CENTRALIZED AUTOMATIC REPORTING ON TRUNKS (CAROT)

CAROT 1

CAROT CENTER OPERATION AND ADMINISTRATION

PREPARATION FOR ROUTINE OR DEMAND TRUNK TESTS AND

TEST PROGRAM OPERATING PROCEDURES

1. GENERAL

1.01 This section provides information concerning the operation of the CAROT Test Data Preparation Program and the CAROT Test Program. There is a brief description of the operation of the programs along with standard operating procedure for preparation of test files and the automatic testing of trunks.

1.02 This section is reissued to include changes incorporated since Issue 1, involving alternate cassette deck selection, system dialogue, and a method for counting CAROT indexable trunks. Change arrows are used to indicate technical changes or additions to this section. Changes or additions in the body of tables are indicated by shaded areas.

1.03 ♦The Test Data Preparation Program has three modes of operation: routine test, demand test, and counting CAROT indexable trunks.♦ The Test Program has two modes of operation: routine test and demand test. For each program, routine testing is the normal mode for overnight testing of trunks with results of the testing being included in the CAROT summaries. The demand test mode allows the automatic testing of particular trunk groups or transmission facilities as requested by the CAROT operator.

2. CAROT TEST DATA PREPARATION PROGRAM OPERATING PROCEDURES

ROUTINE TEST MODE

A. General

2.01 The CAROT Test Data Preparation Program prepares test files on the disc using information from the trunk maintenance files (TMFs) and the test line directory. The information compiled in the test file is then used to test trunks when the CAROT Test Program is activated. A test file with data for one or more offices is prepared for each port. There is space available on the disc to prepare approximately 20,000 trunks for testing. There is no limit on the number of these trunks which may be prepared for a single port, but for maximum testing efficiency it is recommended that they be divided among the available ports.

2.02 The following is a procedural description of the operator interaction with the Test Data Preparation Program. Since much of the CAROT test data is prepared in the same way for both routine and demand tests, the description for the routine test mode also applies to the demand test mode unless otherwise noted. Preparation procedures pertaining solely to the demand test mode are discussed in 2.18 and 2.19. Refer to Fig. 1 through 4 for typical printouts.

B. ◗Cassette Deck Selection and Initialization◖

2.03 ◗Alternate cassette deck selection during the initialization procedure allows the operator to select an alternate deck (either 1 or 3) when deck 2, which is normally used during the preparation procedure, is inoperative. If a cassette deck is not specified, deck 2 will be designated by the program.

2.04 The initialization sequence is started when the operator calls in the Preparation Program while the Monitor Program is running.◖ The program, upon being loaded, prints the message:

CAROT TEST DATA PREPARATION PROGRAM.

to indicate that the program is running. It then asks:

◗NEW DATA, CHANGE OR INDEX COUNT.
  (NEW, CHANGE OR INDEX):◖

If the operator wishes merely to change the data prepared for one or more ports, "CHANGE" should by typed as the response. The program will then continue as described in Part D. A response of "NEW" implies that the operator wishes to prepare new data in all of the test files (all ports); and in this case, the procedure will follow as specified in Part C.

> *Note:* If new data is to be prepared, all test files from any previous runs of the program will be overwritten by the new data.

2.05 ◗If cassette deck 2 is inoperative, an alternate deck (either 1 or 3) can be selected by typing "DECK" after the message as indicated below:

NEW DATA, CHANGE OR INDEX COUNT.
  (NEW, CHANGE OR INDEX):
DECK
ENTER DECK NO.
3

After the alternate deck is selected (in this case, deck 3) the program again prints the following message:

NEW DATA, CHANGE OR INDEX COUNT.
  (NEW, CHANGE OR INDEX):

and is ready to continue with the initialization procedure as explained in 2.04.◖

C. Port Selection for Preparation of New Data

2.06 The program interrogates the CAROT ports to determine which are equipped for testing and prints the number on the teletypewriter (TTY) using the format:

NUMBER OF AVAILABLE PORTS = XX

where XX is the number of available ports. This merely informs the operator of the number of equipped ports and does not guarantee that all sections of the port hardware are functioning properly.

