

REPEATERS
B AND C RELAY TIMING TESTS
USING RELAY TIMING TEST SET SD-90418-01 (J94713A)
STEP-BY-STEP SYSTEMS

1. GENERAL

- 1.01** This section describes a method of applying relay timing tests to the B and C functional relays of outgoing interoffice repeaters other than pulse correcting repeaters.
- 1.02** This section is reissued to include 355A and 35-E-97 community dial offices and to generally revise the section. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.
- 1.03** The tests covered are:
- A. B Relay Release Test:** This test checks that the repeater B relay releases within the required time interval.
 - B. C Relay Release Test:** This test checks that the repeater C relay releases within the required time interval.
- 1.04** Tests A and B apply to both battery and ground pulsing and loop pulsing repeaters in which the B and C relays are required to hold over the dial pulses. The method assumes that the trunk is equipped with a test jack (TT) through which the outgoing tip and ring conductors are wired and which is arranged to ground the sleeve.
- 1.05** In Test B, the test indication for the proper release of the C relay depends upon the operation of the supervisory relay (and also an additional relay in the case of loop pulsing repeaters) to change the brilliancy of a test

lamp. In order to allow time for the operation of these relays, the timing test values specified in Part 3 are the next higher on the timing test set than the release values specified on the circuit requirement tables, or in Plant Series Section 040-013-711.

1.06 Test A may be made with the repeater cover either on or off. In Test B, the test requirement shall be met with the cover on.

1.07 Failure of the B or C relay to meet the release test may be due to the presence of a sticky substance between the armature and core or it may indicate that the relay is out of timing adjustment, in which case it should be readjusted in accordance with timing requirements given on the circuit requirement tables or in Plant Series Section 040-013-711. No attempt shall be made to make C relays meet the readjust requirement using the test method outlined in this section.

1.08 When plunger type out-trunk switches are used, the associated master switch shall be operated to pick up all idle plungers before starting the tests to prevent interference with traffic.

1.09 The test equipment specified in this section is designed to apply proper marginal tests (simulated critical circuit conditions) when the circuit under test and the test equipment have an applied voltage of 48.5 to 50. In those offices where power plants are normally operated at more than 50 volts, the battery voltage should be reduced and maintained within the required limits while the tests are being made.

2. APPARATUS

2.01 Relay timing test set J94713A (SD-90418-01).

2.02 Test cord assembly to be prepared locally as shown in Fig 1. Rearrange the lamp springs on 240B plug to permit connecting as shown and equip with 2T and 2Y lamp. Modify P3H cord (or equivalent), 5 feet long, with suitable cord tips for connecting to remote control key. Connect P3H cord and W3F cord to test plug and remote control set as shown. Mount 63J resistance on handle of test plug.

2.03 Patching cord, P2J cord, 9 feet long, equipped with two 310 plugs (2P9A cord), used to supply battery and ground to test set when battery and ground jack is available.

2.04 Testing cord, W2M cord, 9 feet long, equipped with one 310 plug, tip and sleeve connections, two 59 cord tips (2W12A cord) and two 108 cord tips, used to supply battery and ground to test set when 35-type fuse (not to exceed 5 amperes) and frame ground or battery and ground block is used.

