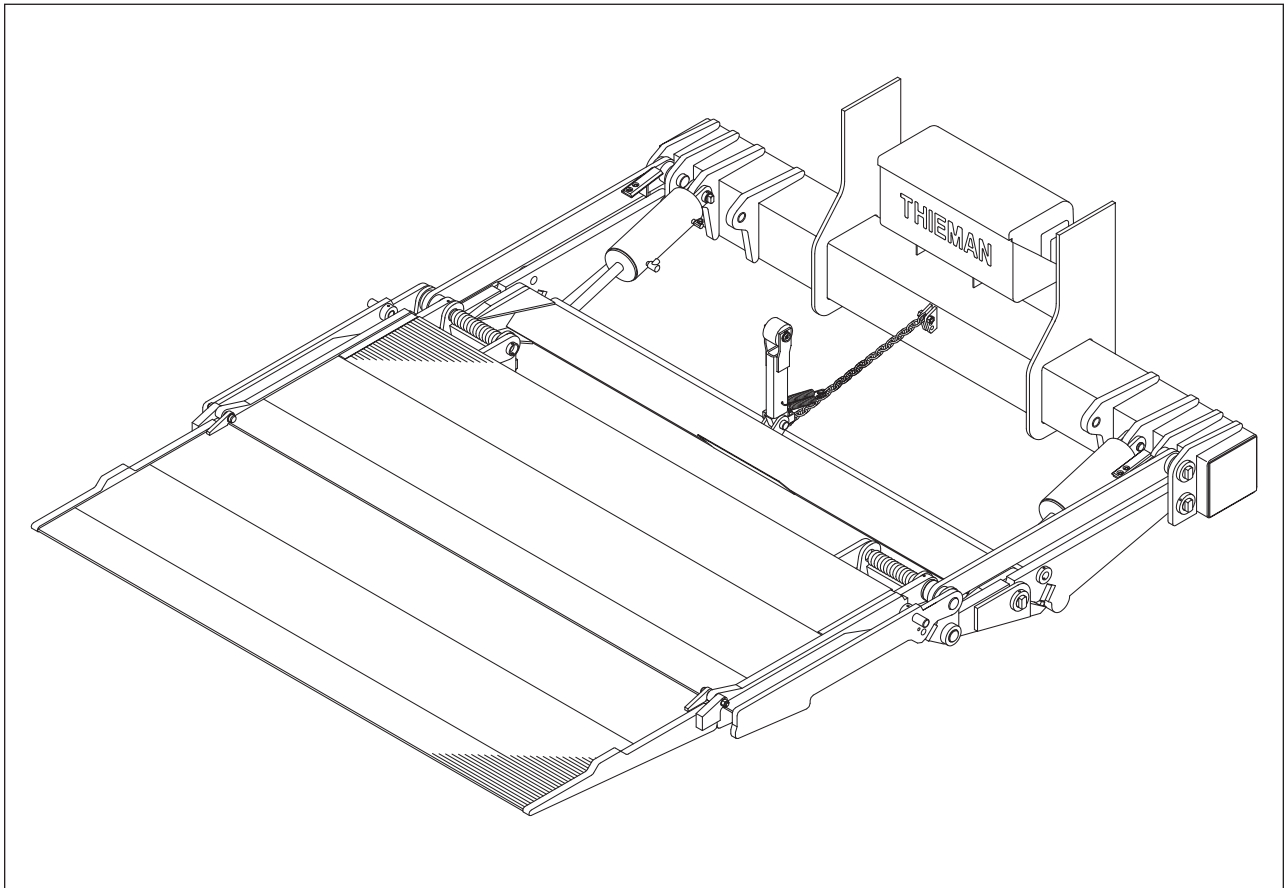


# STOWAWAY

Tailgates By THIEMAN

## LRST-40 INSTALLATION INSTRUCTIONS



**IMPORTANT! KEEP IN VEHICLE!**

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

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**NTEA**  
THE ASSOCIATION FOR THE WORK TRUCK INDUSTRY  
MEMBER

### 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. The LRST is a self leveling stowaway liftgate. When the platform is lowered to the ground, the liftarms hit while the platform is level. To ramp the platform to the ground, continue to press the electric control to lower the nose of the platform to the ground. When raising the platform from the ground, the platform will first level itself and will then start to raise.
2. All maximum mounting dimensions are shown with the vehicle empty; All minimum mounting dimensions are shown with the vehicle loaded.
3. Check bed height when parked on a level surface.
4. Check "B" dimension for possible interference with spring hanger bracket and check "G" dimension for possible interference with power unit enclosure. See figure 1.
5. Remove lights, safety bumper, dock bumpers, etc. that may interfere with installation.

