C Rural Wire Terminating

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1. Overview

1.01 This practice describes the methods of terminating C rural wire.

1.02 This practice is reissued to convert all mathematical expressions and measurements to the metric equivalent.

1.03 This information was formerly contained in AT&T 624-730-100, 624-730-200, and 624-740-200.

1.04 The 1.6 mm (14 gauge) conductors on the 118B protectors are designed for termination in 101- or 107-type wire terminals.

1.05 AT&T welcomes your comments on this practice. Your comments will aid us in improving the quality and usefulness of AT&T documentation. Please use the Feedback Form provided at the back of this practice.

1.06 Additional copies of this practice and any associated appendixes may be ordered from the AT&T Customer Information Center as follows:

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1.07 This practice is issued by:

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AT&T Network Systems
2400 Reynolda Road
Winston-Salem, NC 27106-4696

2. Description of 178A1 Coil Case

2.01 The 178A1 coil case is a cylindrical resin filled, plastic case equipped with a weatherproof, rubber snap-on cover. It has either a 632, 638, or 639 loading coil or a 1574A inductor cast in the resin filling the plastic case. The type of loading coil or inductor is indicated by its code number being stamped with black ink on the face of the coil case just below the code designation of the case (Figure 1).

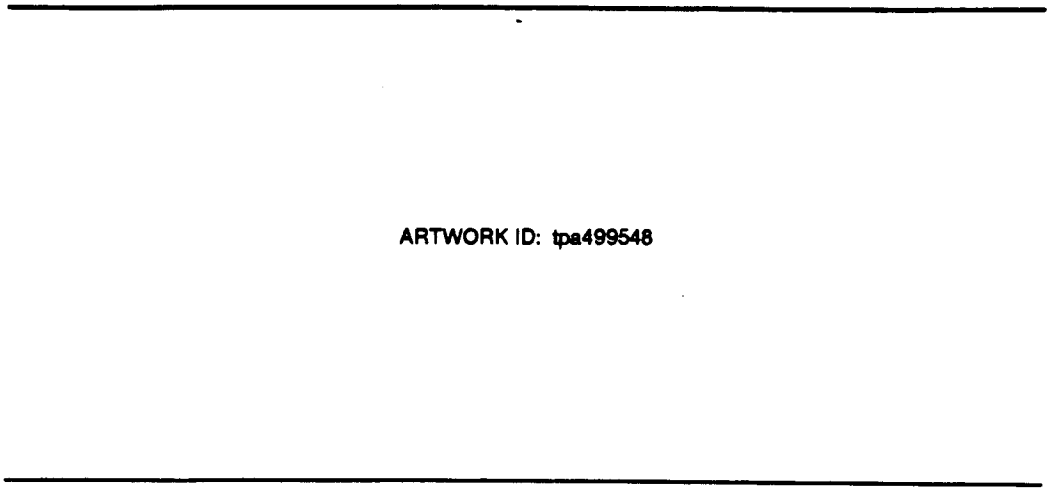

Figure 1. 178A1 Coil Case

2.02 The coil case is equipped with four 2A1B protector units needed to protect the loading coil or inductor against lightning or heavy surge currents. No ground connection is required as the protector units are used to bypass the currents around the coil or inductor.

2.03 The coil case is equipped with a corrosion resistant mounting bracket which is cast into the resin filled case. Two mounting screws are furnished for attaching the mounting bracket to a pole.

2.04 The rubber snap-on cover can be removed by disengaging the lip from under the case on one side and pulling away from the face. When replacing the cover, make sure that the lip is engaged under the case all around the bottom to make the seal weatherproof.

3. Description of 107A2 Wire Terminal

3.01 The 107A2 wire terminal is used to make line connections to C rural wire without removing the insulation. It can be used to connect bridle wire, subscriber drop wire, or a 118-type protector to C rural wire.

