

PHILIPPI-HAGENBUCH, INC.

"Helping You Move Mountains®"



Thank you for your recent purchase of a Philippi-Hagenbuch, Inc. product. We are happy you chose us for enhancement of your haulage process and are here to assist you in increasing production with simple, safe solutions that are innovative, but easy to maintain.

Once your product has been installed, please visit our warranty registration website to validate your warranty. The address is:

<http://www.philsystems.com/register-warranty>

If there's ever anything we can do for you, please let us know. Again, thank you for the opportunity to work with you and your organization, we sincerely appreciate it.

Regards,

A handwritten signature in black ink that reads 'Josh Swank'.

Josh Swank
Vice President of Sales & Marketing
(309) 634-0026
jjswank@philsystems.com

Please Note – failure to register the product will result in the forfeiture of warranty benefits. Make sure you register as soon as the product is installed!



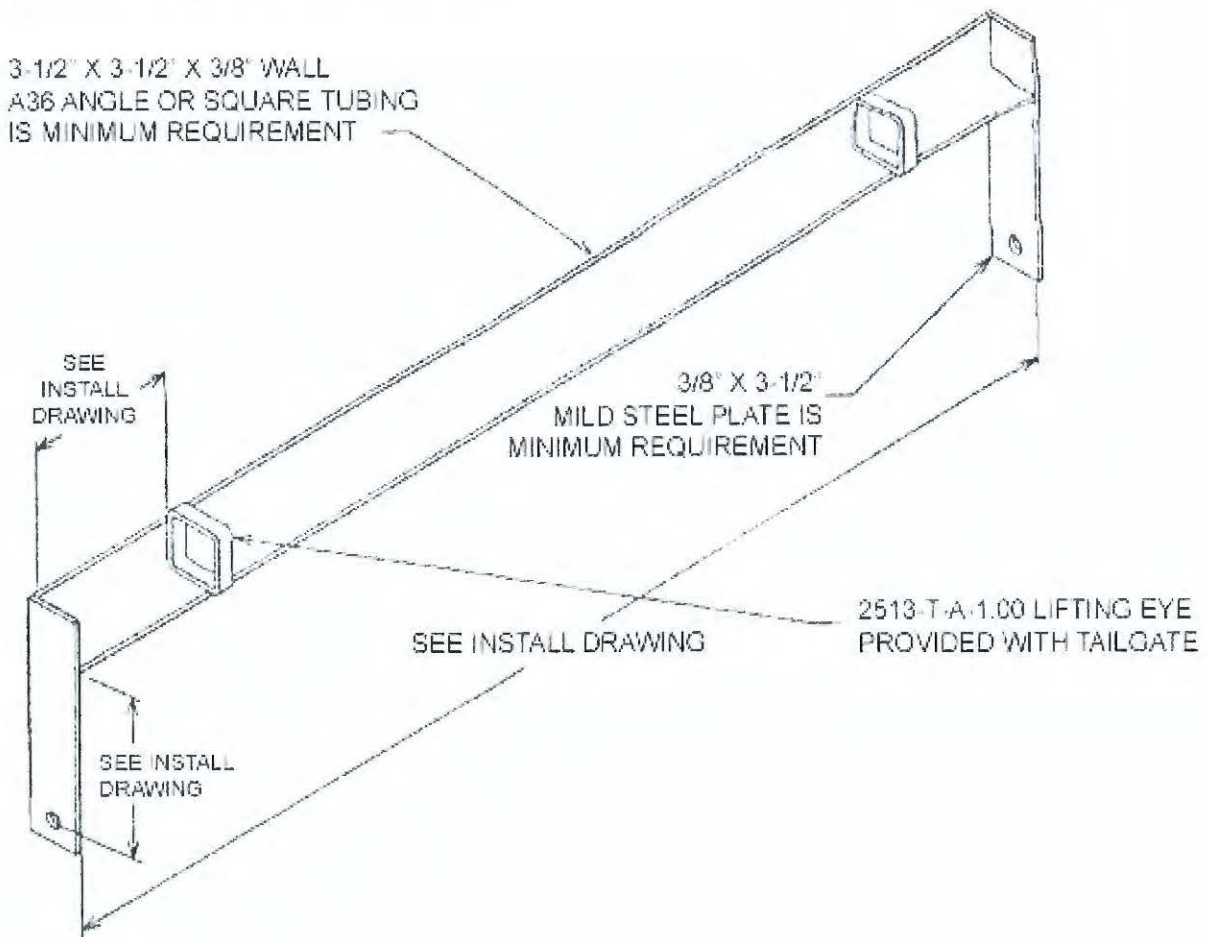
TAILGATE PREPARATION AND ASSEMBLY

INSTALLATION TOOL AND SAFETY BLOCKS

Material for fabrication of installation tool is customer provided and can be made from 3 1/2" X 3 1/2" X 3/8" wall A36 angle or square tubing as a minimum requirement. Dimensions to fabricate the Tailgate Installation Tool are given in "Detail D" on the Installation Drawing. This tool has two purposes:

1. To hold the spacing between sidearms to facilitate easy mounting
2. To establish the vertical position of the chain mount point on the sidearms relative to the top of the body side

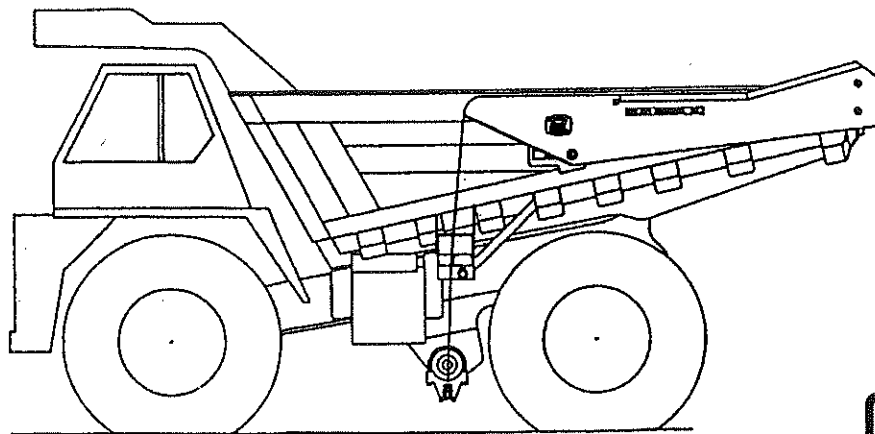
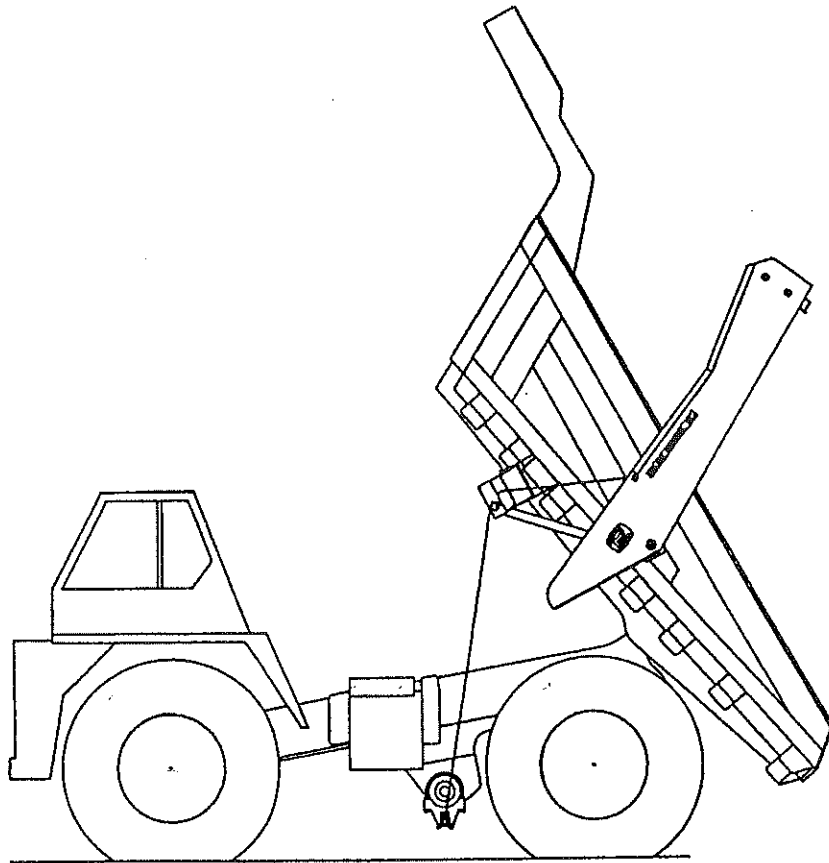
A typical Installation Tool is shown below:



AUTOGATE® INSTALLATION MANUAL

PURPOSE: To describe the installation procedure and maintenance requirements of the PHILIPPI-HAGENBUCH Autogate.

