

Q.T.E.V. "Queen of Bermuda"

Telephone System of the Q.T.E.V. “Queen of Bermuda”

IN view of the extent to which manual switchboards are being superseded by automatic equipment for small private telephone systems, it may be thought that with regard to improvements in design the former are to-day receiving little attention. Such, however, is not the case. For certain special classes of work there is still a regular although limited demand for small exchanges of the manual type and during the past few years there have been introduced several new and improved features which have perhaps not received the publicity they would certainly have claimed but for the more extensive use of automatic systems.

An interesting example is to be seen in the telephone equipment now serving the new Q.T.E.V. “Queen of Bermuda” which has recently joined the fast luxury service operating between New York and Bermuda. Electricity is used on the most extensive scale throughout this vessel, from the actual propulsion and steering to the lighting and ventilating of all public rooms, cabins, etc., the refrigeration and cooking of food; the handling of cargo, the signalling and indicating devices, and the driving of laundry machinery, gymnasium equipment, printing presses, etc. The whole of the electrical equipment was supplied by The General Electric Company, the telephone apparatus being manufactured at Coventry

In the design of a ship's telephone system several factors are introduced which are not often encountered together. Firstly, if communication is provided throughout the

vessel the switching equipment need not be extensible. This permits of economy in layout and the provision of nothing more than necessary to serve a definite number of lines. Secondly, owing to limitation of space, it is essential that the apparatus should be mounted in as compact a manner as possible and preferably in one complete unit. The utmost simplicity as regards both installation and maintenance is also desirable, while the types of apparatus and their “finish” must be chosen with due regard to the prevalence of salt-laden atmospheres and to the climatic conditions encountered during voyages in the tropics.

The “Queen of Bermuda” switchboard (Figs. 1 and 2), to which all these factors applied, is of the C.B. lamp signalling type and provides for a total of 410 extensions. Standard **GEOPHONE** instruments are employed throughout the vessel and are installed not only in all passenger cabins, suites, lounges, etc., but in the kitchens, stewards' quarters and at all important officers' stations. The board is also equipped with junction line apparatus by means of which connection may be established when in port with the public telephone service.

As will be seen from Figs. 1 and 2, no separate rack for relays and auxiliary apparatus is employed, the framework being constructed to carry these items inside the rear of the board itself. Line terminations are also incorporated, the connecting strips appearing in rows at the top, and in order to provide full access to both sides of the

connecting field, convenient lift-out doors in the sloping front are provided in addition to the usual rear doors.

A considerable saving in both space and weight is obtained by the use throughout of the new standard "Minor" relay which was fully described in *Current Comments Vol. 2 No. 4*. These are mounted, as seen in Fig. 2, on two hinged frames which, upon the removal of locking screws, can be swung forward to give access to the wiring side and also to the cords. For the protection of the relays, suitable sheet iron covers are fitted.

A further point of interest is that in the construction of the board the greatest precautions had to be taken to ensure efficient fixing and bolting not only of the main framework but of the individual components in order to prevent displacement by vibration and by shocks received during the passage of the vessel through heavy seas. Further, in view of the normal roll of the ship, the usual pulley weights for returning the cords are replaced by specially designed spiral springs with individual vertical guide wires. This arrangement is equally effective and eliminates the obvious disadvantages of pulley weights under such conditions.

In order to simplify the work of installation the switchboard was built in two sections ready for bolting together and securing to the floor, and as already mentioned local



Fig. 1.—C.B. Lamp Signalling Switchboard specially designed for the "Queen of Bermuda."

wiring was reduced to a minimum by arranging for the direct termination of the lines on the internal connecting field. With regard to maintenance it will be observed from Fig. 2 that all internal apparatus is readily accessible.

Energy is supplied by duplicate 24-volt 80 a.h. storage batteries which are used alternately and charged from a 220 volt D.C. supply through a standard type of charging panel. The only remaining equipment external to the switchboard is a power driven ringing machine mounted with the charging apparatus.

Of perhaps more general interest are the special arrangements made in both the

calling circuits and the layout of the face equipment in order to provide the class of service required. In addition to giving intercommunication between all parts of the ship and connection with the public service when in port, the telephone system is employed also for the transmission of passengers' orders to the stewards. The usual bells and indicators are thus replaced by a personal service in which either the switchboard operator receives and transmits an order or the passenger may speak direct to the appropriate steward.

