

SWITCHED ACCESS REMOTE TEST SYSTEM 1A (SARTS 1A)
PROCESS CONTROLLER 1A (PC 1A)
PROGRAM FEATURES

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1. GENERAL

1.01 This section identifies and briefly describes the software modules used in the process controller 1A (PC 1A).

1.02 The reasons for reissuing this section are listed below. Since this reissue is a general revision, no revision arrows have been used to denote significant changes.

(a) Disk/tape option is changed to circuit access point data storage option (software generic A)

(b) Updates utility program list.

1.03 The generic program per J1P016B is furnished on a prerecorded floppy diskette and magnetic tape. Either may be used to load the program into the processor core memory. A second floppy diskette is furnished and contains a software format used to record site dependent data (SDD). (See Sections 666-611-100 and 666-611-102.)

2. MODULE DESCRIPTION

A. Generic Program

2.01 The generic program consists of seven load modules:

- Operating system—Executive 008 (EX 008)
- Filing system (PCFSL)
- Communications subsystem manager (CSM)
- Circuit testing system (CTS)
- Command structuring task (CST)
- Display interface system (DIS)
- Central maintenance center (CMC).

B. Operating System—Executive 008

2.02 The EX 008 is the operating system module used in the generic program. It can control several transactions simultaneously. Each transaction can require several tasks to be performed. The EX 008 intertask communication facilities allow

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several tasks to be processed to complete a transaction.

2.03 Tasks are scheduled on a priority basis. However, a task can be held up or stopped to allow critical portions of the system to run first.

2.04 The EX 008 maintains an environment for task operation, including basic subsystem functions such as timing, input/output (I/O), and task control.

2.05 The I/O function allows application tasks to communicate with peripheral devices under control of the EX 008.

C. Filing System (PCFSL)

2.06 This module processes requests for read or write access to both in-core and disk files. These are fixed partition files using direct or hashing access.

D. Communications Subsystem Manager (CSM)

2.07 This module processes communication between the PC 1A and external devices. Two modes of communication are used:

- Synchronous data communication between test position 52A (TP 52A) (and associated equipment) and the PC-1A.
- Asynchronous data communication to Remote Test System (RTS) and other PC 1As.

2.08 Data links can be by private line or dial-up. For the dial-up application, the CSM program module obtains the line number and telephone number from the SDD and establishes the call.

Note: For additional information regarding data communication links, refer to Section 666-610-101.

E. Circuit Testing System (CTS)

2.09 The CTS is the controlling module of the generic program. All interface tasks schedule CTS to process the input data they have received. The CTS schedules the appropriate task to route the input command or response properly through the system. For example, the clock task schedules

CTS daily to optionally collect and print peg count data.

2.10 When access is required to a local or remote RTS, the CTS examines its files to see if a data link already exists. If a data link does not exist, one is established by passing to the CSM the appropriate line and telephone number. The CTS will then establish a "test point control status block" (TPCSB), which stores information on the status of the commands and test results and on the relationship between the TP 52A and the RTS. When the data link is no longer needed, the CTS will arrange for a disconnect.

2.11 If errors are encountered, the CTS generates an error message which is sent to the TP 52A, if one is involved, and to the DEC* terminal if required. The CTS will schedule the DIS to generate an error display at the TP 52A or type an error message on the DEC terminal. (If the TP 52A is foreign, the CTS schedules the CSM to send the full error message to the foreign PC 1A and schedules the DIS to type out a partial error message locally.)

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F. Command Structuring Task (CST)

2.12 This program module converts commands received from a TP 52A into a command (or series of commands) which is transmitted to the RTS. Before sending commands to the RTS, the CST screens the command to see if the request is legitimate and complete. If the command is illegitimate or incomplete, an error message is sent to the TP 52A display via the DIS.

G. Display Interface System (DIS)

2.13 The DIS module is responsible for creating the proper displays at the TP 52A. It stores all of the pieces used in the displays and assembles the correct pieces to give the tester a proper display. As the testing procedure continues, the DIS updates the display and testing log with current information.

2.14 A "log full" indication is displayed after 18 lines of information are recorded. This display reminds the tester to "print" the log or, at his option, to let it run. The tester can make his decision any time before logging the 21st line.

2.15 If the log is let run the following condition is established: Twenty-one lines of current log information will remain in the display; however, each time a line is added at the bottom, the top line will be lost.

2.16 A list of numbered error messages is maintained by the DIS. If an error is detected by any software task, it sends the DIS an error number and the TP 52A number. The DIS looks up the error number and sends the correct message to the tester. When the error is system affecting, an error message is sent to the DEC terminal to be printed out as a permanent record. (See Section 666-611-301 for a list of DEC terminal error messages.)

H. Central Maintenance Center (CMC)

2.17 This module allows the TP 52A that has been established as a SARTS maintenance position (SMP) to perform additional functions including:

- The capability of inputting data into the PC 1A
- Diagnostic functions on hardware external to the computer
- Other miscellaneous tasks necessary for proper operation of the system.

Establishment of an SMP (or removal of SMP features previously established) is accomplished at the DEC terminal by entry of the proper command. (See Section 666-611-102.)

2.18 Because functions performed by the SMP can disrupt the entire system, it should be operated only by well trained personnel. For system diagnostics, it is most convenient to locate the TP 52A (which will serve as an SMP) adjacent to the PC 1A. Also, it is customary to establish only one SMP at any given time.

3. CIRCUIT ACCESS POINT DATA STORAGE OPTION (SOFTWARE GENERIC A)

3.01 When the circuit access point data storage option is furnished via the generic A program, additional program features are required. This option is used to record circuit access point data. One group of program modules is used in the

day-to-day operation of the system. A second group of program modules is used to maintain the disk/tape files. (See Section 666-611-102 for the operation of the PC 1A with the generic A program.)

A. Disk Commands

3.02 Disk commands are used to record circuit and access point information. Several tasks are performed. These include:

- Circuit access point data storage option control*
- Circuit and access point count adjustment*
- Circuit and access point count reading*
- Circuit and access point editing
- Circuit activation
- Access point information retrieval

* Used from SMP only

B. Utility Programs

3.03 Utility programs are used off-line to help create and maintain the data base. These programs can only be initiated from the DEC terminal and include:

- UTL Utility programs manager
- DIRCT Prints the directory for the utility programs
- DKCHK Disk check, checks formatted disks and reports on bad disk spots
- PCGEN PC file generation, generates PC 1A files on formatted RK05 disk(s)
- PRINT Prints all the circuit IDs and their corresponding access point numbers
- AUDIT Audits the disks for data errors
- PR&AU Print and Audit combined
- FLTRN Transfers data base from disk to tape and vice-versa

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- **STATS** Circuit and Access point statistical data
- **AU&ST** Audit and statistics combined
- **ROLLIN** Formats disks and makes image copies of disk on tape and vice-versa.

To see how these utility programs are used see Section 666-611-102.