OPEN WIRE

CARRIER APPARATUS ON TERMINAL POLES

1. GENERAL

This War Requirement Sheet supplements Section G31.155 with instructions and diagrams covering the methods of modifying, placing and interconnecting certain carrier apparatus (retardation coils and protectors) when it is to be used for the purpose of deriving simplex telegraph legs on open wire lines at locations other than a central office.

The cross reference, "See WR Sheet", should be marked at Paragraphs 2.01(a), 6.02 and 7.02 of Section G31.155.

2. REARRANGEMENT OF CARRIER APPARATUS FOR SIMPLEX LEG DERIVATION

2.01 For the purpose of deriving simplex telegraph legs on open wire lines at locations other than a central office, certain carrier equipment and interconnections will be required, the arrangement of which will depend on the type of line encountered and the circuits superimposed on the line.

The various arrangements are illustrated on the following pages in Figures 1 to 8, inclusive. The proper wiring diagram to be used in any particular case will be specified on the detail plans.

Figures 1, 3, 5 and 7 are used when bridging loss in J frequency range due to retard (1 db max.) is acceptable.

Figures 2, 4, 6 and 8 are used when 1 db max. bridging loss in J frequency range is not tolerable. Not suitable where 20-cycle ringing is used on through circuit.

(a) Equipment and wiring arrangements (Figs. 1 and 2) required to establish simplex telegraph operation on "non-phantomed pair" or "side of phantom group" equipped for J carrier operation.

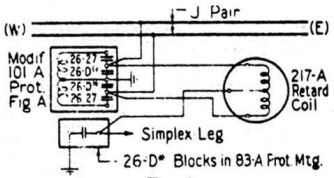

FIG. 1

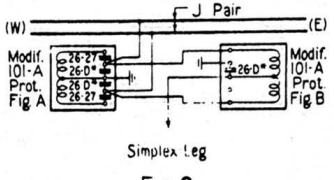

FIG. 2

(b) Equipment and wiring arrangements (Figs. 3 and 4) required to establish simplex telegraph operation on "non-phantomed pair" or "side of phantom group" not equipped for J carrier operation.

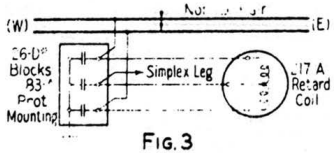

FIG. 3

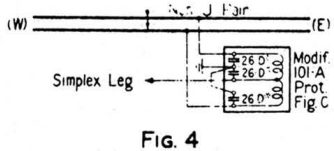

FIG. 4

*D-98298 Protector Block

Figures 1, 3, 5 and 7 are used when bridging loss in J frequency range due to retard (1 db max.) is acceptable.

Figures 2, 4, 6 and 8 are used when 1 db max. bridging loss in J frequency range is not tolerable. Not suitable where 20-cycle ringing is used on through circuit.

(c) Equipment and wiring arrangements (Figs. 5 and 6) required to establish simplex telegraph operation on phantom circuit where side circuits are equipped for J carrier operation.

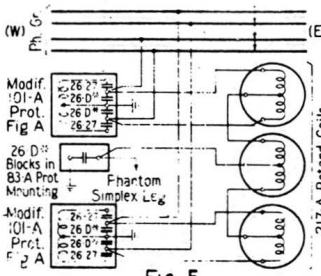

FIG. 5

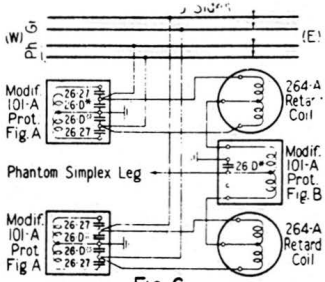

FIG. 6

(d) Equipment and wiring arrangements (Figs. 7 and 8) required to establish simplex telegraph operation on phantom circuit where side circuits are not equipped for J carrier operation.

