

REPLACING PAGE ADDENDUM

Filing Instructions:

1. REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.
2. INSERT THE ATTACHED PAGES INTO THE SECTION IN THEIR PLACE.
3. PLACE THIS PINK SHEET AHEAD OF PAGE 1 OF THE SECTION.

**EQUALIZATION OF
15KC LOCAL PROGRAM CIRCUITS**

1. GENERAL

1.001 This addendum supplements Section 320-145-504 Issue 3. The attached pages must be inserted in the section in accordance with the filing instructions above.

1.002 This addendum is issued to revise information on voice and crosstalk tests.

3. NOISE AND CROSSTALK TESTS

The following change applies to Part 3 of the section.

Paragraph 3.03 changes the db dial setting of the NMS to provide a meter reading at or above "0" when measuring circuit noise at the "receiving end" of the circuit.

Attached:

Page 5 dated April 1963, revised.

Page 6 dated April 1963, reissued.

2.07 In those situations where the circuit is more than one amplifier section in length, each section should be equalized separately. The section adjacent to the "sending end" should be equalized first. Each succeeding section should be equalized in tandem (series) with those previously equalized. At intermediate amplifiers, the circuit should be equalized at the output terminals of each amplifier. This procedure should be followed to the "receiving end" of the circuit.

3. NOISE AND CROSSTALK TESTS

3.01 For 15 kc circuits, the test setup for the final noise measurements is shown in Fig. 3. The 2B Noise Measuring Set should be modified for 15 kc flat weighting. The 3A NMS should be equipped with the 15 kc flat weighting network. The sets should be connected to the circuit in accordance with the standard practices for the instruments.

3.02 The noise measurement should be corrected to the +8 vu volume level (amplifier output) by adding the equalized loss of the circuit. For instance, if the equalized loss, with intermediate amplifiers adjusted to proper levels, is 20 db and the 2B or 3A set reads 13 db of noise at the -20 db point, the corrected noise is 33 dbrn (20 + 13). This assumes there is no Telephone Company-owned amplifier at the measuring end.

3.03 The circuit noise at the "receiving end" of the circuit should not exceed 33 dbrn when referred to the +8 vu level point. The DB dial of the NMS should be set to bring the meter indications above the "0" mark. Occasional extreme meter excursions may be ignored. The noise should be measured during the heavy traffic period.

3.04 The crosstalk should be observed using the setup of Fig. 3 and using the monitoring receiver provided with the 2B or 3A set. No intelligible words or syllables should be heard with the DB dial of the set adjusted to the same dial setting for measuring noise. The circuit should be monitored for at least 10 minutes during the heavy traffic load period.

4. LEVEL MEASUREMENTS

4.01 When intermediate amplifiers are required, the gain of the amplifier should be adjusted to offset the equalized 1 kc loss to that point. This means that the amplifier gain may require resetting each time the equalizer is adjusted.

4.02 The over-all 1 kc transmission should be measured from the "sending end" to the "receiving end" of the equalized circuit. This value should be recorded for future reference by the control office.

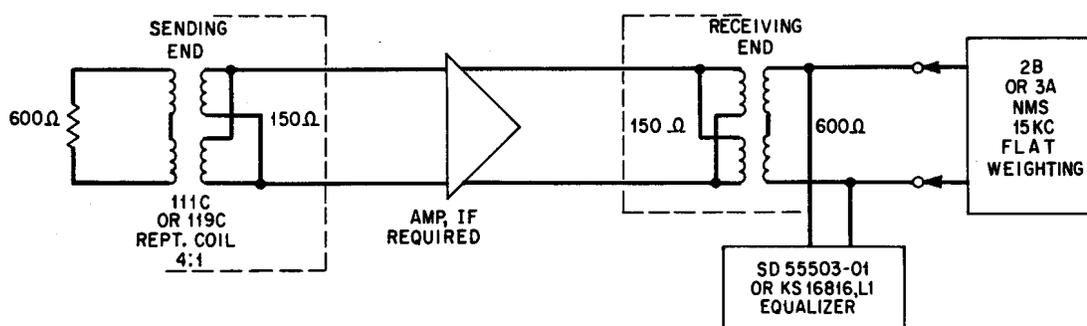


Fig. 3 - Final Noise Test for 15 kc Circuit

5. WORK FORM FOR RECORDING DATA

5.01 The attached form, or one similar to it, should be prepared locally. Data obtained in the tests should be recorded on this form so that the deviations in equalization can be analyzed. This work sheet may also be filed at the control office for future reference if the Telephone Company desires to do so.

6. TROUBLE HUNTING HINTS

6.01 The trouble hunting hints outlined below give some idea as to where to look for specific troubles. It is not intended to include all sources of troubles in the list. Hence, other possibilities should not be overlooked.

6.02 Circuit Is Noisy on Initial Noise Test.

Sources of Noise:

- (1) Protector carbons dirty.
- (2) Induction from central office battery.
- (3) Load coil on cable pair.
- (4) High resistance splices in cable.
- (5) Grounded tip or ring conductor.
- (6) Repeating coil missing.
- (7) Repeating coil shield may require grounding.
- (8) Excessive power line induction.

Remedial Measures:

- (1) Select another cable pair.
- (2) Clean or replace carbons.
- (3) If noise is due to excessive power line induction or central office battery, consult your supervisor.

6.03 Circuit Losses Can Not Be Equalized Properly.

Sources of Troubles:

- (1) Bridged taps on loop.
- (2) Repeating coils improperly strapped or missing.
- (3) Equalizer located on wrong side of repeating coil.
- (4) Equalizer strapped incorrectly.
- (5) Cable partially loaded.
- (6) Amplifier input and output impedances not correct.

Remedial Measures:

- (1) Consult cable assignment bureau for makeup of cable. If bridged taps are present, select another cable pair.
- (2) Check repeating coils and equalizer.