

OFFICE MEMORANDUM



MICHIGAN

DEPARTMENT OF STATE HIGHWAYS

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April 28, 1967

To: R. L. Greenman
Acting Testing and Research Engineer

From: L. T. Oehler

Subject: Demonstration of Schmidt Post Driver. Research Project 65 NM-145.
Research Report No. R-635.

On April 20, 1967 at your request, J. E. Simonsen of the Research Laboratory observed driving performance of the Schmidt post driver. The following is his report on observations during this demonstration at the Wayne County Road Commission yard at Howe Road and Michigan Avenue in Wayne. Also present were personnel from the Wayne County Road Commission, W. Boling from the Saginaw District Sign Shop, and J. M. Lee Sweet of Alcoa. The demonstration was performed by R. L. Schmidt of the Schmidt Machine Co., Upper Sandusky, Ohio (manufacturer), and by R. Workman of the Midwest Fluid Power Co., Columbus, Ohio (distributor).

The post driver operates on hydraulic power generated by the vehicle on which it is mounted. Basically, it consists of a driving unit attached to the end of a boom (Fig. 1). Positioning of the driving unit over the intended installation point, and its vertical movement, are controlled by means of hydraulic rams. The vibrations are supplied by two 3,000 cps vibrators. Vibrations are confined to the driving unit by using an ordinary automobile tire as an absorbing cushion. Generally, a vertical pressure ranging from 50 to 75 psi is applied to the post. Figure 2 shows the driving unit in position on an aluminum alloy post ready to be installed.

The driver can install posts up to 13 ft in length, and by using adaptors (Fig. 3) the driving unit can accommodate posts ranging in diameter up to 3 in. Depth of installation obtained in one set-up is 34 in., and can be increased to 60 in. by repositioning the driving unit. The driving rate is given as 12 ft per min.

Five Reynolds aluminum delineator posts were driven. One was installed in approximately 2 ft of densely compacted slag fill, one in wet clay fill, and three in a 12-in. layer of clay mixed with gravel over wet sand. In all cases the deformation of the post top was very minimal, and consisted of slight burring of the post's top edges. Based on measurement of the post cross-section before and after installation, the average amount of burring was 0.004 in. per edge (Fig. 4). This would in no way interfere with installation of the delineator button and is not visible, except at very close range.

R. L. Greenman

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In addition, a few Alcoa aluminum delineator posts and Telespar sign posts were installed. Since these posts had been driven previously, it was impossible to determine if any further distortion resulted. However, examination of samples of Alcoa posts, claimed to have been driven at least fifty times, revealed only the same slight burring of the edges as observed on the Reynolds posts.

Information on the amount of distortion resulting from installation in frozen ground was not available, since the post driver has not been used under such conditions.

Cost of a post driver of the type demonstrated is \$5,400 f. o. b. Sandusky, Ohio.

If there is sufficient interest in the Department, a demonstration in the Lansing area can be arranged by contacting R. Workman, Midwest Fluid Power Co., Columbus, Ohio (Area Code 615, 885-0327).

OFFICE OF TESTING AND RESEARCH

L. T. Oehler

L. T. Oehler, Director
Research Laboratory Division

LTO:JES:jcb

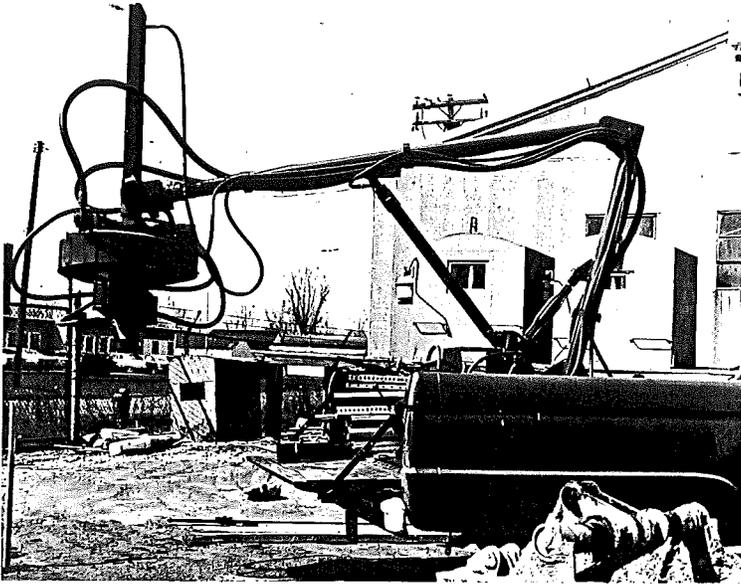


Figure 1. Overall view of the Schmidt post driver.

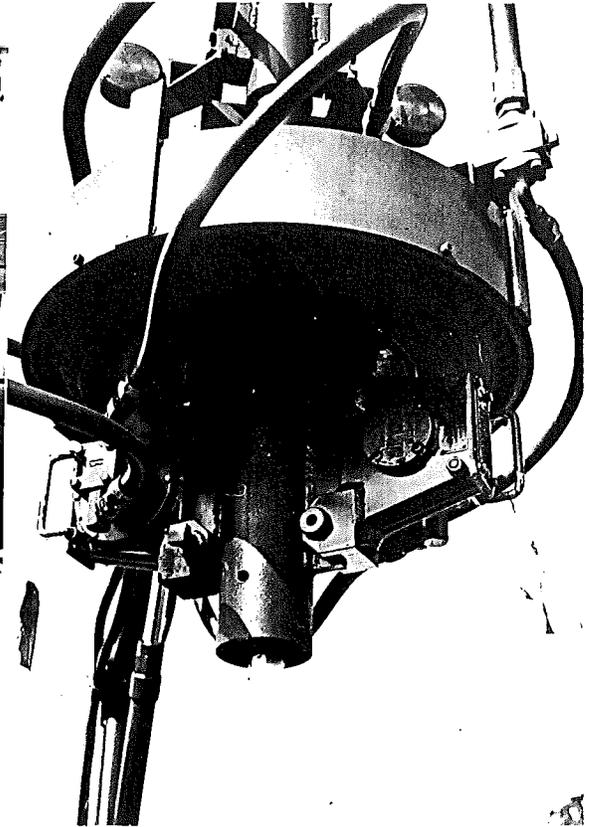


Figure 2. Driving unit in position on a delineator post ready to be driven.



Figure 3. Adaptors used to accommodate installation of posts ranging in diameter up to 3 in. Hydraulic controls are located behind the adaptors.

Figure 4. Typical condition of aluminum delineator post after installation.

