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THE INSTITUTION OF POST OFFICE ELECTRICAL ENGINEERS

The History and Development of the 30-cwt. Utility Vehicle

R. T. ROBINSON, A.M.I.E.E., A.M.Inst.T.

The author traces the history of the 30-cwt. Utility Vehicle, which is used for subscribers' works, and gives details of its present-day bodywork.

Introduction.

ONE can imagine the feelings of Post Office gangs 20 or 30 years ago, when they had to travel to their work by slow and uncomfortable trains, and when the final stage of the journey often meant pushing a heavily-laden handcart for several miles. It was not until 1916 that the Post Office Engineering Department adopted a method of reducing the enormous expenditure of man power in getting to the job. In that year Army lorries were borrowed for work on the restoration of open lines damaged by the great snowstorm, and they showed so plainly the advantages to be gained from the convey-ance of gangs, direct from their headquarters to the site of the work, that their use on a large scale was decided upon.

In 1919 a few 3-ton Albion lorries, 7-cwt. Ford vans, and Triumph and Douglas motor cycle combinations, about 600 in all, were obtained from the surplus army fleet, and this constituted the nucleus of the Engineering Department's fleet. Experience soon showed that vehicles intermediate in size between the 7-cwt and 3-ton were necessary and others of 1-ton, 30-cwt., and 2-ton carrying capacity were gradually introduced.

By 1925 motor transport was used to a considerable extent for conveying gangs, with their handcarts and other equipment, to the site of their work, but the number of vehicles was not sufficient to make journeys by train exceptional. The jobs were frequently at some distance from headquarters and even when a lorry was available to take the men the whole distance from their headquarters to the job, they were not brought back until the work was finished, so that lodgings had to be found for them during that time.

At the beginning of April, 1925, the fleet was made up as follows :—

	41	3-ton Albion Lorries
	4	30-cwt. Albion Lorries
	118	1-ton Ford Vans
	49	7-cwt. Ford Vans
	2	Cable Testing Vans
	736	motor cycle combinations
Total	950	

None of these vehicles possessed any distinctive character other than being rather more robust than many of the standard products of motor firms. The greater strength was essential for the cartage of poles, cable drums, hand-carts and other heavy concentrated loads.

All chassis are bought direct from the makers, and the bodies are constructed by body-building firms to Post Office specifications and drawings. A selected group of body-builders are invited to tender for the construction of bodies about twice a year.

Early Utility Vehicles.

Between 1921 and 1925 several papers dealing with Motor Transport were read at local centres of the I.P.O.E.E. and one advocated the use of a specially designed vehicle for gangs engaged on overhead work. There were to be facilities for arranging in an orderly manner the tools and stores hitherto carried in the handcart and the vehicle was to remain with the gang at all times.

A vehicle was designed and tried out at Loughborough early in 1925. Later in the same year, six more of the same pattern were built. In this model the cab was as high as the body and one roof covered both.

It was soon discovered that this type of vehicle would be much more useful on telephone subscriber's work if one or two light poles could be carried. Various means suggested themselves, some of which would have involved restricting access to the cab to one side only, a common practice at that time : but from the outset, when designing the various types of body used in the service, " Safety First " has been the rule and the carrying of ladders and poles on the vehicle in its modified design in no way interferes with the use of either door of the cab.

