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(54) **SHACKLE PIN WITH INTERNAL SIGNAL CONDITIONER**

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(57) **ABSTRACT**

A weight measurement method and apparatus for measuring and monitoring the weight load on a vehicle such as a tractor trailer rig. A load pin and bearing assembly mechanically couples the weight of a trailer and its payload to the leaf springs of a tractor trailer truck. The shackle pin is intersected by a longitudinal bore in which multiple strain gage sensors are mounted. A miniature signal processing unit is totally enclosed and shielded within the longitudinal bore and is electrically connected to the strain gage sensors. The signal processing unit develops weight signals that are communicated by conventional low voltage signal cabling to a load display unit in the tractor cab. An offset lubricant passage provides a means for lubricating the load pin bearings while preventing contact of the lubricant with the strain gages, internal wiring and signal conditioner components housed within the main longitudinal bore.

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