APPLICATION: Rigid Frame Off-Road Haul Trucks.



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INSTALLATION

Unassembled Parts Description

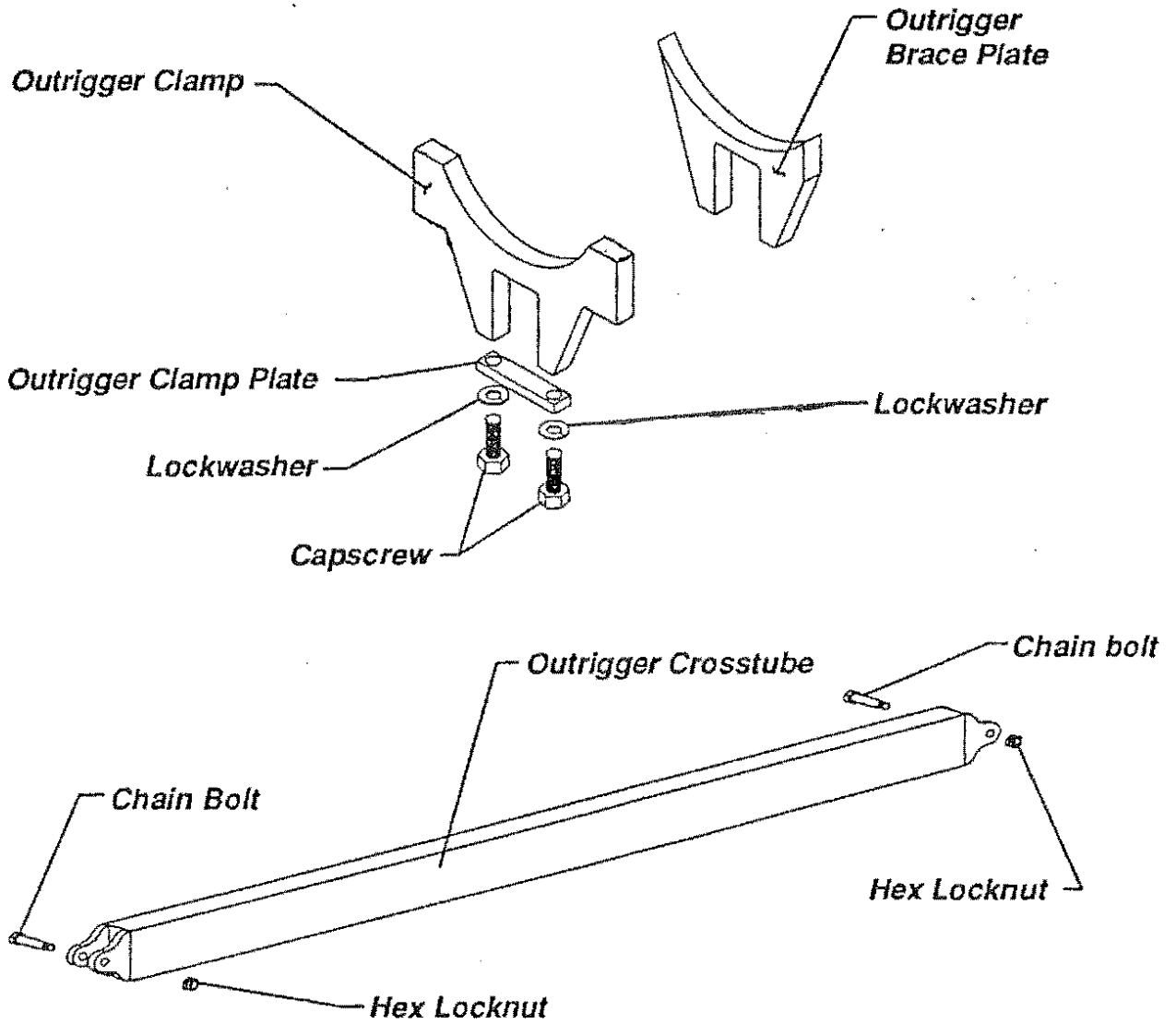


Figure 1 – Outrigger and Outrigger Clamps



INSTALLATION

Unassembled Parts Description

