VULCAN®
ON-BOARD SCALES

TECHNICAL BULLETIN
1-800-237-0022

Stock No. L06 - 22" DOUBLE SHEAR BEAM LOAD CELL, LSR
PART NO. 58-10460-002

Stock No. L07 - 22" DOUBLE SHEAR BEAM LOAD CELL, LSR, WITH ADAPTER CABLE
PART NO. 59-20500-001

CONCEPT:

These load cells were designed to fit trucks throughout the U. S. and Canada that use bending beam load cells and would like to upgrade to the more durable Vulcan shear beam.

APPLICATION:

- The use for these load cells is on trailers that have competitive load cells and the trailer has scale support pads too short to accommodate Vulcan's standard shear beam load cells without major reworking.

SPECIFICATIONS:

- CAPACITY: Stock No. L06 12,500 lb
  L07 12,500 lb
- SAFE OVERLOAD: 300% capacity.
- OUTPUT: .72 mV/V at 12,500 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 1-14 UNS fasteners have 7/8" to 1" thread engagement into the load cell.** If the thread engagement is over 1", provide hardened washer(s) under the cap screw head. If the thread engagement is less than 7/8", obtain the proper length 1-14UNS Grade 8, hex cap screw to meet the requirement.

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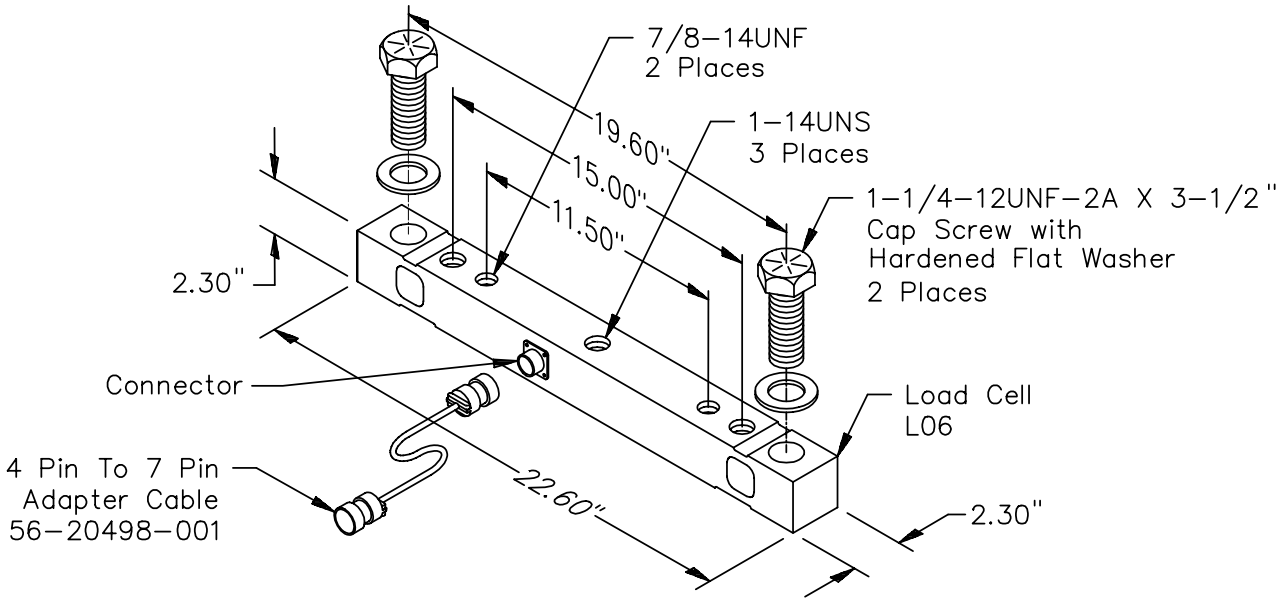

FIG. 125-A

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.

