



TECHNICAL BULLETIN

1-800-237-0022

Stock No. L25 - 2" DIAMETER, 11-1/2" SHEAR PIN LOAD CELL

Stock No. L26 - 2" DIAMETER, 13" SHEAR PIN LOAD CELL

Stock No. L34 - 2" DIAMETER, 8" SHEAR PIN LOAD CELL

Stock No. H28 – SHEAR PIN REAR HINGE ASSEMBLY

Stock No. H29 – SHEAR PIN RETAINING COLLAR

Stock No. H34 – SHEAR PIN REAR HINGE KIT

SHEAR PIN, L25, L26, and L34

The VULCAN Shear Pin Load Cell was designed for dump truck and trailer applications. This shear pin replaces the 2" diameter pins in existing lift hoists and rear hinge assemblies.

APPLICATION:

- A typical dump truck system includes three VULCAN Shear Pin Load Cells, one shear pin retaining collar and either the shear pin rear hinge kit or the shear pin rear hinge assembly.

SPECIFICATIONS:

- **CAPACITY:** 25,000 lb per pin
- **OUTPUT:** 1.3 mV/V at 20,000 lb
- **ACCURACY:** Typical system error less than 1% of full scale.
- **MATERIAL:** High strength alloy steel.
- **PLATING:** Vulcan load cells are plated for increased rust protection.



