TAKING EQUIPMENT OUT OF SERVICE
SUBSCRIBER LINE LINK FRAME
NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section covers the method of taking the line link control circuit, start circuit, links, and individual pieces of apparatus out of service. Part 3 of this section covers the method of taking the line link frame equipment out of service. Part 4 covers the precautions to be followed when working on the line link frame equipment.

1.02 This section is reissued for the following reasons:

(a) To add information for taking out of service the AL, CS, DG, OC and VC relays.

(b) To add information to cover the LH (line hold) magnet associated with the no-test connector circuit, the PS (primary selecting) magnet, and the SS (secondary selecting) magnet.

(c) To revise the method for taking out of service the start relays and links.

Since this reissue covers a general revision, the arrows ordinarily used to indicate changes have been omitted.

2. APPARATUS

2.01 No. 349A (or replaced No. 298A) (make busy) plugs.

2.02 No. 351C (or replaced No. 325C) (vertical unit make busy) plug.

2.03 No. 560A (or replaced No. 530A) tool (for grounding outside springs of multi-contact relays).

2.04 Testing cord - W1A cord equipped with a No. 144 plug (1W4A cord).

2.05 Testing cord - No. 893 cord, six feet long, equipped with two No. 360A tools (1W13A cord) and two KS-6278 tools (for connecting ground to leads).

2.06 Testing cord - No. 893 cord, six feet long, equipped with two No. 360A tools (1W13A cord), one KS-6278 tool, and one No. 419A tool (for connecting to relay springs).

2.07 Test receiver - No. 716E or No. 528 receiver attached to a W2AB cord equipped with two No. 360A tools (2W21A cord), one KS-6278 tool, and one No. 411A tool (for observing the absence of ground).

3. METHOD OF TAKING EQUIPMENT OUT OF SERVICE

Primary Switch, LR, HM, H, HG Relays

3.01 This switch or these relays cannot be removed from service without denying service to a group of subscribers. Therefore, a trouble in this equipment must be cleared immediately.

3.02 Provide emergency service in accordance with local practices for any line on which service cannot be interrupted while the trouble is being cleared.

Secondary Switch

3.03 Insert a make busy plug into the SS-jack of the secondary switch.

LH (Line Hold) Magnet, L Relay, MR Register

Equipment on Other Than PBX Lines and No Test Connector

3.04 This magnet or relay cannot be removed from service without denying service to the subscriber. Therefore, a trouble in this equipment must be cleared immediately.

3.05 Provide emergency service in accordance with local practices for any line on which service cannot be interrupted while the trouble is being cleared.

Equipment on PBX Lines

3.06 When no selecting magnet is operated on the switch, insert a No. 351C plug into the vertical unit jack associated with the equipment to be removed from service. If a crosspoint is closed by the insertion of the No. 351C plug, remove and insert it again.

LH Magnet Associated With the No Test Connector Circuit

3.07 At the no test connector circuit, connect ground to spring 1 of the HO hold magnet associated with the LH hold

magnet that is to be taken out of service. Restore the LH magnet to service as quickly as possible since the no test connector is denied access to one half of the line link frame.

SH (Secondary Hold) Magnet

3.08 At the incoming link frames, remove from service each secondary switch, containing the line junctor associated with the SH magnet to be removed from service, by inserting make busy plugs into their MB- jacks.

3.09 If either the SH magnet to be removed from service or its associated SH magnet on the mate line link frame is operated on a service call, await its release.

3.10 Insert a No. 351C plug into the vertical unit jack associated with the SH magnet to be removed from service.

3.11 Remove the plugs from the MB- jacks mentioned in 3.08.

DH (District Hold) Magnet

3.12 At the district junctor frame, insert a make busy plug into the MB jack of the district junctor on which the DH magnet is used.

Line Link

3.13 Determine the outside stationary spring on the HG- relay that is connected to the link to be removed from service. Links 0 to 9 in a horizontal group are connected to stationary springs 50 to 59 respectively, on the HG- relay of the horizontal group.

3.14 Check for absence of ground on the required stationary spring. When ground is absent, indicating that the link is idle, attach a No. 560A tool to the spring.

PS (Primary Selecting) or SS (Secondary Selecting) Magnet

3.15 Remove from service the link on which the magnet is used as in 3.13 and 3.14.

Start Circuit

3.16 To make busy the A half of the start circuit, insert a make busy plug into the MB jack of the home controller.

3.17 To make busy the B half of the start circuit, insert a make busy plug into the MB jack of the mate controller.

3.18 The AP and M relays cannot be removed from service without disabling the alarms. Therefore, a trouble on these relays must be cleared immediately.

Control Circuit

3.19 Insert a make busy plug into the MB jack of the control circuit.

Controller Connector Circuit

3.20 False continuity on the contacts of the AC, BC, HC-, and MC- relays and false grounds or crosses on the operating springs of these relays will interfere with the operation of both controllers. Therefore, clear these troubles immediately.

