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Improvements in the 15 cwt Class of Engineering Vehicle

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Many manufacturers of commercial vehicles market a range of mass-produced variants of a basic light van so as to give the customer the option of having additional facilities or features at reasonable cost. The British Motor Corporation J2 range of vehicles is in this category and has been exploited to provide 15 cwt Post Office engineering vehicles of improved suitability and, in some instances, reduced cost.

INTRODUCTION

AMONG the 370 engineering vehicles of 10 cwt to 1-ton capacity in service in 1932, a substantial proportion were of 15 cwt capacity. These 15 cwt vehicles were equipped with a range of three types of coach-built body, one, illustrated in Fig. 1, being expressly designed for subscribers' apparatus installation duties, another for cable-jointing and the third for stores-carrying. Such early designs, with their restricted fields of use, did not meet the increasing demand for more

FIG. 1—1932 15 CWT VEHICLE DESIGNED FOR SUBSCRIBERS' APPARATUS INSTALLATION DUTIES

flexibility within the local fleets and were ultimately superseded in the mid 1930s, along with some 10 cwt and 1-ton types, by a smaller range of more versatile designs of 1-ton capacity.

It was not until 1960 that the first of a new family of 15 cwt vehicles was introduced into the engineering fleet. The modern 15 cwt designs contrast sharply with their predecessors, being conversions of mass-produced light commercial vehicles, and equipped to ensure that they can be utilized for a number of different duties. A total of 1,100 of the new 15 cwt engineering vehicles is already in service, with the expectation that the number will almost certainly exceed 2,100 in the next two or three years, as superseded 10 cwt vehicles are replaced. Obviously, the high total capital cost of such a large section of the engineering fleet makes it essential that the conversions of the basic commercial vehicles should be as economical as is practicable. On the other hand, the facilities offered by the vehicles must be adequate to exploit to the maximum the sphere of use of this relatively light and economical type of vehicle. Hence, a correct balance between these main considerations is essential, and the initial balance must be rechecked periodically in the light both of developments in commercial vehicles and in telecommunications field-work.

1960 15 CWT STANDARD VEHICLES

The 15 cwt Utility Vehicle

The immediate predecessor of the 1960 15 cwt Utility vehicle was one of 10 cwt capacity. While the 10 cwt Utility vehicle[1] fully justified its adoption in 1953 by meeting, with maximum economy, the transport needs of many light 2-man working parties, it became readily apparent after a few years use that its capabilities fell just short of the requirements of many more such working parties. However, it was not until 1959 that a suitable 15 cwt standard commercial van (the British Motor Corporation (B.M.C.) J2 van) became available as the basis for an improved light utility vehicle. Its subsequent adaptation as a Post Office 15 cwt engineering Utility vehicle is described in an earlier article;[2] it was introduced into regular service in 1960 to serve as a replacement for the 10 cwt Utility vehicle and for use on many of the lighter duties which had hitherto required 1-ton Utility vehicles.

The new Utility vehicle had its shortcomings, some of which were apparent from the outset; others came to light after a number of vans had seen some 12 months regular service. Indeed, it did not really have as much appeal to the staff using it as was at first hoped. Nevertheless, it undoubtedly made a valuable contribution towards equipping the Utility fleet with vehicles of a lighter type than had previously been used and this resulted in savings in motor-transport costs.

One of the main attractions of the 15 cwt van, its commodious body compartment (9 ft long, 5 ft 7 in. wide, 5 ft 1 in. high), also proved, ironically enough, to be a factor contributing to some difficulties and criticisms; Fig. 2 illustrates this long body compartment complete with rack fittings. It will be appreciated that, although the rack units are arranged to the best advantage, it is necessary to clamber into the body and move up the central gangway to gain access to the forward end of the body storage-space. Although this difficulty has been eased by an extra 3½ in. of head room given by a special translucent fibre-glass roof in place of the standard metal roof, insufficient head room is still a prevalent staff complaint; the need to stow large items in the gangway space, thus restricting or obstructing free access, also inevitably aggravates the effect of insufficient head room.

The external ladder rack, designed to accommodate a long 2-section extension ladder (Ladder, Extension, No. 1, 14 ft long when closed) is centrally mounted on

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[1]SLATER, G. H. A New 10 cwt Utility Vehicle. *P.O.E.E.J.*, Vol. 46, p. 86, July 1953.

[2]THOMAS, A. W., and COLLINGS, E. R. Four New Engineering Vehicles. *P.O.E.E.J.*, Vol. 53, p. 257, Jan. 1961.