TECHNICAL BULLETIN
1-800-237-0022

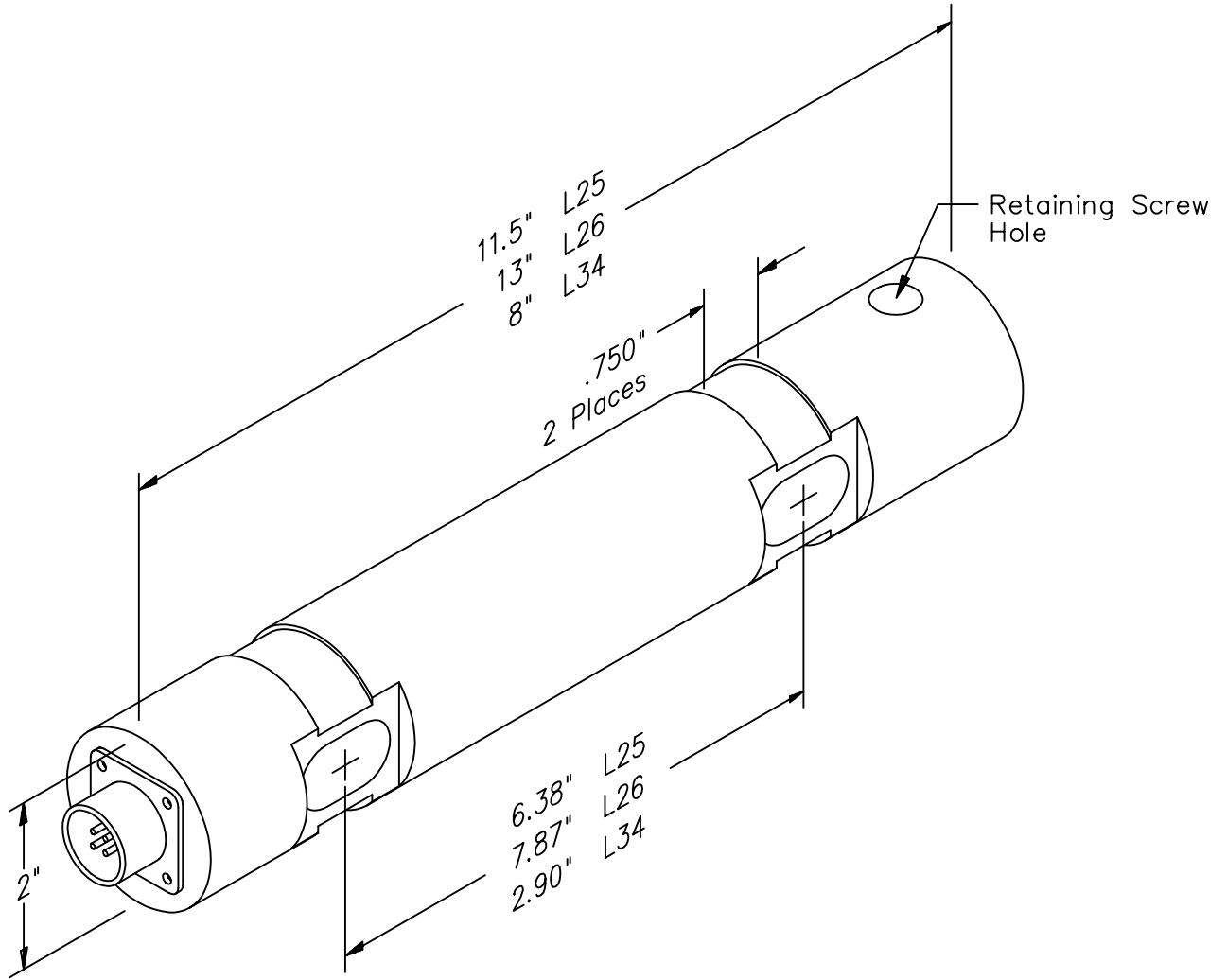


Figure 142-A, 2" Shear Pin Load Cell



TECHNICAL BULLETIN

1-800-237-0022

SHEAR PIN RETAINING COLLAR, H29

The shear pin retaining collar was designed to fit a single length shear pin into the different front lift cylinder mounting configurations.

APPLICATION:

The shear pin retaining collar was designed to be used with an 8" lift cylinder and either a 3/4" or a 1" lift cylinder mount. The objective is to position the front shear pin load cell so that the shear pockets are centered between the lift cylinder mounts.