2.07 The program then selects the first port available and prints:

PORT XX ON OR OFF?

where *XX* is the port number. A response of "ON" indicates that the operator wishes to prepare data for testing on this port. The preparation procedure is described in Part E. A response of "OFF" indicates that no test data is to be prepared for this port. This indication might be used if the hardware of a port were known to be malfunctioning or if data were being prepared for a special test run with only a few offices being tested.

2.08 After completing the data preparation for a given port, or following an "OFF" response, the program selects the next available port and asks if it is on or off. The preparation procedure is repeated for this port and for all available ports, in turn, until the last port has been prepared for testing, at which time the program will print:

PREPARATION OF ALL AVAILABLE PORTS
    COMPLETE

and then return control to the Monitor Program. The program may also be terminated by typing "STOP" in response to the question:

PORT *XX* ON OR OFF?

All port test files prepared up to that point will remain on the disc. This mode might be used if the operator is preparing test files for only a few ports and does not wish to repeat the response "OFF" for all ports not being used.

D.   Port Selection for Change of Previous Data

2.09 Data for test files is prepared for each port separately, making it possible to change the data prepared for a single port without disturbing the data for the remaining ports. This mode is initiated when the operator requests "CHANGE" in response to the question:

◆NEW DATA, CHANGE OR INDEX COUNT.
    (NEW, CHANGE OR INDEX):◀

The program then responds:

WHICH PORT NUMBER? (STOP)

and the operator enters the number of the desired port (1 through 14). A check is made to see

whether the port hardware is available. If it is not available, the diagnostic message printed is:

THAT PORT IS NOT AVAILABLE FOR TESTING.

and the operator is allowed to enter another port number. If the port is available, the data is prepared as described in Part E.

2.10 Upon completion of the data preparation for this port, the program will ask for another port number. The operator may then select another port to change, or he may terminate the program by typing "STOP", which returns control to the Monitor Program.

E.   Preparation of Port Test File

2.11 The procedure for the preparation of data for a single port is the same whether new data or change data is being prepared. The program prints:

LOAD TMF ON DECK 2. PRESS SPACE BAR.
    (END)

After the TMF has been loaded into deck 2 of the cassette unit and the operator has pressed the space bar, the program reads and prints the label of the cassette. It then asks for the trunks to be selected by asking:

WHICH TRUNKS? INTERVAL, NUMBERS, INDEXED

Typical operator responses to this question are shown in Table A.

> *Note:* For routine testing, the trunks to be selected should be determined from the schedule described in Section 010-410-300.

2.12 The term "INTERVAL" refers to the test interval corresponding to the test group facility code in the TMF: ie, daily, (DA), weekly (WE), biweekly (BI), or monthly (MO). Entering "ALL" for the interval will cause all trunks in the TMF to be prepared for testing.

2.13 The term "NUMBERS" indicates which trunks of a particular testing interval are to be selected for testing. It can be entered in several forms as shown in Table A. The general format of *YY, M, N* (where *YY* is the code for the test interval, and *M* and *N* represent inclusive trunk

numbers to be tested) would select the *M*th through the *N*th *YY*-type trunks encountered in the TMF for preparation for testing. Thus, if all daily (DA) trunks from 10 through 50 are to be tested, the entry would be:

DA,1Ø,5Ø

If all trunks for the specified interval (DA in this example) are to be selected for testing, "ALL" should be entered as the value for *M*, and no value entered for *N:*

DA,ALL

If all daily trunks from the tenth trunk to the end of the TMF are to be selected for testing, the letter "X" should be entered for *N:*

DA,1Ø,X

2.14 The term "INDEXED" is a flag which applies only to those test trunks whose test results are to be included in the information for the Trunk Transmission Maintenance Index. It is indicated by placing a comma followed by the letter "I" after the "NUMBERS" entry for each category of trunks. It is possible to index some trunks and not others. For example:

DA,1,5Ø

WE,5Ø,1ØØ,I

would flag the weekly tested trunks 50 through 100 for indexing purposes but would not flag the daily trunks.

