match the width of the vehicle body, fabricate 4 adapters .25" minimum wall thickness x 12" long. Weld adapters to the back side of liftgate's rails to match location of body's rear corner posts as shown in figure 4.

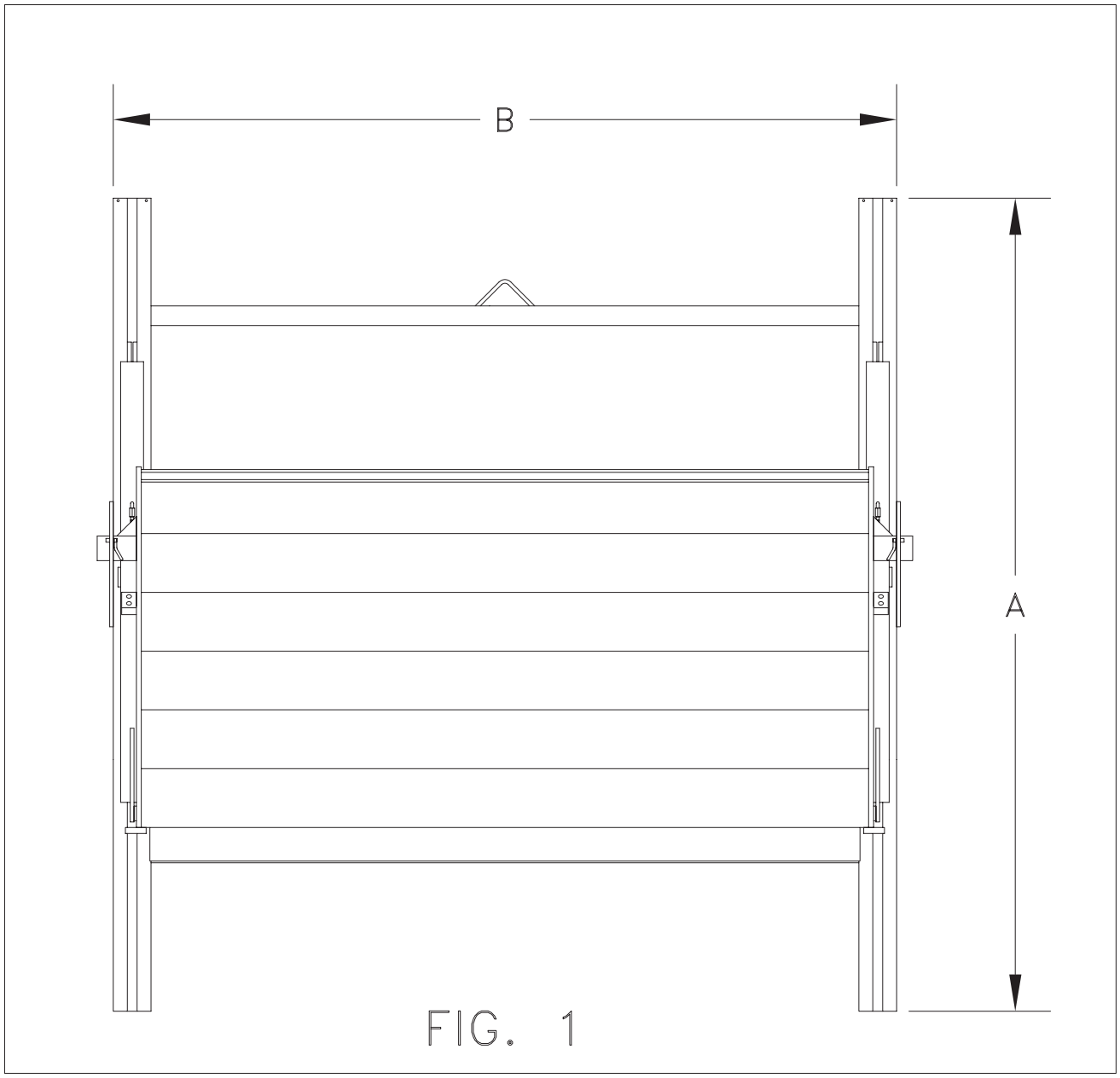


FIG. 1

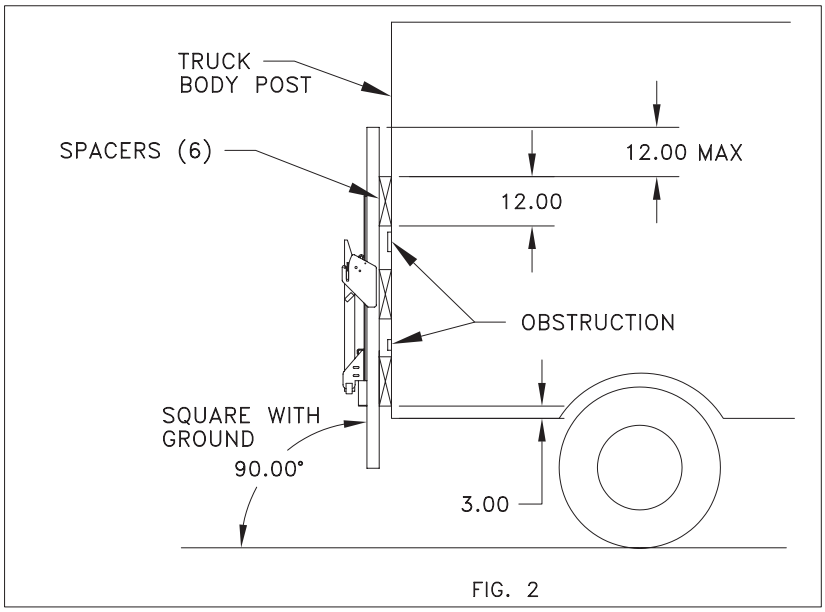


FIG. 2

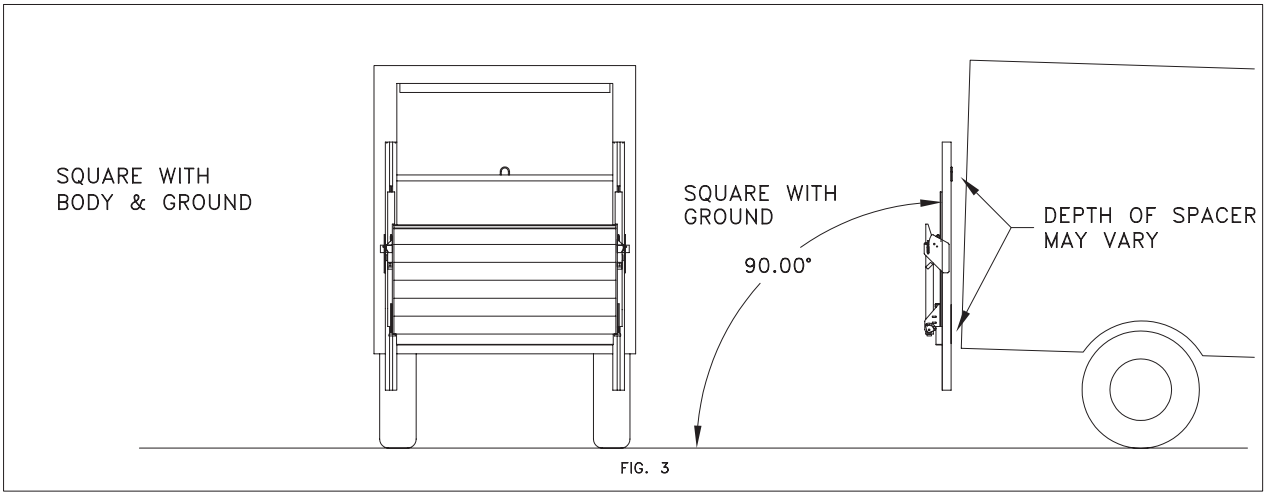


