NO. 2 SWITCHING CONTROL CENTER SYSTEM

DESCRIPTION

NO. 3 ELECTRONIC SWITCHING SYSTEM APPLICATION

CONTENTS PAGE

1. GENERAL

1.01 This section describes the No. 2 Switching Control Center System (No. 2 SCCS) application to the No. 3 Electronic Switching System (No. 3 ESS). The No. 3 ESS is one of several stored program control systems (SPCSs) which can be remotely controlled from a No. 2 SCCS.

1.02 The specific reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes. Equipment Test Lists are not affected.

(a) Adds information on the SCCS Control Console No. 2A

(b) Includes changes to the System Status Page (Fig. 2)

(c) Includes an illustration of the Summary Page (Fig. 4)

(d) Adds a Glossary.

1.03 ▶Part 4 contains a glossary of terms, abbreviations, and definitions necessary for comprehension of the information contained in this document.◀

1.04 This section describes the SCCS critical indicator panel (CIP) and the SCCS Control Consoles No. 1A and 2A used for No. 3 ESS applications. Other No. 2 SCCS equipment and arrangements are common for all or dedicated to other SPCS systems served by the No. 2 SCCS. For an overall description of the No. 2 SCCS and its applications common to all SPCSs, see Section 190-110-110—Common Applications.

1.05 For a general description of the No. 3 ESS system see Section 233-000-003.

2. CRITICAL INDICATOR PANEL

2.01 The CIP continuously displays the status of each SPCS controlled at the No. 2 SCCS. Each CIP provides a maximum of four displays, one display for each SPCS. (Fig. 1)

2.02 ▶A heading at the top of the CIP display identifies office type. The CIP display for No. 3 ESS offices is equipped with 20 critical indicator

lamps arranged below the heading.◀ A toggle switch at the bottom of the CIP is provided for lamp tests. Status indicators common to all SPCSs are described in Section 190-110-110. Critical indicators unique to No. 3 ESS are:

- SYC (Red)—One of the following No. 3 ESS conditions exists:

  SYC 0 out of service
  SYC 0 unavailable
  SYC 1 out of service
  SYC 1 unavailable

The indicator remains lighted until the condition is corrected.

- RT (Red)—This indicator will not light if one ringing and tone unit is active and the second is on standby; otherwise, the indicator will light. The indicator remains lighted until the condition is corrected.

- AMA (Red)—This indicator will not light if one automatic message accounting unit is active and the second unit is standby. In any other situation, the indicator will light. The indicator remains lighted until the condition is corrected.

- SPARE (Red)—This critical indicator slot will be retained as a spare for any new critical indicator that might be required in the future.

- PERIPH A (Red)—A teletypewriter controller (TTYC) is out of service or a tape data controller (TDC) cannot be actively accessed by either No. 3 ESS control unit. This critical indicator is also intended to be used for other peripheral A failure indications which might be added in the future. Peripheral A devices are described as those devices not covered by SYC, RT, or AMA indicators, and which if all redundant units failed, would result in loss of emergency recovery capability or loss of SCCS capability to obtain information to control the No. 3 ESS. The indicator remains lighted until the condition is corrected.

- PERIPH B (Red)—The recorded announcement equipment is out of service. This critical indicator is also intended to be used for other peripheral B failure indications which might be added in the future. Peripheral B devices are described as those devices not covered by other critical indicators, and which if all redundant units failed, would result in:

  (a) A partial loss of call processing

  (b) A partial loss of billing

  (c) A loss of maintenance capability.

  The indicator remains lighted until the condition is corrected.

3. ▶SCCS CONTROL CONSOLES NO. 1A AND 2A

3.01 The SCCS Control Console No. 1A (CC1A) is microprocessor-based and is used at the No. 2 SCCS work station for the surveillance and control of SPCSs.◀ The CC1A is mobile and can be used at any work station on a plug-in basis. The console incorporates a microcomputer and table-driven software which provides the potential for interfacing with all SPCSs. A unique software data table must be provided for each SPCS to be interfaced. Common software and data tables are contained on a thin oxide on mylar disk (diskette). The diskette is provided as part of the console.

3.02 ▶The CC1A has been rerated to manufacture discontinued. A new Control Console No. 2A (CC2A) is now available. The CC2A has twice the memory and processing speed of the CC1A. The CC2A consists of a new microcomputer, CRT terminal, keyboard, and telemetry interface unit. The CC2A is plug-compatible with the CC1A. The new console performs all the functions currently available in the CC1A. For additional information on CC2A capabilities and configuration refer to SD-1P039-02.