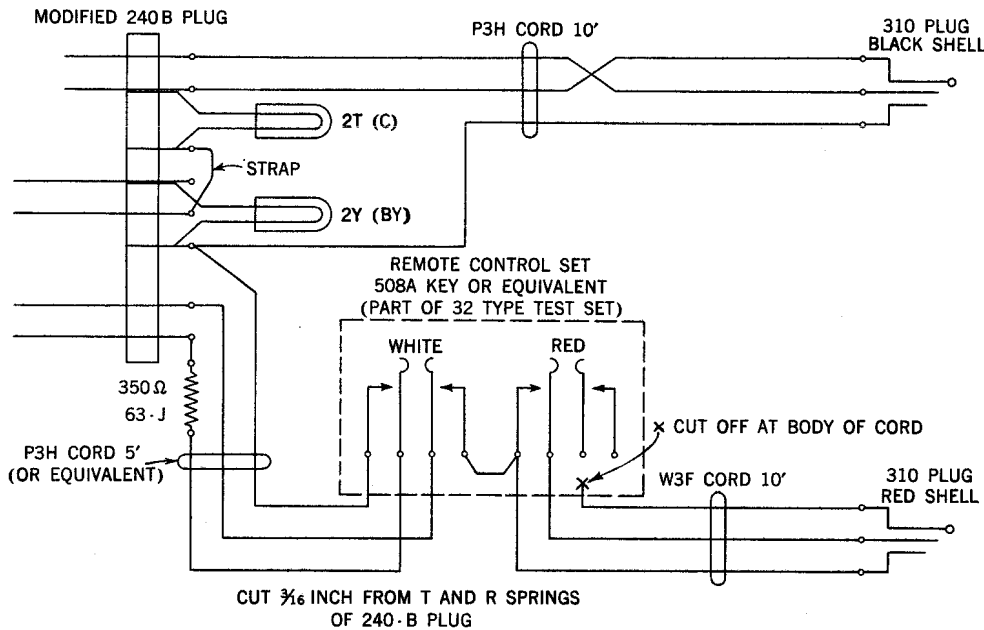


Fig. 1

3. PREPARATION

STEP	ACTION	VERIFICATION
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All Tests

- 1 Connect battery and ground to test set.
Note 1: When 2W12A cord assembly is used, connect tip (white) conductor to battery and sleeve (red) conductor to ground.
Note 2: To avoid possible grounding of battery supply lead, connect cord to test set first and, when disconnecting, remove cord from test set last.

STEP	ACTION	VERIFICATION
2	Insert red shell plug of test cord assembly (Fig. 1) into BR jack of test set.	
3	Strap S and BAT binding posts of test set together.	
4	Operate AB key to A position.	Test set pulses. <i>Note:</i> Allow test set to operate for at least 15 minutes (to reach a constant temperature) before starting tests.
5	Restore AB key to normal.	Test set stops pulsing.

Test A

- | | |
|---|--|
| 6 | Insert black shell plug of test cord assembly (Fig. 1) into V-BR jack of test set. |
| 7 | Operate .75 key. |

Test B

- | | |
|---|---|
| 8 | Insert black shell plug of test cord (Fig. 1) into V-M jack of test set. |
| 9 | Set dial B to a timing value depending upon type C relay being tested, as follows (see 1.05): |

IF CRT OR BSP SPECIFIES:	SET DIAL B TO:
.155	.175
.175	.200
.200	.225
.275	.300
.333	.375

4. METHOD

STEP	ACTION	VERIFICATION
A. B Relay Release Test		
8	Touch sleeve terminal of 240B plug to sleeve terminal of test jack. <i>Note:</i> Do not allow tip and ring terminals of 240B plug to touch tip and ring terminals of test jack.	BY lamp does not light. <i>Note:</i> If BY lamp lights, proceed to another repeater.
9	Insert 240B plug all the way into test jack.	BY lamp lights. C lamp may light dimly, but disregard.

STEP	ACTION	VERIFICATION
10	Depress and hold red button of remote control test set.	BY lamp flashes in unison with pulses of timing test set. Disregard any flashing of C lamp. <i>Note:</i> Some repeaters associated with out-trunk switches are equipped with several slow releasing relays which maintain ground momentarily on sleeve upon disconnecting. When testing repeaters of this type, remove cover, observe release of B relay and disregard flash of both lamps.
11	After BY lamp has flashed twice — Remove 240B plug from test jack immediately in order to prevent ringing a customer.	BY lamp extinguished.
12	Release red button of remote control test set.	Test set pulsing stops.
13	Unless further tests are to be made — Remove all cords and restore all keys.	

B. C Relay Release Test

10	Touch sleeve terminal of 240B plug to sleeve terminal of test jack. <i>Note:</i> Do not allow tip and ring terminals of 240B plug to touch tip and ring terminals of test jack.	BY lamp does not light. <i>Note:</i> If BY lamp lights, proceed to another repeater.
11	Insert 240B plug all the way into test jack.	BY lamp lights. C lamp lights dimly.
12	Depress and hold red button of remote control test set.	C lamp flashes dimly in unison with pulses of timing test set.
13	Immediately after first or second flash of C lamp — Depress and hold white button of remote control test set. <i>Note:</i> It is important that at least one pulse is received before depressing white button but it must be depressed before third pulse in order to prevent ringing a customer.	C lamp flashes brightly in unison with pulses of timing test set.
14	After C lamp has flashed twice — Remove 240B plug from test jack.	BY lamp extinguished. C lamp extinguished.
15	Release red and white buttons of remote control test set.	Test set pulsing stops.
16	Unless further tests are to be made — Remove all cords and restore all keys.	