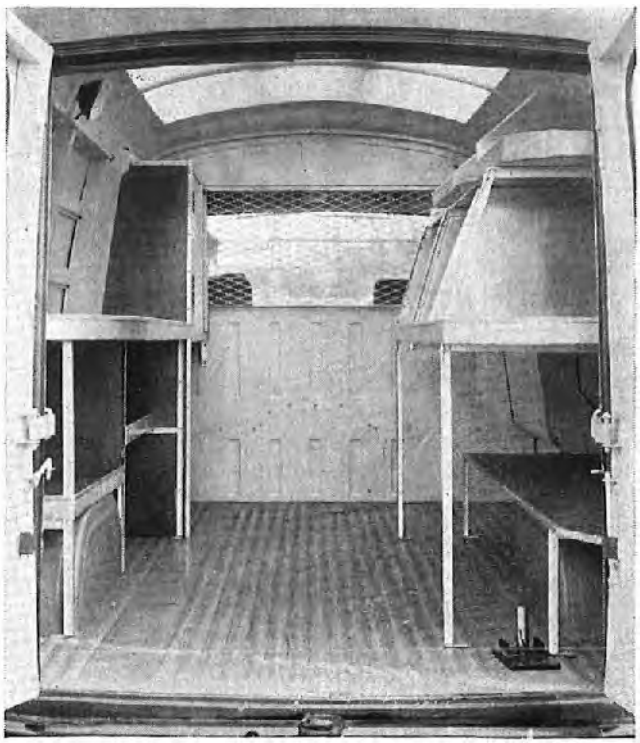

FIG. 2—INTERIOR OF 1960 15 CWT UTILITY VEHICLE

the roof to maintain the balance of the vehicle. Consequently, it is necessary to resort to a mechanical securing clamp, remotely controlled from the rear of the rack, to secure the forward end of the ladder, which cannot be reached by a man standing on the ground. Also, the relatively high ladder-rack position necessitates a special loading and unloading technique. But perhaps the most disappointing feature was that it was impracticable to provide safely for the carriage of a short 3-section extension ladder on the external ladder rack. Such an extension ladder has to be carried within the off-side internal racking, sometimes occupying space that could otherwise be used instead of gangway space so enabling the latter to be kept clear.

The internal rack units are of light-alloy construction and are divided up by fixed partitioning into graduated compartments. A more flexible arrangement of the standard internal fittings is sometimes thought desirable by users of the vehicle although the nature and degree of this flexibility cannot readily be defined.

While the adaptation of the B.M.C. J2 van produced a much cheaper vehicle than the larger coach-built 1-ton or 25 cwt Utility vehicles, it was still, nevertheless, expensive in comparison with other conversions of commercial vans for engineering purposes. Analysis of the conversion costs showed the main expense to be the provision of the fibre-glass roof and the ladder rack. Another relatively expensive departure from the commercial standard was the substitution of a double-leaf door of fibre-glass in place of the standard single rear door. The object of this was to reduce the space required to open the rear door and so improve the suitability of the vehicle for working in places where parking space is limited.

The 15 cwt Stores-Carrying Vehicle

The 15 cwt stores-carrying vehicle is equipped with the same type of body as the Utility version except that the ladder rack and internal rack units are not provided, and a single narrow near-side door is added to the body section; the side door, a standard commercial extra, greatly enhances the usefulness of the vehicle when delivering to premises in localities subject to parking congestion. The vehicle as initially issued had a clear body-space because it was considered that the major use for the vehicle would be to cater for the light general-purpose element of the work of centralized pools of stores-carrying vehicles and for other duties for which no fittings are required. Nevertheless, the vehicle is also very suited to apparatus-delivery work for which simple storage racking is usually desirable. Such requirements for racking are met by the local installation of suitable light racking, as and when required, using modern patent, light, slotted-angle, metal-work. Occasionally the vehicle is used for electric-light-and-power installation work, or by a foreman jointer supervising a group of jointers equipped with tool-cart trailers; the ability to tow or transport small mechanical aids goes a long way towards making such a group self-contained.

THE BASIS FOR FURTHER IMPROVEMENT

Routine attention to developments in the commercial-vehicle field enabled most of the previously mentioned shortcomings of the 15 cwt Utility vehicles to be eliminated and substantial savings in capital costs to be made. By utilizing double side doors on the near-side, which became available commercially as an optional extra, easy access is given to the front of the body section and this almost eliminates the need to clamber into the body. This in turn means that it is possible to dispense with the specially heightened roof, to simplify the relatively complicated external ladder rack and to dispense with the special double-leaf rear door. It was estimated that the cost of the 15 cwt Utility vehicle could be reduced by over 11 per cent in this way and the stores-carrying version by half that amount. A further advantage is the improvement in convenience when working in locations where parking is difficult.