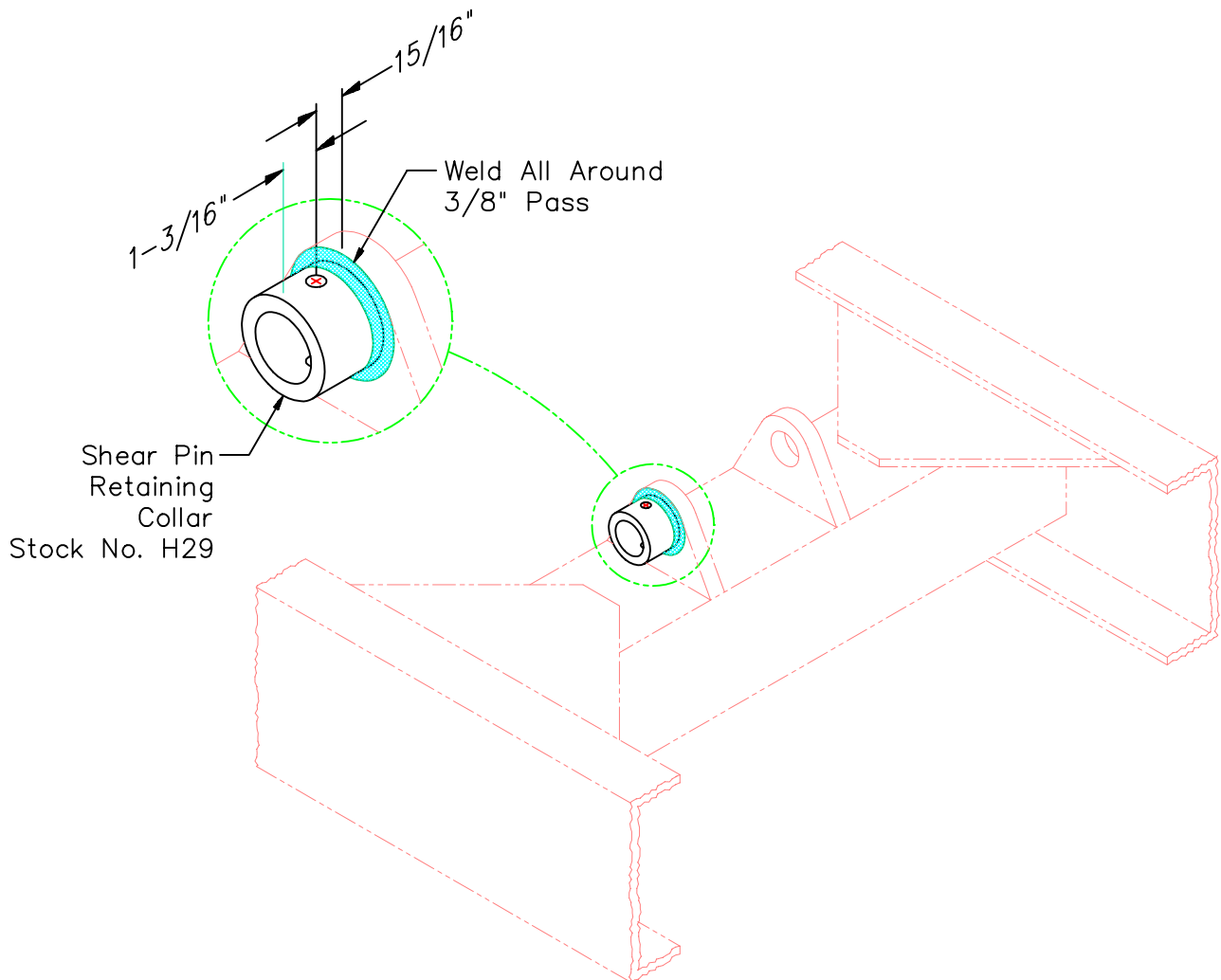


Figure 142-B, Front Shear Pin Retaining Collar



TECHNICAL BULLETIN

1-800-237-0022

INSTALLATION PROCEDURE: SHEAR PIN RETAINING COLLAR

1. Position the VULCAN Shear Pin Load Cell with the grooved shear pockets centered on the inside edge of the lift cylinder mounting brackets. Slide the shear pin retaining collar over the shear pin load cell and verify which offset, 15/16" or 1-3/16", is needed to have the retaining screw hole on the retaining collar line up with the retaining screw hole on the shear pin load cell. **Note:** If the lift cylinder mounting brackets are not made of 3/4" or 1" material, the installer must make sure to fabricate a shear pin retaining collar with the appropriate hole location.
2. Tack the shear pin retaining collar to the lift cylinder mounting bracket making sure the retaining screw will be vertical within a couple of degrees. **(Caution! Do not exceed 140 degrees Fahrenheit (60 C) on the load cell. Arcing on the body of the load cell may seriously damage the load cell's structural integrity and must NOT be installed if this occurs. This also voids manufacturer's warranty.)**
3. Remove the shear pin load cell from the shear pin retaining collar and lift cylinder mounting bracket before welding.
4. All welding and welding procedures **must** meet the American Welding Society Specifications. The specification of the welding electrode, as well as proper preparation of the weld area, is dependent on the composition and thickness of the frame material. If there is any doubt about which welding process to use, contact the frame manufacturer for clarification.

Weld around the shear pin retaining collar using a 3/8" pass weld, see Figure 142-B.
5. Reassemble the shear pin into the lift cylinder and mounting brackets **making sure the serial number is right side up (you should be able to read the serial number)**. If the shear pin is installed upside down, it will send a negative signal when weight is applied and the scales will not function properly.
6. Install the shear pin retaining screw and torque to 60 lb-ft.
7. **Do not** grease or lubricate inside the VULCAN load cell connector or Vulcoder connector. These components are highly sensitive to foreign substances and inaccurate readings will occur if these components are contaminated. **Your manufacturer's warranty does not cover the failure of VULCAN components due to contamination (use of grease or other conductive substance) in either of these component connectors.**



TECHNICAL BULLETIN

1-800-237-0022

8. VULCAN load cells are plated for increased rust protection. Certain minimum maintenance will be necessary to claim warranty of load cells. Apply a high quality paint to the exposed surfaces of the load cells and mounting brackets. For environments where high concentrations of salts are used on road surfaces, undercoating is recommended (3M, Universal Rubberized Undercoating, 3M P/N: 8883). Spray undercoating when load cells are connected to electronics and fully assembled with bearing pads and brackets. See "Vulcan Load Cell Maintenance" document 44-20006-001 for further details.