FIG. 3

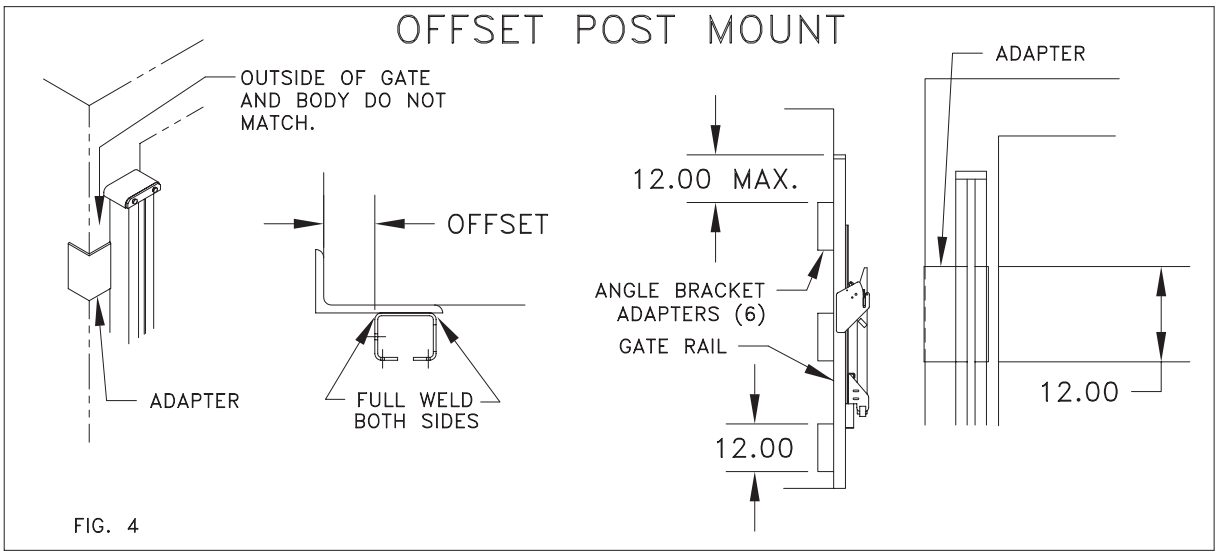
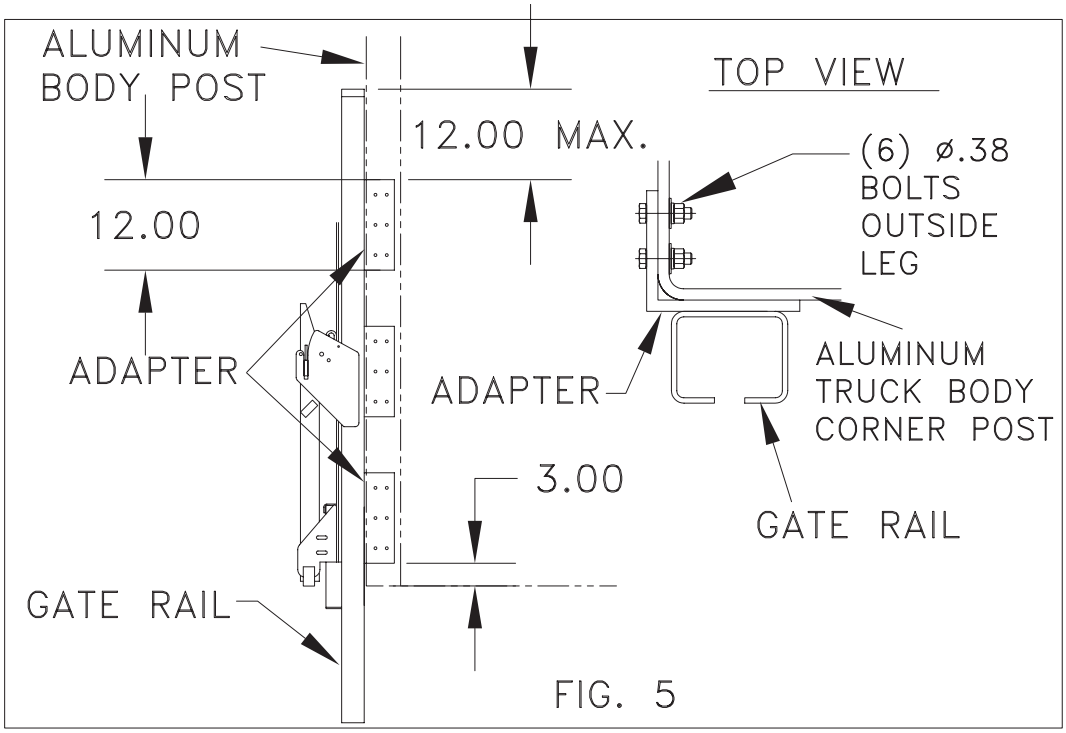


FIG. 4

Step 5 If the truck's rear corner posts are aluminum, four steel angle brackets .25" minimum wall thickness x 12" must be fabricated and attached as shown in figure 5. Bolt brackets to rear of vehicle as required to support the load.

