



## TECHNICAL BULLETIN

### 1-800-237-0022

**Stock No. L05 - 19" DOUBLE SHEAR BEAM LOAD CELL, FONTAINE FIFTH WHEEL**  
PART NO. 58-10386-003

#### CONCEPT:

These load cells are designed to fit under Fontaine 5000 Fifth Wheel Plates, replacing the standard risers. This provides immediate weight information without adding substantially to trailer height or tractor weight.

#### APPLICATION:

A system consists of two 19" DSB VULCAN fifth wheel load cells and two fifth wheel mounting kits (Stock No. H11).

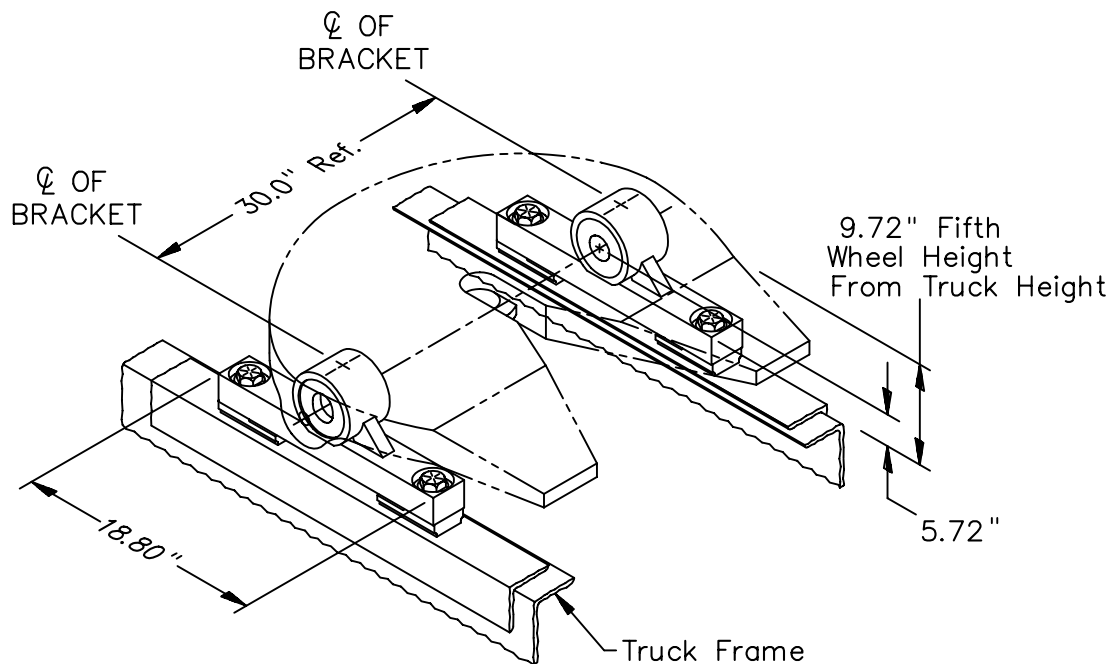


FIG. 109-A



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**SPECIFICATIONS:**

- **CAPACITY:** 40,000 lb System Vertical load  
150,000 lb System Draw bar pull.
- **OUTPUT:** 1.2 mV/V at 20,000 lb for each load cell.
- **ACCURACY:** Typical system error less than .5% full scale.
- **MATERIAL:** High strength alloy steel.
- **PLATING:** Vulcan load cells are plated for increased rust protection.

**INSTALLATION:****Step 1 - FRAME PREPARATION, FIXED**

Install the steel mounting angle 3/8" x 4" x 4" x 36" minimum length, minimum steel grade shall be ASTM A 36 (Mild Steel). The mounting angle must sit flat and straight on top of the frame rail to prevent flexing and give uniform weight distribution. The fit between the angle and the top of the frame must not have any gaps.

Retrofit tractor frames and fifth wheel plates shall be cleaned and inspected for cracks, rusting, and other signs of damage or deterioration. Proper repair or replacement must be made prior to the installation of the load cells.

