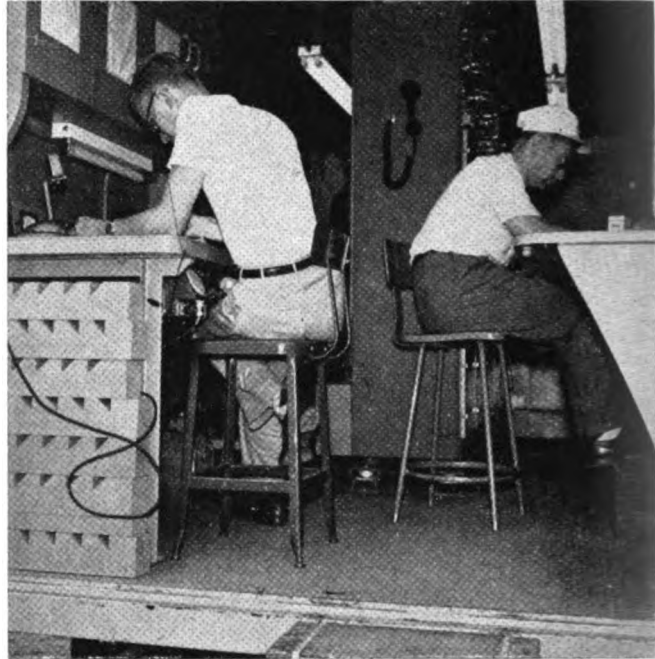


THE MOBILE FIELD LAB houses a precision analog computer with power supplies, reference amplifiers, relay networks, and control panel. The truck also carries a crystal controlled master oscillator, electronic counters,

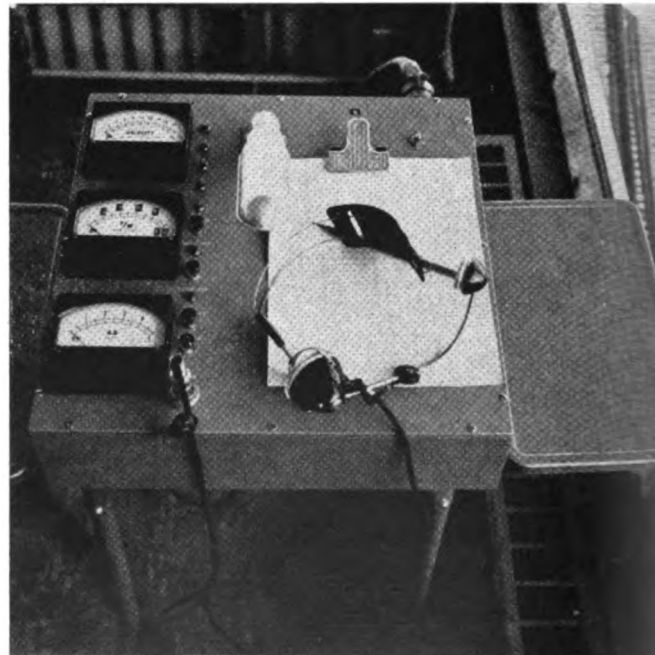


checkout test panels, graphic and digital recorders, and telephone and radio communication facilities. Normally, only one GRS engineer is stationed in the mobile lab during yard analysis procedures.

