

3B TRAFFIC USAGE RECORDER SD-99359-01

MISCELLANEOUS TESTS

TRAFFIC MANAGEMENT SYSTEMS

1. GENERAL

PAGE

1.01 This section is reissued to:

- (a) Revise Tests A and B to cover operation of remote registers via remote register circuit (RA-, RB-relays).
- (b) Add Test H to provide a check of the remote start circuit.

(4) Verification of periodic grounds to operate a traffic register camera or to reset the administrative cabinet registers.

H. Remote Start Circuit Test. 13

1.02 The tests covered are:

1.03 Tests A and B require verification at the local or remotely located register rack or cabinet. Tests C, D, and G require verification at the local register rack or cabinet.

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(1) Test of the starting of the 3B TUR	
(2) Duration of one scanning cycle	
(3) Verification of cycle count	

1.04 Tests A through F should be performed with 3B TUR removed from service (OFF key operated).

1.05 Tests G and H may be performed with 3B TUR in operation.

1.06 Test H requires operation at the remotely located traffic equipment where a remote TUR start signal is generated.

1.07 The traffic department should be notified before starting and after completing these tests so that register operations caused by performing these tests can be disregarded.

1.08 **Lettered Steps:** A letter a, b, c, etc, added to a step number in Part 3 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

2.01 The apparatus required for each test is shown in Table A. The details of each item

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are covered in the paragraph indicated by the number in parentheses.

2.02 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one 360A tool equipped with a KS-6278 connecting clip and the other 360A tool equipped with a 639A tool.

2.03 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one 360A tool equipped with a 639A tool and the other 360A tool equipped with a 419A tool.

2.04 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one 360A tool equipped with a KS-6278 connecting clip and the other 360A tool equipped with a 419A tool.

2.05 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one 360A tool equipped with a KS-6278 connecting clip and the other 360A tool equipped with a 624A tool.

2.06 Modified 893 cord, equipped with KS-6278 connecting clip and 624A tool. Key on this cord will be referred to as key B.

2.07 Modified 893 cord, with KS-6278 connecting clip and 624A tool. Key on this cord will be referred to as key A.

2.08 442A tool, equipped with a 2Y lamp and two test clips. One test clip will be replaced by a 639A tool in Test E and F or a 624B tool in Test G.

2.09 Blocking and insulating tools, as required. Use tools and apply as covered in Section 069-020-801.

2.10 KS-3008 stopwatch or equivalent should be used when performing test requiring observation of time intervals.

2.11 Make connections to equipment as required. Use tools and apply as covered in Section 069-131-811.

TABLE A

APARATUS	TESTS							
	A	B	C	D	E	F	G	H
Cord (2.02)	1	1	1			1*		
Cord (2.03)				1				
Cord (2.04)				1	1	1		
Cord (2.05)					1†	1†		
Cord (2.06)‡						1		
Cord (2.07)‡					1*	1*		
442A Tool (2.08)					1	1	2**	
KS-3008 Stopwatch							1	
Blocking and Insulating Tools	✓	✓	✓	✓	✓	✓		✓
651-Type tools				✓		✓		

✓ As required.

* Used when detectors are provided.

† Used when detectors are not provided.

** One used if control to camera is provided.

Second used if control to administrative cabinet is provided.

‡ Modify 893 cord with 360A tool (1W13B) by cutting cord in half and adding 135 cord tips to each cut end. Connect the 135 cord tips to the terminals of a KS-8010 locking type key.

