

KS-15947 TOTALIZER CIRCUIT

METHOD OF LOCATING TROUBLE

1. GENERAL

1.01 This section describes a method of locating trouble in the KS-15947 totalizer circuit (SD-95965-01).

1.02 This section is reissued for the following reasons:

- (a) To add light emitting diode (LED) as a secondary symptom for a defective DA package
- (b) To change reference from "DS" to "DS or DS1".

This reissue does not affect the Equipment Test List.

1.03 This section provides a trouble guide for locating trouble in the totalizer circuit, a device that is used for collecting peg counts from a number of sources and enabling these counts to score a single register.

2. APPARATUS

2.01 KS-14510 L1 volt-ohmmeter.

3. METHOD

3.01 Table A provides a list of difficulties which may be encountered with a new or existing totalizer installation. Table A describes the symptom of trouble and gives with it the possible cause of the trouble and the suggested corrective action.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

TABLE A

TROUBLE GUIDE KS-15947 TOTALIZER

TROUBLE SYMPTOM	SECONDARY SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Register does not score (new installation)	A. None	1. Frame cross-connections. Check traffic records.	Verify cross-connections.
		2. No dc power to totalizer.	Check fuse. Check for -20 VDC in -20V TST jack. If not between -18 VDC and -22 VDC, replace diode (CR1).
		3. Register — Check register. Register checks good. Register checks bad.	Verify register connection to punching 28 of totalizer. Replace register.
		4. A package switches in G (ground) position.	Verify that all SW switches of in-service A packages are in N (normal) position.
		5. Patching cords missing between packages.	Check patching cords between P1-P2, P3-P4, P5-P6, P7-P8, P9-P10, and P11-P12 are in place at all times unless totalizer is set up for a one-for-one registration. In this case, remove patching cords between P5-P6 and P7-P8 and run a wire from P5 to P8.
		6. Wrong sensitivity setting or sensitivity setting has changed.	Reset sensitivity for input lead condition as per Test A, Section 252-135-501.
		7. Defective SA, RPA, DS → or DS1, ← PS, or DA package.	Run Corrective Maintenance Test C, Section 252-135-501. Replace defective package.
		8. Application of wrong list totalizer.	Check Note 204 on sheet D1 of SD-95965-01.
		9. Wrong R5-R6 resistor option used.	Check feature and option table, sheet D1 of SD-95965-01.
		→B. LED CR5 does not light (optional)	10. Defective DA package.

TABLE A

TROUBLE GUIDE KS-15947 TOTALIZER (Cont)

TROUBLE SYMPTOM	SECONDARY SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
2. Register does not score (old installation)	A. None	1. No dc power to totalizer	Check fuse. Check for -20 VDC in -20V TST jack. If not between -18 VDC and -22 VDC, replace diode (CR1).
		2. Register - Check register. Register checks bad.	Replace register.
		3. A package switches in G (ground) position.	Verify that all SW switches of in-service A packages are in N (normal) position.
		4. Patching cords missing between packages.	Check patching cords between P1-P2, P3-P4, P5-P6, P7-P8, P9-P10, and P11-P12 are in place at all times unless totalizer is set up for a one-for-one registration. In this case, remove patching cords between P5-P6 and P7-P8 and run a wire from P5 to P8.
		5. Wrong sensitivity setting or sensitivity setting has changed.	Reset sensitivity for input lead condition as per Test A, Section 252-135-501.
		6. Defective SA, RPA, DS → or DS1, ← PS, or DA package.	Run Corrective Maintenance Test C, Section 252-135-501. Replace defective package.
	→B. LED CR5 does not light (optional)	7. Defective DA package.	Run Corrective Maintenance Test C, Section 252-135-501. Replace defective DA package.←
3. Register appears to over-count (new installation)	A. None	1. Improper grounding of totalizer mounting plate.	Scrape paint off frame where totalizer plate makes contact and apply No-ox compound. Retap mounting holes as per SD-95965-01. Do not use any mounting or spacer bars.