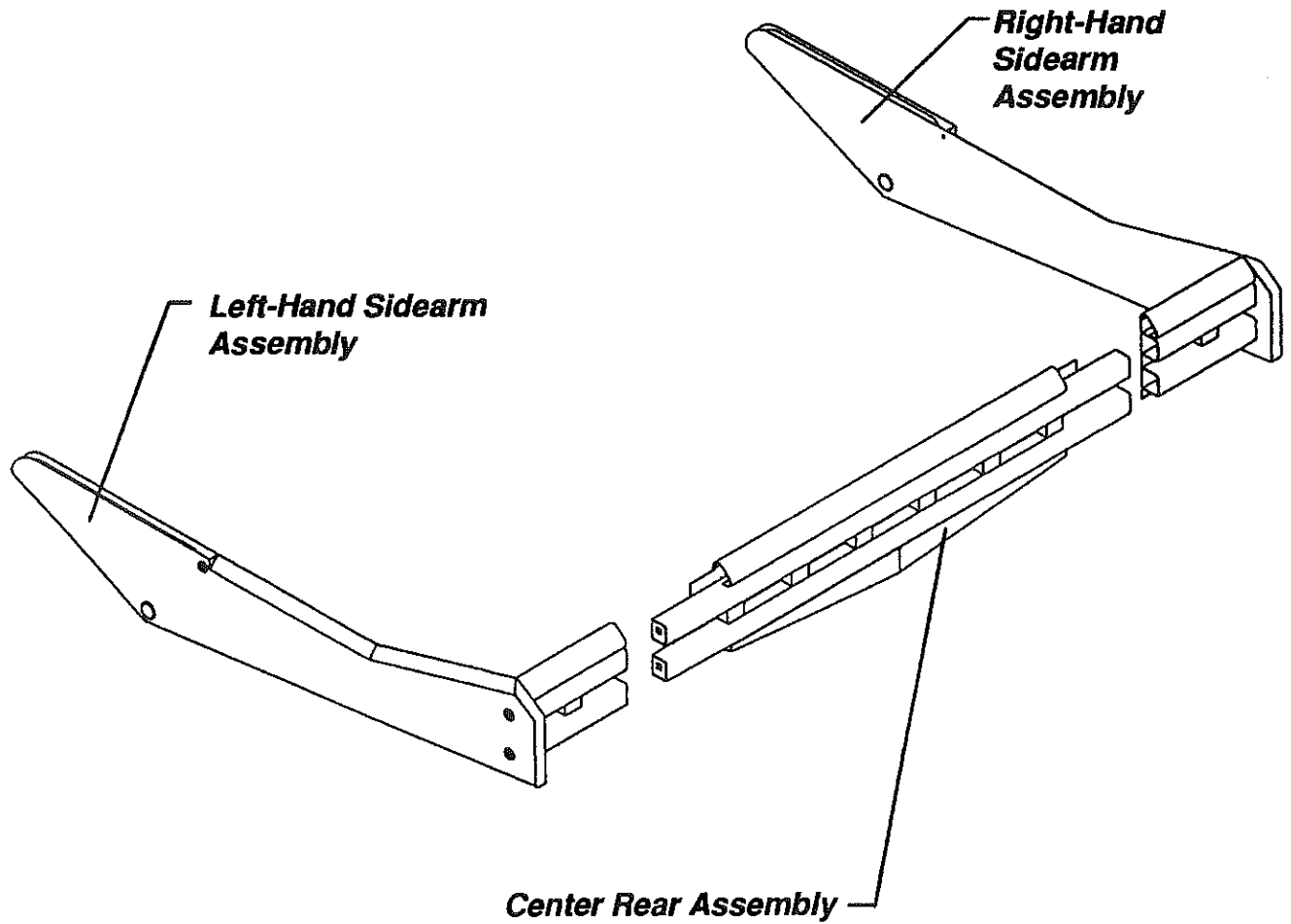


Figure 2 – Sidearm and Center Rear Assemblies



INSTALLATION

Unassembled Parts Description

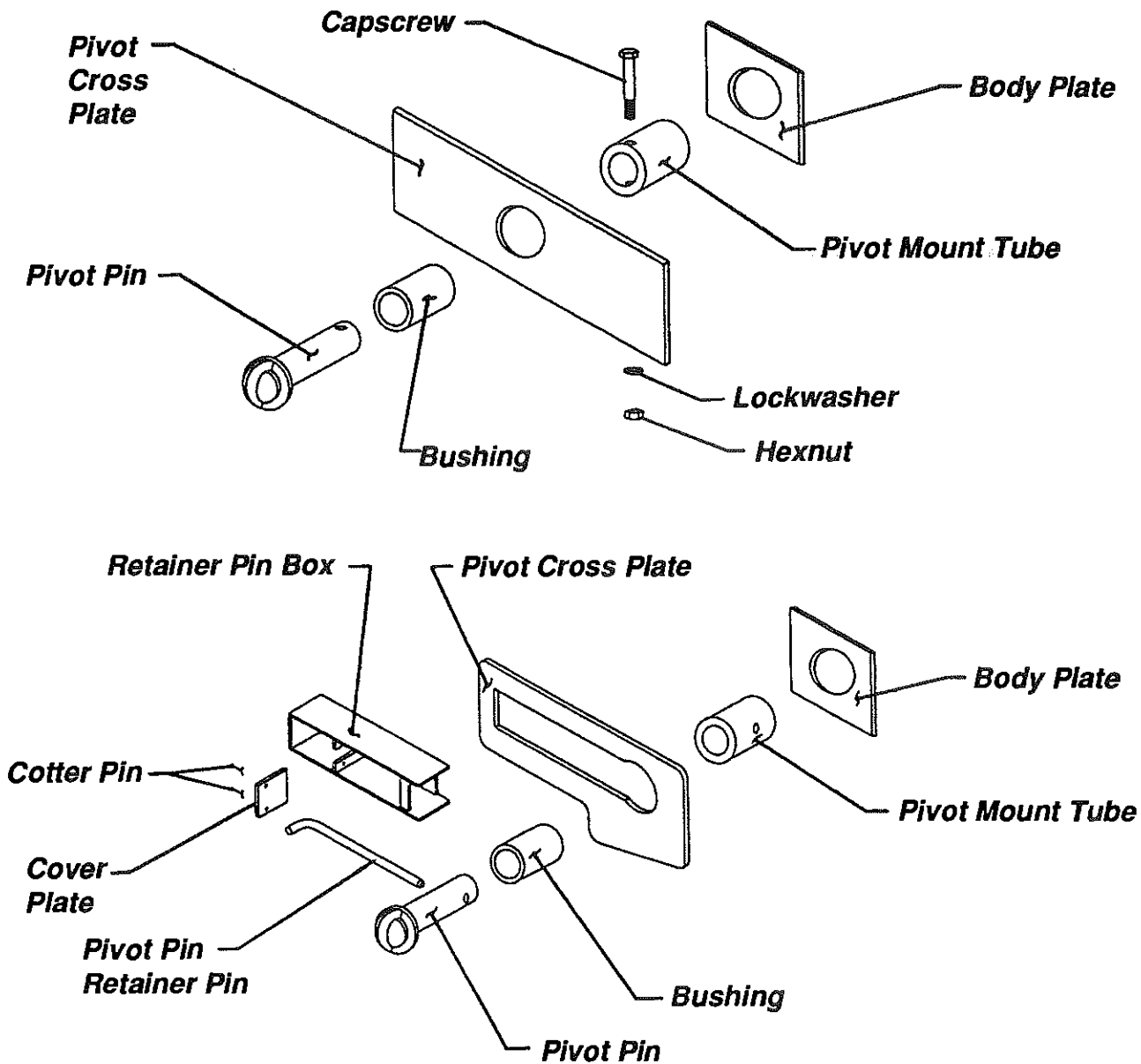


Figure 3
Standard Style Pivot Accessories and
Retainer Pin Box Style Pivot Accessories