A front view of the board is given in Fig. 3. Official lines are terminated and numbered in the regular manner in the upper portion of the two middle panels. The method of grouping the remainder provides firstly for the association of suites of cabins with adjacent corridor instruments for stewards' use, and secondly for the association of certain groups of cabins and their respective stewards' lines with a particular pantry

For designating the cabin lines the actual cabin numbers are used, prefixed by the deck letters, the latter appearing also in the vertical stile strips. The labels for each group of cabins are distinctively coloured and at the "end" of each group appears the jack for the appropriate steward's line. Thus, upon receipt of a call, the operator follows the colour designating the calling line until the first steward's line is reached. Should no answer be received, the coloured strips



Fig. 2.—Rear doors removed, showing hinged relay frames.

are then followed in the direction indicated by arrows at the sides of the jack strips until the first pantry line is reached. At this point the caller is sure of attention.

The extension line circuits for all official and cabin telephones are regular in design but at the stewards' and pantry line instruments both visual and audible signals are provided. Upon inserting a calling plug into a steward's line jack, a relay is energised which operates a single stroke bell and lights a lamp in the corridor. Until the call is answered the lamp gives a continuous indication confirming the primary audible signal.

In the case of the pantry lines, the telephones are equipped with the standard

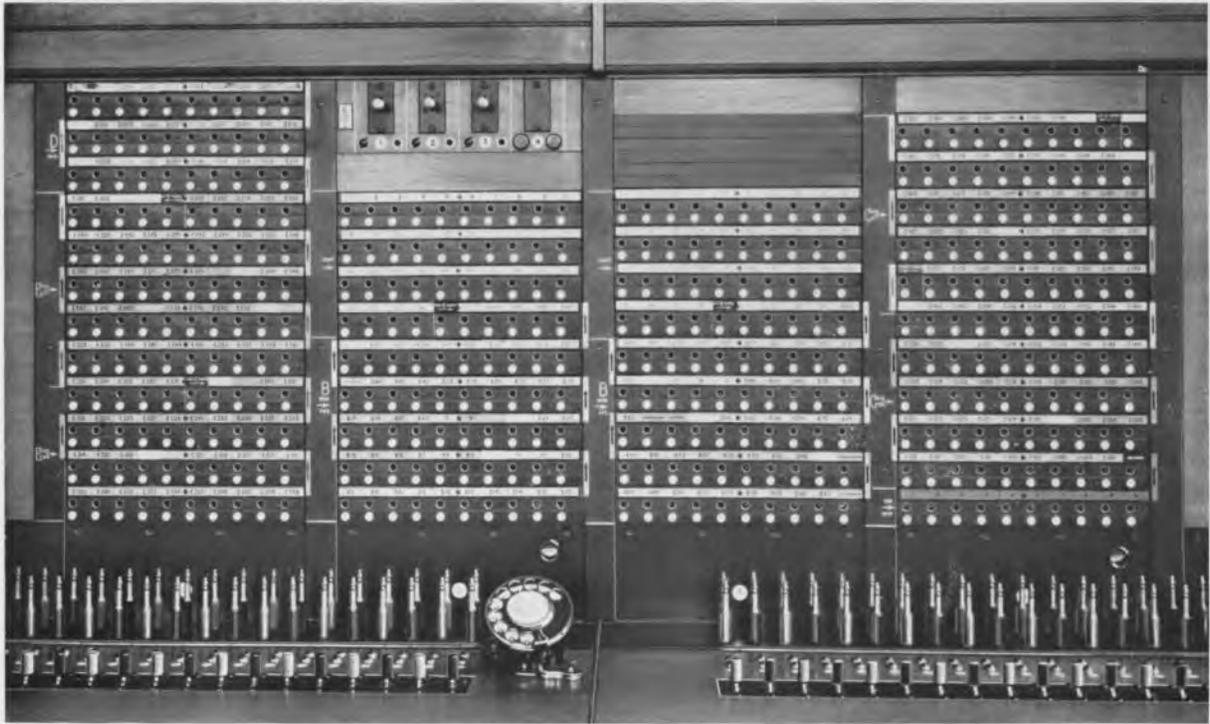


Fig. 3.—Front equipment.

magneto bells but, in addition, lamps are fitted in the port and starboard alleyways to give visual indication also.

Referring again to Fig. 3, it will be seen that apparatus is fitted for three shore lines for which water-tight connecting points are provided on the port and starboard sides of the ship. These circuits are designed for operation to any type of public exchange—magneto, C.B. manual or automatic.

With regard to traffic, the switchboard is arranged primarily to be served by two operators, but for relief purposes during the exceptionally busy periods at certain hours provision is made whereby two additional operators may be employed, one at each end of the board. In order to permit of this, switching keys are fitted so that six of the eighteen cord circuits on each position may be segregated and used independently in conjunction with two auxiliary operators' circuits.

