CABLE TESTING — GENERAL
DETECTING TONE WITH AN AMFLIFIER

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1. GENERAL

1.01 This section replaces Issue 1. The presence of audible identification tone on a conductor can be detected by means of a 107A Amplifier or 91A Test Set (147-type Amplifier). While these test sets are generally used at splices and sheath openings, they can also be used at cross-connecting and terminal points. For the purpose of this section, it is assumed that conductors are being identified at a splice. The section has been revised to include the use of the 147-type Amplifier.

2. CONNECTIONS

2.02 The 107A or 147-type Amplifier is connected in the following way:

(a) Insert the 347B Plug of the probe cord in the IN jack and connect the insulated test clip to the cable sheath.

(b) Insert the receiver plug in the REC jack. This will turn on the amplifier.

2.02 Jarring or vibration of the amplifier may cause objectionable tube noise. Such trouble can be avoided by suspending the amplifier by its carrying strap and keeping it clear from contact with adjacent objects.

3. ADJUSTMENT

3.01 **107A Amplifier:** The volume of tone in the receiver is controlled by a rheostat and can be adjusted by inserting a screw-driver in the hole below the REC jack. Care should be taken in rotating the shaft with the screw-driver. It should not be forced beyond its normal travel as this will damage the rheostat.

3.02 **147-Type Amplifier:** The volume of tone in the receiver is controlled by operating the control labeled VOL.

3.03 In a working cable the proper adjustment can be determined by holding the probe (513A tool) at right angles to a pair on which conversation is heard and turning the rheostat or VOL control to give satisfactory volume in the receiver. In a non-working cable it is advisable to set the rheostat or VOL control at about the midpoint and to make the final adjustment after detecting the first conductor on which tone is sent.

3.04 Noise from working telephone circuits or from adjacent electrical circuits or radio transmitters may be heard in the receiver, particularly when the amplifier is being operated at maximum amplification. This condition can usually be corrected by reducing the amount of amplification.

4. DETECTING TONE

4.01 Hold the probe by the fibre handle, taking care not to touch the brass tip with the fingers. Move the probe slowly around the splice, with the tip resting against the insulation of the conductors while listening carefully for tone. This will determine whether the conductor with tone is located in the outer part of the splice. If tone is not heard, push the probe through the splice at several points. When the tip of the probe is near the conductor on which tone is being sent, tone will be heard in the receiver. Careful probing among the conductors should indicate the correct pair or quad, which should be checked by separating it as far as practicable from the adjacent pairs or quads.

4.02 If tone is being sent on only one wire, separate the individual conductors of the pair or quad. The loudest tone is heard when the tip of the probe is pressed against the insulation of the wire on which the tone is being sent.

4.03 The following diagram shows a typical arrangement at a splice.