INSTALLATION

Unassembled Parts Description

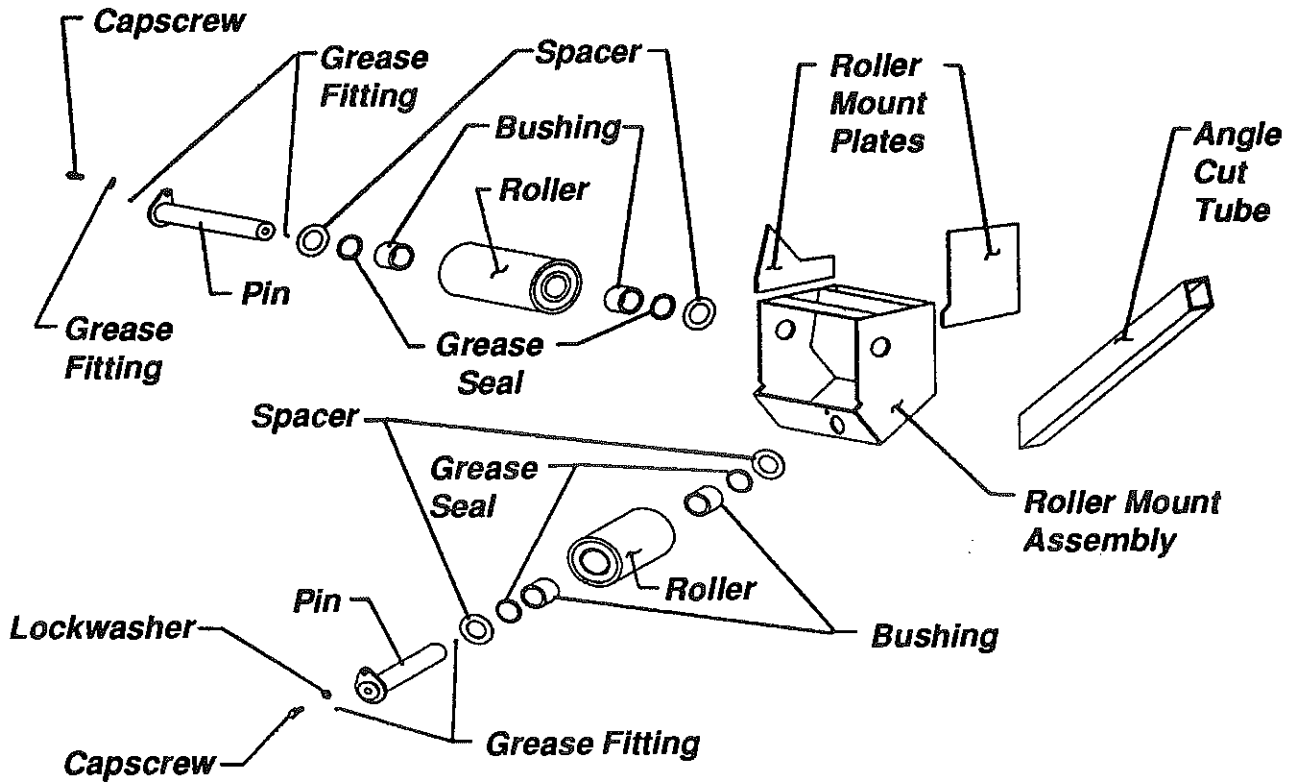


Figure 4 – Roller Box and Related Accessories



INSTALLATION

Unassembled Parts Description

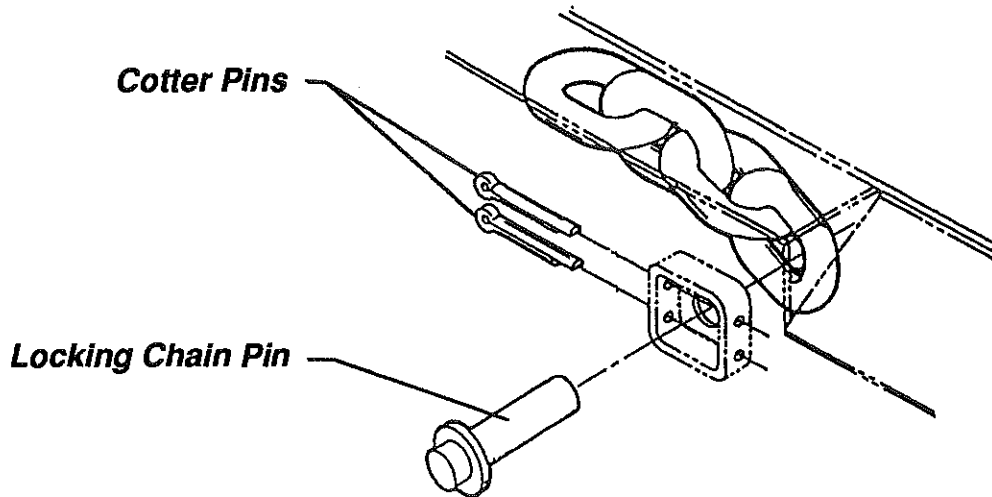


Figure 5 – Locking Chain Pin and Cotter Pins

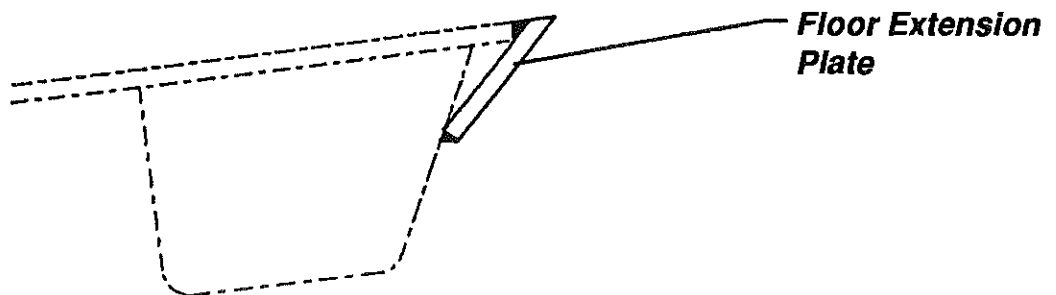


Figure 6 – Floor Extension (If Applicable)



INSTALLATION

Preparation Needs for Autogate® Tailgate Installation.

1. Items necessary to install tailgate:
 - a. Dry, low-hydrogen E70XX welding rod, preferably with iron powder coatings. If using wire feeders, it is recommended to use Select Arc 810-NI2, or equivalent, weld wire with 75% argon / 25% carbon dioxide gas shield mix. All welding on the tailgate must be done with these types of welding rod.
 - b. Four or five, 10'-12' chain slings, 5/16" or larger chain, used for suspending the tailgate.
 - c. Two, one-ton or larger hand winches (come-a-long).
 - d. A loader or crane for use in assembling the tailgate and lifting it onto the truck.
 - e. Material for fabricating the installation tool, as indicated on the large installation drawing.
 - f. Miscellaneous hand tools and blocking.

2. Safety Concerns:
 - a. Observe safe ladder practices.
 - b. Provide adequate space above and around.
 - c. Work on firm, level ground.
 - d. Avoid working in proximity of power lines.
 - e. Follow all caution notes in this manual.
 - f. Observe Original Equipment Manufacturer welding standards.
 - g. Observe Original Equipment Manufacturer body lock procedure.



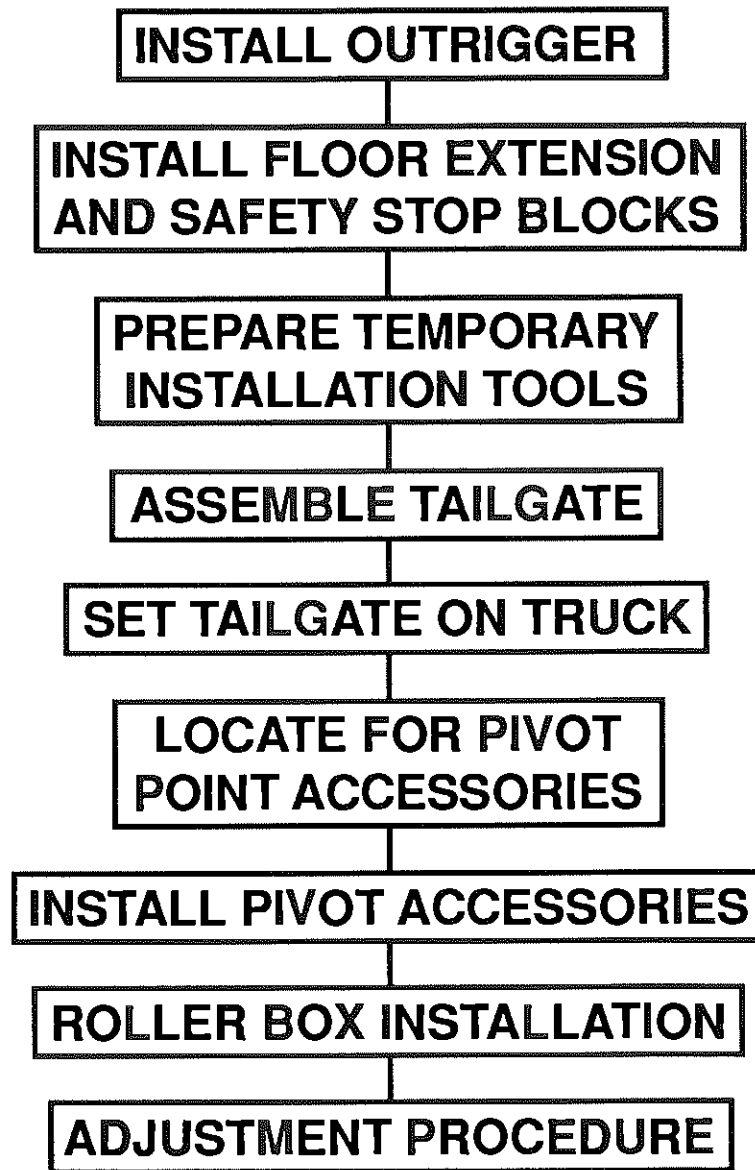
INSTALLATION

3. Check through parts list on installation drawing to confirm that there are no missing or damaged parts.
4. Read entire Service Manual prior to starting installation procedure. If, after reading, you have any questions on these instructions or the installation assembly drawing that we have included, call PHILIPPI-HAGENBUCH, INC., at (800) 447-6464 and we will answer your questions. If you are in doubt or in question about any of the installation procedures, call us.