2.15 The last item to be specified in selecting trunks to be prepared for testing is the type of test to be performed (transmission or operational). The operator indicates this by typing "T" or "O" for transmission or operational testing, respectively, following the last entry of trunks to be tested. The specific test line to be used, whether transmission or operational, is automatically determined by the program from the entry in the test line directory for the terminating office of the trunk group being tested.

2.16 Once the operator presses the space bar or the carriage return and line feed keys after typing "T" or "O", the program reads the TMF and writes a test file on the disc containing the

trunks indicated by the operator. When the end of the TMF is reached, the program rewinds the cassette and again prints:

LOAD TMF ON DECK 2. PRESS SPACE BAR.
    (END)

If another office is to be prepared on the same port, the operator should load the appropriate TMF on deck 2 and continue in the manner just described. If all trunks have been prepared for the port, the operator should type "END". The program will then continue to the next port to be prepared.

F. Preparation Program Diagnostics

2.17 All diagnostic messages are shown in Table B, along with the cause and appropriate operator action. Nearly all diagnostics require some form of operator interaction. One exception is for an office not found in the test line directory. In this case, the program skips to the next trunk group if a terminating office is not found, or to the next ROTL office if an originating office is not found. Some diagnostics require termination or restarting of the program. These include format error messages in the TMFs or test line directory, and are all described in Table B.

DEMAND TEST MODE

2.18 The demand test feature of the CAROT Test Data Preparation Program allows the operator to select particular trunk groups or facilities for automatic testing. This feature may be useful when turning up new ROTL offices or in tracking down problems associated with particular trunk groups or facilities. The demand feature can be used with either the new or change mode of operation, and demand test preparation may be intermixed with routine selection of trunks as shown in Fig. 4. The test files are prepared in the same manner as for routine testing with the exception that the trunks cannot be flagged for index purposes. Diagnostic messages for the demand mode are the same as those for the routine mode and are covered in 2.17.

2.19 The operator initiates the demand test mode by typing "DE" in response to the question:

WHICH TRUNKS? INTERVAL, NUMBERS,
    INDEXED

The program responds:

DEMAND TEST. TRUNK GROUP OR FACILITY

At this point the operator may type up to ten requests, with one request per line. Trunk group and facility requests may be intermixed. The operator need type only enough characters to uniquely identify the trunks of interest. For a trunk group, the information entered is the originating office, pulsing, terminating office, and trunk type if necessary. Information for a facility includes the number, type, terminating office, and originating office if necessary. Entries should be typed as they appear in the TMF except that leading and embedded spaces should not be typed. The line following the last request should be entered as "T" or "O" for transmission or operational testing as described in 2.15 for routine testing. The program then prepares the selected trunks and asks the operator to load the next TMF as described in 2.16. The operator may then select trunks from the next office in either the routine or the demand testing mode. Figure 4 shows a typical TTY printout of a demand test preparation.

▶COUNTING CAROT INDEXABLE TRUNKS

2.20 The index count mode of this program can be used to determine the number of trunks within the TMF whose test results are included in the Trunk Transmission Maintenance Index (TTMI) information report described in Section 010-410-315.

2.21 There are six categories for the TTMI report based on the test line type, facility, and testing interval. When this mode is selected, the program scans the TMF and the test line directory and prints the number of trunks in each of the six categories.

2.22 This mode of program operation should be used to determine the number of indexable trunks for each office as required when compiling TTMI report information. Companies using the manual summary procedures should refer to Sections 301-121-500 and 301-122-500 for loss and noise measurements, respectively. Companies using the mechanized summary procedures should refer to Section 660-403-011. Procedures for compiling and preparing the TTMI data pertaining to CAROT system-tested trunks are described in Section 010-410-300.