3.21 AC and HCO to HC3 Relays: Insert a make busy plug into the MB jack of the home controller.

3.22 BC and MCO to MC3 Relays: Insert a make busy plug into the MB jack of the mate controller.

3.23 RS and RSA Relays: Block operated both relays. With the RS and RSA relays blocked operated, reserve district group selection is made on all calls.

3.24 TRL Relay: Block non-operated the TRL relay and block operated the RS and RSA relays. With these relays blocked operated, reserve district group selection is made on all calls.

District Group Circuit

3.25 DO to D4 Relays: At the sender link frame, insert a make busy plug into the MB jack of the district junctor group associated with the relay to be removed from service.

3.26 DAO to DA4, DBO to DB4, DFO to DF4 and DGO to DG4 Relays: At the line link frame, insert a make busy plug into the SS- jack of each secondary switch associated with the relay to be removed from service. If a trouble exists on the stationary springs of the relay, take the relay out of service by making busy the associated district junctor group as in 3.25.

Class of Service (CS) and Column Identification (VC) Relays

3.27 These relays cannot be removed from service without denying service to a group of subscribers. Therefore, clear any trouble on these relays immediately.

Line Observing Control

3.28 OC Relay: Block operated the OC relay.

3.29 AL Relay: Block non-operated the AL relay.

4. PRECAUTIONS TO BE FOLLOWED WHEN WORKING ON THE APPARATUS

Primary Switch, H, HG-, HM-, and LR- Relays

4.01 This switch or these relays cannot be removed from service without denying service to a group of subscribers. Therefore, clear the trouble in this equipment immediately.

4.02 Provide emergency service in accordance with local practices for any line on which service cannot be interrupted while the trouble is being cleared.

Secondary Switch

4.03 Insert make busy plugs into the SS- jack of the switch to be worked upon, and into the like numbered jack on the mate link frame.

4.04 At the district junctor frame, insert make busy plugs into the MB jack of each district junctor associated with the secondary switch to be worked upon.

4.05 Await the release of each district and line junctor on the secondary switch, as indicated by the absence of ground on spring 1 of each DH and SH hold magnet.

LH (Line Hold) Magnet, L Relay, MR Register

Equipment on Other Than PBX Lines and No Test Connector

4.06 This apparatus cannot be removed from service without denying service to the subscriber. Therefore, clear any trouble in this equipment immediately.

4.07 Provide emergency service in accordance with local practices for any line on which service cannot be interrupted while the trouble is being cleared.

Equipment on PBX Lines in Offices Equipped With a Line Distributing Frame

4.08 When no selecting magnet is operated on the switch, insert a No. 351C plug into the vertical unit jack associated with the equipment to be removed from service. If a crosspoint is closed by the insertion of the No. 351C plug, remove and insert it again.

4.09 When a current flow test is to be applied to the LH magnet, proceed as in 4.10 to 4.13 inclusive.

4.10 At the line distributing frame, insert the No. 144 plug of a testing cord into the PBX MB jack.

4.11 Attach the clip of the testing cord to the cable side of the S or NS terminal toward the number group for the line to be worked on.

4.12 Remove the S or NS cross-connection from the number sleeve terminal of the line. Turn back the wire in the approved manner.

4.13 At the line link frame, block nonoperated the L relay and remove the No. 351C plug from the vertical unit jack of the line.

Equipment on PBX Lines in Offices Not Equipped With a Line Distributing Frame

4.14 When no selecting magnet is operated on the switch, insert a No. 351C plug into the vertical unit jack associated with the equipment to be removed from service. If a crosspoint is closed by the insertion of the No. 351C plug, remove and insert it again.

4.15 When a current flow test is to be applied to the LH magnet, remove the cross-connection lead from the LS punching of the line, at the line choice connector frame, and immediately thereafter connect ground to the cross-connection lead toward the line choice connector.

4.16 At the line link frame, block nonoperated the L relay and remove the No. 351C plug from the vertical unit jack of the line.

LH Magnet Associated With the No Test Connector Circuit

4.17 At the no test connector circuit, insulate spring 2 and connect ground to spring 1 of the HO hold magnet associated with the LH hold magnet that is to be worked upon. Restore the LH magnet to service as quickly as possible, since the no test connector is denied access to one-half of the subscriber lines on the line link frame while the magnet is removed from service.

SH (Secondary Hold) Magnet or DH (District Hold) Magnet

4.18 Insert a make busy plug into the SS- jack of the switch containing the hold magnet. If a No. 351C plug is in the vertical unit jack associated with the hold magnet, remove it. Await the release of the hold magnet if it is operated.

PS (Primary Selecting) Magnet

4.19 Insert make busy plugs into the SS- jacks of the two secondary switches containing the links that are served by the selecting bar associated with the PS magnet. If the PS magnet has been removed from

service as in 3.14, remove the No. 560A tool from the associated HG- relay.