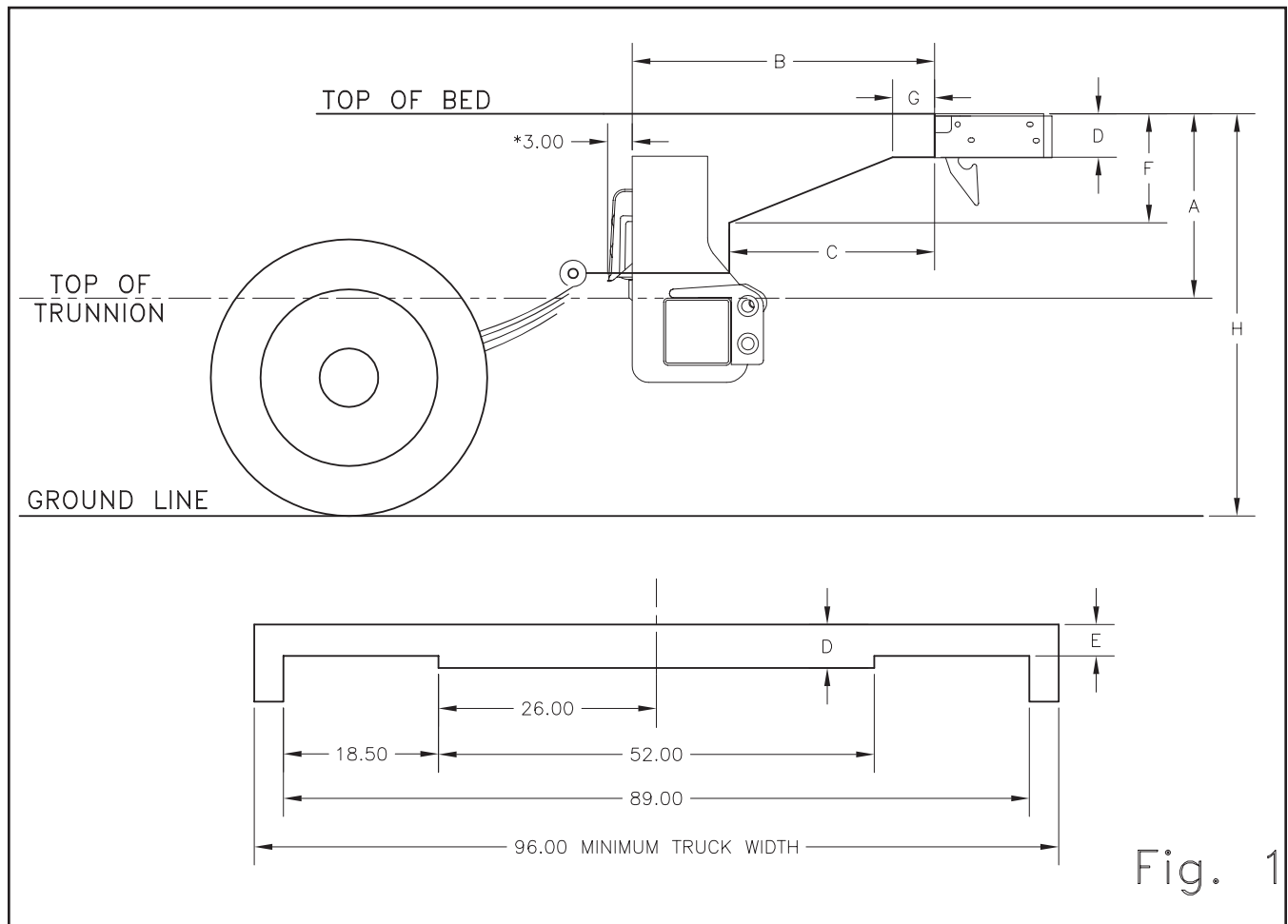


Fig. 1

## INSTALLATION INSTRUCTIONS

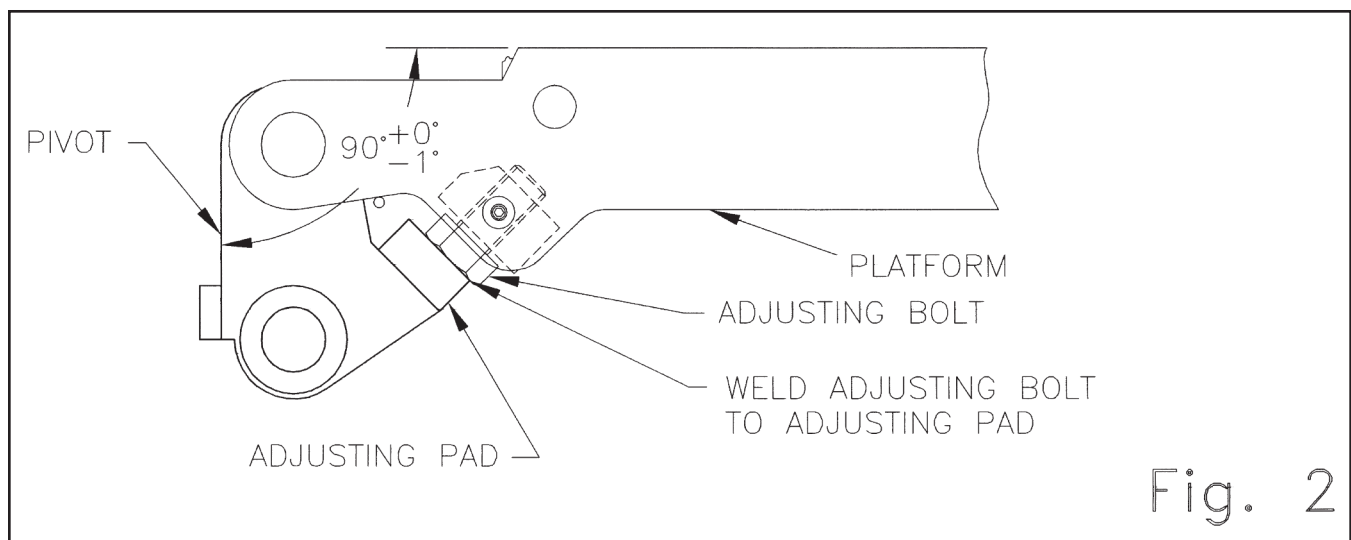
- Step 1 Remove banding from gate undercarriage. Inspect for obvious shipping damage or missing parts.
- Step 2 Unfold gate on floor.
- Step 3 If necessary, notch rear of body and frame of truck according to dimensions in chart below and drawings in figure 1.

### MOUNTING DIMENSIONS-LRST40

A	B	C	D	E	F	G	H
22.00	36.50	24.50	5.19	3.75	13.00	5.00	46.00-48.99
25.50	34.00	23.50	6.00	4.50	17.50	0.00	49.00-51.99
27.00	32.50	22.50	6.00	5.00	18.50	0.00	52.00-56.00

- A-Distance from the top of bed to top of trunnion tube.
- B-Distance needed for spring hanger clearance. (Note: The power unit enclosure will be 3.00 forward of the mounting plates when mounted).
- C-Distance needed for horizontal frame trim for stowing.
- D-Frame trim for stowing gate.
- E-Minimum rear face clearance for platform stowing.
- F-Vertical frame trim for stowing gate.
- G-Frame trim for stowing liftgate.
- H-Distance from top of bed to ground.

- Step 4 Center the liftgate spacer which contains the stow latches on the rear of the truck with the top of the spacer deck plate even with the truck bed. Make sure that the spacer is level across the rear of the truck. If a bow exists in the spacer weld the highest point of the spacer even with the truck bed and then raise and weld the rest of the spacer to this same level. **THIS MUST BE DONE OR THE STOW LATCHES WON'T WORK PROPERLY AND THE PLATFORM WON'T MEET THE SPACER CORRECTLY.**
- Step 5 Raise the undercarriage by lifting under the main section of the folded platform with a forklift. Make sure the platform is clamped securely to the forks. With the trunnion and liftarms hanging from the platform the adjusting bolt and pad should make firm contact. The forward edge of the pivot and top of the platform should be square at this point. If not, make the necessary adjustments. See figure 2.



- Step 6 Temporarily weld the head of the adjust bolts to the adjusting pads on both sides to ensure these surfaces remain in contact during the entire mounting procedure. See figure 2. **THE ADJUSTING BOLTS AND PADS MUST REMAIN IN CONTACT THROUGHOUT THE INSTALLATION OR THE GATE WILL NOT WORK PROPERLY.** After the installation is complete, the welds must be removed so weld accordingly. If one side touches and the other does not, readjust the bolt that does not touch so it also makes contact.
- Step 7 Unpack hydraulic parts and examine them for damage. The standard hydraulic systems are 12VDC. The kit will contain appropriate parts for the power unit ordered. If a special power source or controls were ordered; special instructions will be provided with the parts.
- Step 8 Remove the cylinders from the box and **make certain there's 1.62 inches between the adjustable clevis and the barrel of the cylinders.** **WARNING: Failure to check this 1.62 inch dimension or failure to not adjust the cylinders so they are as close to fully retracted as possible in Step 20 will result in interference between the cylinder rod and the cylinder lug on the liftarm and permanent damage to the lift cylinders. If this damage occurs, the cylinders MUST be replaced.** Attach the cylinders to the trunnion pivots only, with the ports pointing inward; install the pins temporarily at the trunnion pivots without the spring pins as they will have to be removed in Step 19 to connect the cylinders to the liftarm.

#### \*\*\*POWER UNIT INSTALLATION GUIDELINES\*\*\*

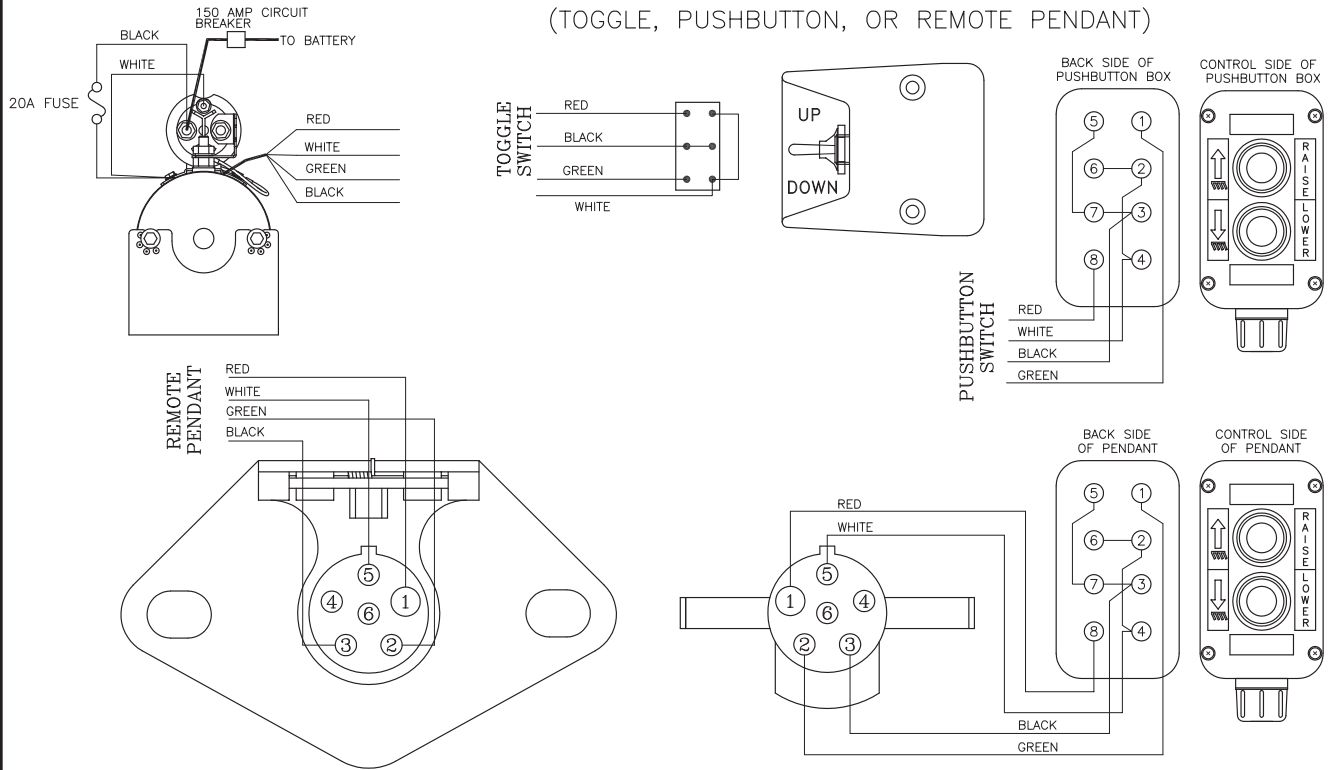
1. The most common cause of hydraulic system malfunction or failure is the contamination of the hydraulic fluid.
2. Our product suppliers have extensively cleaned and tested this product during all phases of manufacturing and assembly.
3. The hoses and cylinders must be as thoroughly cleaned to prevent contamination.
4. At the time of installation be certain all fittings, hoses, hose ends, and ports are clean and clear of dirt. All fittings and hose openings should be closed or covered until time of installation.
5. Make sure the reservoir is at the correct level with the recommended oil.
6. Squirt clean oil into the pressure port of the pump before making the connection to the cylinder.
7. Disconnect the pressure lines as close to the cylinder as possible and place the end in a suitable clean container.
8. Alternately start and stop the pump until a steady stream of oil comes out of the pressure line.