1963 15 CWT STANDARD VEHICLES

The 15 cwt Utility Vehicle

Fig. 3 illustrates the improved 15 cwt Utility vehicle, the B.M.C. J2 van with double-leaf side door and a simple ladder rack on the roof; the illustration shows the generous span of the double-leaf side door, the leaves of which can be swung fully back against the side of the vehicle to minimize possible obstruction of the footpath. In adopting the double-leaf side door it is necessary to resort to hinged cab doors in place of the original sliding doors and to accept the attendant accident risk of an incautiously opened cab door. The large single rear door is restrained at 90 degrees from the closed position to prevent it swinging out into the traffic stream by accident; it can be propped open in this position by means of a simple stay.

Taking advantage of the unbalanced internal-rack layout inherent in the near-side loading arrangement, the ladder rack has been off-set to the near-side of the roof, so that even a man of modest stature can reach a securing strap at the front, rear or centre of the ladder rack by standing in one of the doorways. This degree of accessibility, together with a ladder-rack height some

4 in. lower than on the previous model, allows the use of the simple horizontal type of ladder carrier already commonly used on Minor vans. A 2-section extension ladder of 14 ft closed length, or a small 3-section alloy extension ladder can be accommodated on the external ladder rack; these ladders can be loaded and unloaded manually in a straightforward manner. However, it is intended that the short 3-section ladders should be carried on the ladder rack on the roof only if the load or equipment carried inside the body prevents the ladder being placed on an internal shelf provided for the purpose; a small ladder tends to be something of a "dead weight" when being loaded on to the roof rack, and it is considered that, for the smaller man, this manoeuvre is sufficiently awkward to avoid resorting to it if possible.

Within the body section simple partitioned racking is arranged round the sides and utilized in such a way as to keep to a minimum the need for a man to climb into the body. Fig. 4 shows, from the near-side, the internal racking loaded with the equipment and stores for a small working party engaged on subscribers' apparatus installation and light overhead-construction work. Fig. 5 shows the lay-out from the rear. These illustrations depict the initial experimental racking, which utilizes $1\frac{1}{2}$ in. slotted-angle metal work for the framing members. In the interests of flexibility the same system of rack construction has been specified for the initial contract, but the continued provision of this type of racking will depend on the degree of use made of its flexibility in service, balanced against the increase in cost compared with more orthodox construction. The shelves slope backwards to hinder the dislodging of equipment and stores when the vehicle is in motion. A $1\frac{1}{2}$ in. fence rail is formed by the upturned front slotted-angle cross-member.

FIG. 3—1963 15 CWT UTILITY VEHICLE

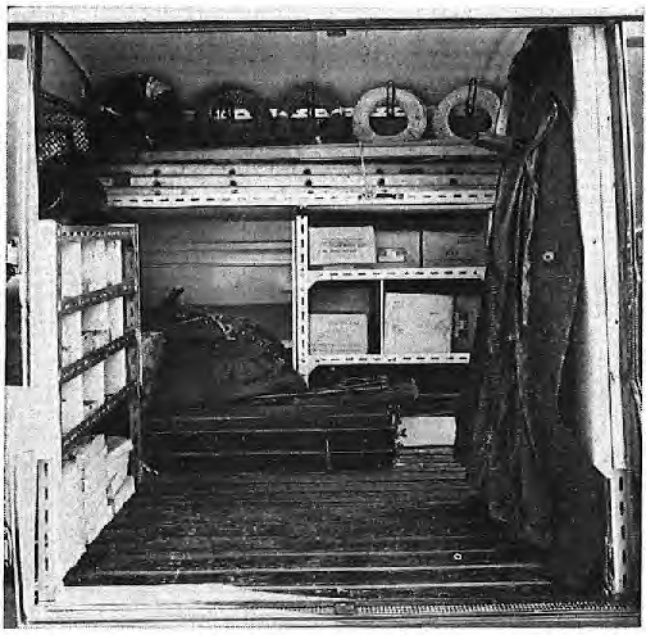

FIG. 4—SIDE VIEW OF INTERIOR OF 15 CWT UTILITY VEHICLE

An internal ladder-shelf above the off-side rack unit can be used for the carriage of a small 3-section ladder (up to a length of 8 ft 6 in. when closed), sash line being used to secure the ladder in position. Shelf-type ladder stowage has been chosen largely to avoid wear and tear on the ladder; the securing ropes are required as much to prevent the stiles of an aluminium ladder fretting on the ladder rungs as to prevent the ladder being dislodged in transit. Also, a shelf lends itself to supplementary or alternative uses, e.g. the carriage of a step-ladder, hose sections or other long items. The height of this ladder shelf and the configuration of the racking underneath is arranged to allow the sections of a large jointing tent to be tucked under the leading edge, with the curved parts fully below the forward end of the shelf.