3.03 When the Control Console (CC1A or CC2A) is used for No. 3 ESS, the display may be one of two pages. The first page, the SYSTEM STATUS PAGE, simulates the No. 3 ESS system status panel (SSP) key and lamp indicators. (See Fig. 2 and 3.) The HOME key and four adjacent directional keys on the CC1A or CC2A keyboard are used to control the position of a cursor on the display. The SSP key operation is achieved by positioning the screen cursor to the desired key and entering an execute command (!) via the keyboard. Only keys which are identified by plus

(+) signs on the console display can be operated. In this manner, keys which would normally be operated or released at the No. 3 ESS can be operated or released at the No. 2 SCCS. Table A lists and compares No. 3 ESS SSP keys and lamps with the SCCS console display indicators. The cursor can also be used to activate the #DISPLAY BUFFER, #OCTAL, and #DECIMAL LEDs described in Table A.

3.04 The second page, the SUMMARY PAGE, expands on the CIP. The SUMMARY PAGE (Fig. 4) duplicates 15 of the critical indicator points sent from the No. 3 ESS. These critical indicator points are displayed under the "SUMMARY STATUS" title. The specific status points that are responsible for lighting the SUMMARY STATUS lamps are displayed under the "STATUS POINTS" title. The critical indicator points have the same meaning as those described in paragraph 2.02.

4. GLOSSARY

4.01 The following terms, abbreviations, and definitions are used in this section to describe SCCS functions.

AMA—Automatic Message Accounting Unit

CC1A—Control Console No. 1A

CC2A—Control Console No. 2A

Control Console—A microprocessor-based work station used for surveillance and control of Stored Program Control Systems.

Critical Indicator Panel (CIP)—A panel that continuously displays the status of each Stored Program Control System.

CRT—Cathode-ray tube

ESS—Electronic Switching System

RT—Ringing and Tone Unit

SCCS—Switching Control Center System

Stored Program Control System (SPCS)—A system that utilizes software instructions for administrative, operational, maintenance, and miscellaneous support functions.

Summary Page—An expansion of the critical indicator panel that provides specific data on the critical indicator points via an additional column called "STATUS POINTS".

System Status Page—A display on the control console which simulates the No. 3 ESS system status panel key and lamp indicators.

SYC—System Control

System Status Panel (SSP)—The panel located at the SPCS office which provides the display and control of the entire system.