Note: Perform this work during periods of light traffic.

SS (Secondary Selecting) Magnet

4.20 Remove from service the secondary switch containing the SS magnet by inserting a make busy plug into the SS- jack of the secondary switch. If the SS magnet has been removed from service as in 3.14, remove the No. 560A tool from the HG- relay.

Start Circuit Relays

4.21 Remove from service the A or B half of the start circuit, depending upon the half of the start circuit in which the relays to be worked upon are located. Remove the A half of the start circuit by inserting a make busy plug into the MB jack of the home controller, or the B half by inserting a make busy plug into the MB jack of the mate controller.

4.22 The AP and M relays cannot be removed from service without disabling the alarms. Therefore, a trouble on these relays must be cleared immediately.

4.23 If the FA relay is to be operated, insulate contacts 2T and 4T of the TA2 relay to prevent the operation of the controller connector relays.

4.24 If the FB relay is to be operated, insulate contacts 2T and 4T of the TB2 relay to prevent the operation of the controller connector relays.

Control Circuit Relays

4.25 Insert a make busy plug into the MB jack of the controller. If a trouble exists on the MB relay, take the controller out of service by inserting make busy plugs into the EB jack on the home frame and the EA jack on the mate frame.

Note: A controller made busy by inserting plugs into the EA and EB jacks, may be seized for emergency service in event of a trouble time-out on the mate controller.

4.26 When the wiring is to be removed from the MB relay, connect together leads LA and LA1 (springs 1B and 2B), LB and LB1 (springs 1T and 2T), SA and SA1 (springs 3T and 4T), and SB and SB1 (springs 3B and 4B). This will permit the controller to function in the event of a trouble time-out on the mate controller.

Controller Connector Circuit Relays

4.27 Trouble time-outs may occur on service calls while applying a current flow test or performing other work on these relays. Therefore, any work on these relays must be done during periods of light traffic.

AC and HCO to HC3 Relays

4.28 Insert a make busy plug into the MB jack of the home controller.

BC and MCO to MC3 Relays

4.29 Insert a make busy plug into the MB jack of the mate controller.

TRL Relay

4.30 When applying a current flow test on the TRL relay, insulate contact 4B of each DO to D4 relay and insulate contact 4B of the TRL relay to avoid interference from other calls being served.

4.31 When applying a current flow test to the TRL relay, or, if the wiring is to be removed from this relay, connect together the leads terminated on springs 1T and 2T, and connect ground to the lead terminated on spring 2B of this relay.

RS and RSA Relays

4.32 If the wiring of these relays is to be removed, connect together the leads as follows:

Connect Lead Terminated on Spring	To the Lead Terminated on Spring
1T	2T
4T	5T
7T	8T
1B	2B
4B	5B

Note: If the wiring of only one of the RS or RSA relays is to be removed, it will be satisfactory to omit the connecting of leads together during periods of light traffic.

District Group Relays

4.33 Trouble time-outs or trouble indications may occur on service calls due to working on these relays. Therefore, any work on these relays must be done during periods of light traffic.

DO to D4 Relays

4.34 At the sender link frame, insert a make busy plug into the MB jack of the district junctor group associated with the D- relay to be worked upon.

4.35 At the sender link frame, block non-operated the associated GPO to GP4 relay.

DAO to DA4 and DBO to DB4 Relays

4.36 At the sender link frame, insert a make busy plug into the MB jack of the district junctor group associated with the DA- or DB- relay to be worked upon.

4.37 To prevent interference with terminating calls, make busy the secondary switch associated with the DA- or DB- relay, by inserting a make busy plug into the SS- jack of the switch.

4.38 In earlier offices provided with sender link circuit per SD-25004-01 equipped with "V" option, block non-operated the associated BAO-4 or BBO-4 relay in the sender link circuit.

DFO to DF4 Relays

4.39 At the sender link frame, insert a make busy plug into the MB jack of the district junctor group associated with the DF- relay to be worked upon.

4.40 Block non-operated the DGO to DG4 relay associated with DF- relay.

Caution: Crossing or grounding of stationary springs on the DF- relays while a call is being served may cause trouble indications for class of service registration.

DGO to DG4 Relays

4.41 At the sender link frame, insert a make busy plug into the MB jack of the district junctor group associated with the DG- relay to be worked upon.

Caution: Crossing or grounding of operating springs on the DG- relays while a call is being served may cause trouble indications for identification of column, switch, and vertical file.

Class of Service (CS) and Column Identification (VC) Relays

4.42 These relays cannot be removed from service without denying service to a group of subscribers. Therefore, clear any trouble on these relays immediately.

Line Observing Control

4.43 When applying a current flow test to the AL relay, block the OC relay operated.

5. REPORTS

5.01 Any required record of the equipment removed from service should be entered on the proper form.