3. METHOD

STEP	ACTION	VERIFICATION
A. Connections to Traffic Register From R Punchings		
1	Read all traffic registers associated with 3B TUR.	
2	Remove relay cover from SC1 relay.	
3	At unit A— Block operated SC1 relay of unit A.	
4	Using 893 cord, connect KS-6278 connecting clip to ground; using a 639A tool, probe fixed contacts 1 through 10 of SC1 relay, in turn.	<p>◆If registers are locally situated—◆ Registers associated with punchings R10 through R19 score once for each punching assigned.</p> <p>◆If registers are remotely situated— RA- or RB- relays associated with punchings R10 through R19 operate once for each punching assigned. Remotely situated registers controlled by RA- or RB- relays score once for each RA- or RB-relay operation.◆</p>
5	Remove blocking tool from SC1 relay.	
6	Using 639A tool, probe fixed contacts 1 through 10 of SC1 relay, in turn.	<p>◆If registers are locally situated—◆ Registers associated with punchings R20 through R29 score once for each punching assigned.</p> <p>◆If registers are remotely situated— RA- or RB- relays associated with punchings R20 through R29 operate once for each punching assigned. Remotely situated registers controlled by RA- and RB- relays score once for each RA- or RB- relay operation.◆</p>
7	Replace relay cover on SC1 relay.	
8a	If units B and C are provided— Perform Steps 2 through 7 for each unit.	
B. Connections to Traffic Registers From G Punchings (With Horizontal Scan Per SD-99359-01, Fig. 7)		
1	Remove relay cover from SC2 relay.	
2	Block operated SC2 relay.	
3	Using 893 cord, connect KS-6278 connecting clip to ground; using 639A tool, probe fixed	<p>◆If registers are locally situated—◆ Registers associated with punchings G5 through</p>

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STEP	ACTION	VERIFICATION
	contacts 1, 2, 4, 7, 9 of SC2 relay, in turn.	G9 score once for each punching assigned. ◆If registers are remotely situated— RA- or RB- relays associated with punchings G5 through G9 operate once for each punching assigned. Remotely situated registers controlled by RA- or RB- relays score once for each RA- or RB-relay operation.◆
4	Remove blocking tool from SC2 relay.	
5	Using 639A tool, probe fixed contacts 1, 2, 4, 7, 9 of SC2 relay, in turn.	◆If registers are locally situated—◆ Registers associated with punchings G0 through G4 score once for each punching assigned. ◆If registers are remotely situated— RA- or RB- relays associated with punchings G0 through G4 operate once for each punching assigned. Remotely situated registers controlled by RA- or RB- relays score once for each RA- or RB-relay operation.◆
6	Replace relay cover on SC2 relay.	
7a	If units B and C are provided— Perform Steps 1 through 6 for each unit.	
C. Connections to Traffic Registers From G Punchings (With Horizontal Scan Per SD-99359-01, Fig. 6)		
1	Block operated HS1-5 and Z relays.	
2	Remove relay cover from SC1 relay.	
3	Insulate break contacts 1 through 10 of SC1 relay.	
4	Using 893 cord, connect KS-6278 connecting clip to ground; using a 639A tool, probe fixed contacts 1 through 10 of SC1 relay, in turn.	Registers associated with six E punchings score once for each punching assigned.
5	Remove blocking tool from Z relay.	
6	Using 639A tool, probe fixed contacts 1 through 10 of SC1 relay, in turn.	Registers associated with four 0- punchings score once for each punching assigned.
7	Remove blocking tools from HS1-5 relays.	
8	Remove insulating tools from SC1 relay.	
9	Replace SC1 relay cover.	

STEP	ACTION	VERIFICATION
10a	If units B and C are provided— Perform Steps 1 through 9 for each unit.	
D. Sample Links Circuit		
1	Read all registers associated with sample links circuit.	
2	Remove relay covers from ADV, SSL, TSL relays; replace with 651-type tools.	
3	Using 893 cord, connect 419A tool to make contact 4 of SSL relay and 639A tool to fixed contact 10 of ADV relay.	
4	Using 893 cord, connect KS-6278 connecting clip to ground and 419A tool to make contact 5 of TSL relay.	Sample links step through selector switches 1, 2. ES relay operates at end of scan.
5	Remove ground from make contact 5 of TSL relay.	
6	Remove connections between make contact 4 of SSL relay and fixed contact 10 of ADV relay.	
7	Remove 651-type tools from ADV, SSL, TSL relays; replace relay covers.	
8	Read all registers associated with sample links unit.	Verify that 160 registrations (80 over G punchings and 80 over R punchings) scored the proper registers.
E. Circuit Crosses (With or Without Detectors and Without Horizontal Scan)		
1	Disconnect 24-volt AC transformer from 120-volt supply.	
2a	If detectors are provided— Block TDC relay operated.	
3	Block selector step magnets SW1 and SW2 nonoperated.	
4	Remove SC1 relay cover.	
5	Insulate break contacts 1 through 10 of SC1 relay.	