Surfaces between the pressure bar and mounting surface (of trailer) must be flat, parallel and rigid. If the gap is greater than 1/32", shimming under the pressure bar is necessary to bring the pressure bar mounting plane parallel to the load cell mounting surface with minimal preload. Install gussets to frame above or below load cells if mounting surfaces have been damaged, weakened, or indicates warping and sagging. (This procedure must be accomplished before installation of the load cell.

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.

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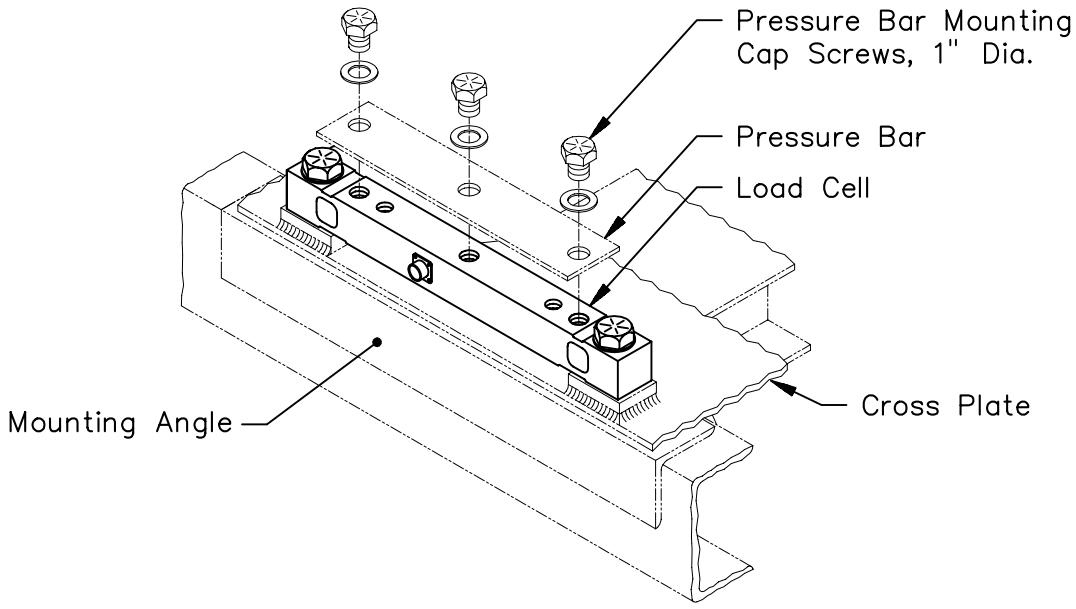

FIG. 125-B

PROCEDURE: See FIG. 125-B

1. Before installing replacement load cells, check for proper fit between the load cell and the bearing pad. Replace the bearing pad when unusual warping or excessively worn surfaces become apparent.

2. Mount the load cells to the pressure bars using three cap screws on top. Use “Never-Seize” or equivalent substance on threads when installing all mounting cap screws. **Do not** use on electrical connectors. Pressure bar must fit flat on the load cell. Shim any gaps over 1/32”. Do not torque these cap screws **yet**.

3. Lower assembly to the frame mounted bearing pads and fasten using the 1-1/4" fasteners.

4. *Torque all the cap screws* to torque specifications listed.

Diameter	7/8"	1"	1-1/4"
SAE J429 - Grade 8	400-590 lb-ft	650-890 lb-ft	1000-1400 lb-ft

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 V200 meter by connecting one load cell to a Vulcoder at a time, setting the meter calibration number to 2050 for a 1mv/V Vulcoder 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 per load cell. If more than 800 lb 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.

5. 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 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.

6. **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.**

7. VULCAN load cells are plated for increased rust protection. Certain minimum maintenance will be necessary to keep your load cells under warranty. 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.

8. For additional electronic installation notes and system operational procedures, see the *"Vulcan Operation And Maintenance Manual."*