3.02 The 107A2 wire terminal consists of a pair of molded blocks, each equipped with a binding post containing an insulation piercing contact point. Space is provided on each binding post for the termination of two wires. A flexible cover and strips of sealing compound are provided with the terminal.

3.03 The terminal is installed by first removing the cover and then loosening the nuts holding the half sections together with the small end of a 216B tool. The terminal is placed over the C rural wire so the wire is in the groove between the blocks. The

blocks are then squeezed together by hand, and the nuts are tightened with the 216B tool.

3.04 Strips of sealing compound are placed around the C rural wire where it enters each end of the terminal. A recess in the terminal block is provided for the sealing compound. The 107A2 wire terminal, with the cover removed and the blocks installed on a C rural wire, is shown in Figure 2.

3.05 After completing wirework on the blocks, place the cover over the terminal and push the cover down into place. Be sure the cover is snugly in place with the locking projections in position in the slots on the underside of the blocks. The cover should fit closely around the C rural wire at each end.

ARTWORK ID: tpa499538

Figure 2. 107A2 Wire Terminal (Cover Removed)

4. Placing 178A1 Coil Case

4.01 Loading coils or inductors should be installed on C rural wire only when specified in detail construction plans or other specific instructions. These plans or instructions should indicate the poles where loading coils or inductors are to be installed and the type of loading coil or inductor to be used.

Installation on New Wire

4.02 The 178A1 coil case can be mounted on a pole about 15.24 cm (6 inches) below the drive hook by using the screws furnished with the case. The C rural wire should be dead ended both ways and sufficient wire brought down the pole to terminate in the coil case (Figure 3).

ARTWORK ID: tpa499551

Figure 3. 178A1 Coil Case Installed on Pole

4.03 Completed wiring of the 178A1 coil case is shown in Figure 4.

4.04 Where C rural wire is being attached to a crossarm with the C wire support, the wire should be brought to the pole and dead ended both ways at poles where a coil case is being placed. The coil case is then installed.

ARTWORK ID: tpa499553

Figure 4. Completed Wiring of 178A1 Coil Case

Installation of Existing Wire

4.05 When installing a 178A1 coil case at a pole where slack is required, cut the wire and splice the slack as shown in Figure 5.

ARTWORK ID: tpa499555

Figure 5. Splicing in Slack

4.06 When installing a 178A1 coil case at a pole where the existing C rural wire is attached to a crossarm with a C wire support or a D wire bracket, where slack is required, cut the wire and splice the slack as shown in Figure 6.

ARTWORK ID: tpa499557

Figure 6. Crossarm Installation

5. Installation of 107-Type Wire Terminals

5.01 Remove the flexible cover by grasping the projections under the blocks between thumb and index finger as shown in Figure 7. Twist the cover out of its locked position and, when loosened, pull the cover off the blocks.

5.02 With the small end of a 216-type tool, loosen the nuts holding the blocks together. The blocks must be wide enough apart to permit the C rural wire to be inserted between them. Do not remove the nuts or washers from the stud.

5.03 With the blocks held apart, place the terminal on the C rural wire so the narrow surface of the wire slips between the blocks. When the wire is in the groove between the blocks, rotate the terminal so the wide surface of the wire is parallel to the top face of the blocks. Align the terminal blocks and with one hand squeeze the two blocks together, as shown in Figure 8, while the nuts are tightened with a 216-type tool. Tighten both nuts so the two blocks are held together firmly to ensure a good contact between the conductor and the insulation piercing contact points.

5.04 Take the sealing compound which is supplied with the terminal and work it around the C rural wire and into the recessed portion of the terminal block as shown in Figure 9. Seal both ends of the terminal blocks.

5.05 Bring the bridle wire, block wire, or protector wire through the hole in the center of the blocks from the bottom as shown in Figure 10 and terminate on the binding posts. Space is provided for terminating two wires on each binding post, if required.

