

The G.E.C. Intercommunication System with Loud Speaking Master Stations.

THE new intercommunication system recently introduced is not intended to supersede those already existing, but has been developed to meet a demand for one offering special facilities to selected parties. Directors and Managers of business organisations, who make frequent use of the telephone in communicating with members of their staff, often experience fatigue as a result of the constant handling of a telephone receiver. Provision is therefore made for certain Master Stations to be equipped with a loud-speaking receiver and supersensitive transmitter so that the user, who may occupy an office of fairly large dimensions, may carry on a conversation from any point in the room. The qualities of the receiver and transmitter are such that the position of the speaker is in no way restricted; speech in both directions is clear and of ample volume. A second receiver of the ordinary type is also provided and this, when removed from its hook, automatically disconnects the loud-speaking receiver. Thus, when a call is made in the presence of others and it is desired that they should not hear the distant party, conversation may be held in the normal way.

In order to give a measure of control to the master stations, so that the users will have immediate access to every other instrument on the system, auxiliary signals are provided at each sub-station. These take the form of small lamps which give visual indication of calls from master stations and, in the event of a sub-station instrument being in use when

called, warn the speaker to release the line. At a master station there is consequently no delay, an immediate answer may be expected from any other instrument. Furthermore, all calls to and from a master station are secret, there can be no overhearing.

The system provides for a maximum number of twenty-one stations, of which one or two may be of the master type. Where the number of lines exceeds this figure a private automatic exchange is, of course, preferable.

The loud-speaking master station instrument (Fig. 1) consists of a handsome desk type cabinet of polished hardwood and is an entirely self-contained unit. Above the transmitter and loud-speaking receiver, a combined key and indicator panel is fitted at a convenient angle in the face of the cabinet, the whole being designed to give a most attractive appearance. The only external part is the auxiliary receiver which is of the watch pattern, combining efficiency with minimum weight.

The keys and indicators are of the types employed in public telephone exchanges and are simple and reliable in operation. For the protection of the indicator faces, and to exclude dust from the moving parts, the indicators are fitted with individual covers having glass fronts. Each line is designated by means of a small label under the associated indicator and key.



Fig. 1.
Ten line Master
Station Instrument.

Fig. 2.
Standard Sub-station
Instrument fully
equipped.



Both the transmitter and loud-speaking receiver are of special design and, as already mentioned, permit the user to converse with any station from any point in the room. Transmitted and received speech is clear and distinct. When the ordinary receiver is taken into use and the loud-speaking receiver disconnected, the volume is, of course, reduced to the normal level, the reduction being

obtained by the use of suitably proportioned coil windings.

The ordinary or sub-station instrument (Fig. 2) is generally similar to the well known G.E.C. intercommunication telephone and is suitable for both wall and table use. The selector mechanism, buzzer, etc., are mounted on a hardwood base and totally enclosed by

a black enamelled steel cover which carries the cradle for the handcombination and the coloured lamps associated with the master station circuits. The plungers and contact springs which comprise the line selectors are assembled and mounted in groups of five so that partially equipped instruments may at any time be fitted with additional apparatus for the connection of new lines up to the maximum number of twenty. The circuit arrangements are such that out of this total either one or two of the lines may terminate at a master station.

The handcombination is of the latest pattern incorporating an improved inset transmitter and electromagnetic receiver in a black bakelite moulding.

One of the outstanding features of the system is the simplicity of operation. In making a call from a master station the user is only required to throw the key associated with the selected line, and then to await an answer. By this single action the wanted party is signalled and the transmitter and loud-speaking receiver connected to the line. Upon a master station being called from another instrument the corresponding indicator is operated and, in addition, a small buzzer which may be disconnected by means of a switch if visual indication only is sufficient. To answer the call and restore the line indicator to normal the associated key is thrown, whereupon the speaking condition is established exactly as before. It will thus be seen that the method of operation of a master station instrument is simpler than that of any ordinary telephone.

A call from one sub-station to another is made by removing the handcombination and depressing the selected button to connect ringing battery to the required line. Upon release the button is held in an intermediate or speaking position by a locking device which remains operated until the handcombination is replaced on its cradle at the conclusion of the conversation. Calls to a master station are effected in exactly the same manner.

The method of answering a call at a sub-station depends upon the type of instrument from which the call originates. In the case of one sub-station calling another the buzzer is operated, and the called party simply removes the handcombination to complete the speaking circuit. If, however, one of the two coloured lamps glows when the buzzer is heard, this indicates that a master station is calling, and after the handcombination has been removed it is necessary to depress the corresponding button before answering. If the instrument is already in use when such a call is received, the signal is given by the lamp only, whereupon the speaker advises the first caller, ends his conversation, and answers the master station by pressing the button associated with the calling lamp. In all cases operated buttons are restored automatically when the handcombination is replaced.

An additional feature of the system is that commonly known as the conference facility. At a master station the user may call two or more stations simultaneously and, by leaving the keys in the speaking position, set up connection between a number of lines so that a group discussion may take place by telephone.