2.23 It will be necessary to initiate this mode of program operation to obtain "new" totals of indexable trunks only when a significant number of changes of trunk status have been made to a TMF. Unless an unusually large number of trunks have been added or deleted for the office represented by a TMF, running this mode of the program once per quarter should be sufficient to give a good average of trunks in the TMF for indexing purposes.

2.24 To obtain the count of indexable trunks, the operator simply replies "INDEX" or "IN" to the question:

NEW DATA, CHANGE OR INDEX COUNT.
    (NEW, CHANGE OR INDEX):

The program then responds with the message:

LOAD TMF ON DECK 2.
    PRESS SPACE BAR.(END)

After the operator complies with the instruction, the program causes the TMF label to be read and printed out on the teletypewriter.

2.25 The program continues by reading the TMF and then printing the number of trunks in each category as listed below:

CATEGORY	#TRUNKS
9 1∅ 1∅	XXXXX
9 1∅ 2∅	YYYYY
9 ∅5 2∅	ZZZZZ
9 ∅5 3∅	AAAAA
8 ∅5 2∅	BBBBB
8 ∅5 3∅	CCCCC

The six categories shown correspond to those categories shown on the TTMI information report referenced in Section 010-410-315.

2.26 After reading the complete TMF and printing out the results, the program prints the message:

LOAD TMF ON DECK 2, PRESS SPACE BAR.(END)

The operator may then either (a) load another TMF and continue counting indexable trunks or (b) terminate the program and return to the Monitor Program by typing "END." A typical teletypewriter printout of the index count mode is shown in Fig. 5.◀

3. CAROT TEST PROGRAM OPERATING PROCEDURES

A. Initialization

3.01 To perform routine or demand tests using the CAROT controller, the operator calls in the CAROT Test Program by typing "TEST" while the Monitor Program is running. Once the program has been loaded, the initialization procedures can begin. The Test Program must be initialized whether the program is to be run in the routine or demand test mode. The initialization is accomplished via a sequence of programmed messages and operator responses involving various details that must be satisfied before actual testing can begin.

Routine Test Mode Initialization

3.02 The procedures for initializing the routine test mode are given in Table C. This table lists, in sequence, the TTY messages resulting from the processor/operator dialogue pertaining to the initialization process. Figure 6 shows a typical printout.

Demand Test Mode Initialization

3.03 The procedures for initializing the demand test mode are given in Table D. This table lists, in sequence, the TTY messages resulting from the processor/operator dialogue pertaining to the initialization process.

Diagnostic Messages Encountered During Initialization

3.04 The operator may encounter various diagnostic messages printed on the TTY during the initialization of the testing modes. These messages are listed in Table E, along with an explanatory comment for each entry.

B. Real-Time Operator Interaction

3.05 Real-time interaction for the CAROT Test Program is defined as the capability for the operator to request the system to accomplish a particular action while it is actively conducting tests on some or all of its ports during either a routine or demand test mode.

3.06 Once the initialization sequence has been completed, an action request can be entered via the local TTY by first depressing the space bar. The program will respond by printing the message:

STATE REQUEST:

whereupon the operator may enter the request. The different types of requests are explained in the following parts and are summarized in Table F.

> *Note:* If the program is in a waiting state at the time of a request, the following message is printed:

TESTING IS SCHEDULED FOR (DATE & TIME) STATE REQUEST:

At this point, the operator can enter only a "GO" or "STOP" request, as explained in 3.07.

Literal Requests

3.07 There are at present four requests that are entered in a literal form. They are explained below.

GO—This request returns the program to the state it was in prior to the striking of the space bar. The "GO" request is acknowledged by the printing of the message "NO REQ".

STOP—This is the universal input request for program termination which is valid for all CAROT programs. In essence, it is equivalent to a *PANIC* button, ie, this request will abort all testing, hang up all ports, and load in the Monitor Program. *It should, therefore, be executed with caution.*

ANALYSIS—This request stops all testing, causes all ports to go on-hook, and loads and executes the CAROT Results Analysis Program.

DEMAND—This request enables the operator to prepare a demand test as described in 3.18.

