



TECHNICAL BULLETIN

1-800-237-0022

Stock No. L27 - 28" DSB LOAD CELL, SIDE CONNECTOR, EXTRA HEAVY DUTY

CONCEPT:

This load cell was designed to fit logging trucks throughout Canada using heavy duty bridge beams and bunk sets.

APPLICATION:

- A typical logging system includes four VULCAN load cells and four standard VULCAN mounting kits (Stock No. H30).

SPECIFICATIONS:

- CAPACITY: 75,000 lb
- OUTPUT: .84 mV/V at 25,000 lb
- ACCURACY: Typical system error less than 1% of full scale.
- MATERIAL: Customized 4340 steel, heat treated for optimum strength.
- PLATING: Vulcan load cells are plated for increased rust protection.
- MOUNTING FASTENERS: **It is the installer's responsibility to ensure all 1-1/8"-12 UNF fasteners have 1" to 1-1/2" thread engagement into the load cell.** If the thread engagement is over 1-1/2", provide hardened washer(s) under the cap screw head. If the thread engagement is less than 1", obtain the proper length 1-1/8"-12UNF Grade 8, hex cap screw to meet the requirement.



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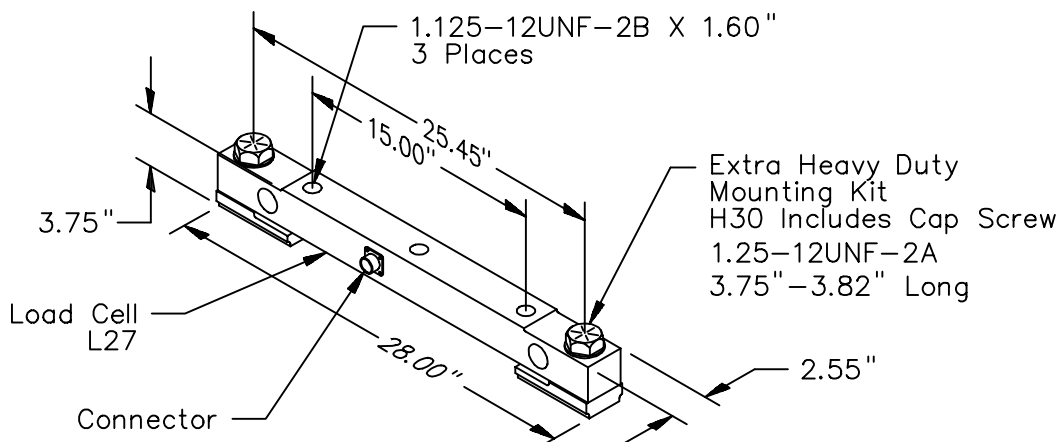


Figure 140-A

INSTALLATION:

PRELIMINARY INSPECTION:

Frame mounting surfaces for load cell must be flat and rigid. If these surfaces are allowed to flex and bend, accurate weight readings may not be possible. Retrofit trailer frame surfaces must be inspected for cracks, rusting and other signs of deterioration. Proper repair or replacement must be made prior to load cell installation. Do not assume the structure is adequate for load cell installation. Consult frame manufacturer as required.

PROCEDURE: See Figure 140-B

1. Affix the steel mounting angle to the truck frame using at least 12, 5/8" diameter Grade 8 NF cap screws. Mounting angle must be at least 32" in length. The fit between the mounting angle and the top of the frame must be firm and without gaps. **No gap is allowed between the sides of the mounting angle and the frame!** For best accuracy, a 1/2" thick cross plate should be installed on top of the previously installed mounting angle. This will also eliminate some of the torsional forces that can damage the load cell and shorten its life. **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.



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- All surfaces that come in contact with the load cell must be clean and flat. If the surface indicates buildup of paint and/or foreign substance, scrape clean to the bare surface using a knife or wire brush. Mount the load cells (with bearing pads attached) to the pressure bars using three cap screws and hardened washers. Use "Never-Seize" or equivalent thread lubricant when installing all mounting cap screws. **DO NOT use the "Never Seize" on the load cell connectors.** The pressure bar *must* fit flat on the load cell. Shim any gaps over 1/32". Do not torque these cap screws yet. **Note:** For installing replacement load cells, check for proper fit between the load cell and the bearing pad. Replace the bearing pad when warping or excessively worn surfaces become apparent.
- Lower load cell assembly to the steel mounting angle on the frame. Position to the desired location making sure the bearing pads sit flat onto the mounting surface, shim under bearing pads if needed. Do not use more than a 1/4" shim. If more shim is necessary, modification to pressure bar is required. Tack weld 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 must NOT be installed if this occurs. This, also, voids manufacturer's warranty.)**

