

INTERFERENCE BETWEEN RADIO AND SUBSCRIBERS' TELEPHONES

Suppression Arrangements for Telephones

★1. **Scope of Instruction.**—This Instruction details the procedure to be followed to overcome interference between radio and subscribers' telephones. Generally, this interference can be classified as under:—

(a) *Interference in radio receiving sets* due to dial impulses or trembler bells from adjacent telephones.

(b) *Overhearing in telephone receivers*, either of telephone conversations in adjacent radio receiving sets or of broadcasting.

Interference of type (a) can be suppressed by the use of a suitable filter to prevent the transmission of the high-frequency components of the dial impulses into the line. Interference of type (b) can usually be suppressed by shunting the transmitter with a condenser. For other types of interference between radio and subscribers' telephone circuits or other electrical apparatus (see the Instructions in the RADIO, General Sub-Division).

★2. When suppression units are required they should be fitted only by Radio Interference Inquiry Officers.

★3. **Apparatus required.**—"Filters, Suppression, No. 6 or No. 6B" should be fitted in telephones for all cases detailed in (a) and (b) (see also paras. 7 to 9).

★4. **Stocks to be held.**—Each S.W.I. or S.W.I and S.W.II assistant, carrying out the duties of radio interference inquiry officers should hold a small stock of "Filters, Suppression, No. 6 and No. 6B." Supplies of No. 6 are available to meet such requisitions, but stocks of No. 6B are limited and are only sufficient to meet actual cases of interference on combined sets (Telephones No. 332 type). Arrangements are being made for the stock of No. 6B to be augmented accordingly but requisitions for this item to provide each group with a small stock should not be forwarded until these types of telephone have been introduced for general use at subscribers' premises.

★5. **Suppression units.**—"Filters, Suppression, Nos. 6, 6A and 6B" have been designed for fitting inside telephone instruments or sets, and each comprises a combined condenser (of 0.1 μ F. capacity) and a radio-frequency choke, mounted on a bakelite base. A 2-way (orange or red and brown or black) conductor cord is associated with No. 6 only.

(a) "*Filter, Suppression, No. 6.*"—This unit is normally operative as a transmitter filter. During dialling the unit also functions as a dial-impulse

filter, the switching being effected by the off-normal dial springs when used with pedestal and wall telephones and with Telephones No. 162... 1/162... 232... or 1/232... types (except Nos. 156 LB, 196 LB and 1/196 LB).

(b) "*Filter, Suppression, No. 6A.*"—This unit is incorporated in "Telephones Nos. 326 CB, 327 CB, 392 LB and 393 LB" and is associated with the trembler bell ("Bell No. 65A unmounted") to suppress radio interference during the operation of the bell.

(c) "*Filter, Suppression, No. 6B.*"—This unit is operative as a dial-impulse filter only and is used with "Telephones Nos. 326..., 327..., 328..., 329..., 330..., 331..., 332... and 333...". It can also be fitted in "Telephones Nos. 392 LB, 393 LB, 394 LB, 395 LB, 396 LB and 397 LB" when these types are fitted on long lines in automatic areas.

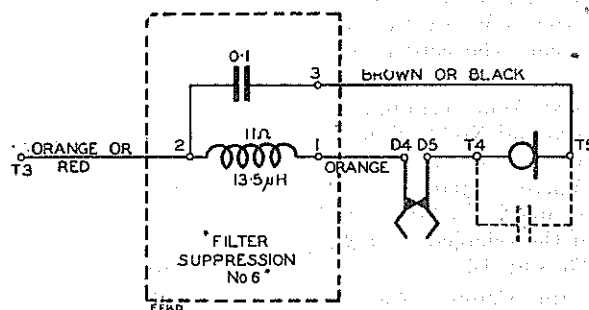


FIG. 1

TELEPHONE NOS. 162 AND 232 TYPES, WITH DIAL

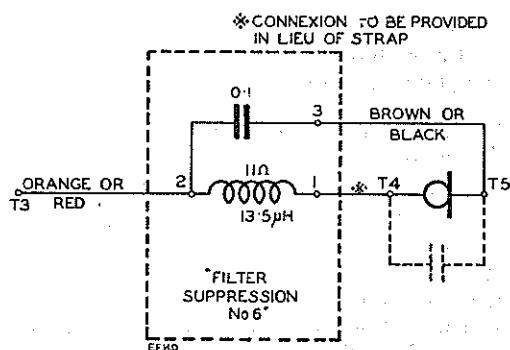


FIG. 2

TELEPHONE NOS. 162 AND 232 TYPES, WITHOUT DIAL

(NOTE.—Connexions for additional condensers are shown dotted)