INSTALLATION

Overall Installation Procedure



INSTALLATION

1. Install Outrigger

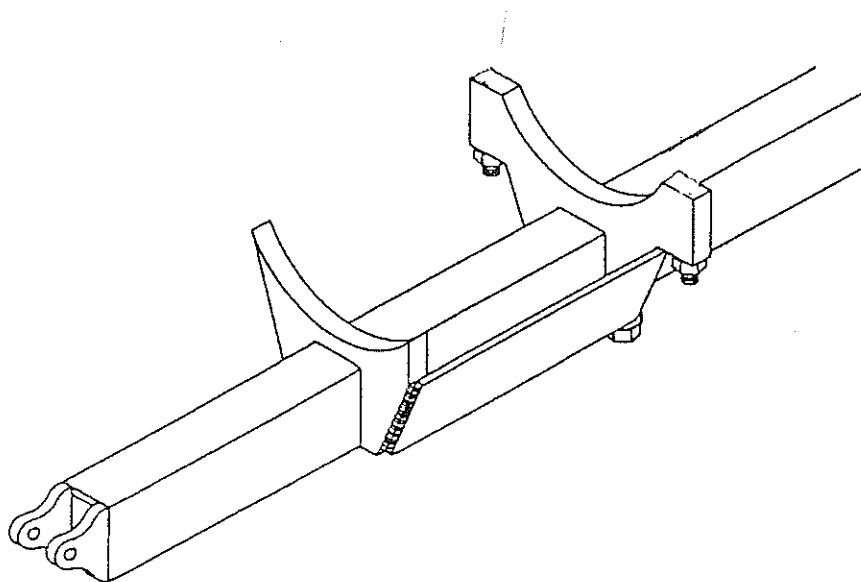


Figure 7

- a. Connect outrigger clamp to outrigger by installing outrigger clamp cap or outrigger clamp top, leaving the bolts loose enough to allow for adjustment.
- b. Slide outrigger under truck. Tack temporary lifting eyes to side of truck. Uniformly lift outrigger into position shown on large installation drawing, using two hand winches.
- c. Securely weld outrigger clamps to the chassis, "C" clamping if necessary.
- d. Locate outrigger brace plate as shown on large installation drawing. Connect outrigger brace plate and outrigger clamp by welding plate to rear of each as shown on large installation drawing. NOTE: No welding is to be done to outrigger cross tube as adjustment may be required.



INSTALLATION

2. Install floor extension and safety stop blocks. (If applicable to truck model.)

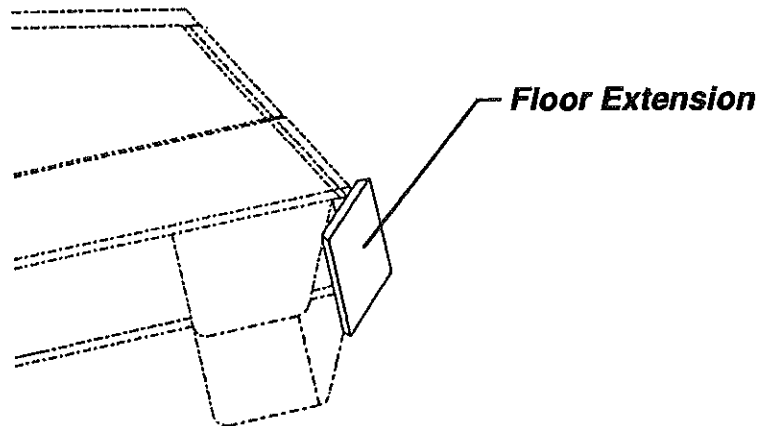


Figure 8

- a. Position floor extension level with rear of body floor and flat against rear-most body bolster.
- b. Tack weld floor extension to body and recheck the position of the extension.
- c. Weld according to specifications on installation print.

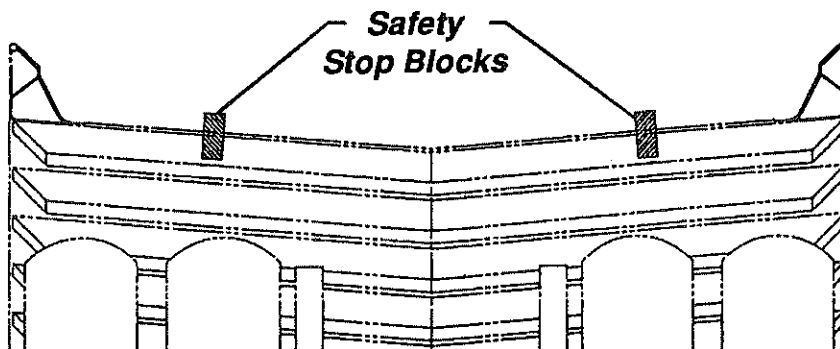


Figure 9

- d. Weld safety stop blocks to rear of truck using 1/2" x 3" x 6" flat bar or similar material, as specified by the large installation drawing.



INSTALLATION

3. Prepare temporary installation tools.

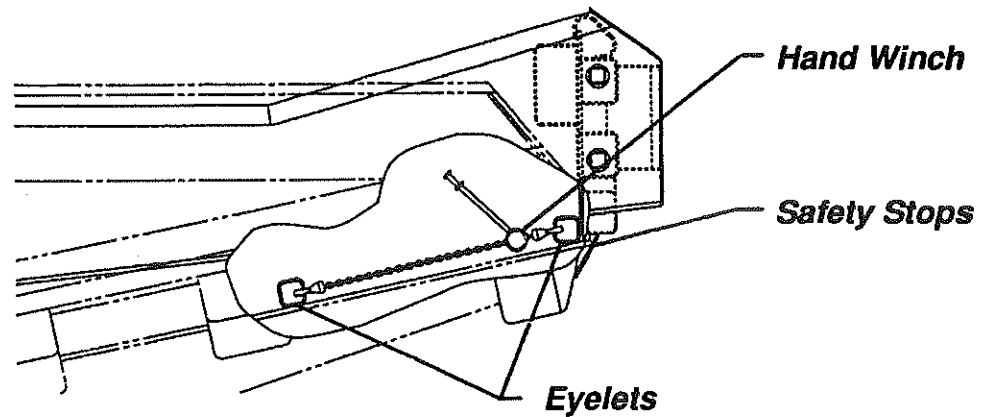


Figure 10

- a. Weld an installation eyelet (4" sq. tube x 1" long) as low as possible, in the middle of the center rear section on the inside of the tailgate.
- b. Weld a second installation eyelet in the center of the body floor 42" from the rear edge.

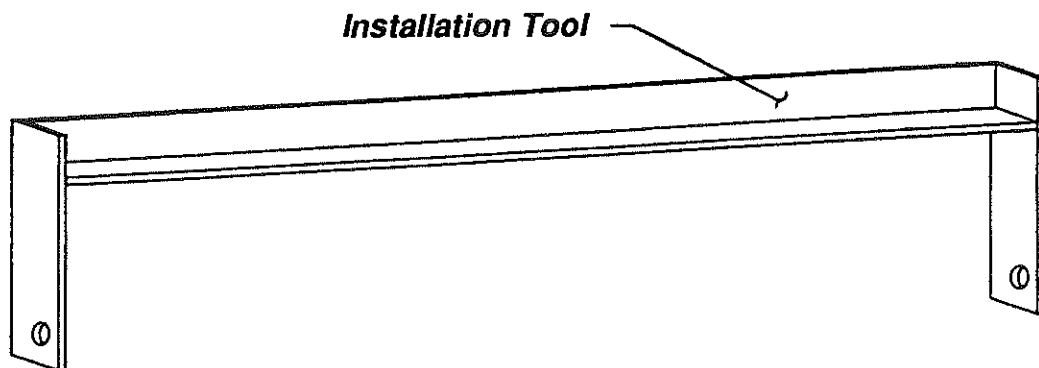


Figure 11

- c. Fabricate installation tool as shown on the large installation drawing.