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STEP	ACTION	VERIFICATION
6	Using 893 cord, connect KS-6278 connecting clip to ground and 419A tool to SW1 wiper of arc indicated in Table B.	
7a	If detectors are provided— Using 893 cord with key A, connect KS-6278 connecting clip to ground and 624A tool to upper winding of VS relay. Operate key A as indicated in Table B.	See Table B for VS relay and detector relay operation.
8b	If detectors are not provided— Using 893 cord, connect KS-6278 connecting clip to ground and 624A tool to upper winding of VS relay. (Omit KEY A column and detector relay operation in Table B.)	VS relay operated.
9	Connect 639A tool to 360A tool on cord of 442A tool and connect KS-6278 connecting clip to test battery.	
10	Using 639A tool, probe fixed contacts of SC1 relay as indicated in Table B for TT relay blocked and released.	See Table B TEST LAMP columns.
11	Disconnect 893 cord and 624A tool from VS relay.	VS relay released.
12	Disconnect 893 cord and 419A tool from wiper of SW1.	
13	Remove blocking tools from step magnets SW1, SW2.	
14	Remove insulating tools from SC1 relay.	
15	Replace SC1 relay cover.	
16c	If units B and C are provided— Perform Steps 3 through 15 for each unit.	
17a	If detectors are provided— Remove blocking tool from TDC relay.	
18	Reconnect 24-volt AC transformer to 120-volt supply.	

F. Circuit Crosses (With or Without Detectors and With Horizontal Scan)

- 1 Disconnect 24-volt AC transformer from 120-volt supply.

TABLE B

A			V						A	V	A	V		
SW1 WIPER			RELAY OPERATION						BLOCK TT RELAY OPER	PROBE SC1 RELAY FIXED CONTACTS	TEST LAMP	REL TT RELAY	PROBE SC1 RELAY FIXED CONTACTS	TEST LAMP
REMOVED GROUND ARC	APPLY GROUND ARC	KEY A	VS	DETECTOR										
				D0	D1	D2	D3	D4						
	2	O	O	O					O	2	L	R	1	L
		R	R	R						1, 3-10	D		2-10	D
2	3	O	O		O				O	4	L	R	3	L
		R	R		R					1-3, 5-10	D		1, 2, 4-10	D
3	4	O	O			O			O	6	L	R	5	L
		R	R			R				1-5, 7-10	D		1-4, 6-10	D
4	5	O	O				O		O	8	L	R	7	L
		R	R				R			1-7, 9, 10	D		1-6, 8-10	D
5	6	O	O					O	O	10	L	R	9	L
		R	R					R		1-9	D		1-8, 10	D

Note: Symbols used:

- O — Operated
- R — Released
- L — Lighted
- D — Dark
- A — Action Column
- V — Verification Column