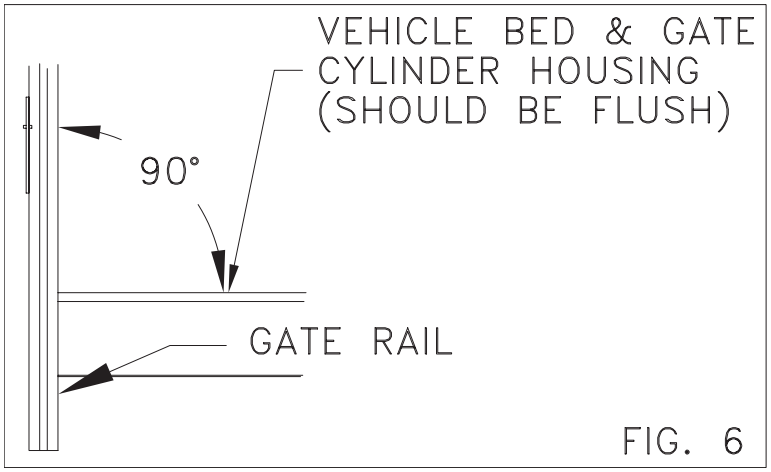


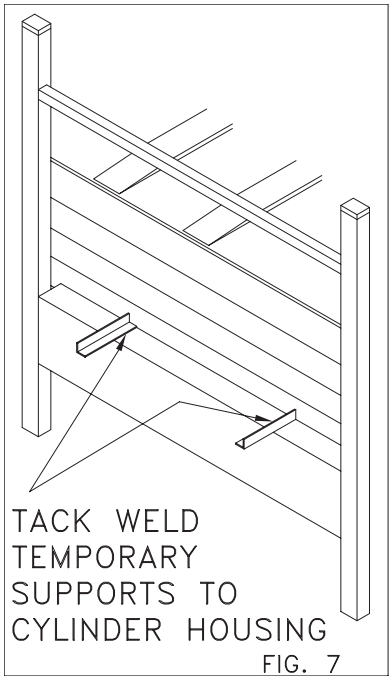
Step 6 Raise lift and square it with the rear sill of vehicle as shown in figure 6. Temporary supports as shown in figure 7 may be welded to cylinder housing to assist in squaring lift to rear sill of vehicle.

Step 7 Center the liftgate on the truck body and tack weld frame of liftgate to rear sill and to the rear post of body as shown in figure 8. DO NOT REMOVE FORKLIFT OR CRANE UNTIL ALL WELDING IS COMPLETE!

Step 8 Review all mounting dimensions and be certain gate is square and centered with respect to the body and rails are perpendicular to the ground.

Step 9 Weld rail adapters to vehicle body or where gate is attached directly to vehicle use eight welds three inches long on each side of the rail. See figure 9.