TECHNICAL BULLETIN

1-800-237-0022

REAR HINGE ASSEMBLY, H28

The rear hinge assembly was designed to replace the truck's original rear hinge assembly with a design to use a standard VULCAN 11-1/2" Shear Pin.

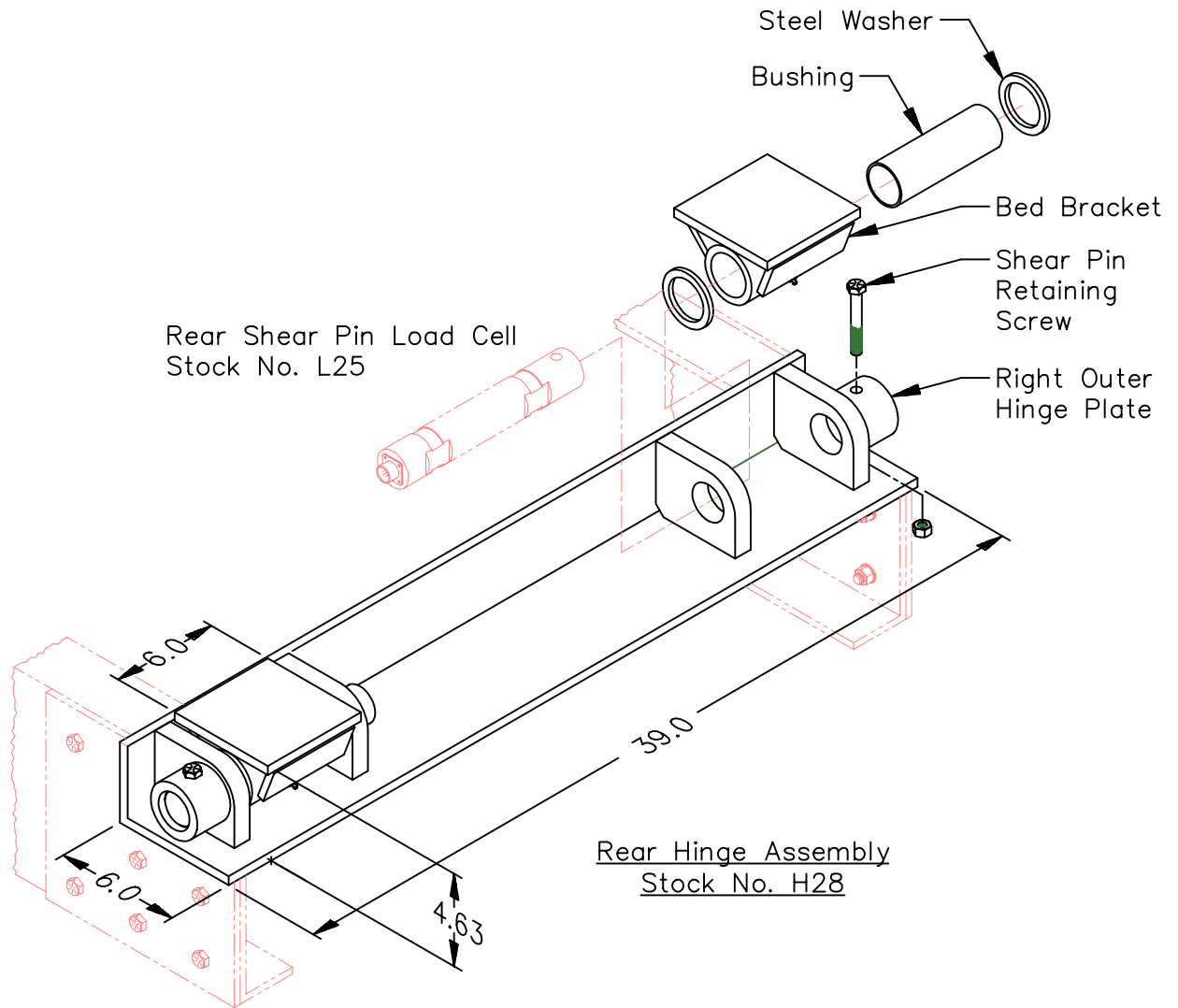


Figure 142-C, Rear Hinge Assembly



TECHNICAL BULLETIN

1-800-237-0022

APPLICATION:

The VULCAN rear hinge assembly replaces various body manufacturer's rear hinge assemblies. The VULCAN rear hinge assembly uses a bed bracket width of 6" to allow for different body frame widths. This design incorporates a superior bushing to extend the operating life of the shear pin and the rear hinge bed bracket.

