

**RECORDER CIRCUIT  
FOR USE WITH AUTOMATIC TEST CIRCUITS  
OPERATING METHODS  
PANEL OFFICES**

**1. GENERAL**

**1.01** This section describes the method of using the recorder circuit SD-21978-01 with automatic test circuits in panel offices.

**1.02** The recorder circuit is used in conjunction with district, office, incoming, and final selector automatic test circuits for the purpose of recording test circuit time-outs on a ticket and indicating whether the time-outs were caused by a busy condition or failure during tests.

**1.03** Basically, the recorder circuit is arranged to.

- (a) Provide for the seizure of the recorder by any selector automatic test circuit that has timed out due to a busy or trouble condition of a selector.
- (b) Record which automatic test circuit is recording a ticket.
- (c) Record whether the time-out is due to a busy or trouble condition.
- (d) Record the identity of the equipment under test at the time of the time-out.
- (e) Record the progress of the test for incoming selectors or type of test for link district and final selectors.
- (f) Advance the automatic test circuit to the next selector to be tested after the record has been made.
- (g) Recognize when the automatic test circuit has reached end of cycle and stop testing and to restore the automatic test circuit to normal if it had been started automatically.

**1.04** The recorder circuit may be used on either an automatic or manual basis. In manual operation the test circuits are started manually.

In automatic operation the test circuits are started at a preselected time by the recorder circuit. In either case the recorder circuit will be seized by a test circuit which has timed out. Where two or more test circuits bid for the recorder simultaneously the preferred test circuit will be served first.

**2. METHOD**

**2.01** Information for setting up individual automatic test circuits are covered in the following sections.

District Selector Test  
Circuit, Line Finder  
Sender Selector Type,  
SD-21438-01 and  
ES-239515                      Section 215-304-501

District Selector Test  
Circuit, Link Type,  
SD-20240-01,  
SD-20240-02,  
and SD-20240-03              Section 215-203-501

Office Selector Test  
Circuit, SD-20041-01        Section 215-112-501

Incoming Selector Test  
Circuit, SD-20042-01        Section 215-120-501

Final Selector Test  
Circuit, Ground Cutoff,  
SD-20149-01                  Section 215-331-501

Final Selector Test  
Circuit, Battery Cutoff,  
SD-20043-01                  Section 215-532-501

**2.02 Manual Start:** Where it is desired to give an automatic test circuit that is to be started manually access to the recorder circuit, at the recorder circuit the manual start key (MST-) associated with the specific automatic

test circuit is operated. At the automatic test circuit the keys necessary to perform the desired test and the start key (ST) are operated.

**2.03 Automatic Start:** Where it is desired to start one or more automatic test circuits at a preselected time, at the automatic test circuit the keys necessary to perform the desired test except the start key are operated. At the recorder circuit, the timer is set to a preselected starting time and the automatic start key (AST) associated with the particular test frame is operated. When the timer contacts close the start relays of the recorder circuit operate to perform the function of the start key in the automatic test circuit, thereby starting the test circuit and giving it access to the recorder circuit.

**2.04** The KS-16100 L4 timer may be set to operate once in any 24-hour period. The timer shall be set in accordance with the operating instructions pasted on the inside of the cover.

### 3. PRINTED TICKETS

**3.01** On recorder seizure the ticketer motor is started and, in sequence, the following information is printed on the ticket.

- (1) Automatic test circuit number.
- (2) Type of record (busy or trouble).
- (3) Identity of circuit under test.
- (4) Type of test or test progress, if applicable.

**3.02** Table A shows the types of tickets that may be printed by the various test circuits and the meanings of the characters.

**3.03** To advance the last ticket out of the ticketer, momentarily operate the advance ticket key (AT).

### 4. ALARMS

**4.01** Low tape alarm lamp (LT) lighted indicates there is insufficient tape in the ticketer. All test circuits will be locked out and all lockout lamps (LO-) lighted. Change the roll of paper according to plant series Section 030-360-801.

**4.02** A lamp (LO-) lighted indicates that the recorder circuit was unable to release the specific test circuit after a record was made.