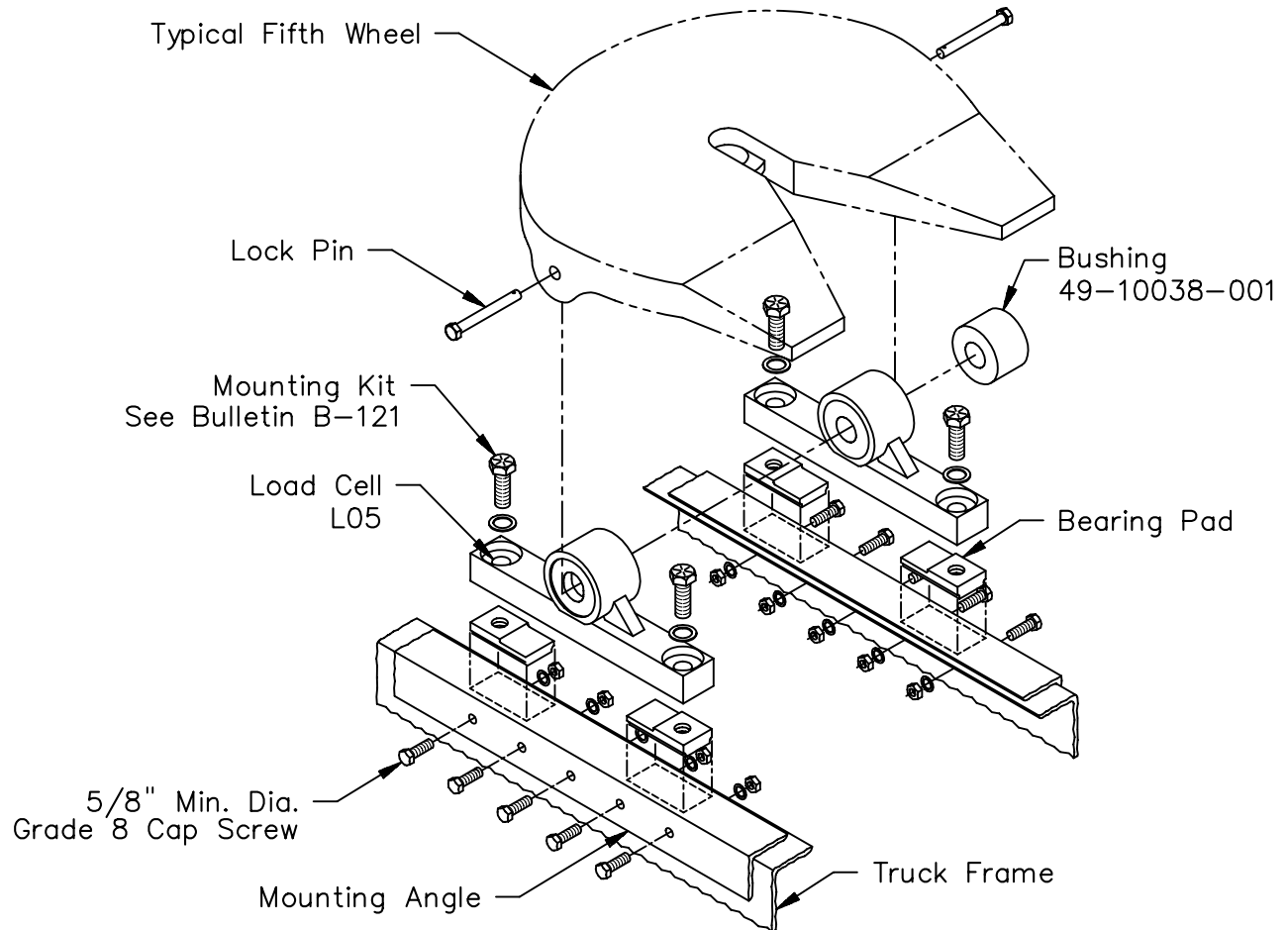
A minimum of five 5/8" diameter Grade 8 cap screws and 5/8" diameter Grade G flanged lock nuts or Grade B or better nuts with hardened steel washers, must attach each mounting angle to the frame rail. Distance between cap screws must not exceed 8" except where cut outs are required in the mounting angles. Larger diameter cap screws and fasteners may be used. Cap screws must be adequately tightened to proper torque for the specific cap screw size. See FIG. 109-B

**Note:** For aluminum frames, be sure to round all mounting angle edges and apply a substance to eliminate electrolysis between the aluminum frame and the steel mounting angle. Follow the tractor manufacturer's recommendations for applying an appropriate corrosion inhibitor.



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Fixed Mounting  
FIG. 109-B

### Step 1 - FRAME PREPARATION, SLIDER

Carefully remove the slide stops at the back end of the slide tracks. Disengage lock pins and remove fifth wheel. Extend the plungers and slide the bracket assembly off the ends of the tracks. If the release mechanism is air operated, check the hose length to determine if it needs to be removed before or after sliding the bracket assembly off the tracks.