5.06 Place the cover over the terminal and push down into place. Be sure the lip on the inside of cover is brought down to the top face of blocks and the locking projections are brought under the terminals and into the locking slots on the underside of the terminal blocks. The cover should fit snugly around the C rural wire at both ends.

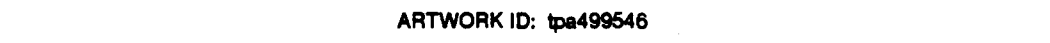

Figure 7. Removing Cover

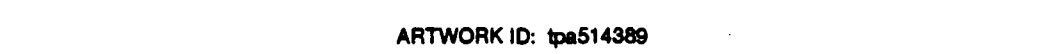

Figure 8. Placing Blocks on C Rural Wire

Figure 9. Placing Sealing Compound

Figure 10. Wire Terminated on Binding Posts

6. Terminations at Dead-End and Intermediate Poles

6.01 The C rural wire may be terminated at the feeder end or the far end in a 107A2 wire terminal as shown in Figures 11 or 12. Cut the end of the wire as shown in Figure 11 and cap with an FC-14L plastic cap. Turn the end of the wire up and tape with vinyl tape to hold in place. At least 0.61 meters (2 feet) of D or E block wire shall be used between the 107A2 wire terminal on the rural wire and the 101B2 wire terminal on the pole to serve as a fusible link between the C rural wire and the subscriber drop wire.

6.02 The C rural wire may also be terminated in a 101B2 wire terminal as shown in Figure 13. At least 0.61 meters (2 feet) of D or E block wire shall be used between the 101B2 wire terminals to serve as a fusible link between the C rural wire and the subscriber drop wire.

6.03 To serve one or more stations from an intermediate pole, 107A2 wire terminals may be placed as shown in Figure 14. At least 0.61 meters (2 feet) of D or E block wire shall be used between the 107A2 wire terminal and the 101B2 wire terminal to serve as a fusible link between the C rural wire and the subscriber drop wire.