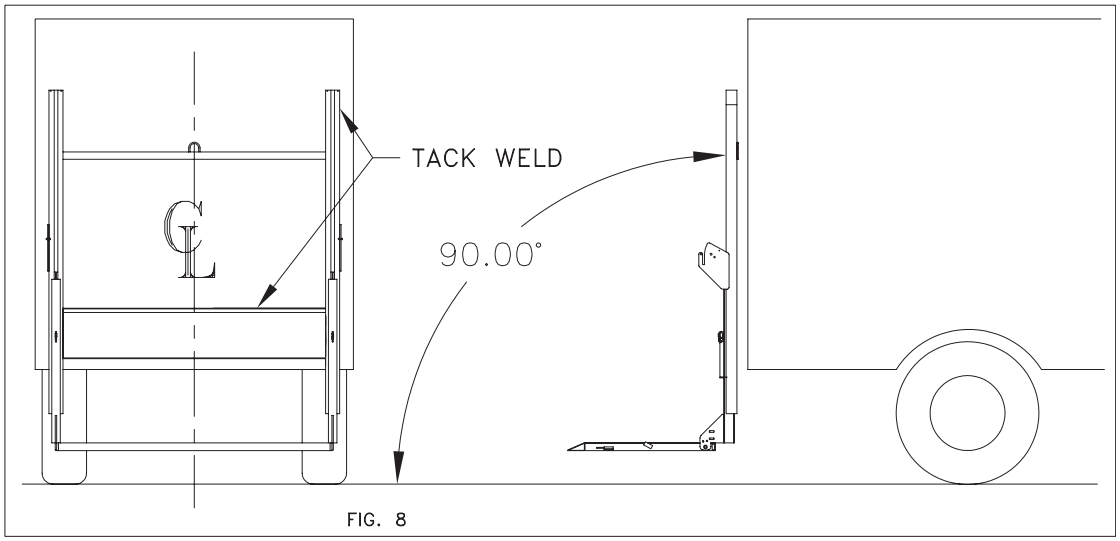


FIG. 8

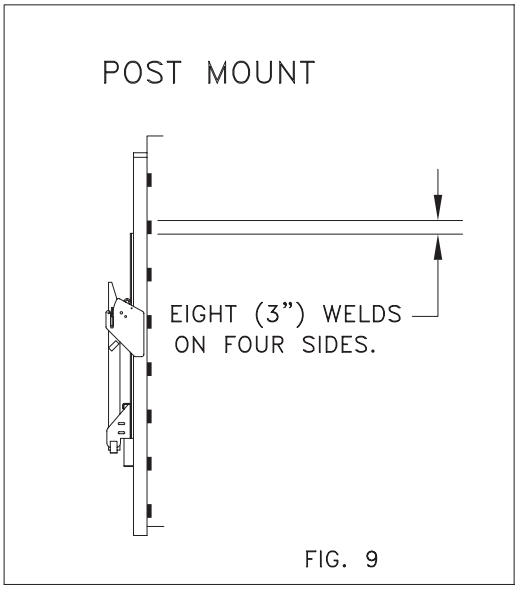


FIG. 9

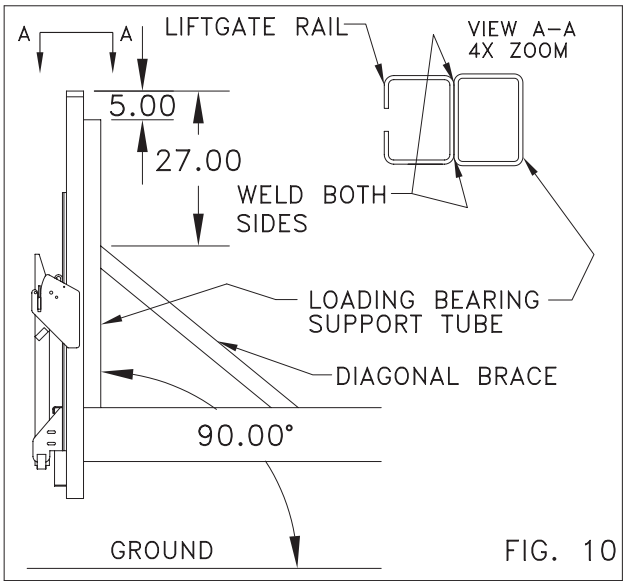


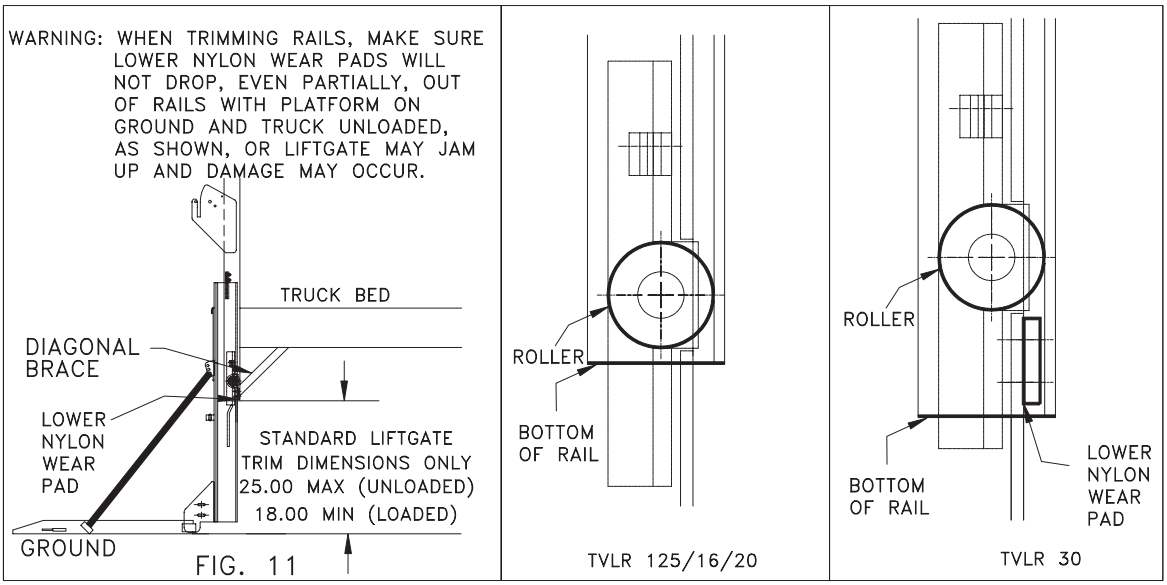
FIG. 10

Step 10 If liftgate installation is on a flatbed vehicle, fabricate load bearing support tubes and diagonal braces as shown in Figure 10. Square the support tubes with the bed and perpendicular to the ground as shown, and weld braces to vehicle body and support tubes. Then weld liftgate rails to support tubes on both the inside and outside corners of each rail.

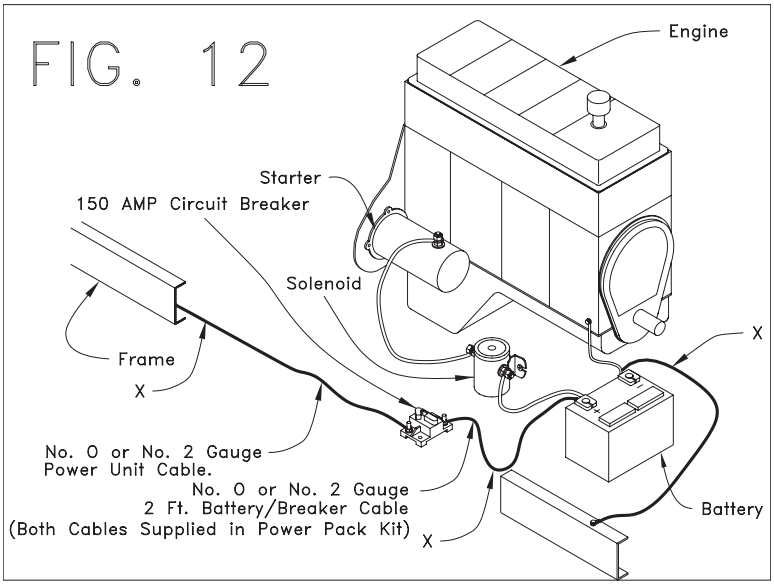
Step 11 Weld cylinder housing to rear of body payload area. Note: Some models have plastic oil reservoirs on their power units. Necessary precautions must be taken during welding to prevent heat damage to reservoirs on these models. Recheck all welds and remove forklift or crane from liftgate. Remove lifting crossbar from rails and grind rails smooth.

