

FAILURE OF SUBSCRIBER SENDER LINK CONTROLLER TO START OR TIME OUT NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section suggests methods to be followed in analyzing and locating the subscriber sender link controller troubles which cause line link controllers to time out but which prevent a controller trouble indication or an alarm on the affected sender link frame.

1.02 This section is reissued to cover the failure of a sender link controller to signal a trouble release to the connected line link controller, to change the title accordingly, and to revise the information recorded on the sample terminating trouble indicator record chart (Form E-2624).

2. INDICATIONS OF TROUBLE CONDITION

2.01 Line link AL alarms on several frames without controller trouble indications or subscriber sender link alarms.

2.02 Terminating trouble indicator display of "No LOG" on calls to various line link frames.

3. REACTIONS DUE TO TROUBLE

3.01 Delayed dial tone.

3.02 During periods of heavy traffic subscribers may dial before dial tone is received, causing originating sender holding time to be increased due to partial dial conditions, and resulting in reduced sender call-carrying capacity.

3.03 During a period when line link frames are timing out, terminating markers will not be able to complete calls to the affected line link frames, causing the markers to time out. This will result in retrials and "no connection" conditions on incoming calls. In addition, due to excessive marker holding time, all full selector terminating senders may become busy, causing stuck originating senders in various originating offices.

4. IMMEDIATE PROCEDURE TO BE FOLLOWED

(A) At Line Link Frame

4.01 Insert a plug in the H (hold) jack of one of the line link frames on which an alarm has been received. Release the alarm by momentarily depressing the TR key. When the line link controller times out again the MA lamp will light and the major alarm will be sounded.

4.02 Check for the operation of a controller D relay to determine that the D relay operate chain is free from trouble and to identify the sender link frame attempting to serve the call.

4.03 Note whether the GE relay has operated. If the GE relay is unoperated, it is an indication that the sender link controller has not advanced and grounded the SL lead. If the GE relay is operated, then the sender link controller may have failed to signal a release after encountering a trouble or after an abandoned call (false start).

4.04 Remove the plug from the H jack, release the alarm, and proceed to the sender link frame involved.

Caution: When a trouble occurs with a plug in the H jack and the subscriber does not disconnect, the line link frame is held out of service to both originating and terminating traffic. It is, therefore, important that the hold feature be used under close maintenance supervision.

(B) At Sender Link Frame

4.05 Determine whether or not the sender link controller circuit is at fault by transferring the frame to the emergency controller in the usual manner. If no further indications of trouble are received, the trouble is apparently in the regular controller circuit. If failure indications continue, make busy the group of 20 district junctions involved. If no further indications of trouble are received, the trouble is probably in the wiring of the GP lead.

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5. ANALYSIS OF TROUBLE

5.01 Preference for a district junctor group is signalled to the sender link controller by ground on a GP lead. If the associated GP-relay fails to operate, the sender link controller can neither advance nor start its timing. Consequently, ground will not be returned on the SL lead through the D relay lockout chain to the preferred line link controller. In addition, the availability signals will not be removed from the TA, TB, RA, and RB leads of any of the five district junctor groups served by the sender link controller. Therefore, when the GP-relay fails to operate, the line link controller in preference and any other line link controllers waiting access to district junctor groups on the affected sender link frame will neither be served nor given a trouble release but must time out.

5.02 If the GP-relay has operated, the following trouble conditions in the sender link controller would cause the line link controllers to time out, since the sender link controller would be prevented from signalling a trouble release:

(a) Any trouble which blocks the sender link controller prior to the operation of the TS (timing start) relay: In controller circuits per SD-25004-01, relays GP-, G-, ON, and ON-1 must operate in sequence before the TS relay can operate. Any failure in this sequence will block the controller without starting the timing cycle. Controller trouble indications or alarms on the affected sender link frame would not be received and the connected line link controller must time out. However, this condition is not likely to occur in controllers per SD-25554-01 in which the TS relay is provided with two operating paths: One through the operated ON-1 relay contacts and one through the operated RS relay contacts.

(b) Failure of the timing circuit to function on a trouble condition: Any trouble which blocks the sender link controller with the timing circuit inoperative will force the connected line link controller to time out since the TRL lead will not be grounded to signal a trouble release. The sender link controller in trouble will not be recognized immediately since there will be no controller trouble indications or sender link alarm to identify it.

(c) Failure of the timing circuit to function on a false start condition: A call on which no trouble exists but which is abandoned immediately after the sender link controller

GH relay operates (false start) holds the line link, sender link and sender blocked due to the absence of a closure on the T and R leads. If the timing circuit does not function to provide a path to operate the FS relay, the FS-1 relay can not operate, ground will not be connected to the RL lead and the attached line link controller must time out.

5.03 During the interval in which a line link controller is timing out, terminating markers can not complete calls to the associated line link frame. The terminating markers will time out, waiting the operation of an LOG relay, and "No LOG" terminating trouble indications will result. Similar failures on terminating marker second trials will result in a "no connection" on the incoming calls.

6. SUGGESTED PROCEDURE FOR LOCATING AND CLEARING TROUBLE

6.01 If the trouble was eliminated by transfer to the emergency controller, test the controller circuit in trouble for the operating path of the GP-relay and subsequent functions.

6.02 If the trouble appears to be in the GP lead wiring, make a continuity test of the lead between the affected line link frame and the sender link frame transfer switches or relays.

6.03 In all cases where the trouble encountered was subsequent to the operation of the GP-relay, check the timing features of the subscriber sender link controller circuit.

7. TROUBLE CONDITIONS CAUSING REACTION MAY BE LISTED BELOW

7.01 Open in the series of contacts in the operating path of the GP-relays.

7.02 Open at T4-T5 contacts of an operated GP-relay (SD-25004-01 only).

7.03 Failure of CB interrupter to open or close its contacts.