INSTALLATION PROCEDURE: REAR HINGE ASSEMBLY

1. Measure the distance from the bottom of the body frame rail to the bottom of the rear hinge assembly. Write down this dimension, as it will need to be maintained when the replacement rear hinge is installed. The VULCAN replacement hinge assembly measures 4-5/8".
2. Remove the existing rear hinge assembly if applicable.
3. Position and center the VULCAN rear hinge assembly in place. Be sure to check the dimension from the bottom of the body frame rail to the bottom of the rear hinge assembly. This dimension is important in that the body must not be lifted off of the truck chassis.
4. Tack and weld the rear hinge assembly in place with the shear pin load cell **not** installed in the rear hinge assembly. Weld the rear hinge assembly in place as per the body manufacturer's specifications. **(Caution! Do not exceed 140 degrees Fahrenheit (60 C) on the load cell. Arcing on the body of the load cell may seriously damage the load cell's structural integrity and must NOT be installed if this occurs. This also voids manufacturer's warranty.)**

All welding and welding procedures **must** meet the American Welding Society Specifications. The specification of the welding electrode, as well as proper preparation of the weld area, is dependent on the composition and thickness of the frame material. If there is any doubt about which welding process to use, contact the frame manufacturer for clarification.

5. After the rear hinge has cooled, assemble the body bed bracket with the bushing, steel washers, and the shear pin load cell, see Figure 142-C. **Note:** Using a piece of 2" cold roll in place of the shear pin load cell is recommend for any fitting and tacking of the rear hinge assembly.



TECHNICAL BULLETIN

1-800-237-0022

6. Position the body on the truck chassis as per manufacturer's specifications and tack the body bed bracket to the body frame. **Note:** On aluminum framed bodies, make sure there is a steel glove bolted to the body in the area that the bed bracket is attached to the body.
7. Remove the shear pin load cell and the bushing from the rear hinge assembly before welding the bed bracket to the body frame.
8. Weld the body bed bracket as per manufacturer's specifications. **(Caution! Do not exceed 140 degrees Fahrenheit (60 C) on the load cell. Arcing on the body of the load cell may seriously damage the load cell's structural integrity and must NOT be installed if this occurs. This, also, voids manufacturer's warranty.)**
9. Reassemble the shear pin and bushing into the bed bracket and the rear hinge assembly, see Figure 142-C. Install the shear pin retaining screw and torque to 60 lb-ft. **Note: Be sure to install the shear pin with the serial number right side up, you should be able to read the serial number.** The scales will not work properly if the pins are installed upside down.
10. **Do not** grease or lubricate inside the VULCAN load cell connector or Vulcoder connector. These components are highly sensitive to foreign substances and inaccurate readings will occur if these components are contaminated. **Your manufacturer's warranty does not cover the failure of VULCAN components due to contamination (use of grease or other conductive substance) in either of these component connectors.**
11. VULCAN load cells are plated for increased rust protection. Certain minimum maintenance will be necessary to claim warranty of load cells. Apply a high quality paint to the exposed surfaces of the load cells and mounting brackets. For environments where high concentrations of salts are used on road surfaces, undercoating is recommended (3M, Universal Rubberized Undercoating, 3M P/N: 8883). Spray undercoating when load cells are connected to electronics and fully assembled with bearing pads and brackets. See "Vulcan Load Cell Maintenance" document 44-20006-001 for further details.
12. For additional electronic installation notes and system operational procedures, see the "Owner's Manual" for V500 or V600 systems.