3.08 For the literal requests explained above, there are no acknowledgment messages printed by the Test Program, except for the message "NO REQ" in acknowledgment of the "GO" request.

Coded Requests

3.09 Coded requests have the 6-character format *XXFCYY* where:

XX = Port number (00 for "all ports" request)
FC = Function (ON, OF, or PO)
YY = Function code

> ***Example:*** 03ON01 means turn on (ON) port number 3 (03) and start testing at the beginning of the test data (01).

3.10 There are three types of coded requests: turning the system or an individual port on (ON) or off (OF), and requesting a printout function (PO). They are summarized in Table F and are explained in 3.12 through 3.17.

3.11 Acknowledgment messages for coded requests are printed as follows:

> OPDONE—This indicates that the program has successfully processed the request.

> IL REQ—This message is printed when the program is unable to complete the request because of an illegal input code.

> TIMOUT—This message is printed if a request has not been entered within 30 seconds.

System ON Functions (XXONYY)

3.12 These functions have the capability to turn an individual port on and to start testing at a specific location as explained below. In addition, two of the codes allow the operator to turn all ports on simultaneously. In general, to request an ON code for a specific port, the port must currently be in an OFF state.

> *XX*ON01—Turn port number *XX* on and start testing at the beginning of the test data.

> 00ON01*—Turn all ports on and start testing at the beginning of the test data.

> *XX*ON02—Turn port number *XX* on and start testing at the current trunk.

> 00ON02*—Turn all ports on and begin testing at the current trunk on each port.

> *XX*ON03—Turn port *XX* on and start testing at the beginning of the current ROTL office.

> *XX*ON04—Turn port *XX* on and start testing at the beginning of the next ROTL office.

*These are "all ports" requests and should be used only in conjunction with the code 00OF01, which is explained in 3.13. Ports which have been *individually* turned off will *not* be turned on by these requests.

System OFF Functions (XXOFYY)

3.13 These functions have the capability of turning off an individual port or the entire system.

> *XX*OF01—Turn port number *XX* off. The port is placed in an on-hook condition, and the sanity check bit (3.27) on the switch register corresponding to port *XX* is turned off. To initiate this request, port *XX* must be in an ON condition.

> 00OF01—Turn all ports off and place all ports in an on-hook condition. The switch register will remain lighted during this state. This request does not affect the state of ports which have previously been turned off individually.

Printout Functions (XXPOYY)

3.14 Printout functions are by definition those functions which generate hard copy via a printout on the local TTY. There are three broad categories of functions: real-time printout, Q2/H&D printout control, and system status checks. Each is described in detail below.

3.15 *Real-Time Printout:* This feature provides the means whereby pertinent test data and results are printed out on the local TTY in real-time

for a particular port. This request is initiated and terminated with the following interaction codes:

*XX*PO01—Turn on real-time printout on port *XX.*

*XX*PO02—Turn off real-time printout on port *XX.*

Real-time printouts are described in Section 103-251-300. A typical example of a partial real-time printout is as follows.

```
STATE REQUEST: 01PO01
OPDONE
$R5
AHVLNCOT298
97042985691
ANS      0307731446
RA00
AHVLNCOT298D-AHVLNCOH252DF55IE
NONE
#T509 04.0 1.0 25 36
&10000                        1
ANS      0307731446
+0.0+0.0+00+00
−0.5−0.4-??-??
&11030                        3
ANS      0307731447    ·
−0.5−0.4−??−??
&12040                        5
ANS      0307731447
−0.5−0.4−??−??
&16040                        11
ANS      0307731448
−0.4−0.4−??−??
&14060                        15
ANS      0307731448
−0.7−0.7-??-??
&11044                        20
ANS      0307731449
−0.5−0.4−??−??
&17040                        21

STATE REQUEST: 01PO02
OPDONE
```

> *Note:* The real-time printout function may only be requested for one port at a time, and may not be requested during the processing of a demand test request.