INSTALLATION

4. Assemble Tailgate

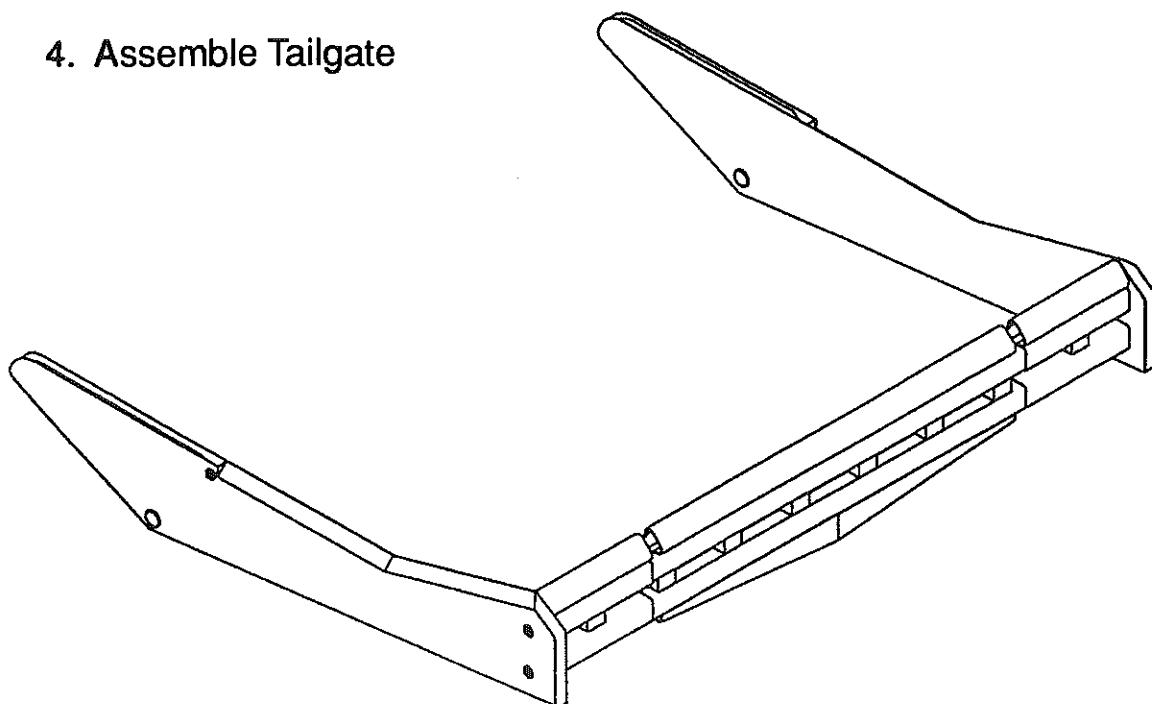


Figure 12

- a. Make certain all loose parts that were shipped inside the sidearms or center rear section are removed. Set one sidearm up, ready to receive the center rear section. If necessary, block the sidearm up under the pivot bushing location until the rear section of the sidearm is vertical.
- b. Pick up the center rear section with a hook in each end of the top rail, and slide the center rear section into the end of the sidearm. (A hand winch may be used to pull the two sections together.)
- c. Join the other sidearm with the center rear section in a similar manner as in Step b.
- d. Insert 1 1/4" bolts through the sidearms into the center rear section to hold the three sections together. Liberally apply anti-seize compound to each bolt before it is installed. Draw the sections together until dimension "A" on the large installation drawing is reached.



INSTALLATION

- e. Set installation tool on the assembled gate and use locking chain-pin to secure it.
- f. Drive the pivot bushing from the outside of the sidearm into the sleeve by placing a block of wood against the bushing (so as not to damage it) and carefully striking it with a hammer.
- g. Apply the two "PHILIPPI-HAGENBUCH, INC." decals, one on each sidearm as specified on the large assembly drawing.
NOTE: To insure proper adhesion of decals, all air bubbles must be removed after applying the decals.
- h. Attach the bright metal serial number plate to the tailgate center section or sidearm (as shown on the large installation drawing), using the drive screws included with the serial number plate.

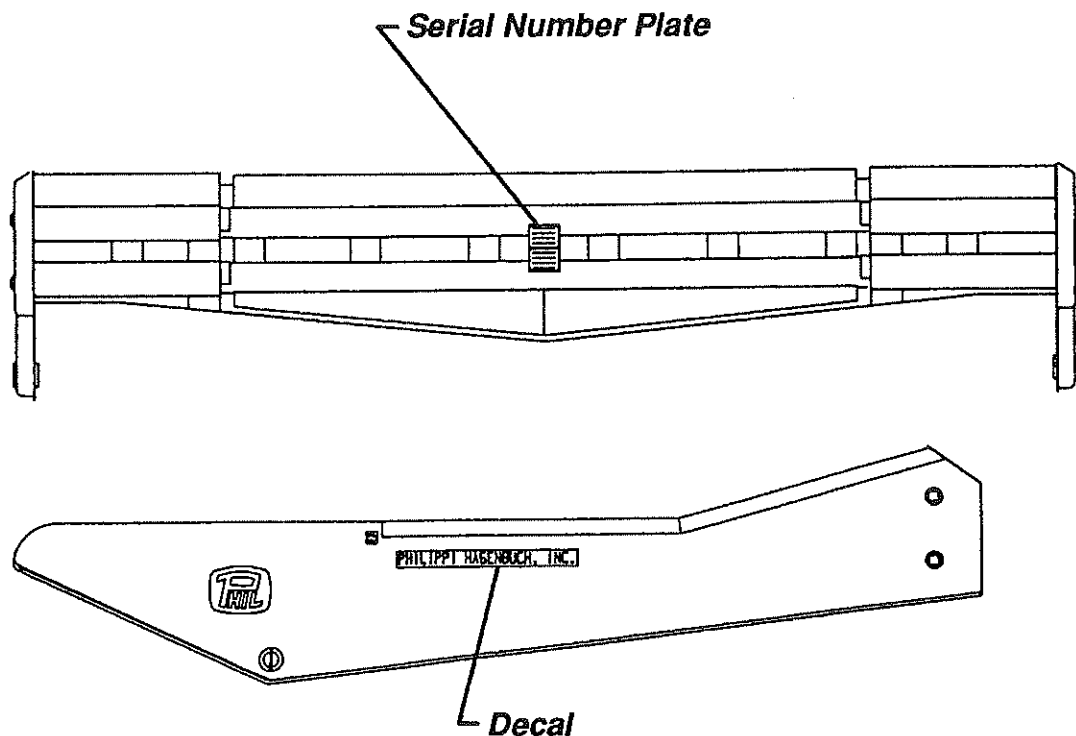


Figure 13



INSTALLATION

5. Set Tailgate on the Truck

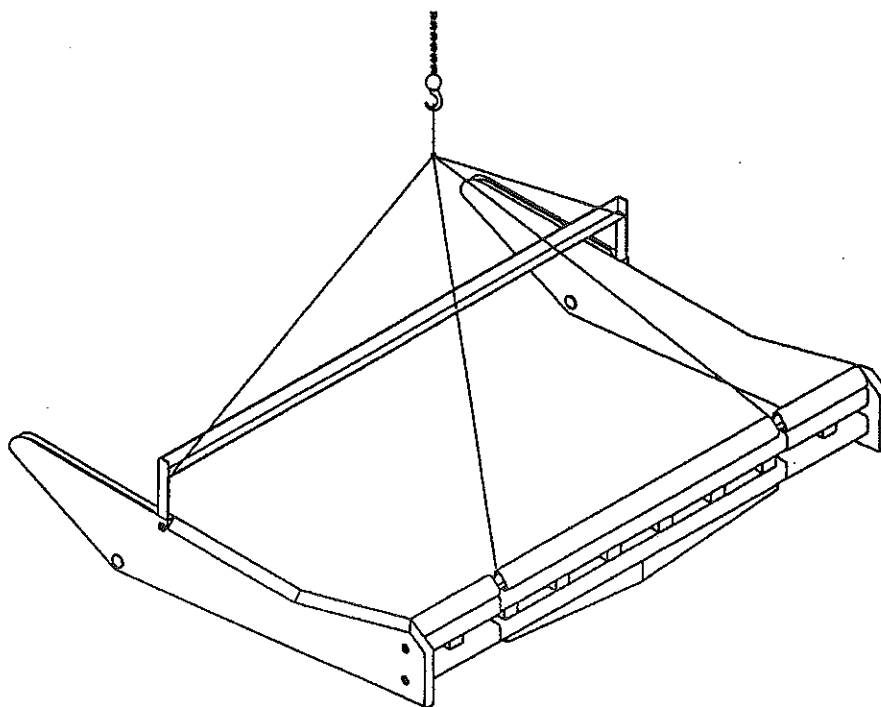


Figure 14

- a. Attach to the tailgate from the outside four corners diagonally with chains. The intersection of these chains should be 2' - 3' ahead of the center rear section (the approximate center of gravity). Adjust this hoisting point until the tailgate will balance level with the ground.
- b. Using a crane or loader, hoist tailgate high enough to set it on the truck.