Step 12 If possible, install diagonal braces from the lower part of the rails to the vehicle body (see Figure 11). On lower bed heights, the rails may need trimmed to maintain an adequate 18" of ground clearance. NEVER trim the rails more than 25" from the ground OR so high that rollers (TVLR125/16/20) or nylon wear pads below rollers (TVLR 30) drop, EVEN PARTIALLY, out of rails, which may cause liftgate to jam up or cause damage to liftgate (see Figure 11). This 25" maximum dimension MUST be measured on an unloaded truck, or this dimension will be exceeded when the truck is unloaded. (On special orders, consult factory as the allowable trim dimensions may vary from what is shown here).

Step 13 Fasten the 150 AMP circuit breaker provided within 2 ft. of the truck battery. Route battery cable from the pump enclosure toward the 150 AMP breaker. AVOID SHARP CORNERS AND HIGH HEAT AREAS! Use cable clips provided to secure the cable to the truck frame every 2 feet. Cut the cable to the desired length and strip .88" of insulation from the end. Slide the pre-cut heat shrink over the end of the cable. Secure the cable lug in a vise and apply heat to the connector and insert the cable as the solder melts. Allow connector to cool and install the heat shrink. Attach this end to one terminal on the 150 amp circuit breaker. Install heavy ground cable from negative battery terminal to the frame. Wire the breaker to the truck battery using the 2ft. cable provided. Bolt the grounding cable to the truck frame. See figure 12.



Step 14 Many late model trucks have battery connections as shown in figure 12. The ground cable from the battery may be run directly to the engine block with only a light braided ground strap connecting the block to the chassis. Where this is the case, the factory installed cable usually does not provide an adequate ground circuit for operating battery powered liftgates. We recommend that the cables labeled with an "X" be not less than #2 gauge cable as supplied in the installation kit. Also because of the high current draw (Approximately 200A) we recommend that the alternator be a heavy duty type and the battery must have a 150 AMP minimum reserve capacity.



Step 15 The TVLR above bed models are pre-set to travel 10 inches above bed. Depending on the bed height it may be possible to obtain up to 16 inches above bed. Refer to tables 1 and 2. To do this some of the lift chain must be removed. This amount is the same as the additional travel desired. The platform must be completely lowered to the ground and the cylinder housing cover removed. Remove the jam nuts and tension rods attached to the chain and cut off the required amount from each chain. Push the cylinder rod in and reassemble the tension rods and replace cover. Raise the platform and check dimensions and adjust as necessary.

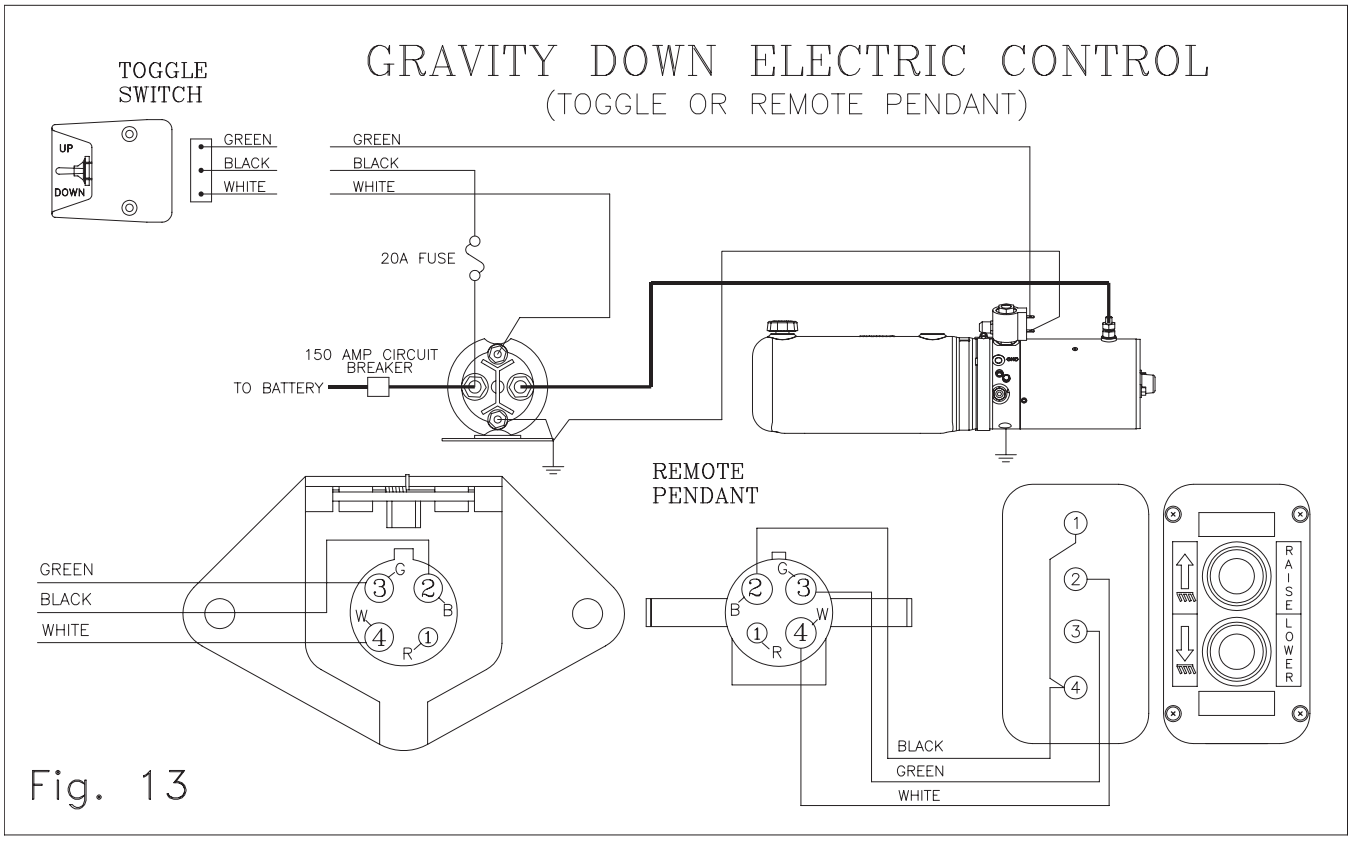


Fig. 13

Step 16 Platform manual closing torsion assist is preset at the factory, however, if it is necessary to adjust the closing torsion, use the following steps to do so: (See figure 14)

A. Place the platform in the stowed(vertical) position making sure the platform stow bars are secured in the resting plates on both sides of the liftgate.