STEP	ACTION	VERIFICATION
2a	If detectors are provided— Block TDC relay operated.	
3	Remove PG relay.	
4	Block selector step magnets SW1, SW2 nonoperated.	
5	Remove covers from SC1, SC2 relays.	
6	Insulate break contacts 1 through 10 of SC1 relay and break contacts 1, 2, 4, 7, 9 of SC2 relay.	
7b	If detectors are provided and horizontal scan per SD-99359-01, Fig. 6 is used— Replace cover on HS5 relay with 651-type tool.	
8c	If detectors are provided and horizontal scan per SD-99359-01, Fig. 7 is used— Replace cover on HS4 relay with 651-type tool.	
9	Using 893 cord, connect KS-6278 connecting clip to ground and a 419A tool to SW1 wiper of arc indicated in Table C.	
10b	If detectors are provided and horizontal scan per SD-99359-01, Fig. 6 is used— Using 893 cord, connect KS-6278 connecting clip to ground and 639A tool to fixed contact 12 of HS5 relay.	
11c	If detectors are provided and horizontal scan per SD-99359-01, Fig. 7 is used— Using 893 cord, connect KS-6278 connecting clip to ground and 639A tool to fixed contact 12 of HS4 relay.	
12	Using 893 cord with key B, connect KS-6278 connecting clip to ground and a 624A tool to upper winding of P relay. Operate key B as indicated in Table C.	P, N, W, Z, HS- relays operated as indicated in Table C.
13a	If detectors are provided— Using 893 cord with key A, connect KS-6278 connecting clip to ground and a 624A tool to upper winding of VS relay. Operate key A as indicated in Table C.	VS relay and D- detector relays operated as indicated in Table C.
14d	If detectors are not provided— Using 893 cord, connect KS-6278 connecting	VS relay operated.

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STEP	ACTION	VERIFICATION
	clip to ground and 624A tool to upper winding of VS relay. (Omit KEY A column in Table C.)	
15	Connect 639A tool to 360A tool on cord of 442A tool and connect KS-6278 connecting clip to test battery.	
16	Using 639A tool, probe fixed contacts of SC1, SC2 relays as indicated in Table C for TT relay blocked and released.	See Table C TEST LAMP columns.
17a	If detectors are provided— Remove 639A tool connected to fixed contact 12 of HS4 or HS5 relay.	HS4 or HS5 relay released.
18d	If detectors are not provided— Disconnect 893 cord and 624A tool from VS relay.	VS relay released.
19	Remove blocking tools from step magnets SW1, SW2.	
20	Remove 651-type tools and insulating tools and replace relay covers on HS4 or HS5 relays.	
21a	If detectors are provided— Disconnect 893 cord and 624A tool from VS relay.	
22e	If units B and C are provided— Repeat Steps 5 through 21a.	
23	Remove blocking tool from TDC relay.	
24	Disconnect all cords.	
25	Replace PG relay.	
26	Reconnect 24-volt AC transformer to 120-volt supply.	

G. Miscellaneous Control Circuits

Note: This test may be performed during any one hour of normal operations of the 3B TUR.

- 1a If control is provided to administrative cabinet circuit and/or camera control to traffic register cabinet circuit—

TABLE C

A		V										A	V					A	V	A		V				
SWI WIPER		KEY B	RELAY OPERATION (Note 2)										KEY A	RELAY OPERATION					BLOCK TT RELAY OPER	PROBE CONTACTS OF		TEST LAMP	RE-LEASE TT RELAY	PROBE CONTACTS OF		TEST LAMP
REMOVE GROUND ARC	APPLY GROUND ARC		P	ZA	W	HS0	HS1	HS2	HS3	HS4	HS5	VS		DETECTOR						SC1 RELAY	SC2 RELAY			SC1 RELAY	SC2 RELAY	
			Z			HS1	HS2	HS3	HS4	HS5		D0		D1	D2	D3	D4									
	2	O	O		O	O					O	O	O				O	2		L	R	1		L		
		R	R	O													O	1, 3-10		D		2-10		D		
																			1	L	R		1	L		
																			2, 4, 7, 9	D		2, 4, 7, 9		D		
2	3	O	O		R	R	O				R	R	R				O	4		L	R	3		L		
		R	R	R													O	1-3, 5-10		D		1, 2, 4-10		D		
																			2	L	R		2	L		
																			1, 4, 7, 9	D		1, 4, 7, 9		D		
3	4	O	O		O		R	O			R	R		R			O	6		L	R	5		L		
		R	R	O													O	1-5, 7-10		D		1-4, 6-10		D		
																			4	L	R		4	L		
																			1, 2, 7, 9	D		1, 2, 7, 9		D		
4	5	O	O		R			R	O		R	R		R			O	8		L	R	7		L		
		R	R	R													O	1-7, 9, 10		D		1-6, 8-10		D		
																			7	L	R		7	L		
																			1, 2, 4, 9	D		1, 2, 4, 9		D		
5	6	O	O		O					R	O	O	O				O	10		L	R	9		L		
		R	R	O													O	1-9		D		1-8, 10		D		
																			9	L	R		9	L		
																			1, 2, 4, 7	D		1, 2, 4, 7		D		
6		O	O		R						R	R				R										
		R	R	R																						