Starting calibration numbers for this system follow:

V500 and V600 Electronics – V32 3 lead Vulcoder - Cal Number 1420



TECHNICAL BULLETIN
1-800-237-0022

REAR HINGE KIT, H34

The rear hinge kit was designed to replace the truck's original rear hinge plates with a design to use a standard VULCAN 11-1/2" Shear Pin.

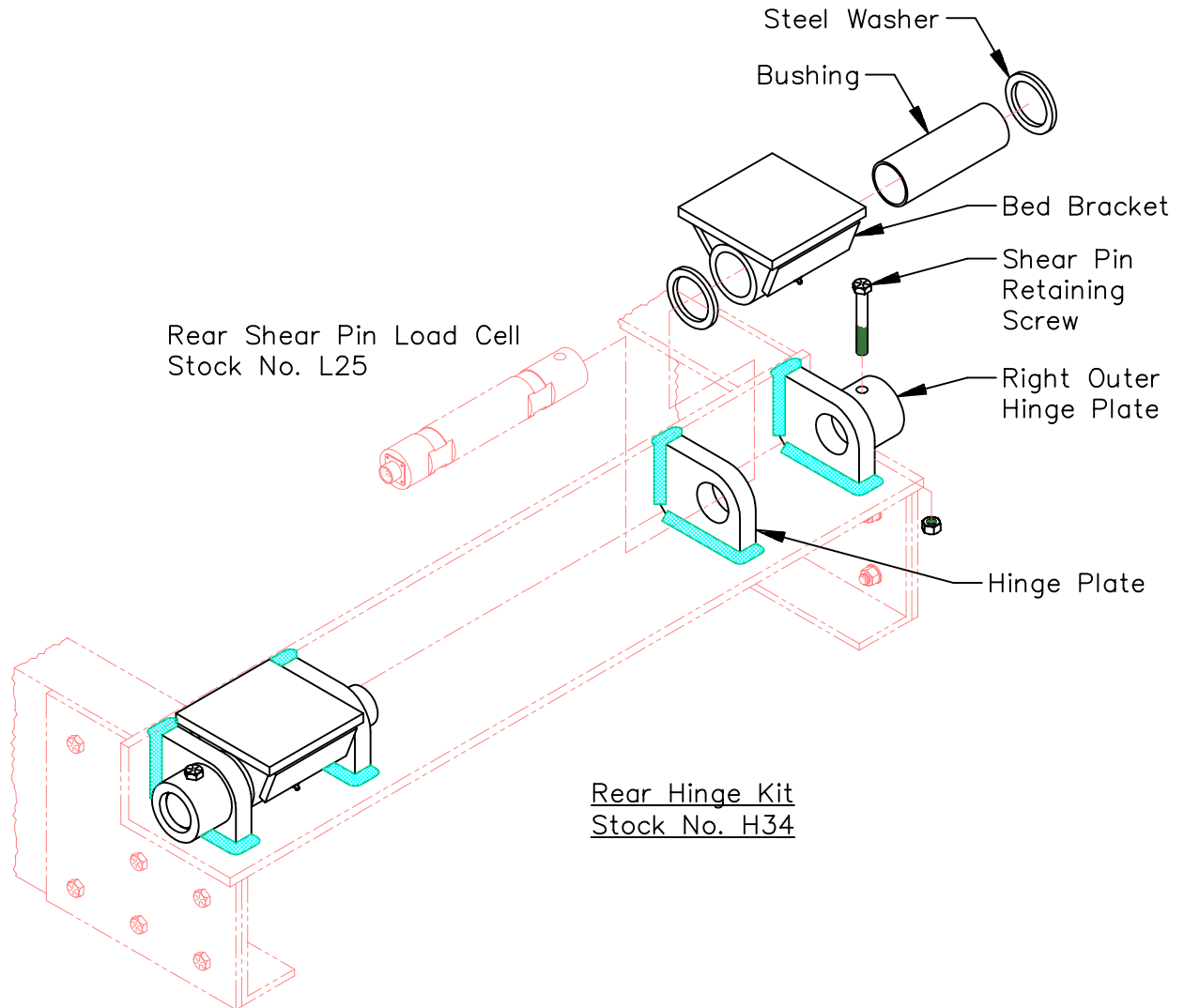


Figure 142-D, Rear Hinge Kit Mount

APPLICATION:

The rear hinge kit replaces all different dump truck body manufacturer's rear hinge plates. The VULCAN rear hinge kit uses a bed bracket width of 6" to allow for different body frame widths. This design incorporates a superior bushing to extend the operating life of the shear pin and the rear hinge bed bracket.