The alteration consisted in lowering the cab roof

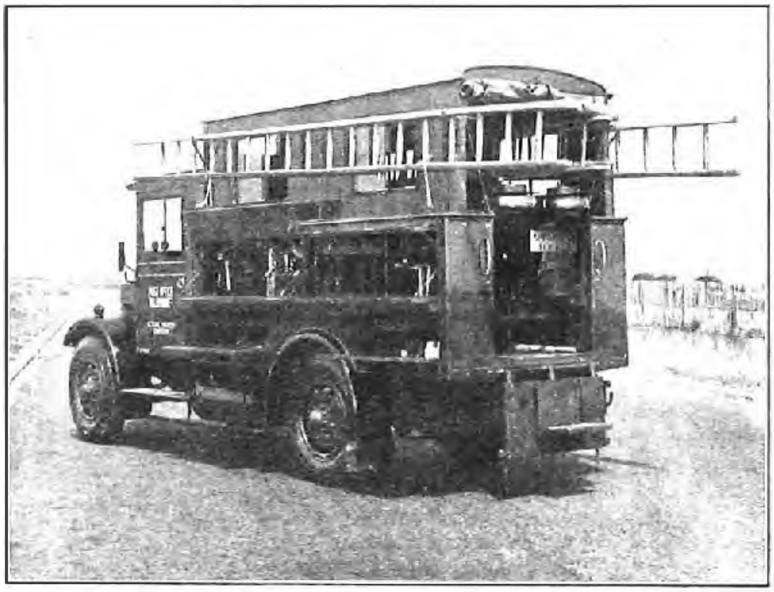

FIG. 1.—THE 30-CWT. UTILITY VEHICLE.

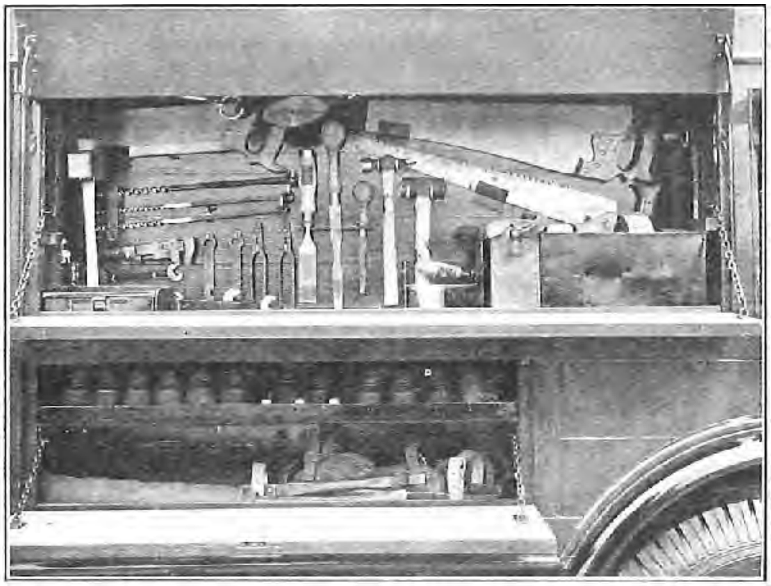

Fig. 2.—Nearside Front Lockers.

and making a small opening at the front of the body, above the cab, as shown in the top left-hand corner of Fig. 1. The opening is visible through the side window between the rungs of the ladder on the near side of the vehicle. A clearer view of the opening is seen in Figs. 6 and 7.

Since 1925 the fleet has consisted of two distinct classes of vehicles, stores-carrying, which are common service vehicles for conveying men and stores as required; and utility vehicles, which are definitely assigned to a gang or working party, of which the driver is a member. The 30-cwt. utility van was the only type until 1928 when the 10-cwt. type was introduced and the 1-ton a year later. These vehicles provide shelter for the gang in inclement weather while on the work and for meals.

As the load carrying capacity of a utility vehicle is handicapped by the weight of the locker compartments the engineers responsible for their production carefully review the design before placing a new contract, with the object of introducing new methods of construction that will reduce the weight without minimising the strength, bearing in mind that a vehicle of this class is expected to give good service for at least ten years. Recently a considerable reduction in weight has been secured by using lighter framing members of wood reinforced by thin steel plates, and by a modification to the roof. In all, four to five cwts. have been saved during the last two years. The use of the lighter framing members has not increased the cost of the vehicles: although when they were first considered in 1931 the cost was found to be prohibitive.