TDC—Tape Data Controller

TTYC—Teletypewriter Controller

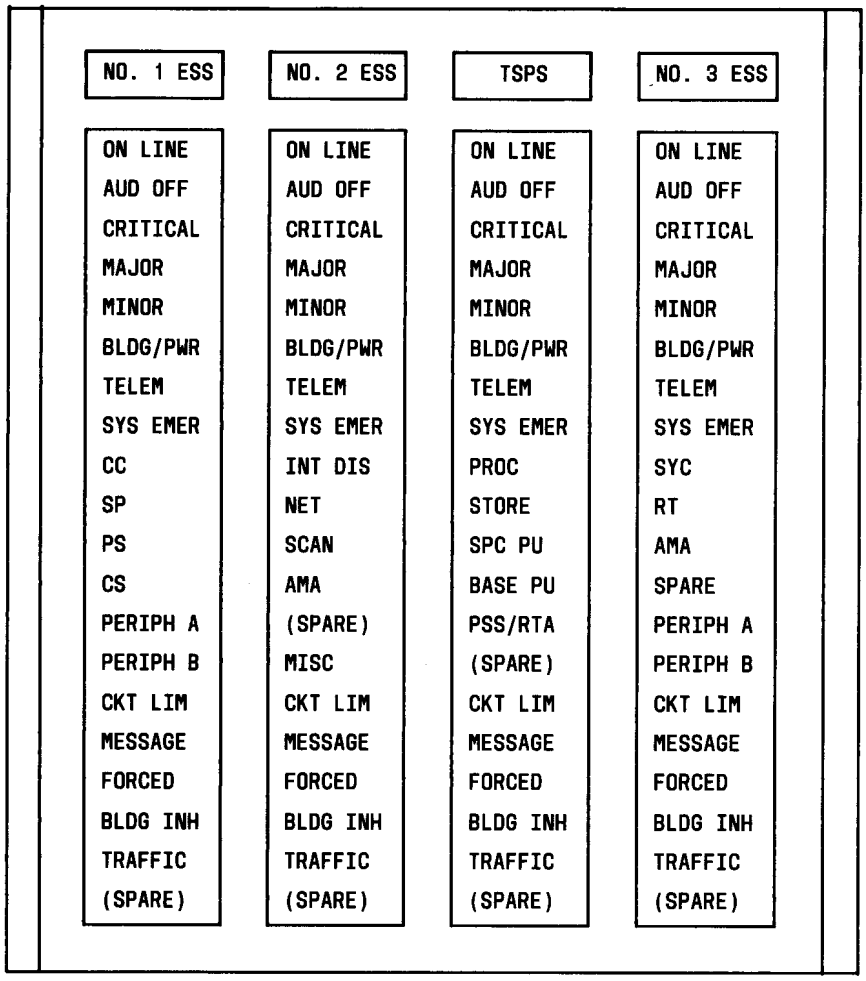

Fig. 1—Critical Indicator Panels With No. 3 ESS Display—Example

