

**NUMBER GROUP CONNECTOR BLOCK RELAY FRAME**  
**LINE LINK PULSING DIODES OPEN OR SHORTED**  
**NO. 1 CROSSBAR OFFICES**

**1. GENERAL**

**1.01** This section covers methods to be followed when a diode associated with LLP-HG punchings on the block relay frame becomes open or short-circuited.

**2. INDICATIONS OF TROUBLE CONDITION**

**2.01** Terminating Trouble Indication Displays

**3. REACTIONS DUE TO TROUBLE**

**3.01** Calls involved in trouble indications as the result of either an open or a shorted diode cannot be completed on second trial. Second trial failure results in routing the call to overflow when GS wiring is provided in the marker.

**3.02** A shorted T diode affects calls to any one of the lines connected to 39 LLP-HG punchings in a number group. Heavy traffic to any one of these LLP lines ties up the number group.

**4. IMMEDIATE PROCEDURE TO FOLLOW**

**4.01** If a shorted T diode ties up a number group, determine from analysis of the trouble indications which diode is shorted. Using Table A, determine the location of the shorted diode and remove the connection at the terminal strip. This will adversely affect service on the LLP lines associated with the open lead but will relieve the number group tie-up.

**4.02** If a large number of trouble indications causes heavy traffic to one line of a PBX series, make the line busy at the LDF until the trouble is cleared. This line may be in a PBX series used for DID LLP service, AIC-LLP service, or plain old telephone service (POTS).

**5. ANALYSIS OF TROUBLE**

**5.01** Trouble indications usually occur during periods of medium and heavy traffic.

**5.02** As shown on Table B trouble indications vary depending upon the diode involved, the type of trouble (open or short-circuit), and the mode of operation for the call.

**5.03** Most indications reveal the HG punching involved in the failure by the CA or CB lamp displayed in conjunction with the LLG lamp. However, when the trouble is caused by a short-circuited T diode, two sets of CA or CB and LLG lamps are displayed. On this type of failure, several indications are required in order to pinpoint the HG punching wired to the short-circuited diode. Calls to lines wired to this HG punching are unaffected by the defective diode.

**6. SUGGESTED PROCEDURE FOR LOCATING AND CLEARING TROUBLE**

**6.01** Analysis of the trouble indication, with reference to Table B, should narrow the trouble down to one LLP-HG punching or possible one HG punching and its associated H or T diode. The associated terminal strip punchings are determined by using Table C for H diodes or Table A for T diodes. These terminal strips are located on a mounting plate designated LLP on the rear of the HG cross-connection field. Punchings numbered 1 through 10 are the cathode terminations of the diodes, whereas punchings numbered 11 through 20 are the anode terminations of the diodes. By using these punchings as test points, an individual diode may be tested for open or short using the KS-14510 ohmmeter as described in Section 032-173-301. Refer to procedure 1 or 2 of Section 032-173-301 for details of test.

**TABLE A**  
**T DIODES BETWEEN LLP-HG**  
**PUNCHINGS AND TKN LEAD**

LLP-HG PUNCHING	DIODE LOCATION		
	DIODE	TS PCHG	TS PCHG
A0	T0	TA11	TA1
A1	T1	TA12	TA2
A2	T2	TA13	TA3
A3	T3	TA14	TA4
A4	T4	TA15	TA5
A5	T5	TA16	TA6
A6	T6	TA17	TA7
A7	T7	TA18	TA8
A8	T8	TA19	TA9
A9	T9	TA20	TA10
B0	T0	TB11	TB1
B1	T1	TB12	TB2
B2	T2	TB13	TB3
B3	T3	TB14	TB4
B4	T4	TB15	TB5
B5	T5	TB16	TB6
B6	T6	TB17	TB7
B7	T7	TB18	TB8
B8	T8	TB19	TB9
B9	T9	TB20	TB10
C0	T0	TC11	TC1
C1	T1	TC12	TC2
C2	T2	TC13	TC3
C3	T3	TC14	TC4
C4	T4	TC15	TC5
C5	T5	TC16	TC6
C6	T6	TC17	TC7
C7	T7	TC18	TC8
C8	T8	TC19	TC9
C9	T9	TC20	TC10
D0	T0	TD11	TD1
D1	T1	TD12	TD2
D2	T2	TD13	TD3
D3	T3	TD14	TD4
D4	T4	TD15	TD5
D5	T5	TD16	TD6
D6	T6	TD17	TD7
D7	T7	TD18	TD8
D8	T8	TD19	TD9
D9	T9	TD20	TD10

TS punchings 11-20 are anodes

TS punchings 1-10 are cathodes

TS punchings TA, TB, TC, TD 1-10 are strapped

**TABLE B**  
**TROUBLES CAUSED BY**  
**OPEN OR SHORTED DIODES**

PUNCHING AFFECTED	DIODE	AFFECTS SERVICE	TROUBLE INDICATION
LLP-HG  DID LLP Service	Open H Shorted H Open T Shorted T	Yes No Yes See Note	NO NC  XOS XC, FALSE LLG-, CA/B-
LLP-HG  AIC-LLP Service	Open H Shorted H Open T Shorted T	Yes No Yes See Note	LFK FAILURE  XOS XC, FALSE LLG-, CA/B-
HG  POTS	Open H Shorted H Open T Shorted T	No Yes No No	False TKN

*Note:* A shorted T diode would affect all 40 LLP-HG punchings except the one to which it is wired.