Before the load cell assembly can be aligned on the Fontaine slider bracket, the slider plate must have the existing risers removed and be extended approximately 2". This is to insure that the load cells have a solid base for the bearing pads to be attached.



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The material needed for the extension is 5/8" X 2" flatbar cut to full width of slider plate. To modify the existing slider plate, grind the top and bottom edges at a 45 degree angle where the 2" flatbar will be welded, see Fig. 109-C. Grind the top and bottom edges of the flat bar at a 45 degree angle where it will mate up to the existing slider bracket. Tack the flat bar to the existing slider plate. Clamp the slider plate and the extension flatbar to a piece of channel or I-beam to ensure that the additional added surface does not warp or distort during the welding procedure. Weld the bottom surface then the upper surface. All welding and welding procedures must meet American Welding Society specifications. After the newly welded piece is cool, grind the upper weld smooth so the load cell bearing pads sit flat on the slider plate and the new extension piece. Grind flat the underside of the newly welded area that will slide in the slide track.

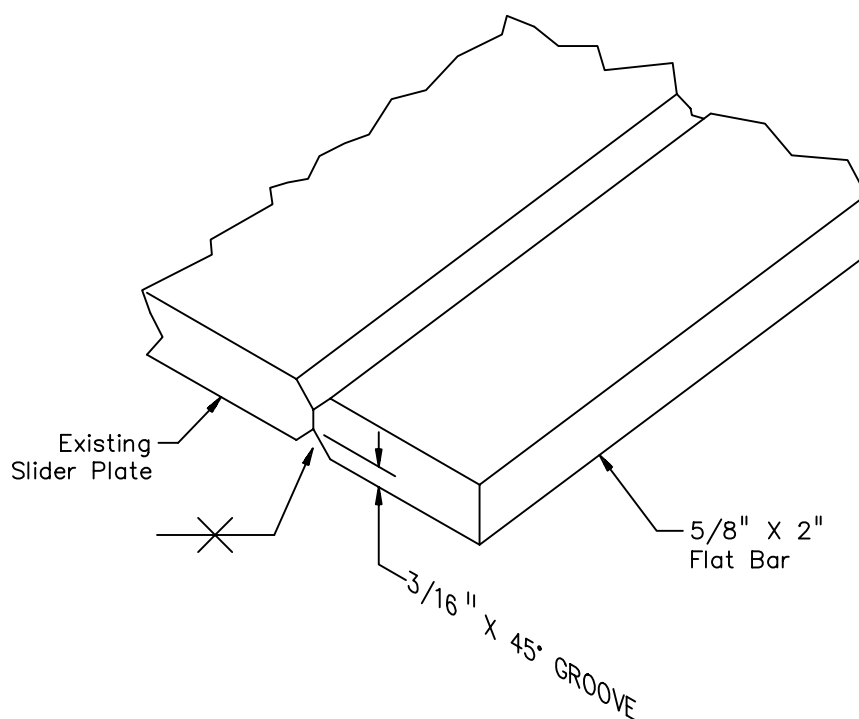


FIG. 109-C

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### Step 2 - LOAD CELL ALIGNMENT

Assemble the fifth wheel load cells and bearing pads using the 1-1/8" diameter cap screws and washers from the mounting kit. Position assemblies in the pockets of the fifth wheel, ensure all bushings are in place and the lock pins are lubricated as required. Center the assembly on the mounting angles of the truck frame, the center of the king pin locks normally are positioned on or ahead of the truck suspension trunnion center line.

### Step 3 - WELDING BEARING PADS

Tack weld load cells bearing pads in place. **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 it must NOT be installed if this occurs. This, also, voids manufacturer's warranty. DO NOT ALLOW the load cells to exceed a temperature of 140 degrees Fahrenheit.**