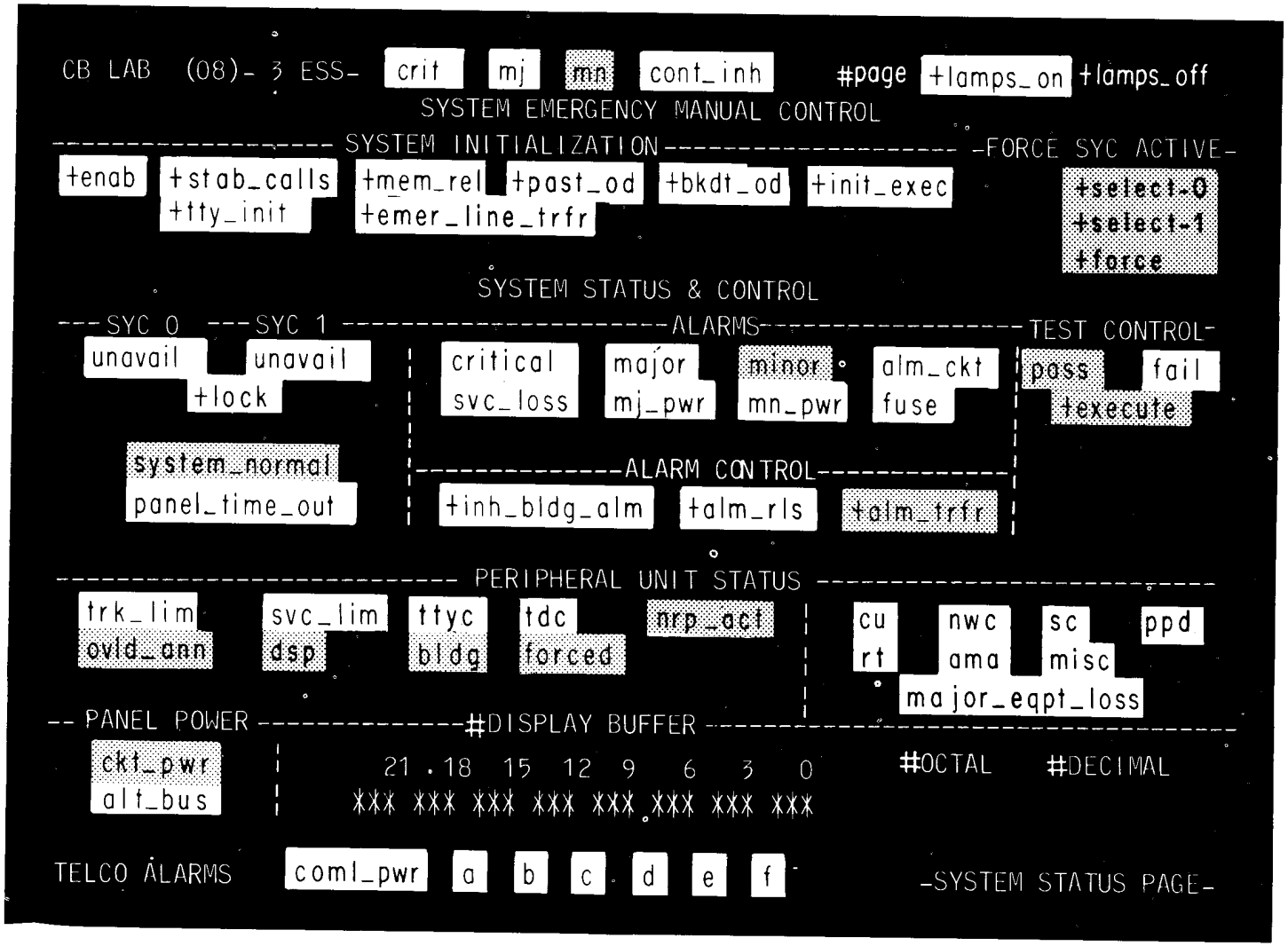

Fig. 2—SCCS Control Console—CRT Display for No. 3 ESS System Status Page

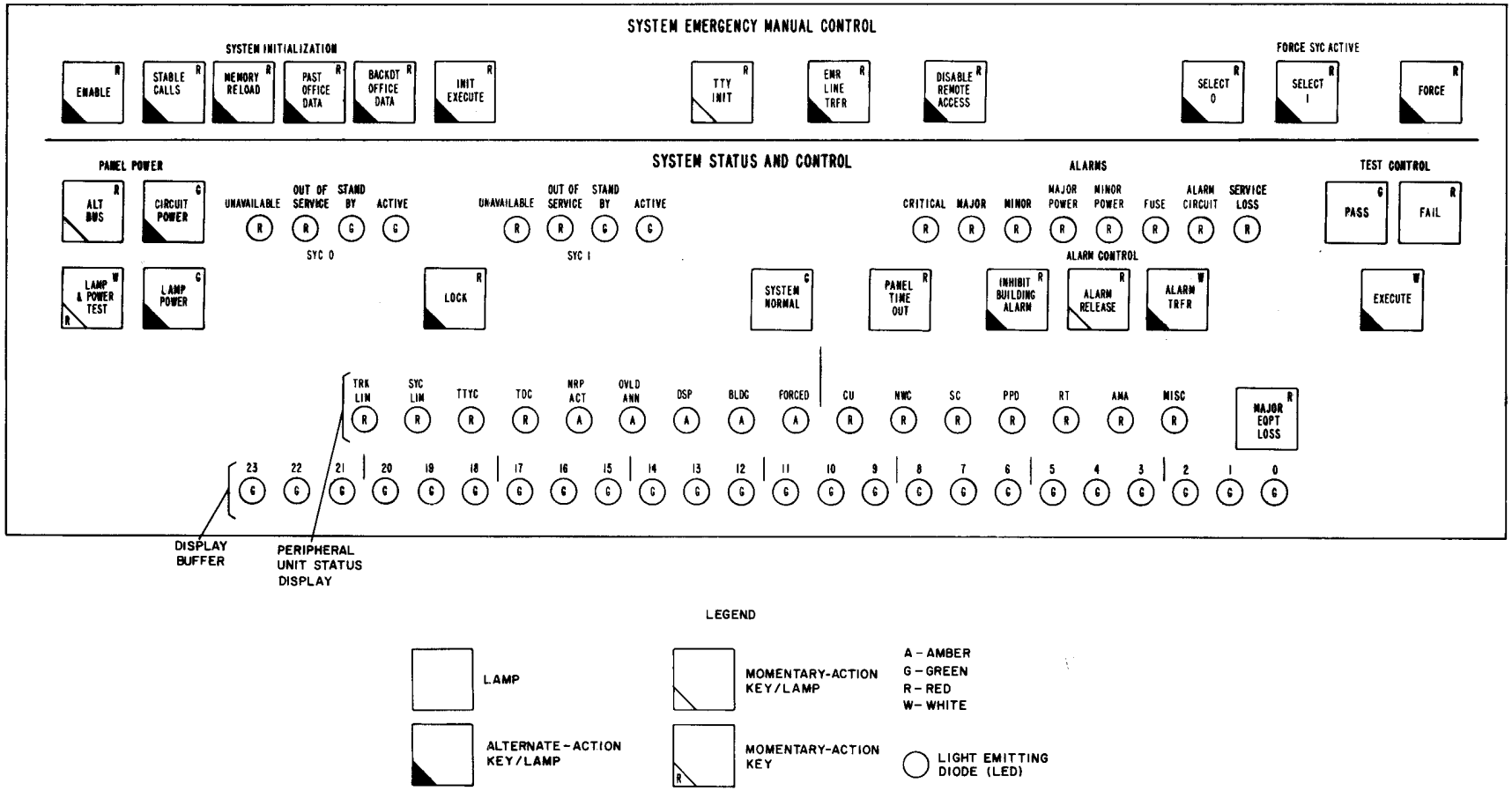

Fig. 3—No. 3 ESS System Status Panel (SSP)

