



## Portable, Easily Installed Weight Analyzer Records Axle Loading of Vehicles in Motion

In pavement design, evaluation, and administration, knowledge of the axle loads of vehicles in the traffic stream is essential. The common practice of stopping trucks to weigh them on stationary weighbridges or portable scales is time-consuming and does not always yield a true sampling of the traffic. Several devices have been developed over the past 20 years that will record axle loads of vehicles in motion, but they have been limited in scope because they require permanent or semi-permanent installation in the pavement and cannot be transferred readily from one site to another.

A new device, currently under test in several highway departments, offers a fully portable capability and allows complete freedom in the choice of measurement sites. The Axle Weight Analyzer Model WA 1 is manufactured by the Tellurometer Division of Plessey Electronics Corporation, Farmingdale, New York, and can be installed on any road by two technicians in less than 1 hour. It is powered by a vehicle type of battery and will remain unattended as long as required, automatically recording and classifying, according to weight groups, the axles of passing vehicles.

The system consists basically of two units, a sensor and a classifier. The sensor, which is attached to the road surface by means of high-melting-point asphalt, is essentially a large capacitor that has a rubber-air dielectric. The compression of the dielectric under the wheel is converted into a voltage pulse by the classifier and is then recorded into one of eleven weight groups up to 40,000 lb.

The sensor is 6 ft wide and reads only the wheels on one side of the vehicle. The resulting weight is automatically doubled and transferred to the electro-mechanical 6-digit counters on the classifier. Satisfactory results are claimed at speeds from 3 mph to 140 mph for single axles and 3 mph to 60 mph for tandem axles.

If the sensor switch sticks, or if the voltage of the battery falls below an operating level, a continuous blast from a built-in hooter alerts technicians of the malfunction.

The surface of the sensor protrudes less than  $\frac{1}{4}$  in. above the road surface, thus avoiding any possibility of causing damage to vehicles using the pavement.

Because of its portability, low profile, and ease of installation, the Axle Weight Analyzer Model WA 1 shows promise in collecting data for planning and design purposes.