#### 12VDC PUMP INSTALLATION INSTRUCTIONS

- Step 9 Bolt the power unit and enclosure base to the saddle on the trunnion pipe using the 3/8" hardware provided. The eight internal tooth lockwashers are to be located so they are in contact with the pump bracket and the trunnion mounting bracket. Wrap the 32" tie strap, provided with the enclosure, securely over the reservoir and through holes in enclosure base to support base as shown. See figure 4. Mount the pushbutton or toggle control in a suitable location and use clamps provided to support control cord every 18 inches. See figure 3 for wiring diagrams.
- Step 10 Install fittings in the cylinders and the pump. Install breather cap in the pump and fill reservoir with Dexron III. The flow control provided **MUST** be installed with the arrow pointing back toward the power unit. **Rod end ports on cylinders must be plumbed to C1 port on pump.** (Note: Incorrectly plumbing rod end ports on cylinders to C2 port will make gate drift down and motor to spin backwards from raised position.) Attach the ground cable to the tapped hole in the pump base labeled "GND" and trunnion mounting plate using the .38 hardware provided and the internal tooth lockwashers. See figure 4.

FIG. 3

POWER DOWN ELECTRIC CONTROL  
(TOGGLE, PUSHBUTTON, OR REMOTE PENDANT)



ELECTRIC POWER DOWN

NOTE: ROD END PORTS ON CYLINDERS MUST BE PLUMBED TO C1 PORT ON PUMP. (HOOKING HOSES UP INCORRECTLY WILL CAUSE GATE TO DRIFT DOWN AND MOTOR TO SPIN BACKWARDS.)

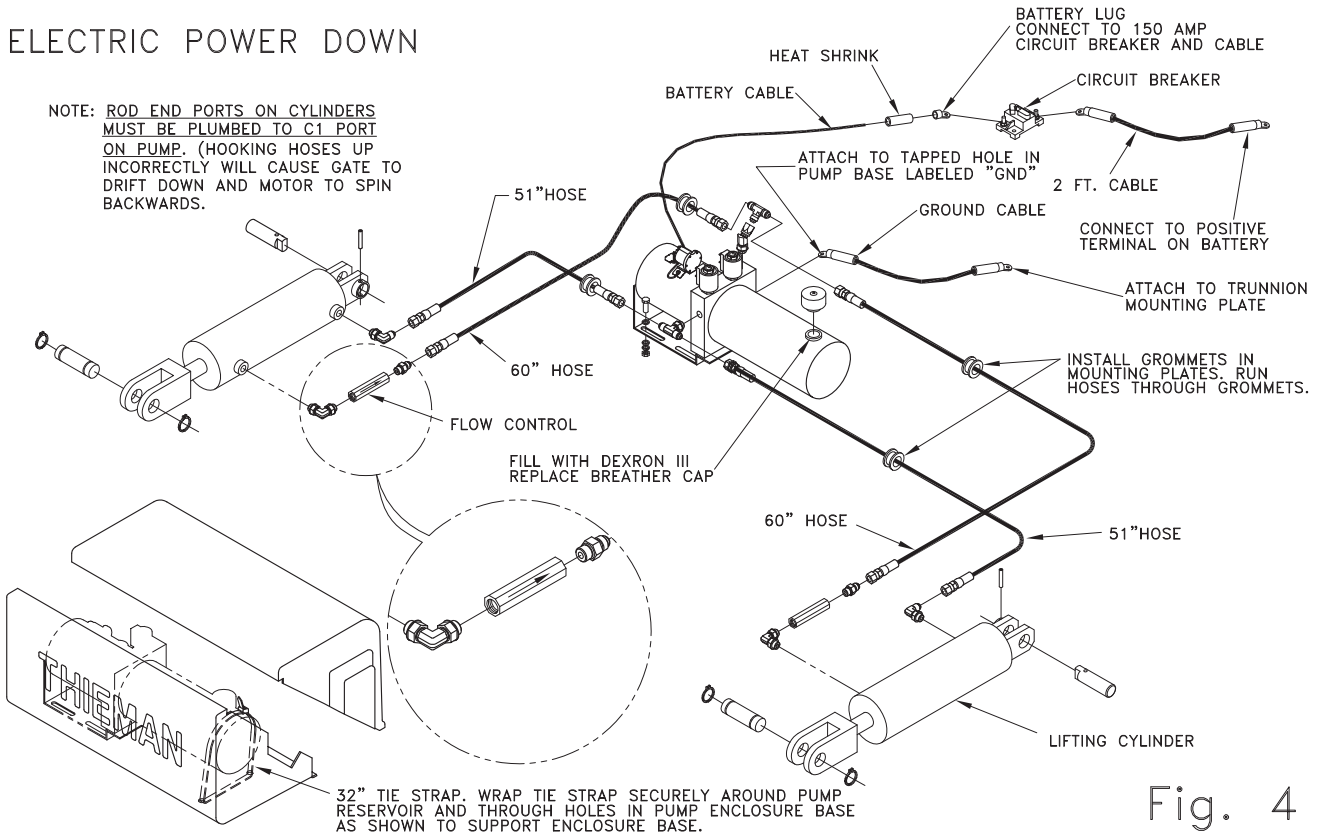
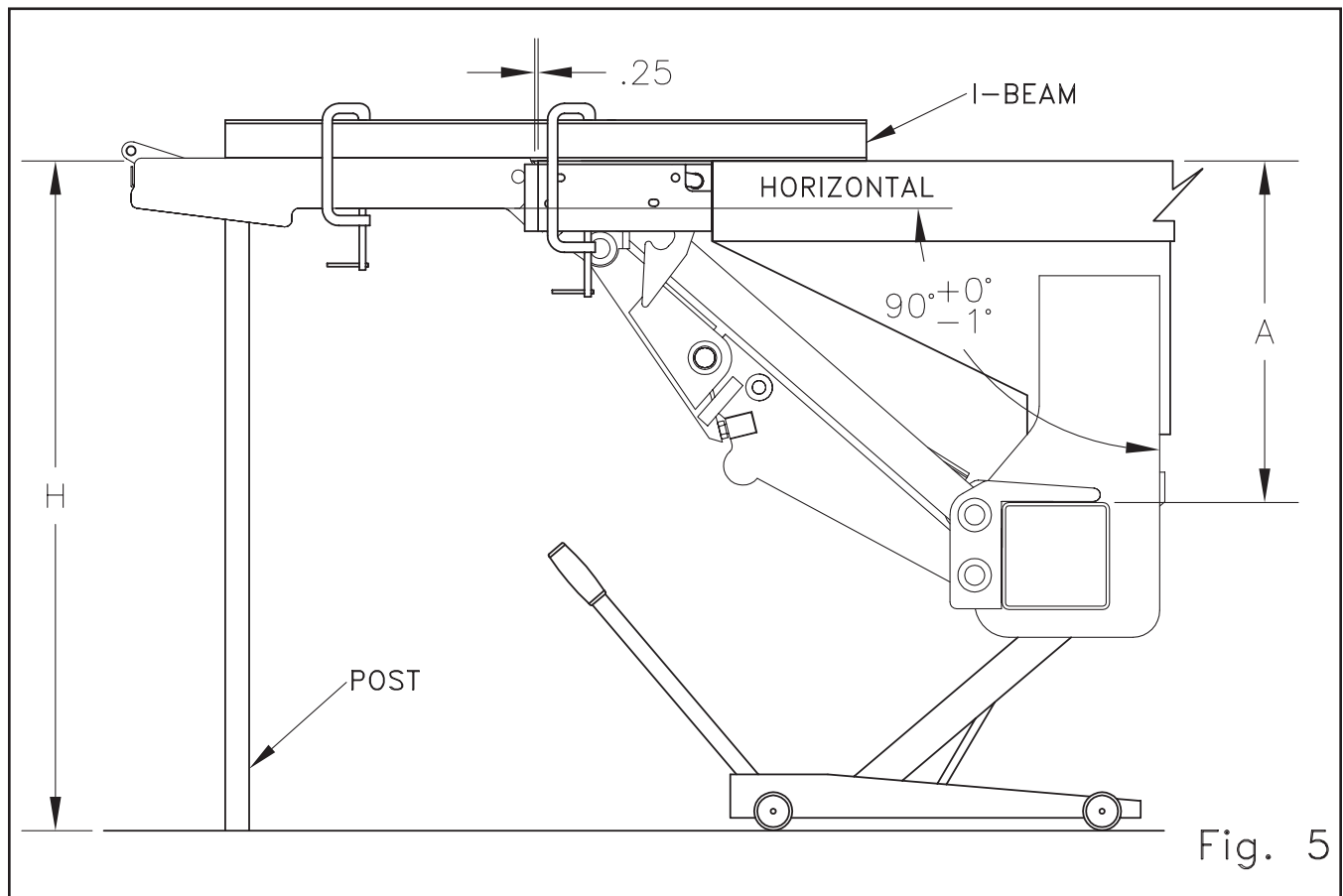


Fig. 4

Step 11 Clamp installation fixture to the body extension and the truck bed. An “I” beam or angle iron may also be used.