B. Remove the .62" diameter retention bolt(A) from the center of the tension adjusting bracket.

C. Place a .50" square breaker bar in the square hole of the tension adjusting bracket.

D. Turn breaker bar counterclockwise to relieve the force on the .38" diameter bolt(B) and remove bolt(B) noting the position of the tension adjusting bracket at the initial setting.

E. To increase tension, use the breaker bar to rotate bracket counterclockwise beyond its initial setting until the desired tension is reached. Line up a hole in the adjusting bracket with one of the two holes in the slider and thread the .38" diameter bolt (B) through the aligned holes to secure the desired setting.

F. Replace retention bolt(A) and tighten both bolts(A and B) securely.

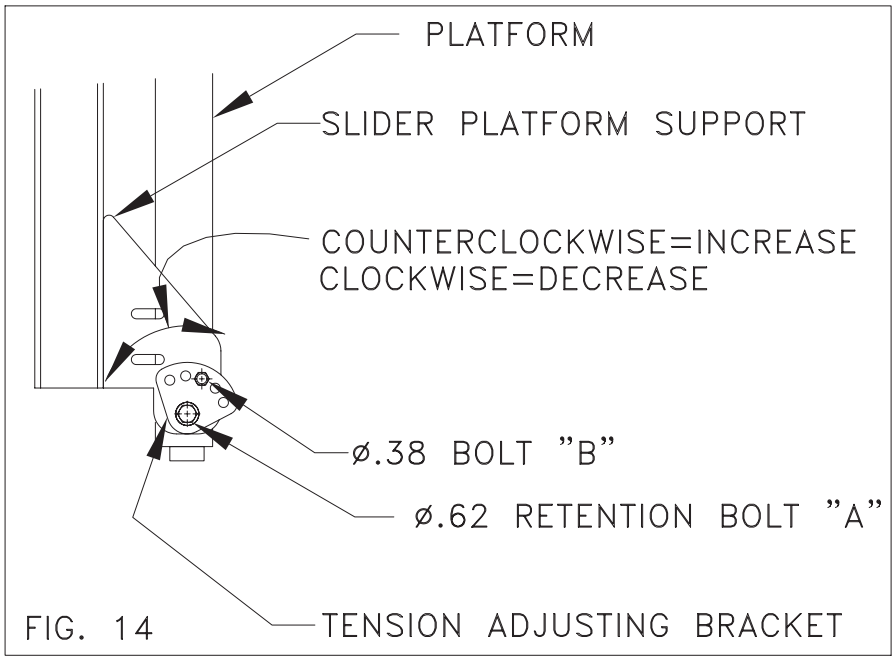


FIG. 14

Step 17 If the liftgate was mounted correctly to the truck, the platform should be parallel to the ground in it's open position, however, if minor adjustments are required, simply tighten adjusting nuts(A) On U-bolt(B) on platform block(C) to raise the ramp end of the platform or to lower the ramp end simply loosen nuts(A). See figure 15. Similar adjustments should be made on both sides of the platform so that both chains see the same tension when loaded. CAUTION: U-BOLT(B) MUST REMAIN COMPLETELY THREADED THROUGH NUTS(A).

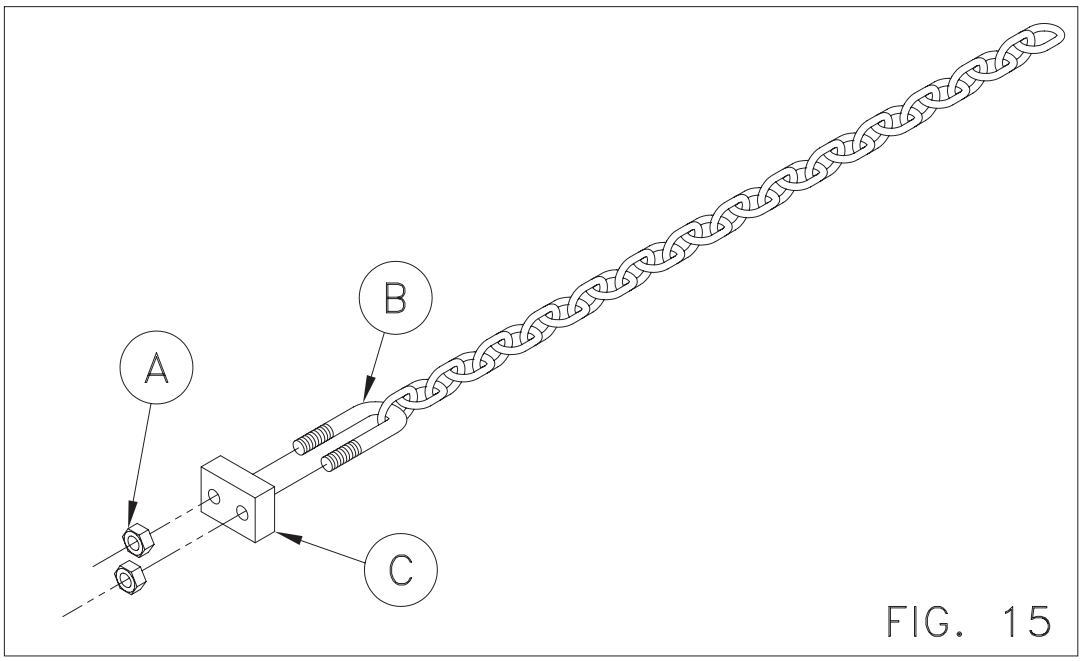
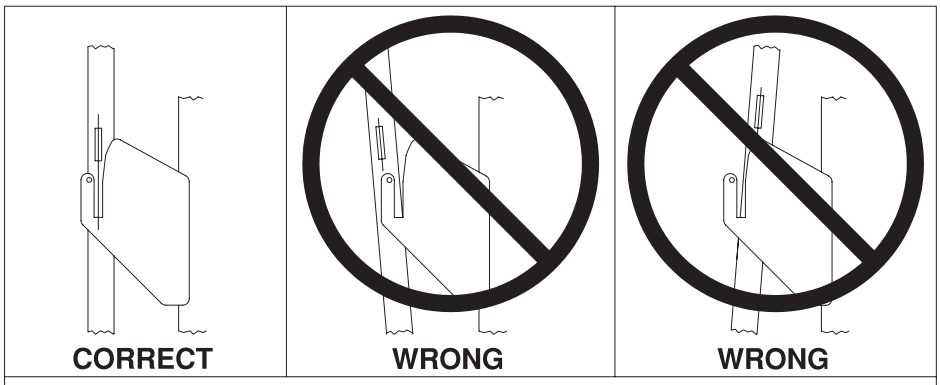