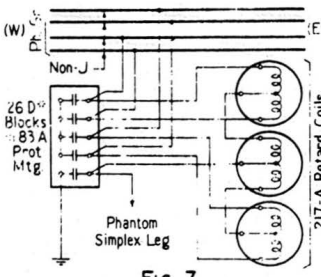

FIG. 7

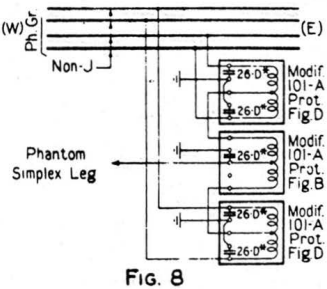

FIG. 8

*D-98298 Protector Block

2.02 The 217A Retardation Coil, which is specified in these diagrams, is a coil similar to the 264A coil, having the same dimensions and providing drainage for lightning interference, but with transmission characteristics differing somewhat from the 263A retardation coil, which is used in the 101A protector, and the 264A retardation coil.

2.03 The 101A Protector is described in Section G31.155. Some modifications will be required to adapt this protector for use in simplex leg derivation. These modifications, which consist of rearrangements of the protector blocks, are shown in Figures A to D, below.

NOTE: Detachable extra sheets containing Figures A to D have been appended to this WR sheet. The appropriate diagram shall be detached and pasted inside the cover of a 101A protector when it is modified in accordance with any of these diagrams. Additional copies of these sheets (Appendix 1 and Appendix 2 of WR-G31.155) may be ordered on a Form P-726 addressed to the General Plant Supervisor.

ARRANGEMENTS SHOWN IN B.S.P. WR-G 31.155

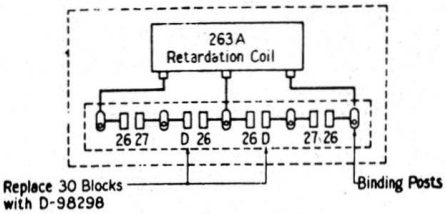

FIG. A

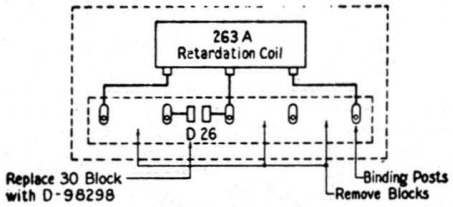

FIG. B

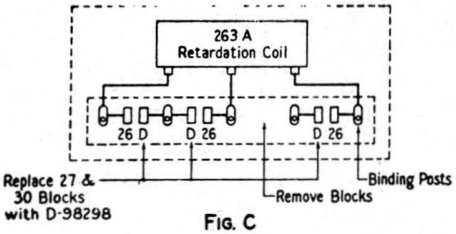

FIG. C

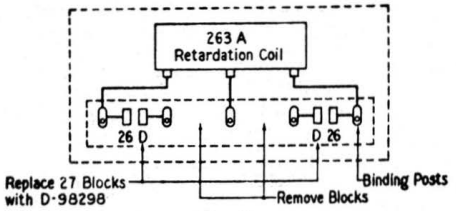

FIG. D

2.04 The instructions given in Section G31.155 for mounting carrier equipment on poles and for making ground wire connections shall be followed insofar as they are applicable, with these exceptions:

(a) Use No. 6 wire for ground wire runs on poles as specified in Addendum G31.155.

(b) Ground wires from separate pieces of equipment may be connected to No. 6 wire by means of 165B or 165V Reliable Solderless Connectors or other approved equivalent.

(c) Protect ground wire with ground wire molding throughout its length, except that the extreme upper portions, where 165 type solderless connectors or bridging connectors are used for bridging wires from protectors to ground wire, may be left uncovered provided that this portion of ground wire is not within 6 feet of nearest power line conductors.

(d) Ground wire shall be connected, in the absence of a cold water pipe, to two No 9428 (1/2-inch by 8-foot) Copperweld ground rods, driven vertically into the ground and separated by approximately 8 feet, the nearest rod not closer than 2 feet from base of pole. Connect wire directly to most distant rod using a No. 9501 Square Head Bolt Type Ground Wire Clamp, threading the wire, unbroken, through a similar clamp on the nearer rod.

