THE POST OFFICE ELECTRICAL ENGINEERS' JOURNAL

Vol. 47 APRIL 1954 Part 1

CONTENTS

Price 2/6 net

THE INSTITUTION OF POST OFFICE ELECTRICAL ENGINEERS

An Improved 2-ton General Utility Vehicle

G. H. SLATER, A.M.I.E.E.†

U.D.C. 656.135

This article describes improvements in the design of the 2-ton general utility vehicle which was introduced experimentally about four years ago.

Introduction.

SOME four years ago an experimental 2-ton general utility vehicle was designed by the Post Office Engineering Department and put on trial. The vehicle offered many advantages over earlier types, including a higher payload capacity, low-loading facilities, more floor and locker space, and an improved standard of comfort for the external gang.

While the trial was still in progress, further vehicles to the same design were put into service and have proved to be a most valuable addition to the Department's motor transport facilities.

As the result of extensive experience of the experimental type under working conditions, a number of modifications have been decided upon and incorporated in the standard 2-ton utility vehicle described in the following paragraphs. The necessity for a new vehicle and the general considerations influencing its design have already been discussed in an earlier article.*

The New Vehicle.

The general appearance of the vehicle now standardised is illustrated in Fig. 1, which shows the vehicle fully loaded

FIG. 1.—THE NEW VEHICLE, FULLY LOADED.

with stores for an installation gang, including two 36-ft. poles and one 30-ft. pole.

As in the experimental version, the chassis is a 3-ton Karrier Low Loader fitted with twin rear wheels giving a floor height of about 3 ft. Externally the experimental and new vehicles look similar but the latter has a cab frontage of improved appearance and can readily be identified by the aluminium alloy roll shutter fitted at the rear. The metal shutter (Fig. 2) is, in fact, the most prominent of the improvements incorporated in the vehicles now going into service.

A feature of the shutter is that the facility of free access to the ladder shelf for the stowage and removal of the ladders has been retained with an unrestricted space of approx. 18 in. between the shelf and the underside of the roof rails. At the forward end of the body there is no

FIG. 2.—REAR VIEW WITH ROLL SHUTTER CLOSED.

difficulty in providing this space since the ladder and pole hatches are hinged on their lower edges and require no fixed guides. At the rear end, however, the off-side guide for the roll shutter presented a problem which was eventually overcome by designing a guide, the upper portion of which is hinged at a point just below the level of the ladder shelf. In the raised position, the hinged portion is locked by a bolt, thus providing two rigid guides for the free running of the roll shutter (see Fig. 3). In the lowered position, which can, of course, only be effected with the shutter rolled up, the hinged portion of the guide is secured by the same bolt to the front face of the fixed portion of the shutter guide.

FIG. 3.—REAR VIEW WITH SHUTTER AND TAIL-BOARD OPENED.

† Executive Engineer, External Plant and Protection Branch E.-in-C.'s Office.

* *P.O.E.E.J.*, Vol. 42, p. 22.

To prevent damage by the inadvertent closing of the shutter when the hinged portion of the guide is in the lowered position, a spring-loaded stop incorporated in one of the supporting brackets effectively locks the shutter in the up position. The stop is automatically set clear of the shutter when the hinged portion of the guide is in the raised position.

The fitting of this shutter should overcome the criticism that the original canvas curtain gave doubtful security; it is hoped that the increased cost of the roll shutter will be more than offset by savings in the cost of maintenance on the more easily damaged curtains.

The majority of the 2-ton general utility vehicles carry long ladders which must project beyond the front of the vehicle body; consequently, an offside forward hatch is required and, for all practical purposes, this has to remain permanently open. The original vehicles were arranged with a total of three forward hatches of equal size, two of which allowed for pole carrying. On most occasions, however, it was only necessary to have open the offside hatch and it was found that, even when a full complement of ladders was in position, a comparatively large open space was left through which rain and snow could drive.

To overcome this difficulty, the forward hatches have now been arranged in four sections, thus reducing the open space immediately adjacent to the ladder pile. To close off this open space, a canvas screen has been provided, which extends from the vehicle roof to the ladder shelf, and from the forward hatch to a position about 3 ft. along the ladder shelf, for the purpose of confining rainwater and snow to the forward portion of the shelf. The screen (visible in Fig. 3) is fixed flush to the underside of the roof, and the lower edge is secured by turnbuttons to the face of the ladder shelf fence-board. The forward edge of the screen has been shaped to form a small flap which turns to meet the face of the forward hatch, where it is held in position by turnbuttons. A small flap sewn along the inner side of the screen overlaps the ladder shelf fence-board to direct water from the screen to the shelf. A stiffener in the form of a steel rod sewn into a seam near the lower edge of the screen facilitates easy rolling for stowing the screen against the roof, where it is secured by two straps.