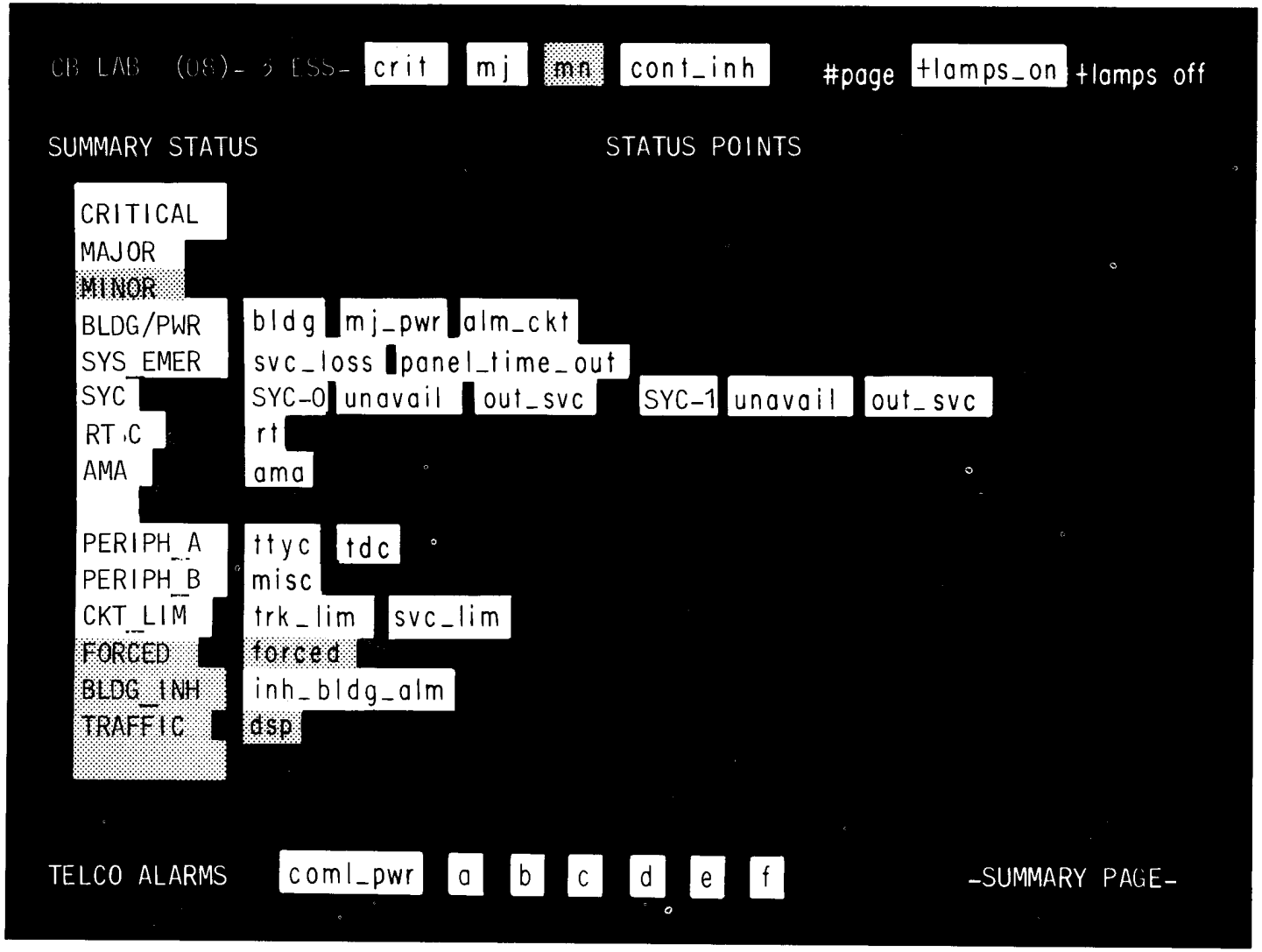

Fig. 4—SCCS Control Console—CRT Display for No. 3 ESS Summary Page

TABLE A

COMPARISON OF NO. 3 ESS SYSTEM STATUS PANEL
AND SCCS CONTROL CONSOLE INDICATORS

SSP KEY/LAMP DESIGNATION (FIG. 3)	CONSOLE DESIGNATION (FIG. 2)	INDICATION OR FUNCTION AT NO. 3 ESS
ALT BUS (Key/Lamp)	alt_bus	Two buses, A and B, provide voltage inputs (+24 volts and —48 volts) between the maintenance frame power unit and the system status relay unit. Under normal conditions, the +24 volt A and —48 volt A are the primary voltage buses. When ALT BUS relay is operated by a power loss, the voltage inputs are supplied by the alternate buses (+24 volt B and —48 volt B) and the lamp lights. When the key is operated, the lamp lights indicating power is available at the alternate bus.
CIRCUIT POWER (Key/ Lamp)	ckt_pwr	When operated, removes power (+3 volts) from the logic packs associated with the panel.
LAMP POWER (Key/ Lamp)	none	On-off switch used to supply 24 volts to the panel power lamp/LED circuitry. When operated, power is reduced to a level that lamps/LEDs will not operate.
LAMP & POWER TEST (Key)	+lamps_on	When operated, causes all lamps/LEDs to light.
None	+lamps_off	When operated, causes all lamps/LEDs to extinguish.
LOCK (Key/Lamp)	+lock	Prevents the off-line SYC from placing itself on-line or the on-line SYC from placing itself off-line.
ACTIVE (LED)	active	Gives visual indication of which SYC is on-line and processing. Replaces points-ok on console (Fig. 2) when applicable during system operation.
STANDBY (LED)	standby	Gives visual indication of which SYC is off-line and that the SYC is capable of being switched on-line (circuits working and temporary store is up to date). Replaces points-ok on console (Fig. 2) when applicable during system operation.
OUT OF SERVICE (LED)	out_svc	Gives visual indication that SYC is off-line for some maintenance or diagnostic purpose. Can be switched on-line but only under emergency conditions. (Temporary store is not up to date.) Replaces points-ok on console (Fig. 2) when applicable during system operation.
UNAVAILABLE (LED)	unavail	Gives visual indication that SYC is off-line and cannot be switched on-line without manual effort from SSP or SCCS. Replaces points-ok on console (Fig. 2) when applicable during system operation.