Tool and Stores Fittings.

When the vehicles were first introduced in 1925, attempts were made to devise suitable fittings for the orderly arrangement of the tools and stores, but in those days gangs were seldom employed on one class of work continuously. The stores used on main trunk lines, e.g., insulators and spindles, arm bolts, wire, etc., are larger in dimensions and heavier than those used on pole lines (minor lines) consisting mainly of subscribers' circuits, hence it was difficult to devise standard fittings that would enable the foreman to take out stores for all classes of work in sufficient quantity for more than one day's work. The tool kit of these mixed work gangs is also much larger than that required for work on minor lines. Gangs working for the most part on main trunk lines use stores-carrying vehicles.

The old Northern Engineering District took particular interest in the development of fittings for utility vehicles, and the volume of work on minor lines having developed by 1928 sufficiently to permit of the work being segregated to a great extent, they devised a layout which is the basis of the present standard scheme. Fittings are being provided locally for all vehicles built before June, 1937.

The recent more rapid growth of overhead subscribers' circuits has made it possible to segregate work still more and to fit up new vehicles before they are brought into service. The equipment costs less and there is no interference with work while vehicles are being fitted up.

There are four lockers on each side of the vehicle. Fig. 1 shows the general layout of those on the near-

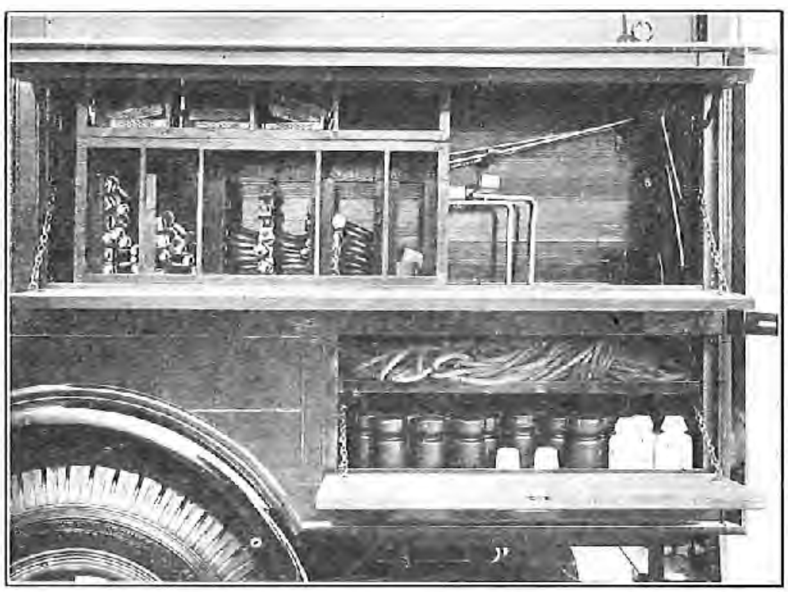

Fig. 3.—Nearside Rear Lockers.

side and the individual items in each compartment are more clearly shown in Figs. 2 and 3.

The tools are neatly spaced out in the upper locker as shown in Fig. 2 and to assist the gang in restoring the tools to their proper place a gummed slip showing a skeleton outline of the tools in position is fixed to the back of the locker. Immediately below the tool locker various types of insulators are kept in position by wooden pegs fixed to the shelf and pole climbers, insulating tails and other items are carried on the floor. In Fig. 3 there are pole steps, brackets and insulator spindles in the upper locker, and sash line and insulators in the lower locker.