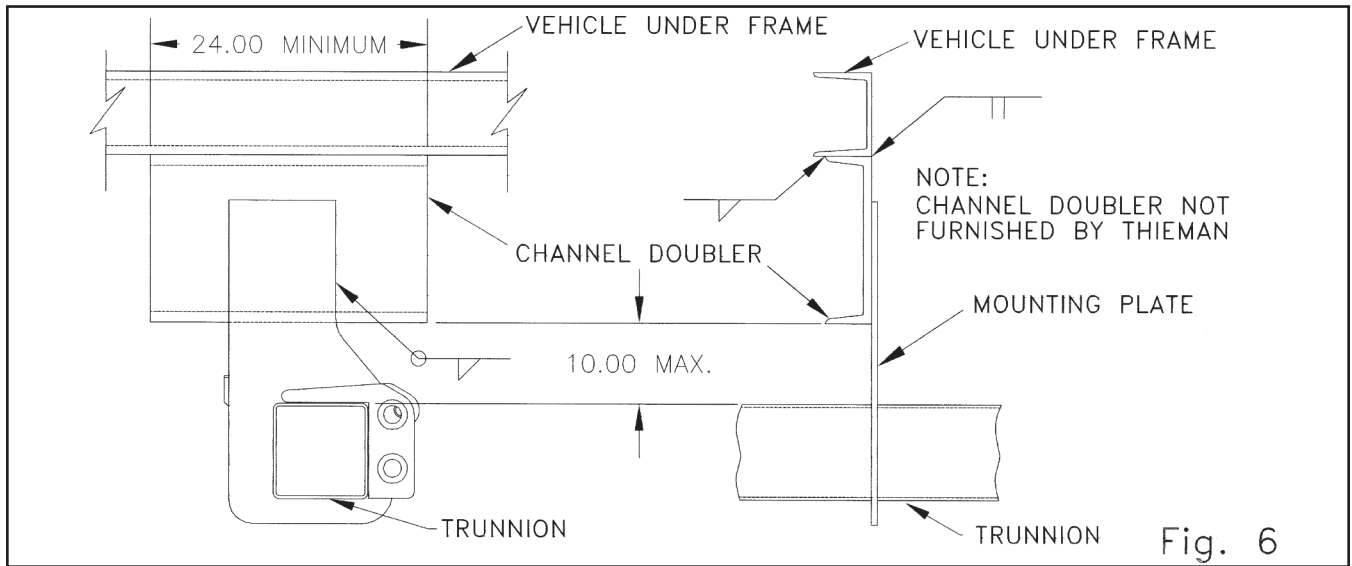
Step 12 Using a forklift or a crane, raise and center the platform and undercarriage up to the liftgate spacer as shown in figure 5. Temporarily weld two 1/4" thick bars 20 inches off center to the rear spacer bar, between the platform's first extrusion and the liftgate spacer on each side. These bars are used to align the stow bolts on the platform with the latches in the spacer and to provide room for adjusting the platform angle. Note that these bars must be removed after the installation is complete so weld accordingly. The platform should be level with the ground at this point. If desired the platform nose may be toed up slightly, up to 1 inch, but this is not necessary since there are adjustments on the LRST to compensate for any sagging, which may occur after the installation is completed. Cut a small post or similar item to the correct length and place it under the platform so that the platform and payload area are at the same height.



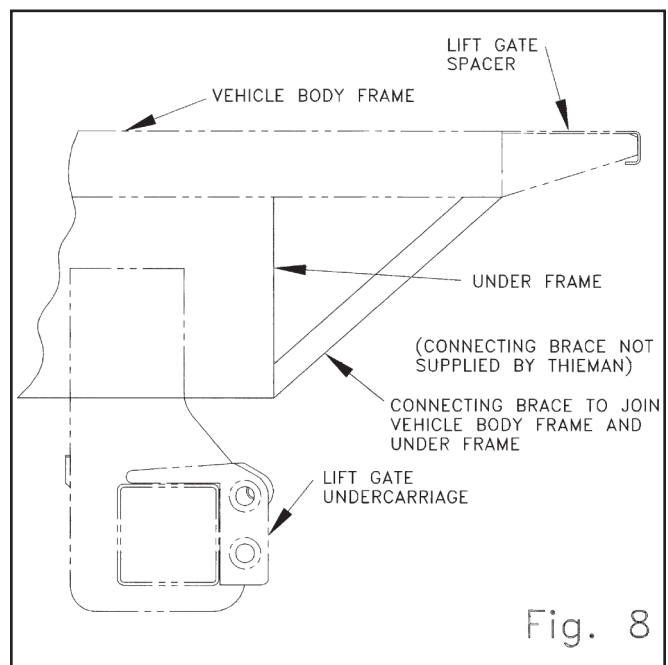
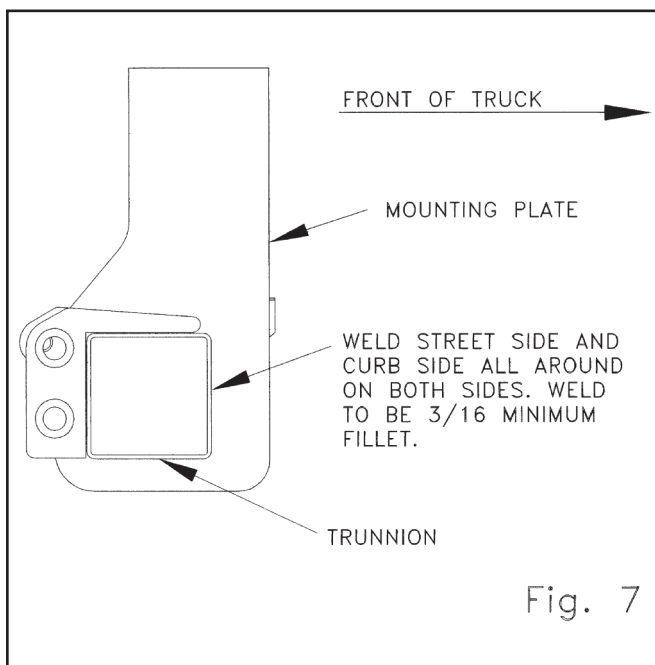
Step 13 Place barrels or other protective equipment under the platform so that the gate will not accidentally fall and injure someone.

Step 14 By means of a floor jack, raise the trunnion to the height indicated on the chart under “A”. The forward edge of the mounting plate should be square with the load area of the platform and perpendicular to the ground. If anything, the top of the mounting plates should lean slightly toward the cab of the vehicle. See figure 5.

Step 15 Recheck all dimensions and, if correct, attach the mounting plates to chassis by welding completely around the the mounting plates using a 3/16" minimum fillet weld. See figure 6. NOTE: On installations where narrow under-frame members are used, the liftgate mounting plates may reach these frame members; however, the space between the frame members and trunnion now becomes too large. This lengthy unsupported area will contribute to an undesirable "springiness" under normal loading. Installers, when faced with this problem, should extend the under-frame support closer to the trunnion by adding a channel section to the existing frame member. For any installation, there should be 10 inches or less of unsupported mounting plate between the trunnion and the truck frame. See figure 6. Next, weld mounting plates to the trunnion using the method shown in figure 7.