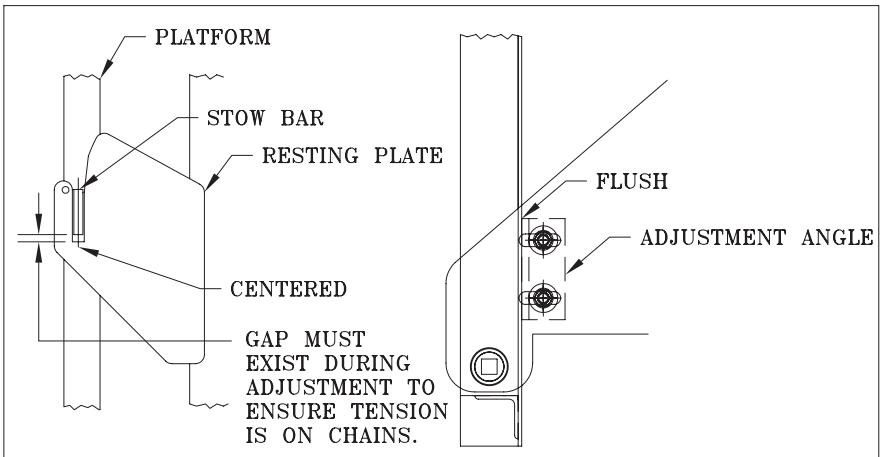
FIG. 15

Step 18 Set adjustment angles on either side of liftgate to hold platform vertical such that the

stow bars on platform are aligned with the resting plate slots. Inspect alignment with stow bars raised completely out of resting plate slots (See figure 4A). If they are out of alignment, put the platform in the stored position. Raise platform slightly, so that stow bars are not sitting on the bottom of the resting plate slot, so there is tension in chains (See figure 4B). Then, unloosen screws on the adjustment angles and move angles so they are tight against the vertical platform. Once angles are adjusted, tighten screws. Be sure to do this for both sides. Repeat inspection of stow bar alignment and readjust if necessary. Failure to keep stow bars aligned with resting plate slots can result in excessive wear of stow bars and resting plates.



INSPECTION LOCATION FIG. 16A



ADJUSTMENT LOCATION FIG. 16B

Step 19 Thieman recommends that the installer perform a weight test of the liftgate to check the welds or mounting bolts and the structural integrity of the body or frame of the truck or trailer. The load used should be the maximum weight rating of the particular liftgate with the weight centrally located on the platform. A minimum of 20 cycles should be made to insure the integrity of the mounting.