(e) In the event that the 8-foot rods cannot be obtained 3 standard station ground rods spaced approximately 6 feet apart, may be substituted, upon approval of your supervisor. If this substitution is necessary, ground rod tail wires may be soldered to No. 6 ground wire which shall extend, unbroken, to the most distant rod. In lieu of soldering, 165 type solderless connectors may be used If No. 6 stranded ground wire is used it may be made to fit these connectors by untwisting wire slightly after removing insulation at desired junction point.

101 A PROTECTOR MODIFIED FOR USE WITH ARRANGEMENTS SHOWN IN B.S.P. WR-G 31.155

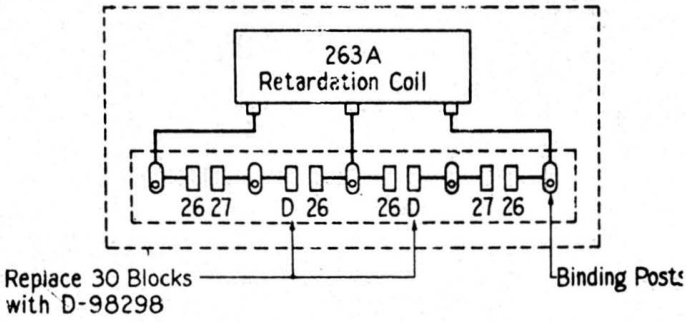

FIG. A

101 A PROTECTOR MODIFIED FOR USE WITH ARRANGEMENTS SHOWN IN B.S.P. WR-G 31.155

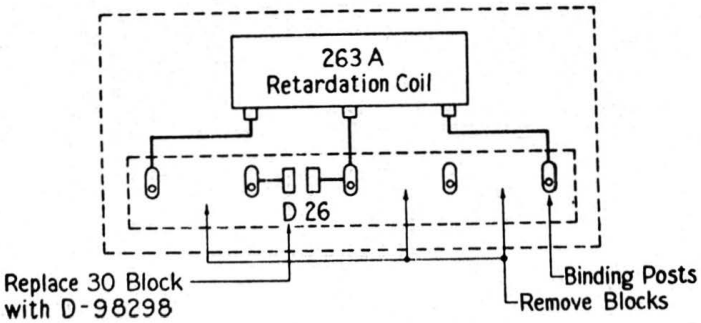

FIG. B

101 A PROTECTOR MODIFIED FOR USE WITH ARRANGEMENTS SHOWN IN B.S.P. WR-G 31.155

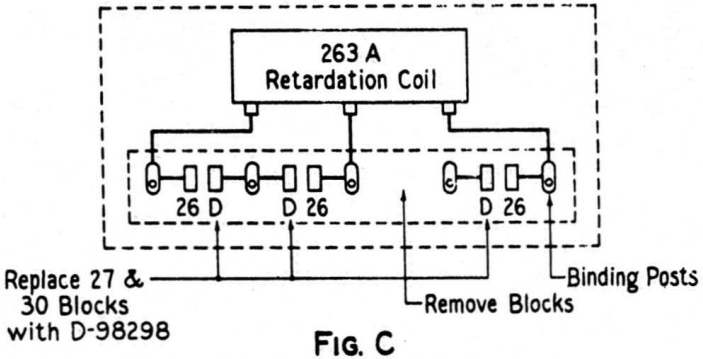

FIG. C

101 A PROTECTOR MODIFIED FOR USE WITH ARRANGEMENTS SHOWN IN B.S.P. WR-G 31.155

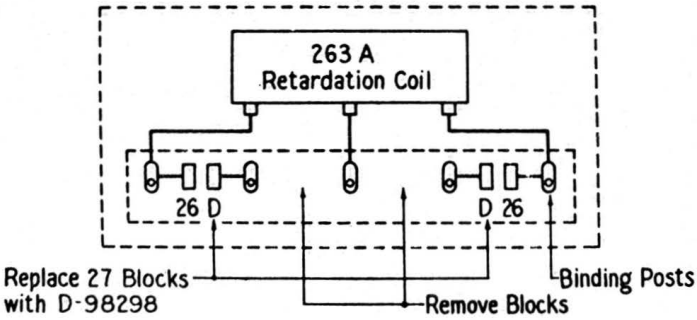

FIG. D