TABLE A
TROUBLE GUIDE KS-15947 TOTALIZER (Cont)

TROUBLE SYMPTOM	SECONDARY SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
3. Register appears to over-count (new installation) (Cont)	A. None (Cont)	2. Ground wire connected to totalizer.	Remove any ground wire connected to the totalizer.
		3. Adder plate connection run in cable form.	Verify that wire that connects adder plate to totalizer is as short as possible (5 or 6 inches) and runs directly from point to point.
		4. Some input leads equipped with registers and some not equipped with registers.	Verify that all inputs are electrically identical. Same apparatus connected to all inputs.
		5. Frame cross-connections. Check traffic records.	Verify cross-connections.
		6. Voltage out of limits.	Check for -20 VDC in -20V TST jack. If not between -18 VDC and 22 VDC, replace diode (CR1).
		7. Register — Check register. Register checks bad.	Replace register.
		8. Wrong sensitivity setting or sensitivity setting has changed.	Reset sensitivity for input lead condition as per Test A, Section 252-135-501.
		9. Defective SA, RPA, DS → or DS1, ← PS, or DA package.	Run Corrective Maintenance Test C, Section 252-135-501. Replace defective package.
		10. Application of wrong list totalizer.	Check Note 204 on sheet D1 of SD-95965-01.
		11. Wrong R5-R6 resistor option used.	Check feature and option table on sheet D1 of SD-95965-01.
			B. Noticed in light traffic periods
4. Register appears to over-count (old installation)	A. None	1. Wrong sensitivity setting or sensitivity setting has changed.	Reset sensitivity for input lead condition as per Test A, Section 252-135-501.

TABLE A

TROUBLE GUIDE KS-15947 TOTALIZER (Cont)

TROUBLE SYMPTOM	SECONDARY SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION	
4. Register appears to over-count (old installation) (Cont)	A. None (Cont)	2. Defective SA, RPA, DS →or DS1, ← PS, or DA package.	Run Corrective Maintenance Test C, Section 252-135-501. Replace defective package.	
		3. Adder plate connection run in cable form.	Verify that wire that connects adder plate to totalizer is as short as possible (5 or 6 inches) and runs directly from point to point.	
		4. Some input leads equipped with registers and some not equipped with registers.	Verify that all inputs are electrically identical. Same apparatus connected to all inputs.	
		5. Voltage out of limits.	Check for -20 VDC in -20V TST jack. If not between -18 VDC and -22 VDC, replace diode (CR1).	
		6. Register—Check register. Register checks bad.	Replace register.	
	B. Noticed in light traffic periods	1. SW switches of spare out-of-service A packages in N (normal) position.	Verify that out-of-service A packages have their SW switches in G (ground) position.	
	C. Sudden change	1. Voltage out of limits.	Check for -20 VDC in -20V TST jack. If not between -18 VDC and -22 VDC, replace diode (CR1).	
		2. Defective SA, RPA, DS →or DS1, ← PS, or DA package.	Run Corrective Maintenance Test C, Section 252-135-501. Replace defective package.	
	5. Register appears to under-count (new installation)	A. None	1. Frame cross-connections. Check traffic records.	Verify cross-connections.
			2. Adder plate connection missing.	Run wire to connect adder plate A packages to totalizer.
B. Noticed in light traffic periods		1. A package switches in G (ground) position.	Verify that all SW switches of all in-service A packages are in N (normal) position.	

TABLE A

TROUBLE GUIDE KS-15947 TOTALIZER (Cont)

TROUBLE SYMPTOM	SECONDARY SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
6. Register appears to under-count (old installation)	A. None	1. Voltage out of limits.	Check for -20 VDC in -20V TST jack. If not between -18 VDC and -22 VDC, replace diode (CR1).
		2. Register - Check register. Register checks bad.	Replace register.
		3. A package switches in G (ground) position.	Verify that all SW switches of in-service A packages are in N (normal) position.
		4. Wrong sensitivity setting or sensitivity setting has changed.	Reset sensitivity for input lead condition as per Test A, Section 252-135-501.
		5. Defective SA, RPA, DS → or DS1, ← PS, or DA package.	Run Corrective Maintenance Test C, Section 252-135-501. Replace defective package.