3.16 *Q2/H&D Printout:* This feature provides a near-real-time printout on the local TTY of all trunks with either a high and dry (H&D) or Q2 disposition. This feature may be on or off during routine testing, depending on the initialization dialogue (see Table C). It may be enabled or disabled on a per-port basis with the following two request codes:

XX*PO03—Turn on Q2/H&D printout on port *XX.* Use only when this feature has been inhibited by the following request code, or during initialization.

XX*PO04—Inhibit (turn off) Q2/H&D printout on port *XX.*

3.17 *Status Check:* This feature provides an additional means for checking the status of any or all testing ports while the system is running. On receipt of this type of request, the program will print the status (ON or OFF) of all requested ports. Request codes take the following form:

*XX*PO05—Print status of port *XX.*

00PO05—Print CAROT controller system status.

Example: (of a 7-port CAROT controller)

```
STATE REQUEST:  00PO05

01:  ON
02:  OF
03:  ON
04:  ON
05:  OF
06:  ON
07:  ON
OPDONE
```

Demand Test

3.18 A demand test may be requested at any time during program operation once the program has been initialized, by typing "DEMAND" in reply to the "STATE REQUEST" message as described in 3.06 and 3.07, or by initializing the Test Program for a demand test as explained in Table D. A request may be made on either a trunk group or a facility for which data has been prepared on the disc. The operator must have at his disposal the following information:

(a) ROTL office common language identification

(b) Trunk group or facility common language identification.

Note: Prior knowledge of the port which contains the testing data is not necessary, as the program will select the proper port.

3.19 If the program is running in a routine test mode at the time of the request, the port required for the demand test will be inhibited from its routine testing until after completion of the demand test. Output will be on both the TTY and the high-speed paper tape punch.

3.20 The dialogue required to initiate the test is as follows. The program prints:

ROTL ID:

The operator enters either the 11-character ROTL ID or enough characters to uniquely specify the ROTL office among those which have been prepared, followed by a space. The program then asks:

TRUNK GROUP OR FACILITY? (TYPE T OR F):

After receiving the "T" or "F" response from the operator, the program requests either

TRUNK GROUP ID:

or

FACILITY ID:

and the operator enters (as appropriate) either the 19-character facility ID or the 24-character trunk group ID, or, as above, enough characters to uniquely specify either one, followed by a space. Entries should be made as they appear in the TMF except leading and embedded spaces *must not* be typed. The trunk group ID ▶starts with pulsing and includes◀ terminating entity, trunk type, and modifier field. The facility ID includes the number, type, terminating entity, and originating entity.

3.21 There are certain diagnostic messages which are associated solely with the demand test feature. They are explained in Table G.

Diagnostic Messages for Request Codes

3.22 Upon receipt of the operator input code, the CAROT Test Program will generate the message "IL REQ" (illegal-request code) when an illegal-request condition exists. Examples of some of these illegal conditions are as follows:

   (a) The input was different from any of the valid coded requests described in 3.09 through 3.17.

   (b) The request was for a port number other than port Ø1 through the last port in the system.

   (c) On a request to turn on an individual port, the port was already on.

   (d) On a request to turn off an individual port, the port was already off.

   (e) On a demand test request, another port was already processing a demand request; only one port at a time can process a demand test.

3.23 If the space bar has been accidently depressed, the message "STATE REQUEST" will then be printed, and the operator will have 30 seconds in which to input his request code. If no request has been entered within 30 seconds, the message "TIMEOUT" will be printed, and the system will return to its normal state (ie, the operator must reinitiate his request).

   Note: To correct a reply, depress the RUBOUT key and then the carriage return and line feed keys. Then type the correct request.

Real-Time Diagnostic Messages

3.24 Various messages are printed on the TTY during either routine or demand testing to indicate equipment malfunctions. They are listed in Table H.

C. Power Failure

3.25 If the ac power drops below a specified value, the program will come to an orderly halt by placing each port in an on-hook condition.