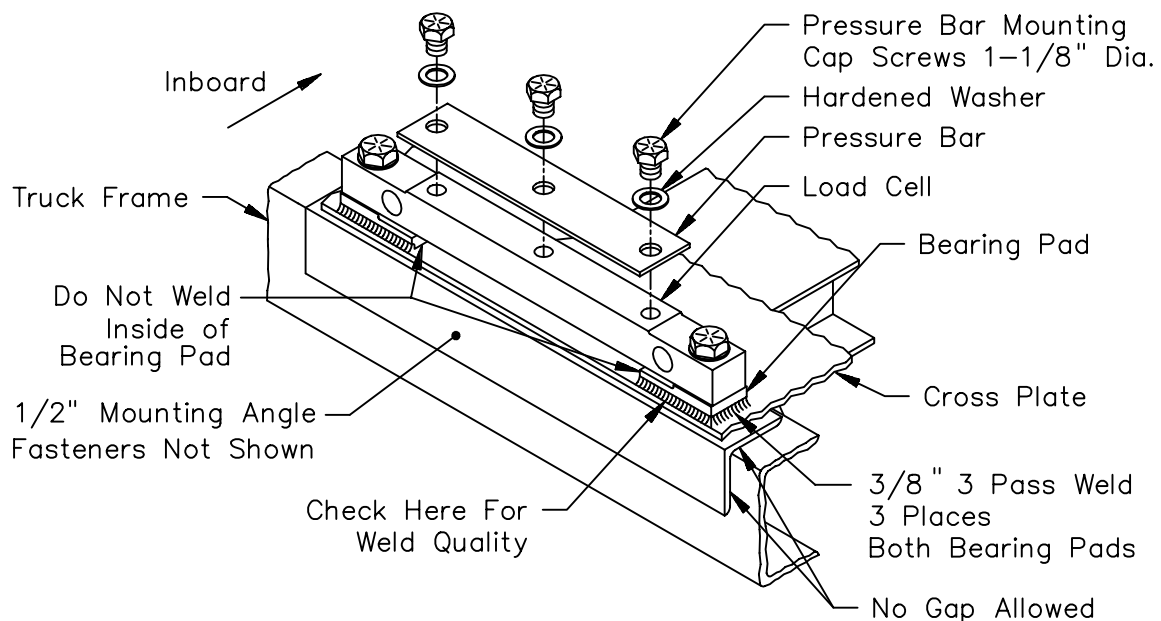


Figure 140-B



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4. Remove the 1-1/4" diameter end cap screws, lift the bolster and the load cell assembly away, and complete welding of the bearing pads. **Note:** All welding and welding procedures must meet the American Welding Society specifications. Bearing pads must be welded securely on the three sides as shown in Figure 140-B.
5. Reassemble and *torque all the cap screws* to torque specifications listed.

| | 1-1/8" | 1-1/4" |
|-------------------------------|-----------------|-----------------|
| SAE J429 - Grade 8 (lb. -ft.) | 1000-1400 lb-ft | 1450-1780 lb-ft |
| SAE J429 - Grade 8 (N-m) | 1360-1900 N-m | 1970-2420 N-m |

Note: Check load cell torque values periodically.

Pre-loads may be induced in the load cell when torquing down the cap screws. Pre-loads can be monitored on the meter by making all the electrical connections, setting the meter calibration number to 2050 and setting the meter display to read zero by adjusting the Tare Weight on the appropriate channel *before* torquing the cap screws. The allowable pre-load after all the cap screws are torqued is ± 800 lb or 400 kg per load cell. If more than 800 lb or 400 kg of preload is seen, the mounting surfaces are not flat and parallel. Check surfaces for warpage, and shim or straighten as necessary. If you still have problems reducing preload, consult Stress-Tek factory.

6. Load cells are designed to measure vertical forces. If the load cell is mounted in a manner that results in torsional forces in the load cell, its accuracy and life can be reduced. To prevent this, it is **important** that upper and lower mounting surfaces remain flat and parallel under load. This means that both upper and lower mounting surfaces must be stiff enough not to rotate when loaded, properly gusseted and supported upper and lower mounting brackets will eliminate the chance of a load cell failure under torsional (twisting) forces.
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.**



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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 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.

9. For additional electronic installation notes and system operational procedures, see the "*Vulcan Operations and Maintenance Manual*" for V200 systems and the "*Owner's Manual*" for the V500 and V600 systems.