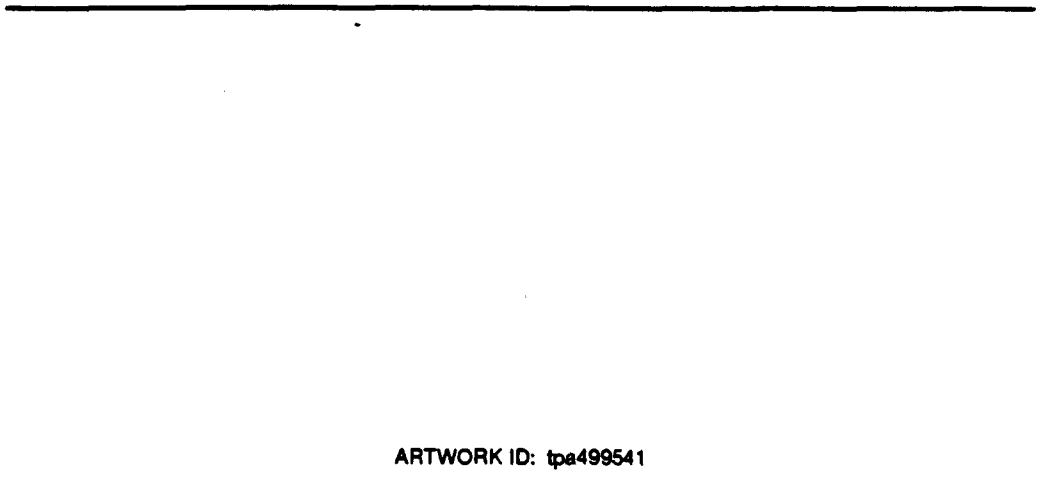

Figure 11. Dead Ending C Rural Wire on Drive Hooks

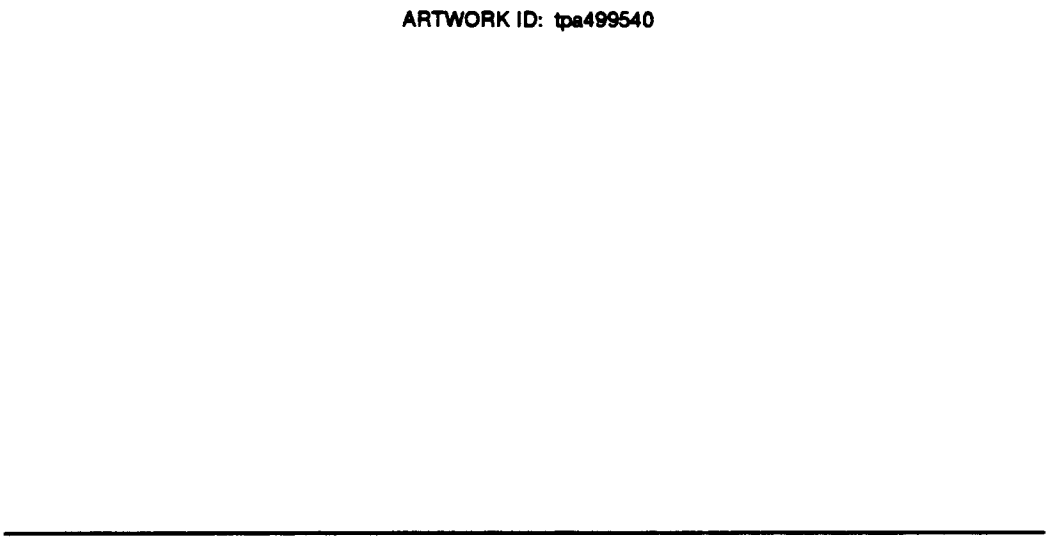

Figure 12. Dead Ending C Rural Wire on B Guy Hook

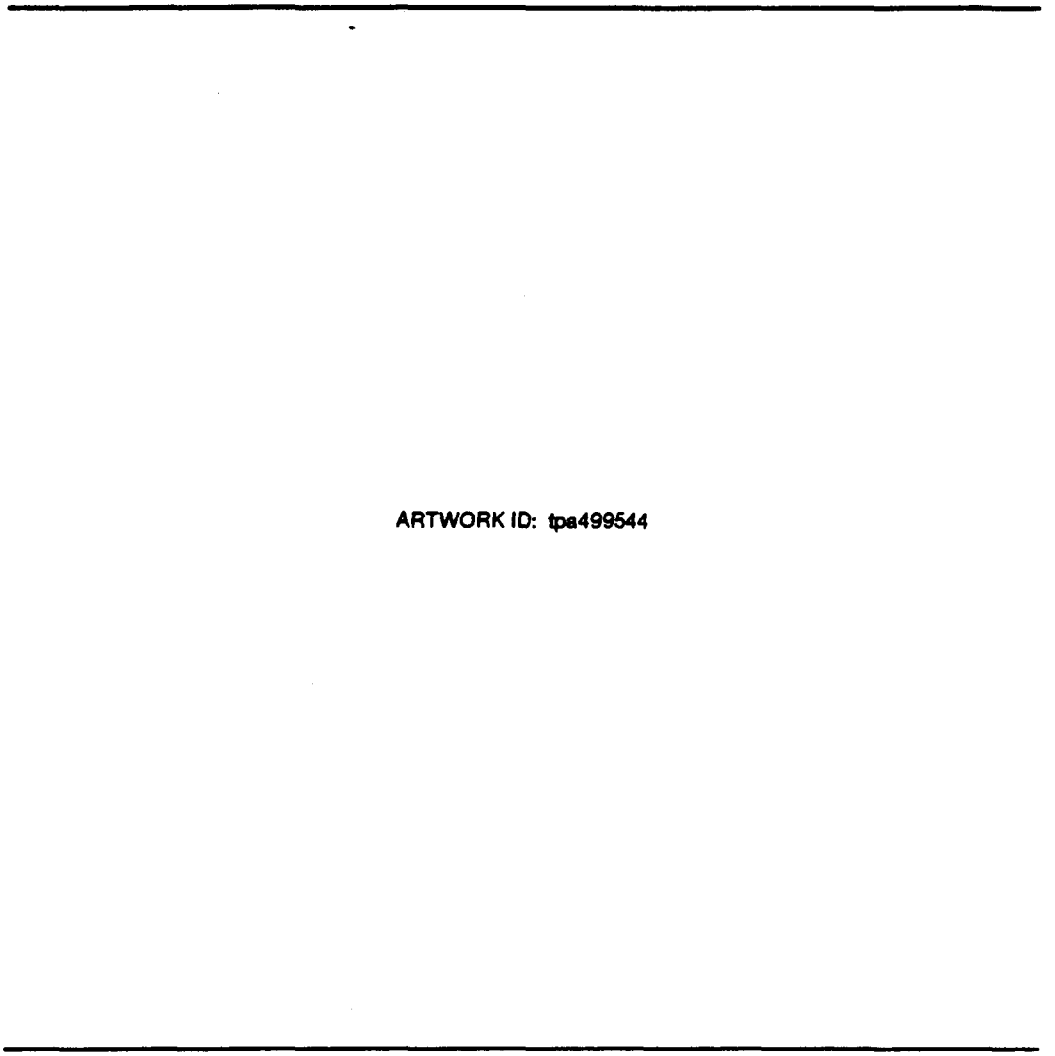

Figure 13. C Rural Wire Terminated in 101B2 Terminal

Figure 14. C Rural Wires with Terminations of Intermediate Pole

7. Use of 118B Protectors on C Rural Wire

7.01 Install 118B protectors (Figure 15) on C rural wire only at those designated locations specified by the detail plans or other instructions from the plant engineer. Do not terminate more than one C rural wire on a 118B protector.

7.02 Do not remove 118B protectors from dead circuits on joint-use poles.

7.03 Figures 16 and 17 illustrate two methods for installing 118B protectors at the end of C rural wire. The 118B protector is installed 20.32 cm (8 inches) below the drive hook and terminated in a 101B2 wire terminal (Figure 16) or in 107A2 wire terminals as shown in Figure 17. At least 0.61 meters (2 feet) of D or E block wire shall be used to serve as a fusible link between the C rural wire and the 101B2 wire terminal serving the subscriber drop wire.

Figure 15. 118B Protector

ARTWORK ID: tpa499545

Figure 16. C Rural Wire Terminated in 101B2 Terminal with 118B Protector Installed

Figure 17. 118B Protectors on C Rural Wire at Dead-End Pole

7.04 Figure 18 illustrates 118B protectors installed on C rural wire at an intermediate pole. The 118B protectors are terminated on the C rural wire in 107A2 wire terminals. At least 0.61 meters (2 feet) of D or E block wire shall be used between the 107A2 wire terminals on the rural wire and the 101B2 wire terminals on the pole to serve as a fusible link between the C rural wire and the subscriber drop wire.