TABLE A (Contd)

COMPARISON OF NO. 3 ESS SYSTEM STATUS PANEL
AND SCCS CONTROL CONSOLE INDICATORS

SSP KEY/LAMP DESIGNATION (FIG. 3)	CONSOLE DESIGNATION (FIG. 2)	INDICATION OR FUNCTION AT NO. 3 ESS
CRITICAL (LED)	critical	A visual indication of a total system loss or that a major portion or feature of the system is lost. Emergency response or craft action is required.
MAJOR (LED)	major	A visual indication of a partial loss of the system capability or a failure of the type that a similar failure could result in a critical condition. Immediate response or craft action is required.
MINOR (LED)	minor	A visual indication of a minor loss of system capability or some condition requiring the attention of maintenance personnel but not immediately.
MAJOR POWER (LED)	mj_pwr	A visual indication of a major failure in the power equipment. Immediate response or craft action is required.
MINOR POWER (LED)	mn_pwr	A visual indication of a minor failure in the power equipment. Attention required but not immediately.
FUSE (LED)	fuse	A visual indication that a fuse has operated.
ALARM CIRCUIT (LED)	alm_ckt	A visual indication of a failure within the office alarm circuit or its battery supply.
SERVICE LOSS	svc_loss	Indicates a manual or automatic initialization occurrence. Reset in 2 minutes if not set by another initialization pulse.
INHIBIT BUILDING ALARM (Key/Lamp)	+inh_bldg_ alm	When set, inhibits all but the building fire alarm.
ALARM RELEASE (Key/Lamp)	+alm_rls	Requests restoration of critical, major, and minor alarms.
ALARM TRFR (Key/Lamp)	+alm_trfr	Causes alarms to be transferred to a remote location or indicates that certain alarms are being transferred.
EXECUTE (Key/Lamp)	+execute	Used to control the execution of repetitive or step functions entered via a TTY input message.
PASS (Lamp)	pass	Indicates a test pass condition.
FAIL (Lamp)	fail	Indicates a test failure condition.
SYSTEM NORMAL (Lamp)	system_normal	Indicates that all critical functions are normal.
PANEL TIME OUT (Lamp)	panel_time_ out	Indicates that the panel timer has timed out. A time-out (approximately 3 seconds) results in a critical alarm. Timer is usually reset by message from 3A CC every 100 ms.