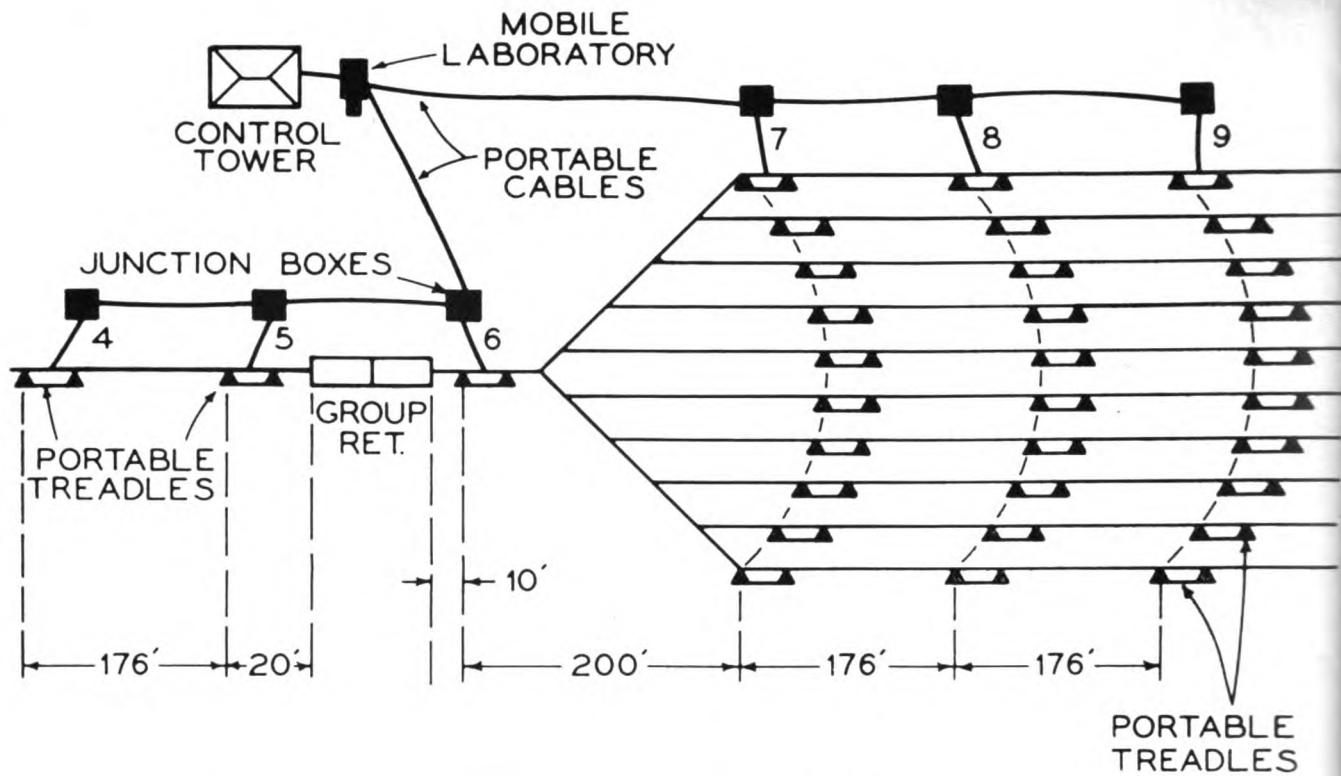
Mobile Lab Evaluates Class Yards



THREE OBSERVERS remotely control the computer in the truck from a vantage point in the retarder tower. Each observer is equipped with a headset, control panel, and data sheet. His function is to follow a car or cut from the time it enters the group test section until it reaches a point 352 ft. beyond the end of curve on the body track. Each time the rear wheels of his cut approach a timing section on the body tracks, he connects an electronic counter in the truck to the respective timing treadles. When his cut has left the last timing section,



the computer in the truck solves the equations of motion for the cut using the timing data thus collected. The observer then tabulates on his data sheet the computed information which is displayed in direct reading form on meters on his control panel. The headsets are used to coordinate the observers, and also to enable an observer to tell the exact position of the rear wheels of his cut with respect to a given timing section through the use of tones keyed by the preceding wheels of his cut as they pass the timing section.



LAYOUT OF FIELD EQUIPMENT associated with the truck. Treadle fixtures making up timing sections are located ahead of the group retarder, just after the group retarder, and at three points on each body track in a given group. The treadle fixtures are connected to the truck by multiple wire cable and junction boxes. In effect, the body tracks in a given group are broken up into three test sections each, and the performance of cars in these test sections is accurately measured by the truck computer. The measured performance of a large cross section of cars in the body track test sections reveals factors associated with each track and its preceding curve which are abnormal in terms of what might be expected, or what was measured some time ago. A correlation on a per car basis of these factors with factors obtained from the test

section ahead of the group retarder, provides the necessary engineering information to:

- 1) Readjust the computers to conform with the existing body track conditions in a yard equipped with a system of automatic retardation, and pin point body track conditions, not apparent to the eye which, if corrected would result in improved yard performance without having to do needless track work.
- 2) Predict the performance which might be expected if an unequipped yard were equipped with a system of automatic retardation.

The speed with which car performance data can be measured, computed, and tabulated using the mobile laboratory truck renders obsolete the use of teams of observers with stop watches in a yard to collect such data.



FLANGE TREADLES, on the hump lead and each body track, are clamped to the rail base. This mobile lab installation was developed by General Railway Signal Co.,



and records performance data during normal humping operations. Data compiled is the basis for a study on how to upgrade an existing yard.