INSTALLATION

- c. Approach the rear of the truck with the suspended Autogate Tailgate. Guiding the forward-most points of the tailgate with a rope attached to the side, slide the sidearms of the tailgate forward carefully, with the installation tool above the top edge of the body. **CAUTION: IF YOU CHOOSE TO HAND-GUIDE THE UNIT ON FROM INSIDE THE TRUCK BED, ALWAYS STAY FORWARD OF THE INSTALLATION TOOL AND/OR BELOW THE TOP OF THE BODY SIDES. IF THIS MEASURE IS NOT OBSERVED, SERIOUS OR FATAL INJURY MAY OCCUR IF THE SLING CHAINS HOLDING THE TAILGATE SHOULD FAIL.**
- d. Slide the tailgate as far forward as possible. The bottom rear edge of the gate must be inside the safety stops attached to the rear of the truck floor, and must be resting on the floor and/or sloped rear rail of the body sides. At this time (continuing to observe the danger caution noted in Step c) attach a hand winch between the installation eyes welded to the body floor and the center section of the tailgate. Draw the hand winch tight. **CAUTION: SAFETY STOPS AND HAND WINCHES ARE BOTH NECESSARY TO SAFEGUARD THE TAILGATE FROM SLIPPING OFF THE REAR OF THE BODY AND ARE VITAL TO THE SAFETY OF ALL INSTALLATION PERSONNEL.**
- e. If the tailgate is not yet resting on the floor of the truck, ease the tension on the hand winch and lower the rear of the tailgate until it rests inward from the rear edge of the floor, according to the large installation drawing. It may be necessary to notch the tailgate to allow the it to rest the required 1" to 1 1/2" inside the body.
- f. Unslung the tailgate, maintaining tension on the hand winch.



INSTALLATION

6. Locate for Pivot Accessories (Retainer Pin Box Style)

- a. Level the top edge of the sidearms so that they are parallel with the top edge of the body. It may be necessary to block under the installation tool to bring the sidearms parallel.
- b. Check to make sure the clearance between the inside of the tailgate sidearms and the outside edge of the truck body is equal along the length of the sidearm and measures according to the large installation drawing.
- c. Weld stop blocks, 1" x 2" x 4 1/2" or 1" x 2" x 7 1/2", to the outside of the tailgate center section against the sidearm sections. Do not weld to the sidearms. Also weld inside stop block, 3/4" x 1 1/2" x 7", on the inside rear of the center section against the sidearm sections. Do not weld to the sidearms. See section C-C as indicated on the large installation drawing.
- d. Partially insert the pivot pins into the bushings in the sidearms until the pins contact either the bolster or the side of the truck. Mark the outline of the pin with chalk. Pull the pivot pins back after marking, flush with the inside of the sidearms.
- e. Using the crane or loader, lift the front of the gate (by attaching to the installation tool) to expose approximately 12" above the pivot pin location. Be sure to ease the tension on the hand winch attached to the gate from the eye on the body floor as the front of the tailgate is lifted. **NOTE: If a lifting device is not available at this time, you may hook a hand winch across the top of the body and connect it to chains dropped on either side between the sidearms and the truck body sides. CAUTION: BE SURE TO HAVE AMPLE CLEARANCE TO SAFELY RAISE THE FRONT OF THE GATE TO THE NECESSARY HEIGHT. KEEP HOOKS ATTACHED TO THE SIDEARMS SECURELY FIXED THROUGHOUT THE PROCEDURE BY TACKING STOPS ON WHERE NECESSARY.**



INSTALLATION

- f. Weld stops on each side of the body. Lower the gate down onto the stops. Check the pressure on the hand winch (at the rear of the truck body) and the rear safety stops that hold the tailgate on the truck. **BE SURE** these items are secured and solid.



INSTALLATION

7. Install Pivot Accessories (Retainer Pin Box Style)

- a. Now that the gate is secured and out of the way, the body bolster can be cut to allow installation of the body plates, pivot mount tubes, and retainer-pin boxes. Place the pivot mount tubes over the pivot pin locations and chalk mark their outlines. Place the pivot cross plates over the pivot pin and pivot mount tube locations and chalk mark around the outside edges. Remove the pivot cross plates and re-mark 1.0" inside the original outline. Erase the original outline. The retainer-pin boxes are now located in the slots of the pivot cross plates, just below or to the left of the pivot mount tube marking, according to the large installation drawing. Chalk mark around the outside of the retainer-pin boxes.
- b. Torch cut all the marked areas. After cutting, set the pivot mount tube, retainer-pin boxes and body plates in the holes. This is done because when the gate is lowered, there is sometimes insufficient clearance to get these items into this hole in the body.
- c. Raise the gate and lift it off the stops. Remove the stops and lower the tailgate until the sidearms are again parallel with the top edge of the body.
- d. Lift the pivot mount tubes and body plates into place, being sure that the chamfered end of the pivot mount tube faces outward toward the sidearm. Insert the pivot pins into the pivot mount tubes.



INSTALLATION

- e. Position the body plates against the body (with the pivot mount tubes through the body plate) so that they lie flat. Seat the pivot mount tubes firmly against the truck body sides with the bolt hole in the pivot mount tube located as specified on the installation print. Securely tack weld the pivot mount tubes to the body plates, taking care to insure that the body plates are as flat as the body sides. Securely tack the body plates against the body sides. NOTE: If the pivot mount tube or body plates is against a bolster and the weld along the bolster prevents the body plate or pivot mount tube from sitting firmly against the body, it may be necessary to chamfer either the edge of the body plate or tube, or chamfer the bolster, so there is a flush fit against the body.
- f. Remove the pivot pins.
- g. Using the crane or loader, lift the front of the gate and secure it.
- h. Securely weld the pivot mount tubes to the body plates, and securely weld the body plates to the body sides. Distribute this weld in such a manner as to prevent any relative movement or distortion between the pivot mount tubes, body plates, and truck body.
- i. The retainer-pin boxes can now be tacked in place. The box is installed by placing the open end against the pivot mount tube as shown on the large installation drawing, centering the box directly in line with the hole in the pivot mount tube. NOTE: The retainer-pin box should protrude beyond the bolster or body wall to allow for welding. This dimension is specified on the large installation drawing.
- j. Securely weld the retainer-pin boxes to the pivot mount tubes, as specified on the large assembly drawing.



INSTALLATION

- k. Place the pivot cross plates over the pivot mount tubes and retainer-pin boxes. Securely weld the pivot cross plates to the pivot mount tubes, retainer-pin boxes, and the bolster or body wall as specified on the large installation drawing.
- l. Raise the tailgate and lift it off the blocks or stops. Remove the blocks or stops and lower the tailgate into position for reinserting the pivot pins.
- m. Liberally apply anti-seize compound to the inside of the pivot mount tubes and to the outside of the pivot pins. Insert the pivot pins. The eye on the pivot pin is welded in line with the hole in the pin to simplify the retainer-pin installation. Put a bar through the eye and turn the pivot pin until the holes are aligned. The retainer-pins can now be installed. Remove the cotter pins and cover plate located in the retainer-pin box. Insert the retainer-pin up through the pivot pin and mount tube. Secure the retainer-pin by replacing the cover plate and cotter pins.



INSTALLATION

6. Locate for Pivot Accessories (Standard Style)

- a. Level the top edge of the sidearms so that they are parallel with the top edge of the body.
- b. Partially insert the pivot pins into the bushings in the sidearms until the pins are flush with the inside of the sidearms.
- c. Lift the pivot mount tubes and body plates into place, being sure that the chamfered end of the pivot mount tube faces outward toward the sidearm. Insert the pivot pins into the pivot mount tubes.
- d. Position the body plates against the body (with the pivot mount tube through the body plate) so that they lie flat. Seat the pivot mount tubes firmly against the truck body sides, with the bolt hole in the pivot mount tube nearly vertical (unless specified otherwise on the large installation drawing). Securely tack weld the pivot mount tubes to the body plates, taking care to insure that the body plates are as flat as possible against the body sides. Securely tack the body plates against the truck sides.
NOTE: If the pivot mount tube or body plate is against a bolster and the weld along the bolster prevents the body plate or pivot mount tube from sitting firmly against the body, it may be necessary to chamfer either the edge of the body plate or tube, or chamfer the bolster, so there is a flush fit against the body.
- e. Remove the pivot pins.