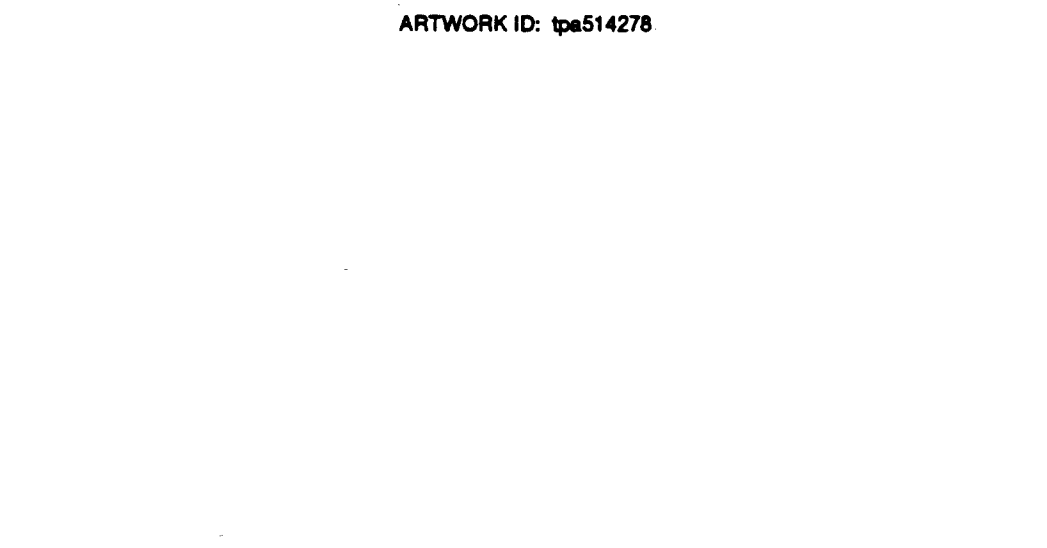

Figure 18. 118B Protectors on C Rural Wire at Intermediate Pole

8. Grounding 118B Protectors

8.01 The ground wire from the 118B protector should preferably be connected to a power vertical grounding conductor that is connected to both the power system multigrounded neutral wire and to a ground electrode. Grounding conductors on transformer poles which meet the above requirements are satisfactory. Grounding conductors from power system lightning ***arresters shall not be used unless they are connected to the power neutral wire.*** The connection between the ground lead of the 118B protector and the vertical grounding conductor may be made by telephone craftspersons if this procedure meets with the approval of the power company. ***Telephone craftspersons shall test the power vertical grounding conductor with a 188A test set as described in AT&T 081-705-102 before making this connection.***

8.02 Where the power company has installed an aluminum vertical grounding conductor, do not use an H connector because of the corrosive chemical reaction between copper and aluminum. Make the grounding connection to the aluminum vertical grounding conductor with a B aluminum connector.

8.03 If a 118B protector is to be installed at a location where there is no power system vertical grounding conductor, install a ground rod at the base of the pole and run a B ground wire from the ground rod to the top of the telephone space and leave coiled at this point an additional length [usually about 1.83 meters (6 feet)] sufficient to reach the power neutral wire. Connect the 118B protector to the ground wire. ***The connection to the neutral wire shall be made by the power company.*** Report all such cases to the supervisor immediately in order that arrangements may be made to have the grounding conductor connected to the power neutral as soon as practical.

8.04 ***Do not perform any work in the power company space on the pole.***

8.05 Place the ground rod and vertical grounding conductor as follows:

(a) Drive a ground rod about 0.61 meters (2 feet) from the base of the pole so the top of the rod will be about 7.62 cm (3 inches) below the level of the ground. In general, the ground rod should be located so the grounding conductor may be run on the side of the pole reserved for power company attachments.

(b) Connect the vertical grounding conductor directly to the ground rod with a C ground clamp.

(c) Fasten the grounding conductor to the pole at 45.72 cm (18 inch) intervals with 3.18 cm (1-1/4 inch) B staples.

(d) If ground wire molding is used, fasten it with No. 16 cable straps and 3.81 cm (1-1/2 inch) strap nails at 1.22 meters (4 foot) intervals.

9. Removal of Wire Terminals

9.01 When 107-type wire terminals are removed from C rural wire, the punctures at the terminal contact points should be covered by two reversed half-lapped

layers of DR tape extending 1.91 cm (3/4 inch) beyond each puncture. The DR tape should be wrapped with one half-lapped layer of vinyl tape extending 1.27 cm (1/2 inch) beyond the ends of the DR tape.

9.02 Since 107-type wire terminals are not reusable, those terminals no longer in service can be left in place to cover the punctures at the contact points. Be sure the cover and its locking projections are in place as covered in Part 5.