LOW SPEED SIGNALING SYSTEM
USING DATA SET 115A
MAINTENANCE

1. GENERAL

1.01 This section describes the maintenance philosophy and procedures for the low speed signaling system using data set 115A. Due to the critical nature of the service provided, every effort must be made to restore service as quickly as possible when a trouble does occur in the system.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 ***Because of the nature of the data transmitted by the low speed signaling system, it is imperative that the integrity of the system not be compromised. No maintenance or testing of any kind is to be performed without the knowledge and permission of the alarm company. All system out-of-service maintenance will be accomplished on an expedited basis.***

1.04 A system is out of service whenever both the loop open ($\overline{N}$) and loop ground (G) signals cannot be transmitted.

1.05 Maintenance is limited to the replacement of wiring external to the circuit packs (CPs) and to data sets, key switches, lamp holders, and incandescent lamps. ***No component replacement or soldering within the CPs and data sets will be attempted.***

1.06 Data sets and CPs believed to be defective are removed and replaced with spares known to be serviceable. Defective units are isolated by procedures given in Part 3 of this section. Test procedures are given in Section 312-812-500.

1.07 It is recommended that one data set 115A and one interface driver (AE45 CP) be maintained for spares at each central office with such equipment. It is also recommended that one position in the first 43A1 data mounting and the first 233C mounting plate installed in a central office be reserved for testing and for storage of the spare data set and interface driver, respectively.

2. MAINTENANCE AIDS

2.01 Since no routine maintenance is permitted for the low speed signaling system using data set 115A, maintenance is limited to trouble isolation and replacement of defective units. Units of the system suspected of trouble should be tested as described in Section 312-812-500.

3. MAINTENANCE PROCEDURES

TROUBLE ISOLATION

3.01 Trouble isolation is normally accomplished from the indicators on the key and lamp panel, data set 115A, and the interface driver. Table A relates fault indications at data set 115A and interface driver (AE45 CP) to probable causes of the fault. Also indicated in the table is whether or not the fault causes a central office alarm indication. In general, fault indications which appear at both the data set 115A and the interface driver (AE45 CP) indicate faults in the outside plant or alarm company equipment, while fault indications which appear at only one of these units indicate a fault in the central office equipment or in the facility toward the alarm company central station.

3.02 The $\overline{N}$ and G indicator light-emitting diodes (LEDs) on data set 115A and the N′ and G′ indicator LEDs on the interface driver (AE45 CP) are normally extinguished, blink (on less than 1 second) when an alarm company signal is present, and illuminate fully (on greater than 1 second) when a trouble occurs. The fault indicator lamps on the key and lamp panel illuminate when the $\overline{N}$ or G indicator LEDs on the associated data set 115A illuminate.

3.03 Ground or open faults found to be in the alarm loop are isolated to an individual leg

TABLE A

FAULT INDICATIONS

ALARM	DATA SET 115A INDICATIONS	INTERFACE DRIVER (AE45 CP) INDICATIONS	PROBABLE CAUSE OF FAULT
Yes*	$\overline{N}$	N′	Open in alarm loop
Yes*	G	G′	Ground in alarm loop
Yes	Normal	FAULT	See 3.04
No	Normal	N′ and G′	Interoffice link failure, data set 115A failure
No	Normal	N′ or G′	Data set 115A failure, interoffice link failure
Yes	None	None	Loss of −48V to 43A1 data mounting, failure of +5V power unit in 43A1 data mounting, data set 115A removed from nest connector, failure of 8-second timer and voltage monitor (CK2 CP)
None	None	None	Open or ground on return (ring) side of line to alarm company central station

* Major alarm

by sequentially depressing the associated key switches. The fault indicator lamp extinguishes when the key switch for the leg with the fault is depressed for more than 1 second.

Caution: Depressing key switches interrupts service; therefore, they are depressed only with the knowledge and permission of the alarm company.

3.04 The FAULT indicator LED on the interface driver illuminates only when a ground fault exists on the feed (tip) side of the line to the alarm company central station, and the alarm company equipment is conditioned for other than normal operation.

3.05 Should trouble be isolated to the alarm loop or to the line to the alarm company central station, notify outside plant personnel of the trouble in accordance with local procedures.

3.06 Some troubles may be encountered which require testing for isolation. A failure of the 8-second timer (CK2 CP) in the 43A1 data mounting can give a trouble indication at the central office. A test of the CK2 CP is given in Section 312-812-500. Tests of the data set 115A and the interface driver (AE45 CP) are also given in the referenced section. Should wiring be suspected as a cause of trouble, continuity and ground checks are made with a KS-20538 volt-ohm-milliammeter or equivalent.

REMOVAL AND REPLACEMENT PROCEDURES

3.07 Data set 115A or the interface driver (AE45 CP) may be replaced with power applied. Replace with equipment known to be operable.

3.08 When removing the interface driver (AE45 CP), 547B key switches, or lamp holders, disconnect all wires from the component, marking each wire as removed to facilitate rewiring. Cut off the previously stripped portion of the wire and strip as required for a new connection. If lead dress does not permit this to be accomplished, replace the wiring from the component to the associated terminal strip. Replace component with one known to be operable.