To dispose of any water which collects on the forward portion of the ladder shelf, draining grooves have been cut into the shelf to direct the water to a drain tube.

Experience with this screen is at present somewhat limited and it may later be decided to achieve the same object with a sliding panel.

To satisfactorily stow and remove the ladders from the ladder shelf, it will now, of course, be necessary to roll up the screen and open two forward hatches: a small disadvantage compared with the improved conditions inside the vehicle.

When poles are being carried, there is no practicable alternative to leaving the front open, but, as this period is of short duration compared with the periods for which ladders have to be carried, any inconvenience from this source should be slight.

The devices for securing the ladders to the shelf have been given much consideration. Apart from the fact that the ladder pile may vary considerably in height, it is an unyielding load which needs a securing device with an unlimited range of tightening adjustment but no tendency to slip. Various types of tongueless buckles were tried, but each had disadvantages either in respect of slipping after tightening or difficulty in releasing when tightened.

Eventually a most simple device seems to have solved the problem—a length of sashline, secured to the shelf so that it cannot be lost, and having at its free end a hooked plate which can be attached to one of a set of staples secured to the side of the body behind the ladder pile; this, in conjunction with a simple cleat attached to the front of the ladder shelf fence-board, provides a wide range of length and tightening adjustment with practically no tendency to slip.

As a possible alternative, a set of tongue-buckle straps has been designed with a spring attachment which gives the necessary range of adjustment over the distance between consecutive sets of holes in the strap. This device works quite satisfactorily and can be introduced should any unforeseen difficulties occur with the sashline.

The layout of the internal fittings, decided upon after considerable field investigation, provides a fair measure of flexibility and facilitates orderly arrangement of the stores and tools. Figs. 4 and 5 show a typical layout for a four-man installation gang.

Fig. 4.—Internal Fittings Below Ladder Shelf.

Fig. 5.—Internal Fittings, Forward End of Vehicle.

The compartmented nest of drawers accommodates the small items of stores, such as cleats, staples, number nails, lugs, copper sleeves, etc., as well as some of the smaller tools. Each drawer can be secured with a budget lock to prevent movement when the vehicle is in motion, and a measure of rearrangement is possible with the loose partitions.

The instrument cupboard for stowing telephones, connection strips, fitter's bag, etc., is lockable, and the two sliding doors provide adequate means of access with the minimum of obstruction.

The insulator rack is removable, and for duties not requiring this facility the space can be used for other purposes by rearranging the loose partitions provided as part of the vehicle equipment.

The top of the forward rack provides an adequate work bench and a suitable position for mounting the vice; for this purpose it has been kept clear, but there is no reason why it should not be used for the stowage of stores as well.

The occasional seat on the vehicles now going into service has been reduced in length to enable a rack for stowing large coils of wire to be mounted along the nearside of the body.

The light has been moved to the nearside of the vehicle so as to better illuminate the racks on the offside without detracting from the general interior illumination.

To complete the interior body fittings, accommodation for stowing the pole guides and wiring drum spindles has been arranged for by the fitting of a small rack in the space immediately behind the offside rear bolster support. This should effectively keep these pieces of equipment where they can always be found and prevent them from inadvertently being stowed away in inaccessible places.

FIG. 6.—VIEW INSIDE CAB.

The cab (Fig. **6**), as in the original vehicles, accommodates five men. An additional rack for papers has been included and the gang's first-aid outfit is now fixed in a prominent position on the offside of the cab. The most marked improvement will no doubt be the disappearance of the engine with its rather noisy air intake filter, which has now gone in its entirety under the cab floor. The cab doors are fitted with winding windows and cylinder type door handle locks, in place of the usual type of lock with its somewhat cumbersome key.

Conclusions.

It is considered that the improved 2-ton general utility vehicle now going into service is a decided advance in Departmental motor transport facilities, which should ensure a fair return in increased productivity from the users. Whether retrospective action is to be applied to the large number of original 2-ton general utility vehicles to bring them up to date is a problem that will need careful consideration. Some of the improvements mentioned in this article can be introduced fairly readily, however, if decided upon.

Acknowledgment.

It is desired to record acknowledgments to the officers of the Motor Transport Branch concerned in the development of these improvements, and to colleagues in the Construction Branch, in particular Messrs. A. I. Campbell and W. W. Mott.