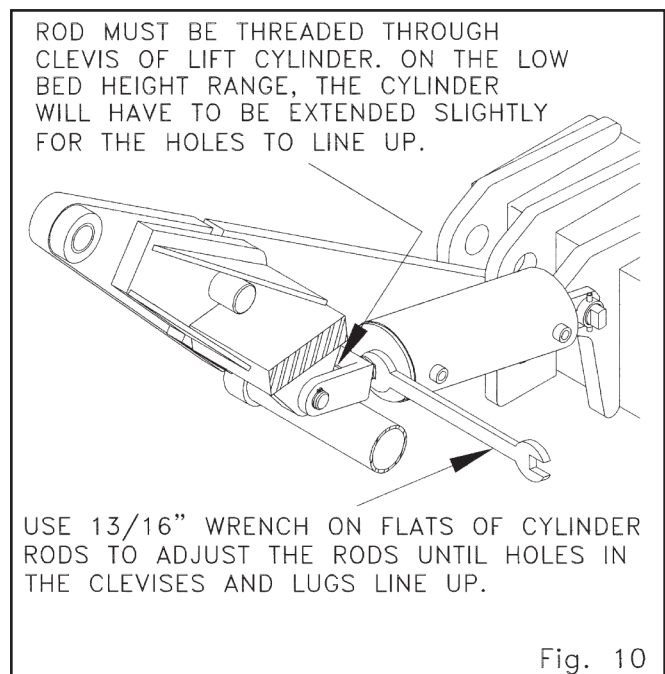
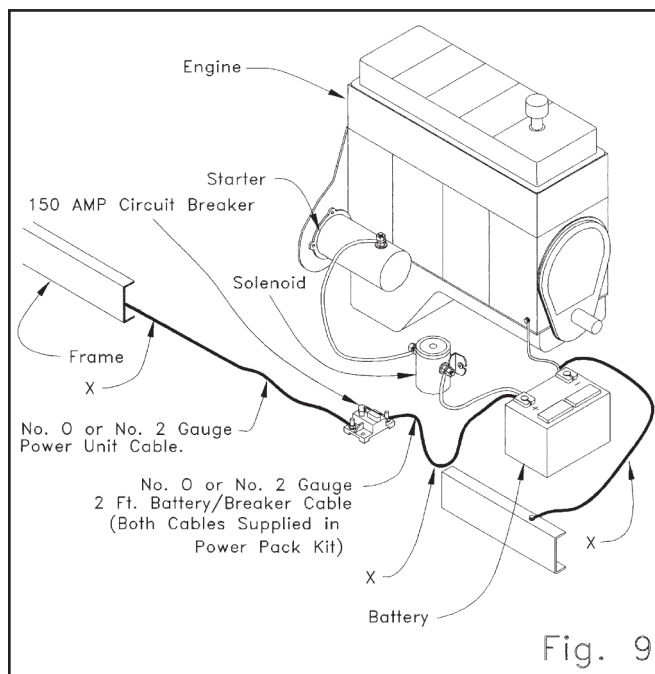


Step 16 On certain equipment such as a lengthened van body, rebuilt trailer, altered vehicle, etc., where the frame stops short of the end of the vehicle body frame extra support must be added to avoid any independent deflection. See figure 8 for bracing suggestions.



Step 17 Many late model trucks have battery connections as shown in figure 9. The ground cable from the battery may be connected 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 18 Fasten the 150 AMP circuit breaker provided within 2 ft. of the truck battery. Route the battery cable from the liftgate 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 2 ft. cable provided. See figure 9.



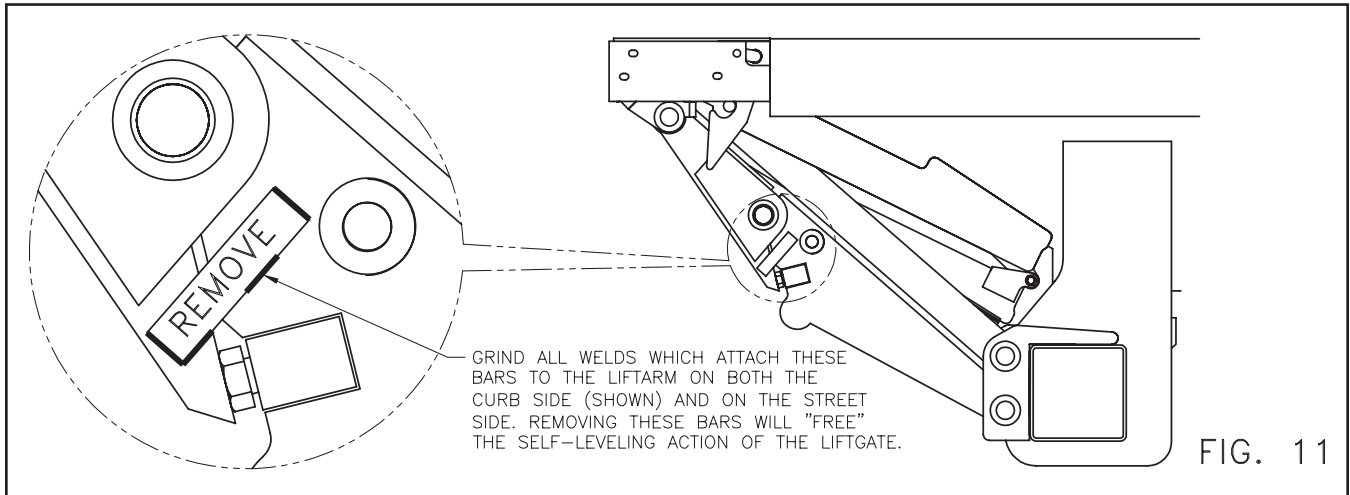
Step 19 Apply dielectric grease or terminal protectant to all electrical connections.

Step 20 Remove the pins from the cylinders at the trunnion pivots from Step 8. Hold the cylinders, so the clevises line up to the lugs on the lift arm and trunnion. With a 13/16" wrench turn the cylinder shaft until the holes line up. **NOTE: The cylinder rod must be threaded through the adjustable clevis. On 46.00" to 48.99" bed height installations, the cylinder will have to be extended slightly for the holes to line up. On all other installations the cylinders should be fully retracted when connected.** Make sure the clevises on both cylinders are adjusted the same. Install the pins, spring pins, and retaining rings at the liftarm and trunnion lugs. See figure 10. Install hoses between cylinders and pump. See figure 4.

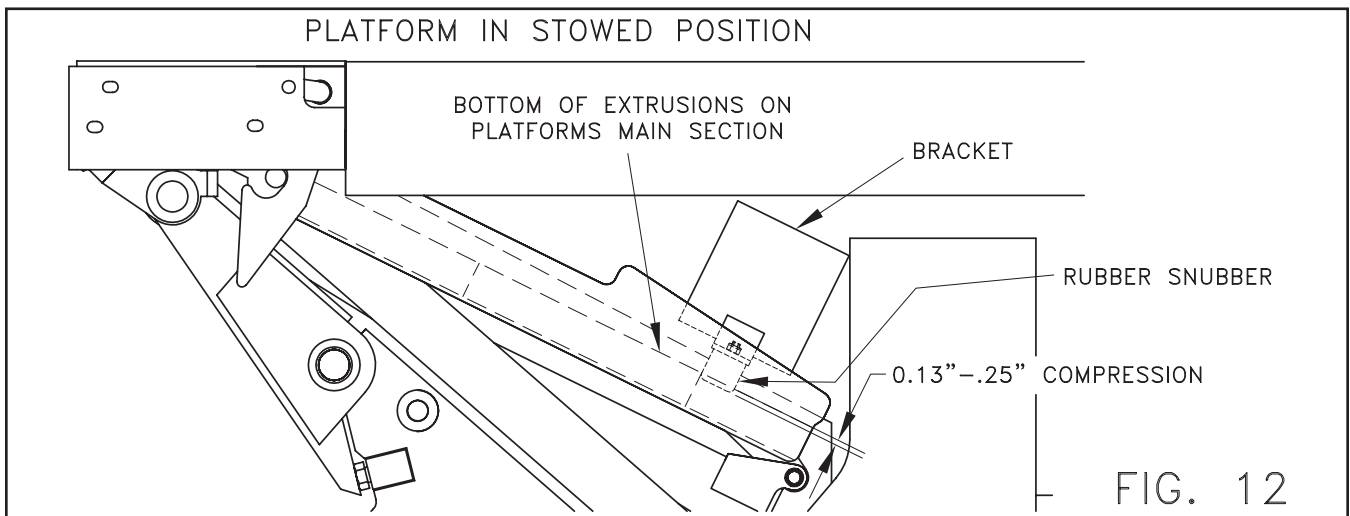
Step 21 Using the UP switch on the electric control, run the pump until it is apparent that the cylinders are pressurized and holding the liftgate up. Additional hydraulic fluid (DEXRON III) may be needed. Remove the clamps and "I" beams. Grind away the welds added in step 6 between the adjusting pad and platform adjust bolts.



- Step 22 Check platform to determine if it is level with the truck bed. Adjust cylinder with a 13/16 wrench to reach the necessary height. After platform has been leveled with the bed, turn cylinder shaft into clevis one turn and tighten the set screw.
- Step 23 Remove the floor jack, post, and barrel from under the liftgate. Also remove the 1/4" thick bars, which were added in step 12. Adjust each leveling screw so the platform has a slight angle approximately one inch higher at the ramp end when at bed.
- Step 24 Carefully fold platform for stowing purposes and slowly raise gate into a stowed position and check all areas for adequate clearances. Trim vehicle frame where interference is still evident. Check for interferences of all moving parts. If interference occurs, review the installation instructions and contact Thieman if the problem can not be eliminated.
- Step 25 Until this time, the liftgate was not able to ramp the platform nose to the ground because the ramping/leveling action was locked out by Thieman for ease of installation. Grind the welds from the bar shown in figure 11 which locks this action out. Lower the platform to the ground until the nose of the platform touches the ground. Note: The pivots will hit first. Continue pressing the down button to ramp the nose of the platform to the ground.