TECHNICAL BULLETIN

1-800-237-0022

INSTALLATION PROCEDURE: REAR HINGE KIT

1. Measure the distance from the bottom of the body frame rail to the bottom of the rear hinge assembly. Note down this dimension, as it will need to be maintained when the replacement rear hinge is installed. The VULCAN replacement hinge kit measures 4-5/8" including a 1/2" for the rear hinge angle bracket.
2. Remove both the existing inner and outer rear hinge support plates and grind the old weld and flame cut areas smooth.
3. Inspect the hinge pin area for cracks. If cracks are found, consult with the truck body manufacturer for guidelines on repair techniques.

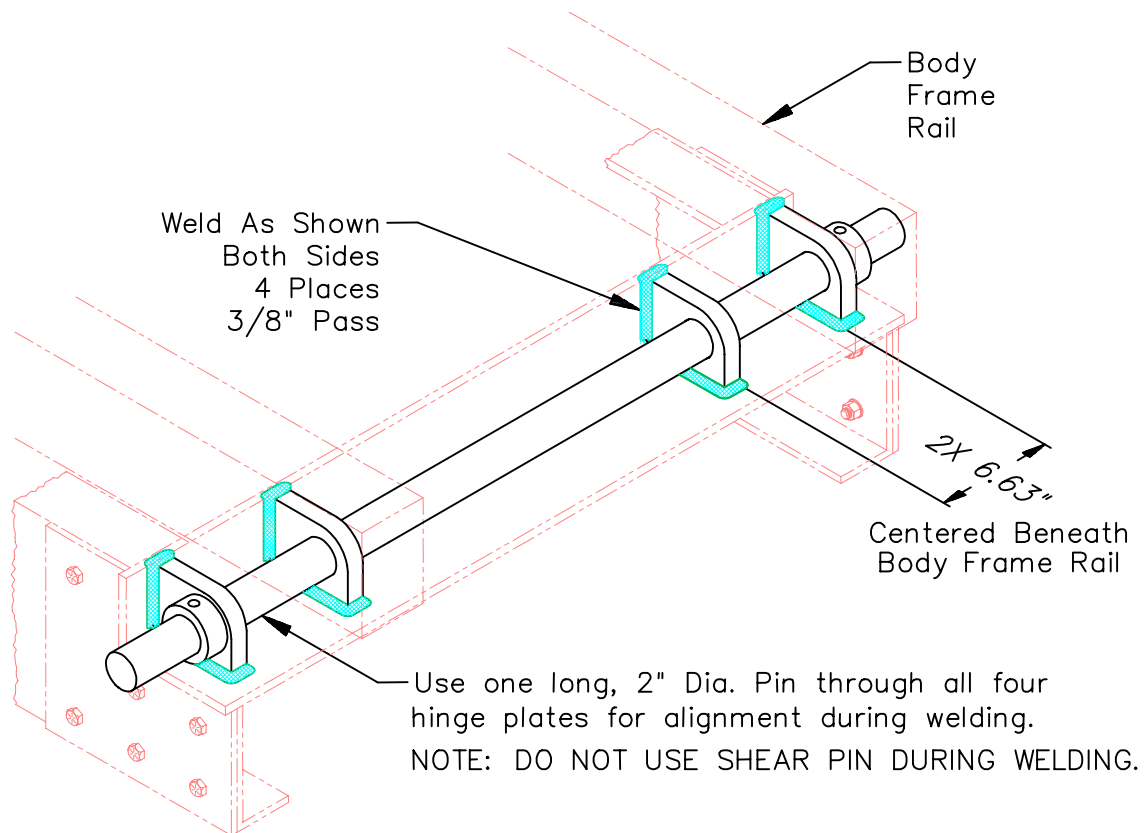


Figure 142-E, Welding Rear Hinge Kit



TECHNICAL BULLETIN

1-800-237-0022

4. Position the VULCAN rear hinge plates and bed brackets in the approximate location of the original rear hinge components. **Note:** The width between the inner and outer support plates may be narrower or wider depending on the configuration of the factory mounts. Be sure to check the dimension from the bottom of the body frame rail to the bottom of the rear hinge assembly. This dimension is important in that the body must not be lifted off of the truck chassis. Slide a 2' long steel, cold roll pin, 2" diameter, through the 2" holes in both the inboard and outboard rear hinge support plates, the bed bracket, and the steel washers. See Figure 142-D for assembling components.
5. Tack weld the support plates in place **with the 2" cold roll hinge pin inserted**. Rotate pin after each tack weld to insure free movement. **Note:** Be sure to use substantial tack welds to eliminate heat distortion when welding.

All welding and welding procedures **must** meet the American Welding Society Specifications. The specification of the welding electrode, as well as proper preparation of the weld area, is dependent on the composition and thickness of the frame material. If there is any doubt about which welding process to use, contact the frame manufacturer for clarification.

6. Weld the rear hinge assembly in place with the cold roll hinge pin and **not** the shear pin load cell. Weld the rear hinge support plates in place as per the body manufacturer's specifications, see Figure 142-E. **(Caution! Do not exceed 140 degrees Fahrenheit (60 C) on the load cell. Arcing on the body of the load cell may seriously damage the load cell's structural integrity and must NOT be installed if this occurs. This also voids manufacturer's warranty.)**