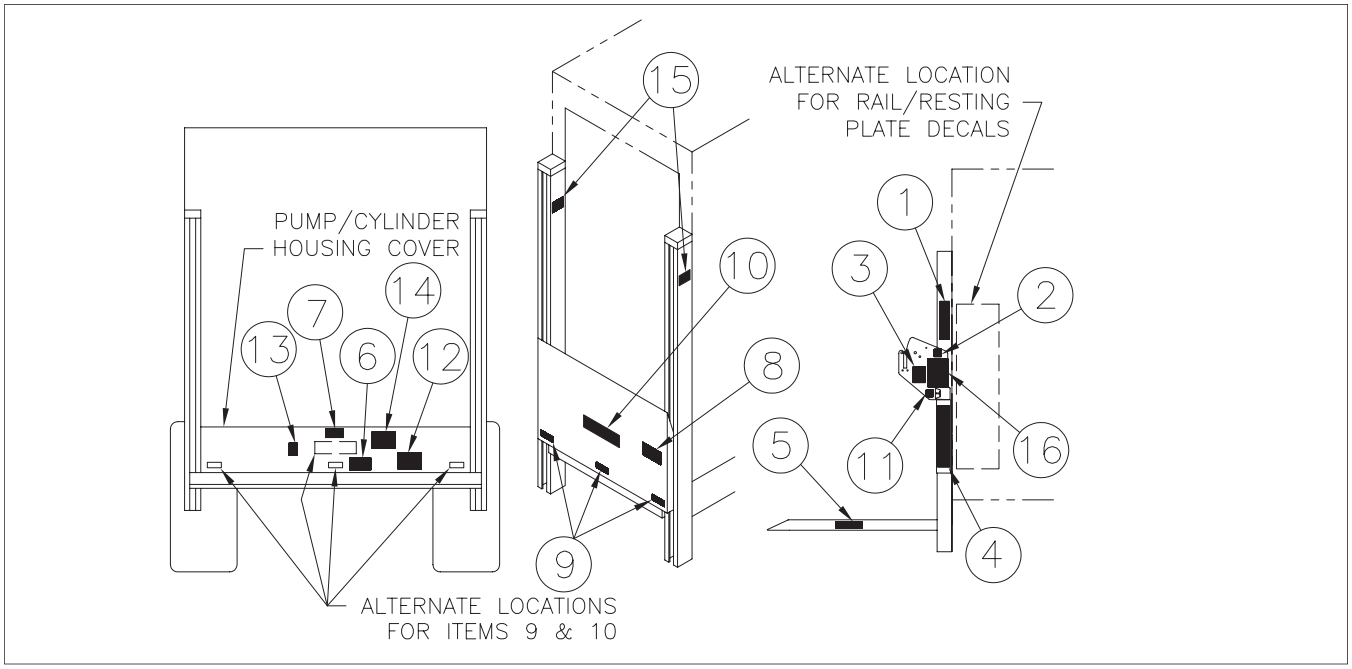
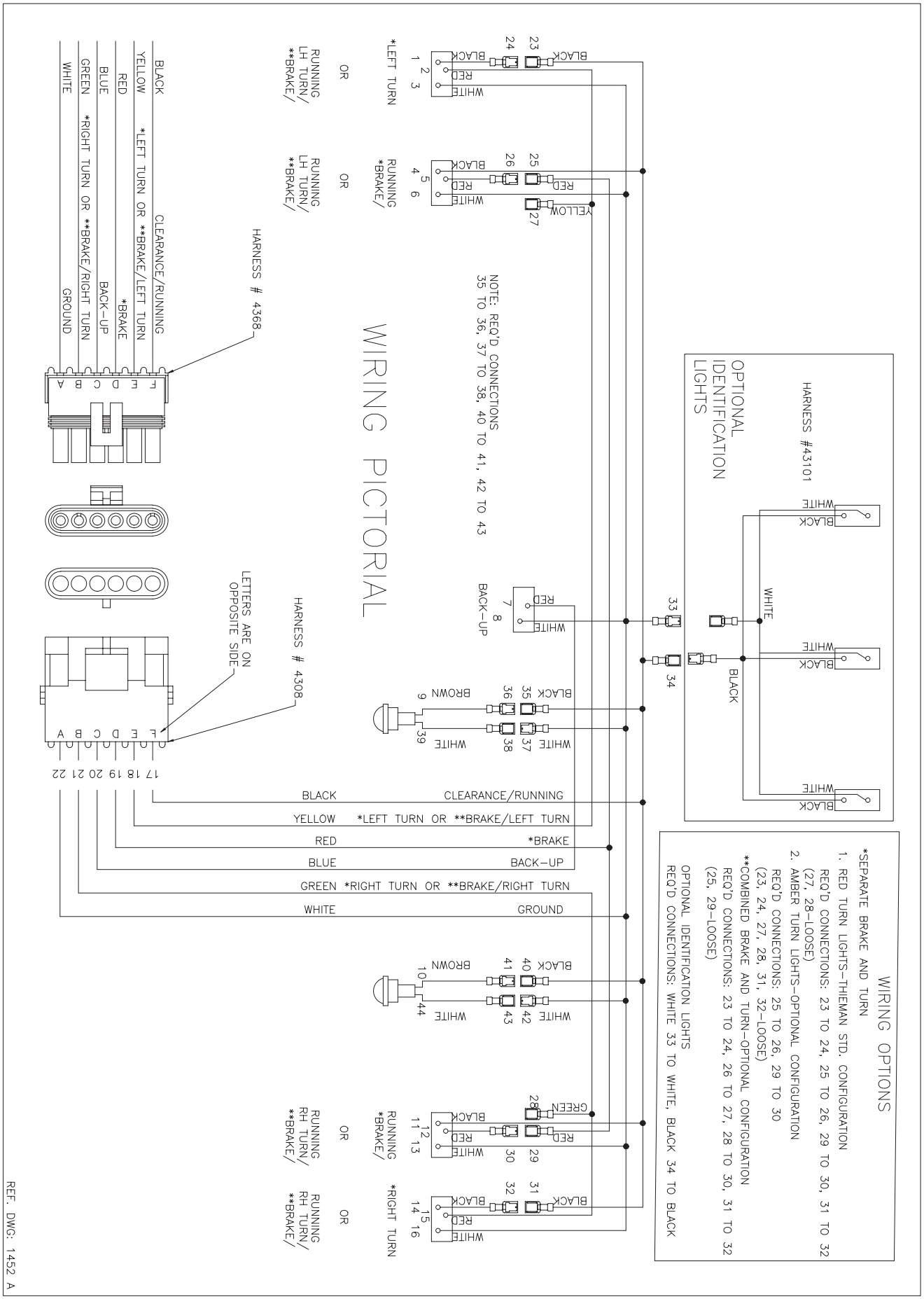
Step 20 If applying a finished coat of paint, mask off the openings in the vertical frame rails so that no paint gets inside, where the I-beam sliders track up and down. WARNING: OVERSPRAY IN RAILS CAN GET EMBEDDED IN NYLON WEAR PADS ON SLIDERS, WHICH CAN CAUSE LIFTGATE TO NOT OPERATE SMOOTHLY. When painting, carefully grease or mask fittings and exposed portion of the piston rod. Finish paint as required and remove the pre-mask on decals already applied by Thieman. Apply decals from installation kits in the appropriate locations as shown. The decals MUST be applied or all warranties are VOID!

Step 21 Any lights that were removed or obstructed must be replaced or relocated in such a manner that the completed vehicle must be in compliance with FMVSS 108(49 CFR 571.108). If the liftgate was ordered with the optional light kit, refer to the light wiring pictorial for wiring details.

INSPECTION AND LOCATION OF DECALS

Inspect all decals listed below to be certain they are in the proper location and are legible.
ALL DECALS MUST BE IN PLACE AND LEGIBLE OR ALL WARRANTIES ARE VOID!

Item	Part Name	Part Number
1	Warning Decal-center load	4682
2	Fast Idle Decal	4650150
3	Danger Decal-no riding	4609
4	Operating Decal	4650780
5	Capacity Decal 1250#	4650060
5	Capacity Decal 1600#	4650750
5	Capacity Decal 2000#	4650100
5	Capacity Decal 3000#	4650120
6	Caution Decal-pinch point	4650790
7	Caution Decal-cover	4650760
8	Caution Decal-working area	4650770
9	Reflector (3)	5705
10	Thieman Nameplate	4650801
11	Toggle Switch Decal(1)	4650820
12	Wiring Decal	4617
13	Warning Decal - High Pressure	4620
14	Lubrication Instruction Decal	4662
15	Lube Location Decal (4)	4663
16	Urgent Warning Decal	4681



LIGHT WIRING PICTORIAL