- Step 26 The ST40 series liftgate comes with two snubber kits as standard equipment to prevent excessive wear during transit. See figure 12 for mounting instructions.



## OPTIONAL REAR IMPACT GUARD INSTALLATION

The Rear Impact Guard is optional equipment on the LRST40 from Thieman Tailgates and is designed, tested and conforms to DOT Standards: FMVSS Standard No. 223, Rear Impact Guards (571.223).

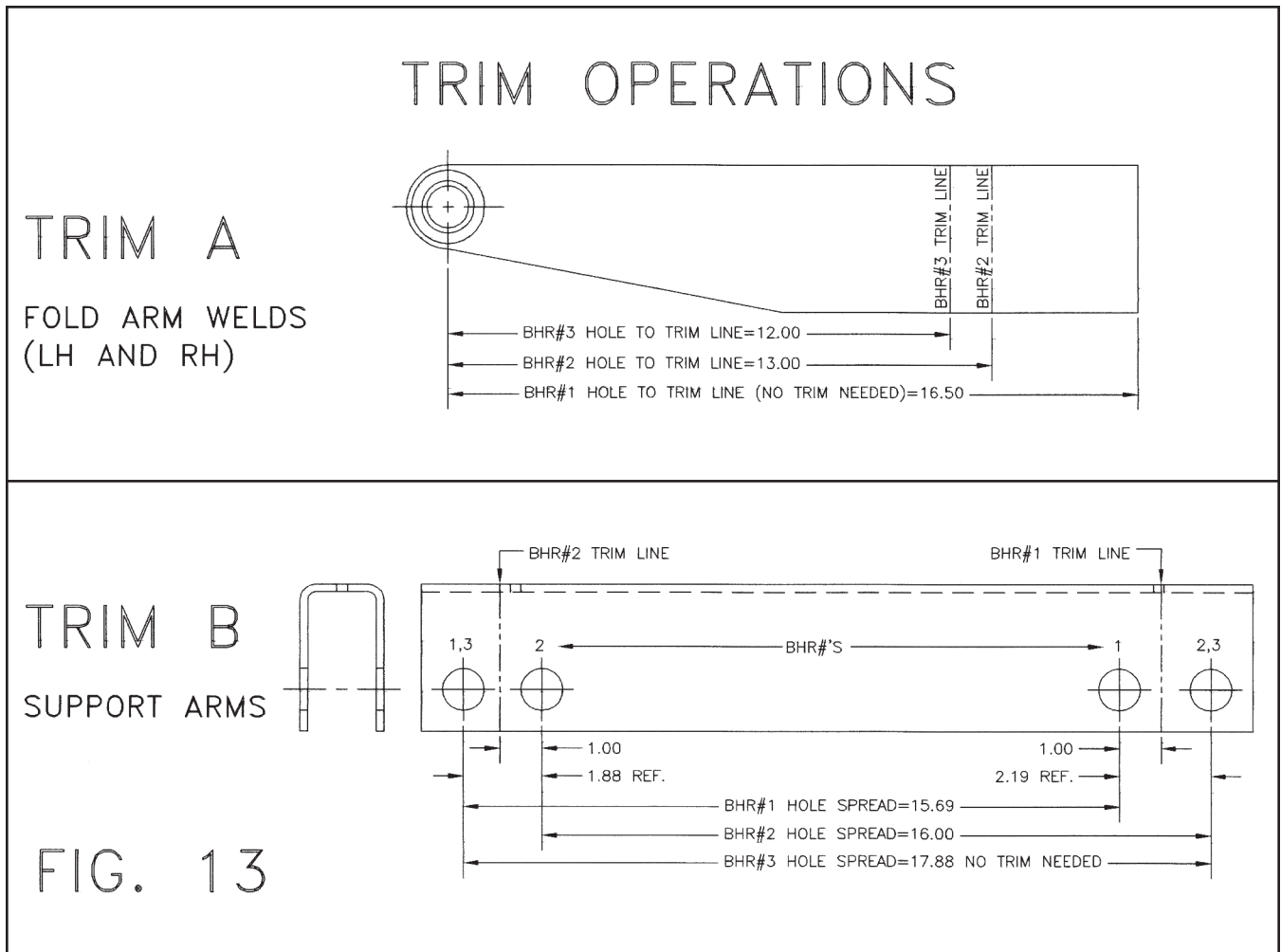
Step 27 First, based on the truck bed height range, determine the bed height range # (BHR#) with the chart below. The truck bed height range must be the same used in Step 14 to determine the "A" dimension. Use this BHR# throughout the installation.

BHR#	BED HEIGHT RANGE
1	52.00-56.00
2	49.00-51.99
3	46.00-48.99

### TRIM OPERATIONS

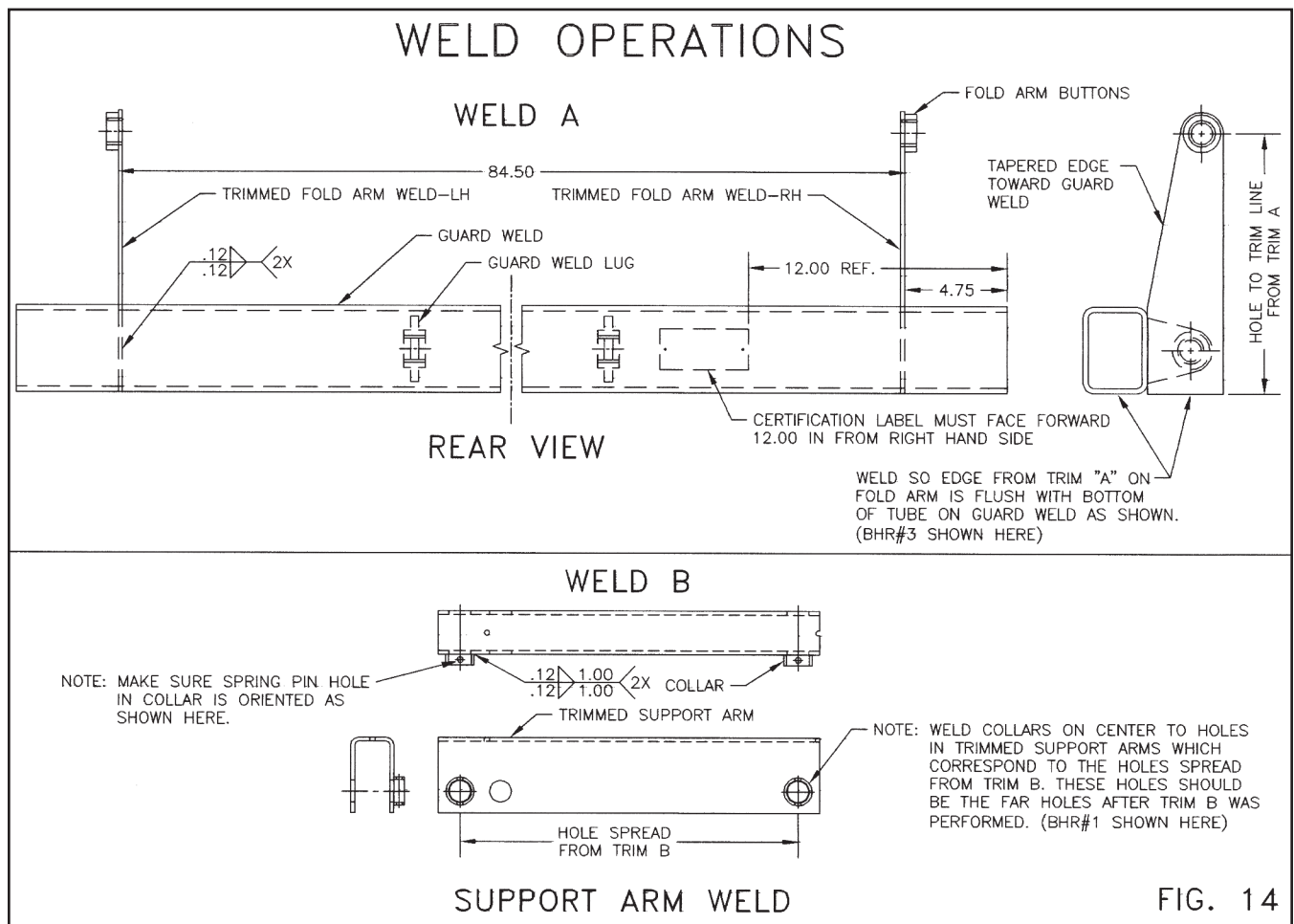
Step 28 Trim the fold arms as shown under Trim A in Figure 13. NOTE: On BHR#1, there is no trimming required for this step. Trim both the left and right hand fold arms.