Distribution:—
1, 2, 4, 44, 45, 67, 109, 168

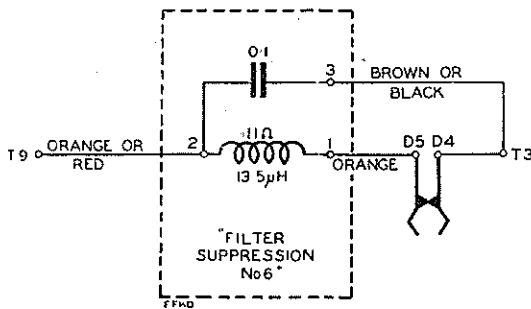


FIG. 3

TELEPHONE NO. 196 LB TYPE, WITH DIAL, ON LONG LINES IN AUTO. AREAS

★6. Methods of fitting suppression units.—The arrangements appropriate for the various types of telephone (see Figs. 1, 2 and 3) are given below —

(a) *Telephones (No. 162 or No. 1/162 type) using "Filter, Suppression, No. 6."*

(i) To fit the unit to a "Telephone No. 162 (or No. 1/162)," remove the outer nuts and the cord on terminal No. 1 of the telephone, place the fixing hole of the filter over this terminal and replace the cord and nuts.

(ii) Transfer the orange conductor of the dial cord from terminal No. T3 of the telephone to terminal No. 1 of the filter. (It may be necessary to cut and re-make the binding of this cord.) Where a dial is not required or fitted, connect terminal No. 1 of the filter to terminal No. T4 of the telephone after removing the strap between T3 and T4.

(iii) Connect the orange or red and brown or black conductors of the filter cord to terminals Nos. T3 and T5, respectively, of the telephone.

(b) *Pedestal telephones (No. 150 type) using "Filter Suppression, No. 6."*

(i) Remove the base plate of "Telephone No. 150" and withdraw the stem from the body of the telephone. Detach the cord from the filter unit. As only the brown or black conductor of the latter is required, tape up the orange or red conductor to prevent accidental contacts.

(ii) Connect the brown or black conductor of the filter cord to terminal TS of the telephone, i.e. the terminal to which the brown dial-cord is connected.

(iii) Reassemble the telephone with the exception of the base. Connect the remaining end of the brown or black filter-cord conductor to terminal No. 3 of the filter.

(iv) Disconnect the orange conductor of the dial cord from the dial, and reconnect it to terminal No. 2 of the filter.

(v) Connect the dial terminal from which the orange conductor was removed, by a length of

suitable insulated wire, to terminal No. 1 of the filter. When a dial is not required or fitted, connect terminal No. 1 of the filter to terminal TD of the telephone (after removing the strap between T and TD) and connect terminals 2 and 3 of the filter to T and TS, respectively.

(vi) Cover the filter with insulating tape, and secure it in position in the base by tying to the main cord, to prevent accidental contacts. Replace the base plate.

(c) *Wall telephones (No. 121 type) using "Filter, Suppression, No. 6."*

(i) Mount the filter inside the case of "Telephone No. 121" by means of a wood screw ($\frac{1}{2}$ -in. No. 6, rd. hd., brass).

(ii) Transfer the orange conductor of the dial-cord from terminal No. 5 of the telephone to terminal No. 1 of the filter. When a dial is not required or fitted, connect terminal No. 1 of the filter to T4 of the telephone after removing the strap between T4 and T5.

(iii) Connect the brown or black and orange or red conductors of the filter-cord to terminals Nos. 3 and 5, respectively, of the telephone.

(d) *Telephone No. 196 LB or 1/196 LB on long lines in automatic areas, using "Filter, Suppression, No. 6."*

(i) To fit the unit in a "Telephone No. 196 LB (or No. 1/196 LB)," remove the outer nuts and the cord connexion on terminal No. 1 of the telephone, place the fixing hole of the filter over this terminal, and replace the cord and nuts.

(ii) Transfer the orange conductor of the dial cord from terminal No. T9 of the telephone to terminal No. 1 of the filter.

(iii) Connect the orange or red and brown or black conductors of the filter cord to terminals Nos. T9 and T3, respectively.

★(e) *"Telephones No. 156 LB, No. 196 LB or No. 1/196 LB without a dial," using a "Filter, Suppression, No. 6" as a transmitter filter only. Connect the orange or red and brown or black conductors of the filter cord to T1 and T2 (No. 156 LB) or T4 and T5 (No. 196 LB or No. 1/196 LB) only; leave terminal No. 1 of the filter spare.*

(f) *Telephones No. 232... or 1/232...(A.S.T.I.C. type) using "Filter, Suppression, No. 6."*

(i) To fit the unit in a "Telephone No. 232... (or No. 1/232...)" remove the outer nuts and the cord on terminal No. 1 of the telephone, place the fixing hole of the filter over this terminal, and replace the cord and nuts.