INSTALLATION

- f. Using the crane or loader, lift the front of the gate (by attaching to the installation tool) to expose all welds to be made. Be sure to ease the tension on the hand winch attached to the gate and the eye on the body floor as the gate is lifted. **NOTE:** If a lifting device is not available at this time, you may rig a hand winch across the top of the body and connect it to chains dropped on either side between the sidearms and the truck body sides. **CAUTION: BE SURE TO HAVE AMPLE CLEARANCE TO SAFELY RAISE THE FRONT OF THE GATE TO THE NECESSARY HEIGHT. KEEP HOOKS ATTACHED TO THE SIDEARMS SECURELY FIXED THROUGHOUT THE PROCEDURE BY TACKING ON STOPS WHERE NECESSARY.**



INSTALLATION

7. Install Pivot Accessories (Standard Style)

- a. Weld stops on each side of the body. Lower the gate down onto stops. Check the hand winch pressure (at the back of the truck body) and the rear safety stops that hold the gate on the truck. Be sure these items are secured and solid.
- b. Securely weld the pivot mount tubes to the body plates, and weld any vertical welds between the body plates and the truck body that will be obscured when the pivot cross plates are installed. Distribute this weld in such a manner as to prevent any relative movement or distortion between the pivot mount tubes, body plates, and truck body.
- c. After all vertical welds are completed on the body plates, position and tack weld the pivot cross plates to the truck body bolsters as specified on the large installation drawing.
- d. Securely weld the body plates to the body. Securely weld the pivot cross plates to the truck body bolsters and pivot mount tubes.
- e. Raise the tailgate and lift it off the stops by attaching it to the installation tool. Remove stops and lower the tailgate into position for reinserting the pivot pins.
- f. Liberally apply anti-seize compound to the inside of the pivot mount tubes and to the outside of the pivot pins. Insert the pivot pins. The eye on the pivot pin is welded in line with the hole in the pivot pin to simplify the retaining bolt installation. Put a bar through the eye and turn the pivot pin until the holes are aligned. Insert the 3/4" bolts through the pivot pin and pivot mount tube and securely tighten the lockwasher and nut onto them. NOTE: The bolt may be held in place by turning the pivot pin slightly, allowing you to tighten the nut onto the bolt by the use of a single ratchet wrench and socket.



INSTALLATION

8. Roller Box Installation

- a. Position the roller box directly below the nose of the sidearm assembly so that the chain will lie near the center of the upper roller and according to the dimensions given on the installation print.
- b. Tack weld the roller box in place and recheck position.
- c. Position angle cut square tube and tack weld in place.
- d. Position each roller in the roller box and slide the pin into position, lining up bolt holes in the pin and roller box. Two spacers are to be used with each roller.
- e. Install bolts and grease fittings as shown on the installation drawing.
- f. Thoroughly grease each roller and finish welding the angle cut tube and roller box.



INSTALLATION

9. Adjustment Procedure

- a. Remove installation tool.
- b. Remove hand winch and eyelets that were attached to the gate and floor of the truck body.
- c. Remove the safety stops attached to the rear of the body.
- d. Weld stop blocks to the outside of the tailgate center section against the sidearm sections. Do not weld to the sidearms. Also weld inside stop blocks on the inside rear of the center section against the sidearm sections. Do not weld to the sidearms. See section C-C as indicated on the large installation drawing.
- e. Securely tighten the four 1 1/4" bolts to draw the sidearm sections tight against the stop blocks, then back the bolts 1/2 turn. Lock the bolts in place with a square bolt retainer tube, 2 1/2" square x 3/4", which is placed over the head of the bolt and welded to the sidearm.



INSTALLATION

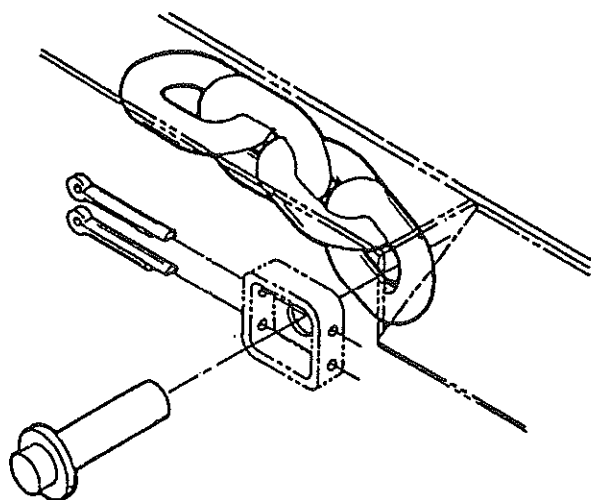


Figure 15

- f. Install the main chains to the sidearms using the locking chain-pin and cotter pins. Measure and cut the chains so that they are both the same length. The proper length is ONE FULL LINK more than the minimum length required to hook up the chain. CAUTION: THIS CHAIN LENGTH IS CRITICAL. IF THE CHAIN IS TOO LONG THE GATE WILL BE SLOW TO OPEN, PUTTING UNDUE STRAIN ON THE MAIN CHAIN AND OUTRIGGER, RESULTING IN POSSIBLE MAIN CHAIN AND/OR OUTRIGGER FAILURE. TOO SHORT A CHAIN LENGTH WILL CAUSE THE TAILGATE TO BE HELD SLIGHTLY OPEN WHEN IN A CLOSED POSITION, ALSO CAUSING UNDUE STRAIN ON THE MAIN CHAIN AND OUTRIGGER. THE TAILGATE MUST NOT RIDE ON THE CHAINS WHEN THE GATE IS IN THE CLOSED POSITION.
- g. Measure, on both sides of the truck, the distance from the bottom front corner of an ultra-high gate to the outrigger crosstube chain bolt and the distance from the gate pivot pin to the outrigger crosstube chain bolt. These measurements must be equal. If necessary, move the ends of the outrigger crosstube until these measurements are equal. Then tighten the bolts on the outrigger clamps and the U-bolts.



INSTALLATION

- h. Attach the chain to the ends of the outrigger crosstube. Start the truck and raise the body until the chains just become tight and the tailgate begins to open. Pull against both chains to test their tension. Raise the body all the way until the tailgate is fully open. Again test the tension on both chains. The tension on the two chains should be equal at the beginning of the dumping cycle and when the gate is fully open. Adjust the outrigger position until the chains measure equally and maintain equal tension.
- i. After the chain is properly adjusted, securely tighten the chain bolts holding the main chains to the outrigger crosstube.
- j. Check to insure that all bolts on the outrigger, pivot pins and chains are securely tightened.



MAINTENANCE

The PHILIPPI-HAGENBUCH, INC. Autogate® requires very little maintenance through its durable construction and simple design. However, there are a few simple steps to make your Autogate® Tailgate last the lifetime of your truck.

1. Grease rollers every 100 hours of operation.
2. Inspect entire gate monthly for loader or driver-related damage.
3. Inspect all components of this tailgate subject to wear, such as chain, chain bolts, bolts, rollers, pins, etc.
4. Replace any part showing wear in excess of 10% size reduction.



HARDWARE

Replacement of certain wear-related parts such as chain or chain bolts may become necessary after many hours of operation. If this becomes the case, use only approved replacement parts from PHILIPPI-HAGENBUCH, INC., as these parts are of high-strength materials. If in need of parts contact us at PHILIPPI-HAGENBUCH, INC., toll free at (800) 447-6464 and we will help you select replacement parts. Replacement of parts other than those approved by PHILIPPI-HAGENBUCH, INC. is not advised.