Step 29 Trim the support arms as shown under TRIM B in Figure 13. Make sure to make a mark by the two holes on the support arms which give the required hole spread for the installed bed height range and trim the support 1.00 inch past the center of the hole with the extra material as shown. NOTE: On BHR#3, there is no trimming required, and on BHR#1 and 2 only one trim is required per arm.



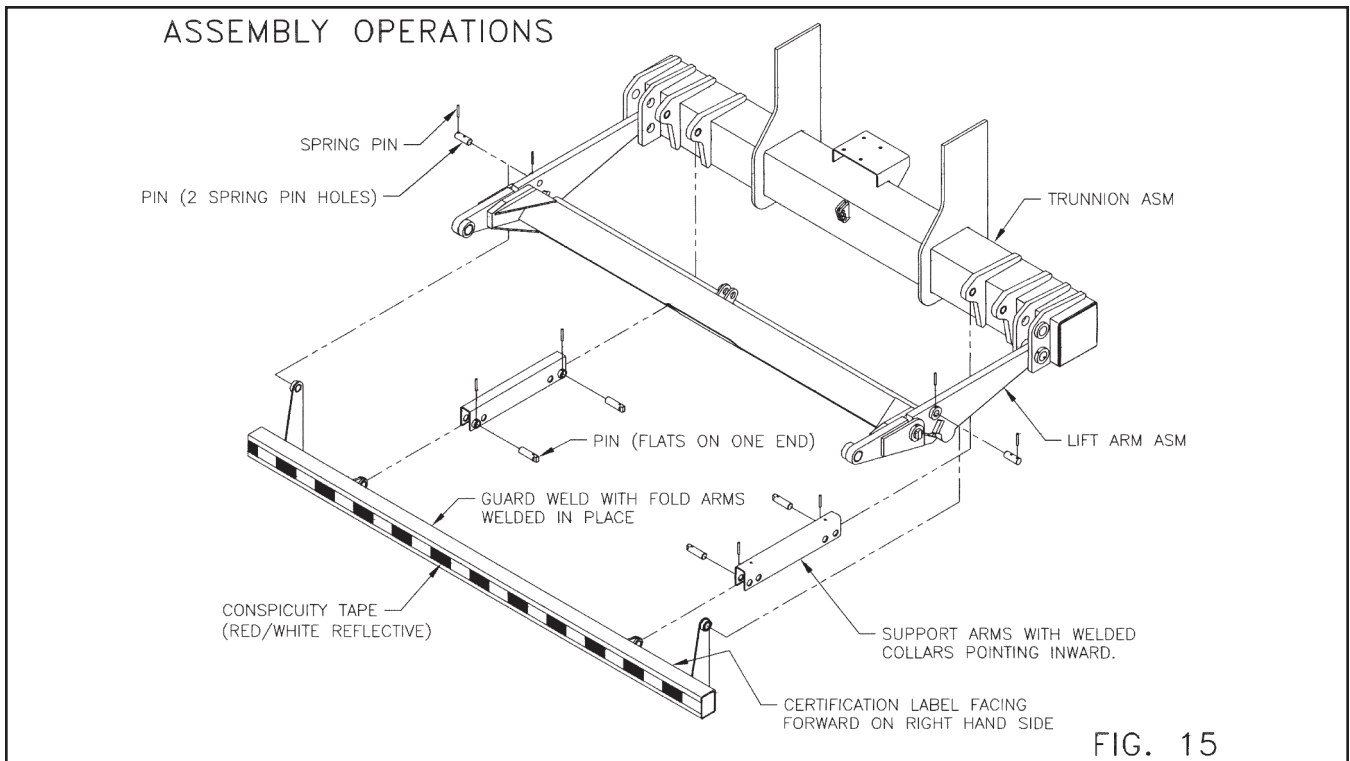
## WELD OPERATIONS

- Step 30 Weld the trimmed fold arms, left hand and right hand, to the guard weld as shown under WELD A in figure 14. Make sure the fold arms are welded on the same side of the guard weld as the guard weld lugs, that tapered edges of the fold arms are toward the guard weld, that the buttons on the fold arms are toward the outside, and that the certification label is facing forward and is on the right hand side as shown. NOTE: All welds should be tack welds at this stage.
- Step 31 Weld the collars to the trimmed support arms as shown under WELD B in figure 14. Make sure the collars are welded centered on the correct holes, which correspond to the hole spread in the TRIM B figure 13 and that the spring pin holes in the collars are oriented as shown in figure 14. NOTE: All welds should be tack welds at this stage.



## ASSEMBLY OPERATIONS

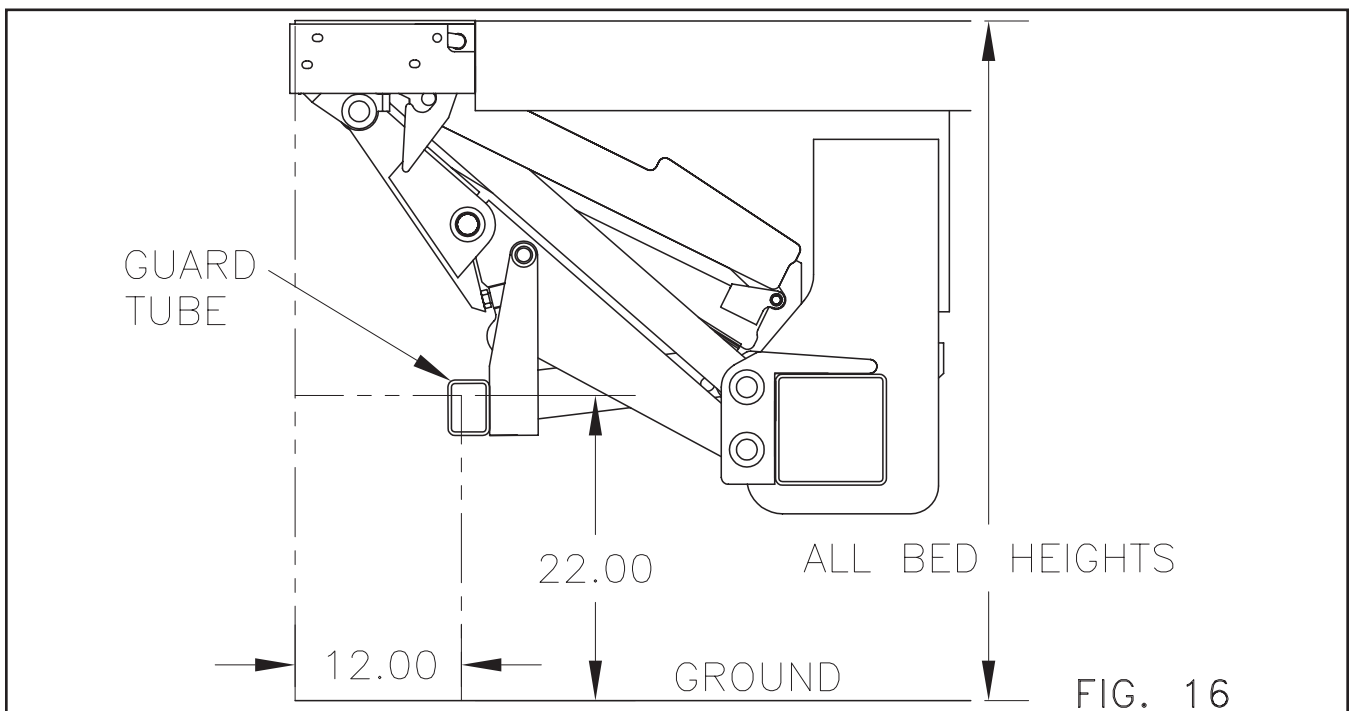
- Step 32 Assemble guard weld/fold arm weld to the lift arm using the pin with the two holes and the spring pins supplied as shown in Figure 15.
- Step 33 Assemble the support arm/collar welds between the guard weld lugs and the trunnion asm lugs using the pins with the flats on the end and the spring pins supplied as shown in Figure 15. Make the collars welded to the support arms face inward.



### FINAL INSPECTION AND INSTALLATION OF GUARD

**Step 34** Operate liftgate fully through all possible positions to make sure operation is not affected by guard mounting and make sure guard does not interfere with dock bumpers or the ground. **DO NOT** cut guard tube end off for clearance purposes. End of guard tube must be within 4.00 inches of outside of truck body to be compliant with DOT standards.