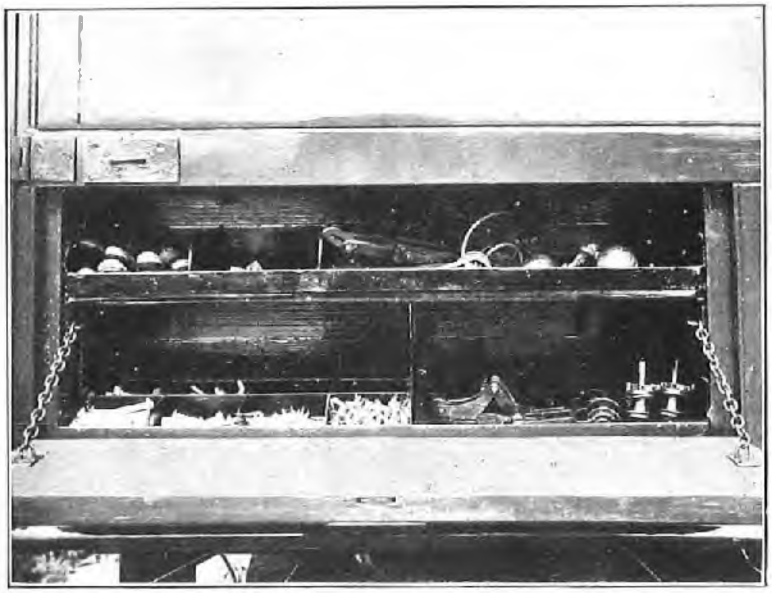

FIG. 5.—OFFSIDE REAR LOCKERS.

Figs. 4 and 5 show the items carried in the offside lockers. These include coils of wire, leading-in cable, various insulator fittings, arm bolts, tension ratchets, draw vices, and small stores.

Whenever possible a man skilled in fitting up subscribers' apparatus is included in the gang and the items of stores required by him—cords, etc., and apparatus—are carried in the offside locker towards the rear of the vehicle, as shown in Fig. 1. The purpose for which the other internal lockers are used is shown in Fig. 6.

Other features shown in Fig. 6 are the ladder hooks, ladder lashing rings, wiring drums for paying out 40 lb. conductors, the opening at the front for the pole heads and the gate at the rear, shown folded back, on which the pole butts are carried. The removable horizontal roller raised above the floor, at the rear of the vehicle, is used to facilitate the loading of poles before the butts are lifted on to the gate.

The writing slope with an adjustable electric light fitting overhead is conveniently near to the locker for the foreman's technical instructions, progress reports, requisition books and other papers. The top of this locker is sufficiently strong to carry a 3-in. parallel bench vice.

Digging tools and stay rods are carried under the seat: arms, stay blocks and other heavy items, such as pole lifting jacks, when required, are carried on the floor in the gangway.

Pole-Carrying Facilities.

Fig. 7 gives two part views of the same vehicle illustrating more clearly the method of loading and conveying the poles. In the back view two poles are shown, one with its head through the opening at the front and its butt resting on the gate at the rear of the vehicle, and the other pole with its head resting on the horizontal roller. The head of the second pole would be supported by the roller until it reached the opening in the front. When the second pole had been pushed forward to the same extent as the other its butt would be lifted off the roller on to the gate. The right hand part of the figure shows the head of the first pole projecting through the opening at the front of the vehicle.

Before the vehicle is moved away from the pole stack the heads of the poles are lashed to the rings provided at the front of the vehicle and the butts to the gate. The head of the first pole has already been lashed. The roller is also removed from its supports and carried on the floor of the vehicle.