CHARACTER POSITION	FUNCTION						CHARACTER POSITION
			0	9	—	*	
1	TEST FRAME NO.			Note 1			1
2	PASS					*	2
3	TYPE OF TICKET		BUSY				3
4	PASS					*	4
5	LOCATING LAMPS	MASTER	10	9	Note 2		5
6		PASS				*	6
7		MASTER			Note 3		7
8		PASS				*	8
9		GROUP	10	9	Note 2		9
10		PASS				*	10
11		GROUP	20	19	Note 3		11
12		PASS				*	12
13		CONN	10	9	Note 2		13
14		PASS				*	14
15	CONN	20	19	Note 3		15	
16	PASS					*	16
17	CLASS KEY			LWO			17
18	PASS					*	18
19	SPARE				—		19
20	PASS					*	20
21	MARGIN				—		21
22	PASS					*	22
23	MARGIN				—		23
24	PASS					*	24

**Notes:**

1. District selector test circuit, as required.
2. See succeeding entry.
3. See preceding entry.

CHARACTER POSITION	FUNCTION					CHARACTER POSITION	
		0	9	—	*		
1	TEST FRAME NO.	Note 4				1	
2	PASS				*	2	
3	TYPE OF TICKET	BUSY				3	
4	PASS				*	4	
5	LOCATING LAMPS	FRAME	10	9	Note 2		5
6		PASS				*	6
7		FRAME	20	19	Note 5		7
8		PASS				*	8
9		FRAME	30	29	Note 3		9
10		PASS				*	10
11		BRUSH	0				11
12		PASS				*	12
13		TENS	0	9			13
14		PASS				*	14
15		UNITS	0	9			15
16		PASS				*	16
17		SPARE			—		17
18		PASS				*	18
19		SPARE			—		19
20	PASS				*	20	
21	MARGIN			—		21	
22	PASS				*	22	
23	MARGIN			—		23	
24	PASS				*	24	

**Notes:**

2. See succeeding entry.
3. See preceding entry.
4. Office selector test circuit, as required.
5. See succeeding or preceding entry.

CHARACTER POSITION	FUNCTION						CHARACTER POSITION
			0	9	—	*	
1	TEST FRAME NO.			Note 6			1
2	PASS					*	2
3	TYPE OF TICKET		BUSY				3
4	PASS					*	4
5	LOCATING LAMPS	FRAME	10	9	• Note 2		5
6		PASS				*	6
7		FRAME	20	19	Note 5		7
8		PASS				*	8
9		FRAME	30	29	Note 3		9
10		PASS				*	10
11		BRUSH	0				11
12		PASS				*	12
13		TENS	0	9			13
14		PASS				*	14
15	UNITS	0	9			15	
16	PASS					*	16
17	TEST PROGRESS	OK PULS	OPR A				17
18	PASS					*	18
19	SPARE				—		19
20	PASS					*	20
21	MARGIN				—		21
22	PASS					*	22
23	MARGIN				—		23
24	PASS					*	24

**Notes:**

2. See succeeding entry.
3. See preceding entry.
5. See succeeding or preceding entry.
6. Incoming selector test circuit, as required.

CHARACTER POSITION	FUNCTION						CHARACTER POSITION
			0	9	—	*	
1	TEST FRAME NO.			Note 7			1
2	PASS					*	2
3	TYPE OF TICKET		BUSY				3
4	PASS					*	4
5	LOCATING LAMPS	FRAME	10	9	Note 2		5
6		PASS				*	6
7		FRAME	20	19	Note 5		7
8		PASS				*	8
9		FRAME	30	29	Note 3		9
10		PASS				*	10
11		BRUSH	0				11
12		PASS				*	12
13		TENS	0	9			13
14		PASS				*	14
15	UNITS	0	9			15	
16	PASS					*	16
17	IND TEST KEY	BCO	BC				17
		GCO	BC	9			
18	PASS					*	18
19	SPARE				—		19
20	PASS					*	20
21	MARGIN				—		21
22	PASS					*	22
23	MARGIN				—		23
24	PASS					*	24

**Notes:**

2. See succeeding entry.
3. See preceding entry.
5. See succeeding or preceding entry.
7. Final selector test circuit, as required.

CHARACTER POSITION	FUNCTION					CHARACTER POSITION	
			0	9	—		*
1	TEST FRAME NO.			Note 1		*	1
2	PASS					*	2
3	TYPE OF TICKET		BUS				3
4	PASS					*	4
5	LOCATING LAMPS	MASTER	10	9			5
6		PASS				*	6
7		GROUP	10	9	Note 2		7
8		PASS				*	8
9		GROUP	20	19	Note 5		9
10		PASS				*	10
11		GROUP			Note 3		11
12		PASS				*	12
13		CONN	10	9	Note 2		13
14		PASS				*	14
15	CONN	20	19	Note 3		15	
16	PASS					*	16
17	SPARE				—		17
18	PASS					*	18
19	SPARE				—		19
20	PASS					*	20
21	MARGIN				—		21
22	PASS					*	22
23	MARGIN				—		23
24	PASS					*	24

**Notes:**

1. District selector test circuit, as required.
2. See succeeding entry.
3. See preceding entry.
5. See succeeding or preceding entry.