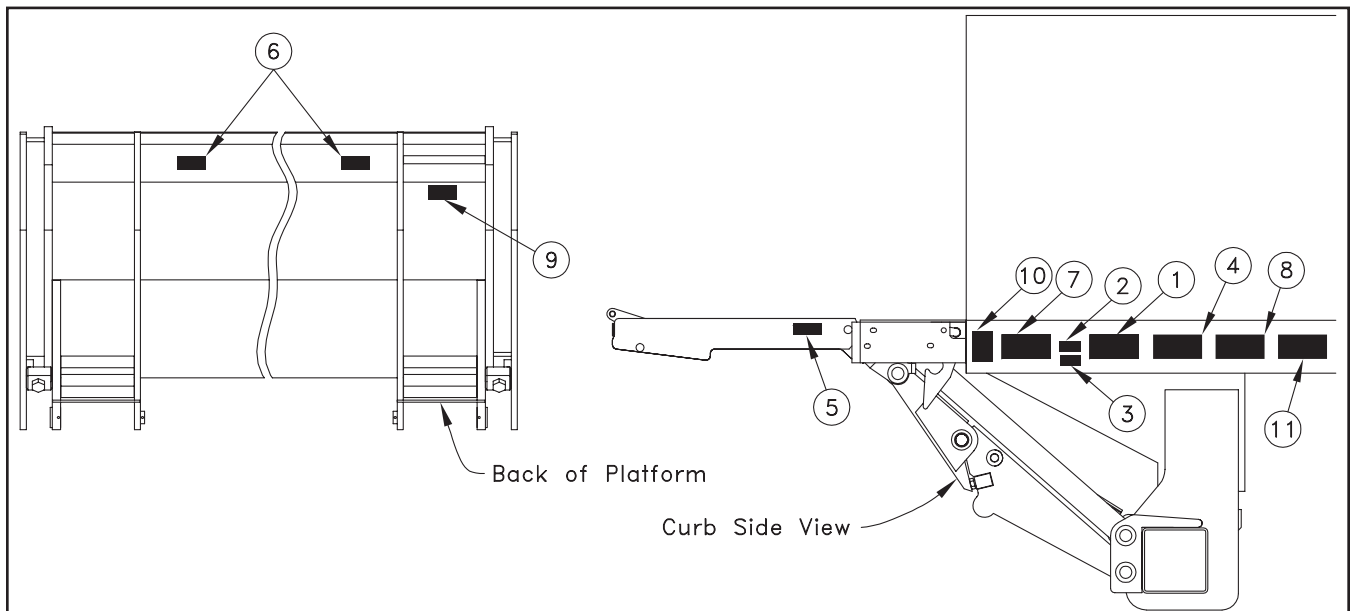
**Step 35** Check to make sure a portion of the guard tube is within the rectangular boundary as shown in Figure 16.



- Step 36 If no interference problems are encountered, finish weld all welds in the weld operations, Step 29 and 30, which were initially tacked.
- Step 37 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 38 If painting liftgate, apply conspicuity tape as shown in Figure 15, after painting is complete.
- Step 39 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 the remaining decals in the appropriate locations as shown. The decals **MUST** be applied properly or all warranties are **VOID!**

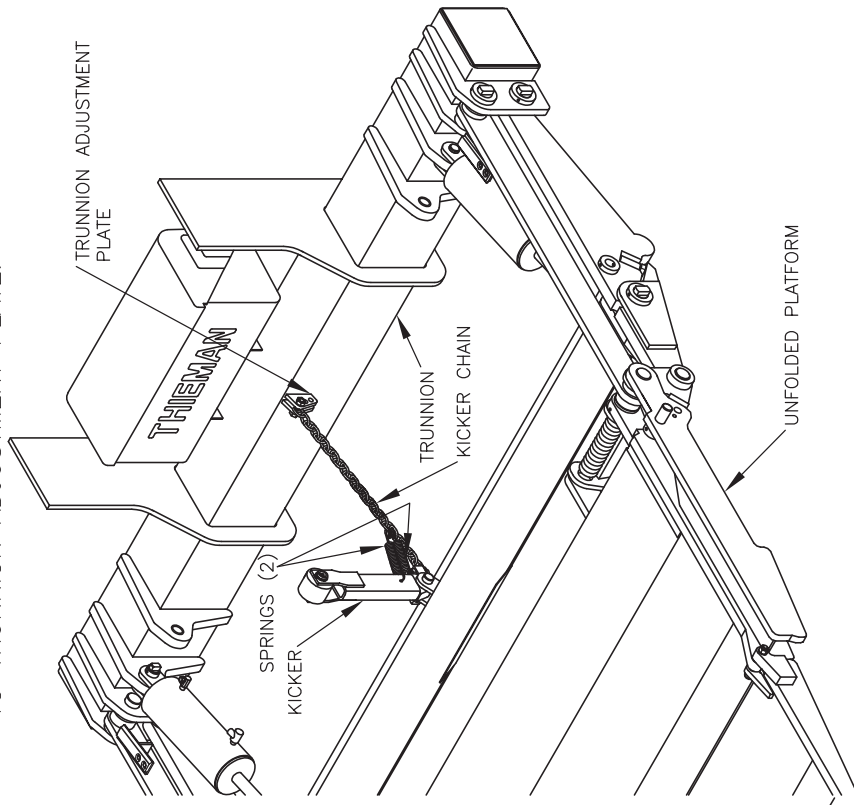
Item	Part Name	Part Number
1	Warning Decal-Off Center	4671050
2	PTO Decal	4650140
2	Fast Idle Decal	4650150
3	Danger Decal	4609
4	Operating Decal	4669
5	Capacity Decal-4000#	4650130
6	Warning Decal	4604
7	Warning Decal	4650530
8	Caution Decal	4650770
9	Handle Decal	4605
10	Warning Decal	4620
11	Wiring Decal	4614
12	Reflector (3)	5705

- Step 40 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).
- Step 41 It may be necessary to add Rear End Protection on this installation. Check your local and state laws for requirements for FMCSR 49 CFR 393.86.



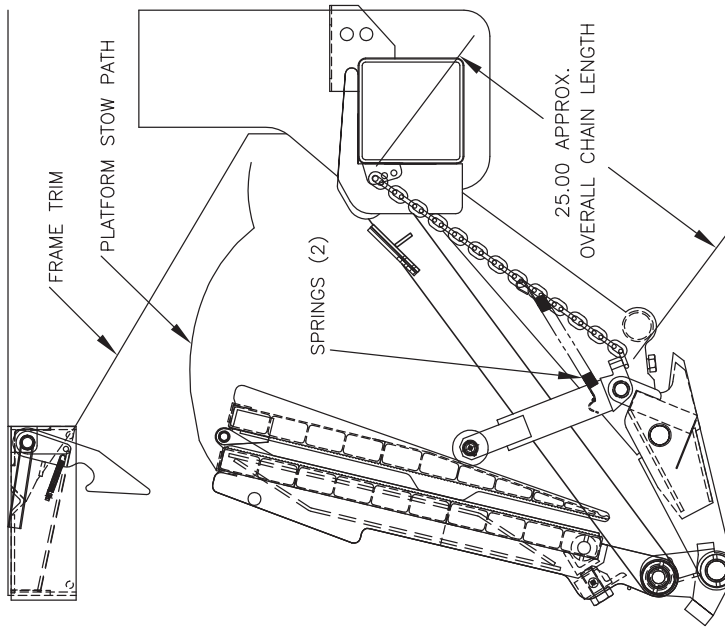
# LRST40 KICKER CHAIN ADJUSTMENTS

- STEP 1. LOWER LIFTGATE TO GROUND AND UNFOLD PLATFORM.
- STEP 2. REMOVE 7/16 BOLT WHICH SECURES KICKER CHAIN TO TRUNNION ADJUSTMENT PLATE.



- STEP 3. TEMPORARILY USE A PHILLIPS HEAD SCREWDRIVER TO SECURE THE KICKER CHAIN TO THE TRUNNION ADJ. PLATE'S MIDDLE HOLE. SIMULATE A SHORTER CHAIN BY PUTTING THE SCREWDRIVER THROUGH THE CHAIN, ONE LINK CLOSER TO THE KICKER. OVERALL CHAIN LENGTH AFTER ADJUSTMENT, SHOULD BE APPROX. 25.00.

- STEP 4. FOLD THE PLATFORM AGAINST THE KICKER AND SLOWLY STORE THE PLATFORM AWAY, CHECKING FOR INTERFERENCE BETWEEN THE TRIMMED FRAME AND THE PATH OF THE STORING PLATFORM.
- STEP 5. REPEAT STEPS 1,3 AND 4 UNTIL THE PLATFORM IS CLOSE TO VERTICAL WHEN AT THE GROUND AND AGAINST THE KICKER. PLATFORM MUST LEAN TOWARD TRUCK SLIGHTLY SO IT DOESN'T UNFOLD AUTOMATICALLY.



- STEP 6. CUT OFF EXCESS CHAIN BEYOND SCREWDRIVER.
- STEP 7. REATTACH KICKER CHAIN TO ADJUSTMENT PLATE USING 7/16 BOLT AND LOCKNUT SUPPLIED. BOLT SHOULD BE PLACED THROUGH SAME CHAIN LINK AND SAME ADJ. PLATE HOLE AS SCREWDRIVER WAS IN.
- STEP 8. ATTACH THE RETURN SPRINGS PROVIDED TO THE HOLES IN THE KICKER TUBE AND THEN EXTEND THE SPRINGS TO 12.50 INCHES AND ATTACH TO A CHAIN LINK.