Note 1: Symbols used:

- O — Operated
- R — Released
- L — Lighted
- D — Dark
- A — Action Column
- V — Verification Column

Note 2:

- HS- relays shown above the slash are per SD-99359-01, Fig. 7.
- HS- relays shown below the slash are per SD-99359-01, Fig. 6.
- ZA relay shown above the slash is used for the second and third 200 line units.

STEP	ACTION	VERIFICATION
	Using one 442A tool for each circuit provided, connect 624B tool to 360A tool on each cord and connect KS-6278 connecting clip to test battery.	
2a	Connect 624B tool(s) to B and/or CCP lead terminal as indicated in Table D according to the equipment provided.	
3b	If 3B TUR was not operating at beginning of test— Read all registers and record cycle count register total.	
4b	Restore OFF key to normal.	
5b	Set timer on circuit controlling 3B TUR (program timer, TUR, or traffic register camera control) for one hour of operation and start 3B TUR.	
6c	If 3B TUR was operating at beginning of test— Read cycle count register at beginning of a 1-hour period.	
7	Using KS-3008 stopwatch, time interval between steps of CC selector switch.	Interval should not exceed 100 seconds.
8a	If control is provided to administrative cabinet circuit and/or camera control to traffic register cabinet circuit— Observe test lamp connected to B and/or CCP leads.	Lamps lighted at intervals indicated in Table D for C1, C2, or A, B key setting used for this unit.
9	At end of 1 hour, read cycle count register.	Register scored 36 times.
10c	If 3B TUR was operating at beginning of test— Read all registers.	
11b	If 3B TUR was not operating at beginning of test— Operate OFF key.	
12d	If 442A tools were used— Disconnect cords and tools.	

H. Remote Start Circuit Test

- | | |
|---|---|
| 1 | At TUR circuit—
Insulate 4 contact of RMS relay. |
|---|---|

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- | STEP | ACTION | VERIFICATION |
|-------------|---|---|
| 2 | At remote traffic control circuit—
Generate a TUR start command. | At TUR unit—
RMS relay momentarily operated. |
| 3 | Remove insulator from RMS relay. | |

TABLE D

CCP LEAD			B LEAD			CCP LEAD			B LEAD			LAMPS LIGHT AT END OF (hours)
CAMERA CONTROL J99319C			ADMINISTRATIVE CABINET J99319C			CAMERA CONTROL J99319F			ADMINISTRATIVE CABINET J99319F			
KEY	POSITION (hours)	TERM. STRIP PUNCHING	KEY	POSITION (hours)	TERM. STRIP PUNCHING	KEY	POSITION (hours)	TERMINAL STRIP AA-C PUNCHING	KEY	POSITION (hours)	TERMINAL STRIP AA-C PUNCHING	
A	1/4	58	B	1/4	48	C1	1/4	57	C2	1/4	59	1/4, 1/2, 3/4, 1
A	1/2	58	B	1/2	48	C1	1/2	57	C2	1/2	59	1/2, 1
A	1	58	B	1	48	C1	1	57	C2	1	59	1