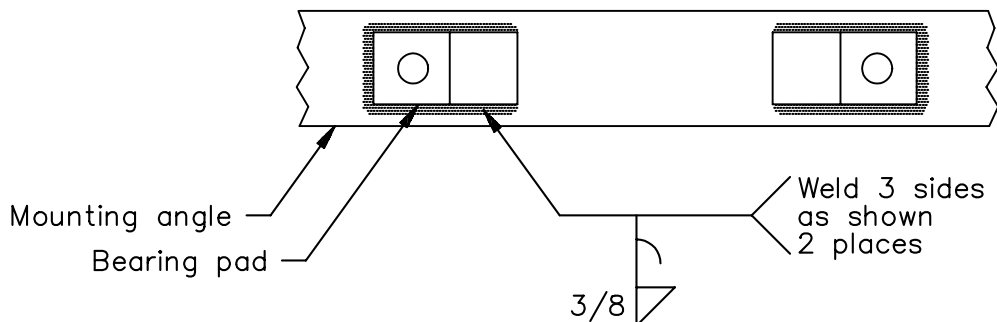


FIG. 109-D

Remove the fifth wheel and load cell assembly, leaving the bearing pads tacked to the mounting angles. Shim any gaps between bearing pad and mounting angle over 1/32". Complete welding of the bearing pads to the mounting angles on the three outer sides, see FIG. 109-D. All welding and welding procedures must meet American Welding Society specifications. Take precautions to ensure the tractor electrical system is not damaged by the welding.



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Use "Never-Seize" or equivalent thread lubricant when installing all mounting cap screws. **DO NOT use the "Never Seize" on the load cell connectors.** Re-assemble the load cells and the fifth wheel assembly to the bearing pads and torque the 1-1/8" diameter mounting cap screws to 1000 - 1400 lb-ft.

**DO NOT WELD ON THE TRACTOR FRAME.**

### SLIDER ASSEMBLY

It is the responsibility of the installer to ensure that the slide stops are properly installed after reassemble of the fifth wheel. Locate rear slide stops under the curled edge of the slide base plate and approximately 1/4" to 1/2" from the rear edge of the plate as shown in FIG. 109-E. Any paint, grease or other debris must be removed from weld area prior to welding. Clamp slide stops in place and weld using a 1/4" fillet. Use of a low hydrogen welding process following American Welding Society codes and specifications is recommended. Take precautions to ensure the tractor electrical system is not damaged during welding.

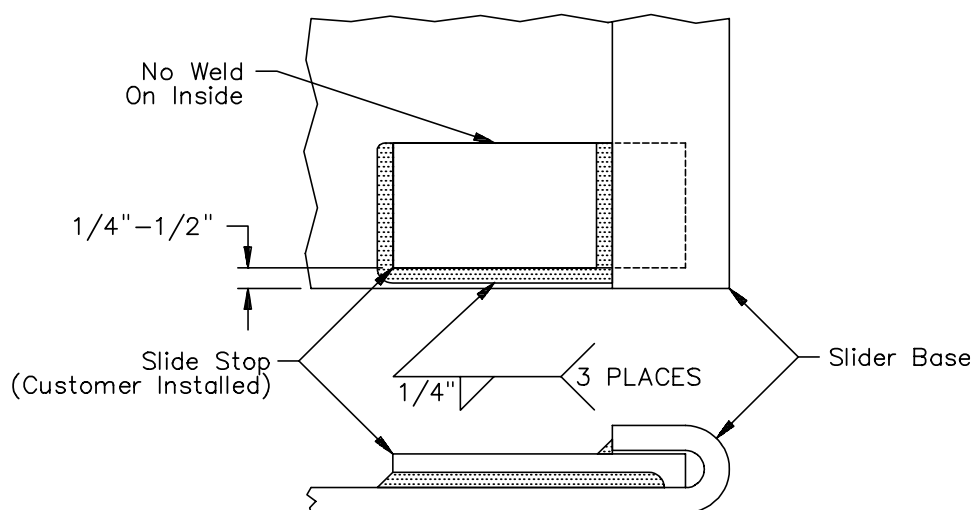


FIG. 109-E



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#### Step 4 - WIRING AND OPERATION

Secure Vulcoder to tractor and route the black cables to the load cells and the orange cable to the meter in the cab. Route the cables so they will not be damaged by road debris and allow for travel in the sliding bracket assembly if used. **Note: 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.** For additional electronic installation notes and operation procedures, see the *"Vulcan Operation And Maintenance Manual"*.

#### Step 5 - INSPECTION, PAINTING THE LOAD CELL, AND LUBRICATION

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 load cells, bearing pads 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

Apply lubricant to the bearing surface on the load cells through the grease fitting on the side of the fifth wheel plate. The plate must be lifted up slightly to relieve weight while applying lubricant. Apply diesel oil or other lubricant on the rack and slide path of the bracket assembly.

**Load cell mounting cap screws must be checked periodically for proper torque.**

|                    |                 |
|--------------------|-----------------|
|                    | 1-1/8"          |
| SAE J429 - Grade 8 | 1000-1400 lb-ft |