7. After the rear hinge has cooled, assemble the body bed bracket with the bushing, steel washers, and the shear pin load cell, see Figure 142-D. **Note:** Using a piece of 2" cold roll in place of the shear pin load cell is recommend for any fitting and tacking of the rear hinge assembly.
8. Position the body on the truck chassis as per manufacturer's specifications and tack the body bed bracket to the body frame. **Note:** On aluminum framed bodies, make sure there is a steel glove bolted to the body in the area that the bed bracket is attached to the body.
9. **Remove the shear pin load cell and the bushing** from the rear hinge assembly before welding the bed bracket to the body frame.



TECHNICAL BULLETIN

1-800-237-0022

10. Weld the body bracket as per manufacturer's specifications. **(Caution! Do not exceed 140 degrees Fahrenheit (60 C) on the load cell. Arcing on the body of the load cell may seriously damage the load cell's structural integrity and must NOT be installed if this occurs. This, also, voids manufacturer's warranty.)**
11. Reassemble the shear pin and bushing into the bed bracket and the rear hinge assembly, see Figure 142-D. Install the shear pin retaining screw and torque to 60 lb-ft. **Note: Be sure to install the shear pin with the serial number right side up, you should be able to read the serial number.** The scale will not function properly with the shear pin installed upside down.
12. **Do not** grease or lubricate inside the VULCAN load cell connector or Vulcoder connector. These components are highly sensitive to foreign substances and inaccurate readings will occur if these components are contaminated. **Your manufacturer's warranty does not cover the failure of VULCAN components due to contamination (use of grease or other conductive substance) in either of these component connectors.**
13. VULCAN load cells are plated for increased rust protection. Certain minimum maintenance will be necessary to claim warranty of load cells. Apply a high quality paint to the exposed surfaces of the load cells and mounting brackets. For environments where high concentrations of salts are used on road surfaces, undercoating is recommended (3M, Universal Rubberized Undercoating, 3M P/N: 8883). Spray undercoating when load cells are connected to electronics and fully assembled with bearing pads and brackets. See "Vulcan Load Cell Maintenance" document 44-20006-001 for further details.
14. For additional electronic installation notes and system operational procedures, see the "Owner's Manual" for V500 or V600 systems.

Starting calibration numbers for this system follow:

V500 and V600 Electronics – V32 3 lead Vulcoder - Cal Number 1420