TABLE A (Contd)

COMPARISON OF NO. 3 ESS SYSTEM STATUS PANEL
AND SCCS CONTROL CONSOLE INDICATORS

SSP KEY/LAMP DESIGNATION (FIG. 3)	CONSOLE DESIGNATION (FIG. 2)	INDICATION OR FUNCTION AT NO. 3 ESS
MAJOR EQPT LOSS (Lamp)	major_eqpt_ loss	Visual indication of equipment trouble or failure associated with one of the following seven LEDs.
AMA (LED)	ama	Automatic message accounting trouble.
MISC (LED)	misc	Unassigned.
RT (LED)	rt	Ringing and tone plant trouble.
PPD (LED)	ppd	Peripheral pulse decoder trouble.
SC (LED)	sc	Scanner controller trouble.
NWC (LED)	nwc	Network controller trouble.
CU (LED)	cu	Control unit trouble.
FORCED (LED)	forced	A unit of equipment has manually been placed off-line.
BLDG (LED)	bldg	Building alarm is present.
DSP (LED)	dsp	Dynamic service protection is in effect.
OVLD ANN (LED)	ovld_ann	Announcement given instead of reorder tone when an overload condition exists and proper TTY input message has been entered.
SPARE (NRP ACT)	nrp_act	Nonresident program active.
TDC (LED)	tdc	Tape/data controller trouble.
TTYC (LED)	ttyc	Teletypewriter controller trouble.
SVC LIM (LED)	svc_lim	Number of service circuits taken out of service has exceeded acceptable limit.
TRK LIM (LED)	trk_lim	Number of trunks taken out of service has exceeded acceptable limit.
0 through 23 (LEDs)	#DISPLAY BUFFER	Visual means for display for memory words and scanner rows in binary.
None	#OCTAL	The octal equivalent of the binary digits shown on the DISPLAY BUFFER.
None	#DECIMAL	The decimal equivalent of the 16 low binary digits shown on the DISPLAY BUFFER.
ENABLE (Key/Lamp)	+enab	When operated, allows initialization to be made by operation of any, none, or all of the SYSTEM INITIALIZATION keys and the INIT EXECUTE key.

TABLE A (Contd)

COMPARISON OF NO. 3 ESS SYSTEM STATUS PANEL
AND SCCS CONTROL CONSOLE INDICATORS

SSP KEY/LAMP DESIGNATION (FIG. 3)	CONSOLE DESIGNATION (FIG. 2)	INDICATION OR FUNCTION AT NO. 3 ESS
STABLE CALLS (Key/Lamp) (Note)	+stab_calls	When operated, causes a zeroing (clearing) of all stable data and transient data in temporary store.
MEMORY RELOAD (Key/Lamp) (Note)	+mem_rel	When operated, causes a reloading of main memory from the tape system.
PAST OFFICE DATA (Key/Lamp) (Note)	+past_od	When operated, causes the more current of the two backup copies of office data to be loaded from tape in to main memory.
BACKDT OFFICE DATA (Key/Lamp) (Note)	+bkdt_od	When operated, causes the older copy of office data to be loaded from tape into main memory.
INIT EXECUTE (Key/Lamp)	+init_exec	When operated, will generate a single MRF pulse to both CCs. ENABLE key must be activated before this key.
TTY INIT (Key/Lamp)	+tty_init	When operated, causes the clearing of the TTY memory area via programmed routine.
EMER LINE TRFR (Key/Lamp)	+emer_line_ trfr	When operated, provides designated customer lines temporary manual service under emergency conditions. The lines are terminated directly to an operator position.
DISABLE REMOTE ACCESS	cont_inh	When operated, prevents control from SCCS. The SCCS still gets visual display of system status but does not execise control.
SELECT 0 (Key/Lamp)	+select_0	When operated, SYC 0 may be forced on-line.
SELECT 1 (Key/Lamp)	+select_1	When operated, SYC 1 may be forced on-line.
FORCE (Key/Lamp)	+force	When operated,will force the selected SYC on-line When released, restores system to software.

Note: Execution occurs only after INIT EXECUTE (key/lamp) is operated.