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CABLE
GENERAL
USE OF CABLE OTHER THAN WESTERN ELECTRIC MANUFACTURE

Contents

1. GENERAL

1.01 This section covers the application of lead covered exchange cable of other than Western Electric manufacture.

1.02 This cable is of the layer type and is referred to as GCC Cable. It is supplied in 26 and 51-pair 19 gauge and 26, 51 and 101-pair 22 gauge sizes.

1.03 Tests have shown that excessively high capacitance unbalances exist between pairs in the same layers, in GCC cable. These unbalances adversely affect its crosstalk performance. This section outlines the measures which will need to be taken in the use of this cable in order to obtain reasonably satisfactory crosstalk performance from exchange facilities in which it is used.

1.04 All of the conditions which may be encountered in the field application of GCC cable may not be covered herein. The measures outlined in this practice are intended as basic rules from which detailed procedures in specific cases may be developed.

1.05 These measures shall be applied to all new GCC cable placed in the future regardless of the make of existing cable (Western Electric or GCC) to which the new cable is spliced.

1.06 GCC cable can be used for loaded or non loaded exchange cable loop plant when placed in accordance with this section.

1.07 GCC cable should not be used for trunk or short haul toll cables or in exchange loop cables that may be used for trunk or toll facilities in the future.

1.08 The following information shall be included on the detail plans.

(a) Where GCC cable can be used.

(b) Sections of cables which are to be tested and balanced.

(c) Location of test points and direction of test.

(d) Location of special random splices.

(e) Designate sections in which splices shall be straight splices.

(f) Sequence of splicing where branch cables are involved and testing is required.

(g) Future relief points, where known, in sections of cable to be tested.

(h) If Western Electric cable is placed where GCC cable is specified, the special splicing and testing should be omitted.

2. PLACING

2.01 GCC cable shall be placed in the exchange loop plant in accordance with the following.

2.02 New cable installations where there are no branching cables in excess of 200 feet in length.

(a) Lengths not over 1000 feet.

(1) No special capacitance unbalance tests or special splicing.

(b) Lengths between 1000 feet and 2000 feet.

(1) If the length of cable is in one piece, one random splice must be cut in at a point ± 100 feet of the middle of the section.

(2) If the section of the cable includes other splices, they should be random splices. In this case no special random splice will be required unless a section of the cable, without including a random splice, exceeds 1100 feet in length.

(c) Lengths between 2000 feet and 3000 feet.

(1) All splices must be straight splices, and capacitance unbalance testing and balancing must be done at one of the ends of the cable section (not from both ends).

(d) Lengths between 3000 feet and 6000 feet or one load section.

(1) Where no load points exist within a section of cable being placed,

(a) All intermediate splices shall be straight splices except that one random splice shall be placed near the midpoint of the cable section (± 500 ft.).

(b) Capacitance unbalance testing and balancing must be done from both ends of the cable toward the random splice near the middle of the section.

(2) Where a load point falls within a section of cable being placed,

(a) The sections of cable on both sides of the load point should be straight spliced at all splices, unless the length either way from the load point exceeds 3000 ft. in which case one random splice shall be placed near the mid point (± 500 ft.) of that section of cable.

(b) A load point splice shall be a random splice and must be considered as a neutral point, i.e., tests shall be made at this point or this point shall be the end of a test section.

(c) Testing and balancing is required on the sections of cable on both sides of the load point if those lengths exceed 2000 ft. If the length of GCC cable on one of the sides of the load point is less than 2000 ft. that section of cable need not be tested and balanced.

(d) For any cable count, only one total of 2000 ft. of cable may be left without testing and balancing.

(e) Lengths over 6000 feet or over one load section.

(1) Lengths greater than 6000 ft. or over one load section should be treated by sections, as covered in Paragraph 2.02 (a) to (d) above.

2.03 New Cable Installations including branches over 200 feet in length. Where branching cables are involved, the total length of any pair count in the main cable plus the branch or branches on the same pair count must be used in determining the procedure to be followed. If the total length involved falls

within the limits as outlined in Paragraph 2.02 (a) to (e) above, the requirements for splicing and balancing are the same as required for those limits; i.e.

(a) Overall lengths 1000 to 2000 feet, including branches.

(1) Make one random splice so located that no length greater than 1100 ft. will exist without including a random splice.

(b) Overall lengths 2000 to 3000 feet, including branches.

(1) Make all main cable splices as straight splices.

(2) At a branch cable splice select the pairs in the branch cable at random and complete the splice.

(3) Make capacitance unbalance tests on the main cable. These tests may be made from either end of the main cable.

(4) Branch cables less than 1000 feet require no special treatment and those between 1000 and 2000 feet should have one random splice near the middle ($\pm$ 100 feet).

(c) Overall lengths exceeding 3000 feet, including branches.

(1) The main cable should be spliced as provided in Paragraph 2.02 (c), (d) and (e).

(2) At a branch cable splice, select the pairs in the branch cable at random and complete the splice.

(3) The main cable should then be tested and balanced as provided in Paragraph 2.02 (c), (d) and (e).

(4) Branch cables exceeding 2000 feet should be spliced and tested as provided in Paragraph 2.02 (c), (d) and (e).

(5) Branch cables shorter than 2000 feet will not require balancing unless, for any pair count, the sum of the lengths of all branch cables, except those requiring testing under (4), exceeds 2000 feet. In this case enough of the shorter sections will need to be balanced so that the total unbalanced length will be limited to not over 2000 feet.

2.04 In all of the conditions covered above, terminals, including lateral cables not over 200 feet in length may be placed anywhere within the cable sections, without affecting the plan to be followed. Laterals over 200 ft. in length should be included as part of the lengths considered for determining the required procedure. (See Paragraph 2.03 above.)

3. SPECIAL SPLICING AND TESTING INSTRUCTIONS

3.01 Straight splices, as used herein mean that layers should be spliced through to the same layers and the pairs in each layer spliced through, pair to pair around the layer.

3.02 Random splices shall be made according to the bunch random procedure for exchange cable as covered in Bell System Practices.

3.03 Where balancing is required, capacitance unbalance tests should be made on all first and second adjacent pair to pair combinations in each layer, following normal test procedures covered in Bell System Practices. All unbalances exceeding 100 mmf. should be reduced to as low a value as practicable by use of 209 type condensers or capacitance balancing units, as required.

3.04 When installations of GCC cable require balancing, an effort should be made to anticipate future relief points and so splice and test the cable as to establish these future junction points as neutral points. A random splice should be placed at such points.

3.05 Cross-connecting terminals must be considered as random splices for the pair counts involved. Where such terminals fall within sections of cable requiring balancing they must therefore, be considered as neutral points.