In general, the partitioning of racks into compartments has been graduated so that the largest compartments are in the off-side racking, space for digging tools being available below the off-side rack. The near-side com-

FIG. 5—REAR VIEW OF INTERIOR OF 15 CWT UTILITY VEHICLE

partments are of mixed sizes, and the smallest compartments are in the forward racking. However, this nominal setting of partitions can readily be rearranged if required, and it is intended that they should be subdivided as necessary by the local addition of extra partitioning. The top of the small forward rack forms a tray that can be used to set out small tools, while the clear space below this rack will accommodate a jointer's tool box. A number of key rack joints are gusseted, however, and should not therefore be disturbed when changes to the partitioning are made.

A propane-gas cylinder can be carried on either side of the rear door, the space on the off-side being for the standby cylinder and that on the near-side for the working cylinder. Each cylinder is secured by a strong webbing strap and, because commercial propane is heavier than air, is set over gas-drainage holes in the floor. Above the working cylinder is shelf accommodation for the gas stove and torch, with saddles above for the supply hoses. In this way the gas-plumbing equipment is stowed in a manner conducive to its safe use.

Above the off-side rack a slotted-angle member, running the length of the cant rail, carries a number of wire hooks. These hooks are intended for carrying coils of wire and cable; to prevent damage to wire due to movement in transit, the hooks will be of a special shape in the standard production vehicles and not the simple hooks depicted in Fig. 4. Protective clothing can be hung on a further two hooks at the forward end of the near-side rack unit.

The vehicle is fitted with a towing hitch and can tow, over normal road gradients, a fully-laden tool-cart trailer or other trailer up to a gross trailed load of 12 cwt. An auxiliary fitment for use with the towing hitch is a small mounting plate for a 3 in. vice; Fig. 5 shows this vice in position. The remaining features and facilities are identical with those on the earlier model and follow orthodox practice.

The 15 cwt Stores-Carrying Vehicle

The new 15 cwt stores-carrying vehicle consists of the same basic commercial B.M.C. J2 van with double side doors as its Utility counterpart, the only addition to the commercial van being a towing hitch, standard Post Office security arrangements and the normal Post Office miscellaneous additions to the cab equipment. As with its predecessor, any rack-unit required will be provided locally.

The 15 cwt Personnel Carrier

Circumstances such as difficulty in obtaining lodgings, poor public-transport facilities and other staff welfare problems sometimes give rise to a situation in which, for an appreciable period, a number of Utility vehicles daily traverse almost identical routes to locations relatively close together within the area of a particular major project some distance from the headquarters of the staff concerned. Depending on the number of vehicles, the number of staff and the distances involved, it is sometimes more economical to operate the Utility vehicles from a temporary out-station headquarters within the exchange area or areas concerned and to provide a personnel-carrying vehicle for the common portion of the

FIG. 6.—INTERIOR OF 15 CWT PERSONNEL CARRIER

daily journey to and from the normal headquarters. When the incidence of the need for personnel-carrying was small, the hiring of a suitable passenger-carrying vehicle sufficed, but Regional needs grew to such an extent that, by 1958, there were some 23 personnel-carrying vehicles in the engineering fleet. These personnel carriers were conversions of a 25 cwt Seddon stores-carrying van having a fibre-glass body and a 2·2-litre diesel engine; the conversion consisted of fitting fixed side-windows, longitudinal tip-up seats along each side of the body, and ventilators. Unfortunately the 14-seat Seddon personnel carrier was not popular with staff because of the lack of comfort; it was a relatively expensive vehicle, and was, perhaps, slightly larger than necessary. A cheaper and more satisfactory alternative was found in the B.M.C. Minibus.

The Minibus is another of the B.M.C. family of J2 vehicles, being a mass-produced adaptation of the basic J2 van shell; windows are fitted along the full length of both sides of the body, the rear-most being openable for ventilation. It is available in alternative internal layouts; that shown in Fig. 6 was adopted, without any special modification, for engineering service. For such service the seating capacity is 12 men inclusive of the driver. It will be seen from Fig. 6 that the rear seating is arranged in four sections, each of which can be tipped up and secured against the side of the vehicle by a strap, the seat props being folded back and held in spring clips. Such a seating arrangement enables the vehicle to be used for light stores-carrying work between personnel-carrying journeys, and it has been used very effectively as the mobile base for a large group of exchange-conversion fitters carrying out a highly concentrated street-by-street program. Internal lighting and roof ventilators complete the fittings of the lined body interior, which is trimmed with a plastic material.

The justification for resorting to personnel-carrying depends on particular circumstances, and, therefore, the requirements for personnel-carriers also depend on the incidence of such circumstances. Hence, the dual-purpose nature of the vehicle enables it to be more fully employed at times when it is not being wholly utilized for passenger-carrying. Twenty-six of the 15 cwt personnel carriers are already in service and there are plans for a further number to be provided, which will raise the total to an average of at least one per Telephone Area.

CONCLUSIONS

Without question the new 15 cwt vehicles can give material savings in capital cost compared with their immediate predecessors. Their improved facilities increase the possibility of 15 cwt vehicles supplanting larger types on an even wider range of duties.