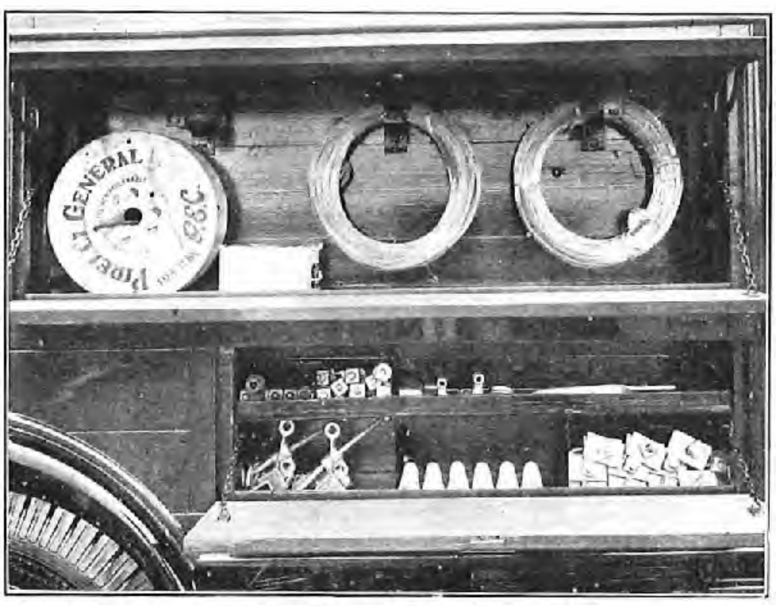

FIG. 4.—OFFSIDE FRONT LOCKERS.

Types of Chassis.

The Albion chassis has hitherto been

used exclusively for this class of utility vehicle. Recently it was decided to make a trial of Morris chassis for this work and 35 are included in the total of 1,305 vehicles at the end of March, 1939.

Staff Accommodation.

The seating accommodation in the body is adequate for five men and since the normal size of a gang is four men including the foreman and driver, both seated in the cab, it is possible to convey other men—for example, a jointer and his mate when their work lies in the same direction—and to hitch their trailer tool-cart to the vehicle. A spare number plate is carried on each vehicle for attachment to a trailer.

Economic Use.

The cost of a utility vehicle is much greater than that of a stores-carrying vehicle of the same load capacity, hence the annual interest and depreciation costs are greater. On the other hand a utility vehicle conveys a gang direct to the job in the morning, and from job to job during the day, and its use does not entail any dead mileage: consequently the cost of transport per subscriber's circuit is less. The radial limit to which gangs are taken out and brought in

FIG. 6.—INTERIOR OF BODY.

is about 15 miles. If the work is beyond this distance the gang usually stays away from its headquarters until the work is finished.

A requirement essential to the economic use of utility vehicles is a well designed system for the rapid replenishment of the stock of stores and apparatus as it becomes exhausted. The locker capacity is sufficient for a three days' supply of all normal items used.

Great attention is being paid at the present time to the development of facilities for rapidly loading utility vehicles. At headquarters where there is a section stock mobile containers are being introduced which will be wheeled to where the vehicle stands in the garage. For vehicles which are stationed at a town where there is no section stock, stores will be left in locked containers or permanent lockups at some convenient place near the garage, to be unpacked by the foreman at his convenience.

FIG. 7.—POLE-CARRYING FACILITIES.

Conclusion.

Minor adjustments will no doubt be required in the future to suit special conditions, as the character of the work is continually changing. That the 30-cwt. utility vehicle has done much to reduce telephone costs, and that it is an indispensable aid to the development of the telephone service, has been fully recognised; and the consequent growth of the fleet, which has been most rapid in the last few years, is shown in the following table which includes the numbers of vehicles estimated for 1938-39.

Year	30-*cwt. Utility Vehicles*	1-*ton Utility Vehicles*	10/15-*cwt. Utility Vehicles*	*Morris Minor Utility Vehicles*	*All other types of Vehicles*
1925/26	7	—	—	—	1106
1926/27	18	—	—	—	1306
1927/28	39	—	—	—	1443
1928/29	85	—	4	—	1624
1929/30	145	46	60	—	1816
1930/31	160	80	71	—	2130
1931/32	246	121	126	12	2439
1932/33	280	137	143	90	2709
1933/34	340	181	202	192	2800
1934/35	468	213	286	438	2963
1935/36	601	336	229	895	2969
1936/37	851	515	202	1669	2831
1937/38	1180	808	183	2765	2882
1938/39 *(forecast)*	1305	953	183	3305	3072