3.26 Once power is restored, the program will restart all ports that were testing prior to the power failure, at the point where testing was terminated. If it is a momentary power failure, the program will print the message "POWER FAILED". However, if power has been off for

more than a few seconds, the TTY, paper tape punch, and line printer will remain off. This means that diagnostic messages will be lost and the Analysis Program will not be executed although all testing will be accomplished. The operator must reestablish the TTY connection to the controller, place the line printer on line, turn on the paper tape punch, and type "GO" on the system TTY. The Analysis Program will then begin to produce the test results at the designated output device.

D. Sanity Check

3.27 As a visual aid to the operator, the switch register bits are lighted during any testing mode in the following manner.

(a) Bit 0 is always lighted during operation of the CAROT Test Program.

(b) Each numbered bit corresponding to the currently ON ports is lighted.

3.28 If any switch register bit remains unlighted when it should be lighted according to 3.27, testing should be terminated by typing "STOP" and the CAROT Test Program should be reloaded and reinitialized.

```
MONITOR RUNNING!
PROGRAM NAME (OR "LIST"):  PREPARE

CAROT TEST DATA PREPARATION PROGRAM.

NEW DATA, CHANGE OR INDEX COUNT. (NEW, CHANGE OR INDEX):
DECK

ENTER DECK NO.
3

NEW DATA, CHANGE OR INDEX COUNT. (NEW, CHANGE OR INDEX):
CH

WHICH PORT NUMBER? (STOP)
3

LOAD TMF ON DECK 3. PRESS SPACE BAR. (END)
STOP

MONITOR RUNNING!
PROGRAM NAME (OR "LIST"):
```

Fig. 1—▶Alternate Cassette Deck Selection◀

```
MONITOR RUNNING!
PROGRAM NAME (OR "LIST"):  PREPARE

CAROT TEST DATA PREPARATION PROGRAM.

NEW DATA, CHANGE OR INDEX COUNT. (NEW, CHANGE OR INDEX):
NEW

NUMBER OF AVAILABLE PORTS = Ø3
 PORT Ø1 ON OR OFF?
ON

LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)

T ORNDCA11254          Ø8/14/72
WHICH TRUNKS? INTERVAL,NUMBERS,INDEXED
DA,ALL
WE,26,5Ø
BI,ALL
MO,1Ø,X
T
LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)

T MLVYCAØ138E          Ø8/21/72
WHICH TRUNKS? INTERVAL,NUMBERS,INDEXED
DA,ALL,I
WE,1,25,I
MO,11,X,I
T
SNFCCAØ133M NOT FOUND IN OFFICE FILE
SNRFCA1147C NOT FOUND IN OFFICE FILE
LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)
END

 PORT Ø3 ON OR OFF?
ON

LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)

T ELSBCA1122C          Ø8/31/72
WHICH TRUNKS? INTERVAL,NUMBERS,INDEXED
ALL,I
T
LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)

T MORGCA1237A          Ø9/14/72
WHICH TRUNKS? INTERVAL,NUMBERS,INDEXED
WE,26,5Ø
O
LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)
END
 PORT Ø4 ON OR OFF?
OFF

PREPARATION OF ALL AVAILABLE PORTS COMPLETE
MONITOR RUNNING!
PROGRAM NAME (OR "LIST"):
```

Fig. 2—▶New Data Preparation◀

```
MONITOR RUNNING!
PROGRAM NAME (OR "LIST"):  PREPARE

CAROT TEST DATA PREPARATION PROGRAM.

NEW DATA, CHANGE OR INDEX COUNT. (NEW, CHANGE OR INDEX):
CHANGE

WHICH PORT NUMBER? (STOP)
3

LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)

T DAVLCA11837          Ø6/15/72
WHICH TRUNKS? INTERVAL,NUMBERS,INDEXED
DA,ALL
WE,ALL,I
T
LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)

T MORGCA1237A          Ø9/14/72
WHICH TRUNKS? INTERVAL,NUMBERS,INDEXED
DA,ALL,I
WE,26,X,I
BI,1,15,I
T
LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)
END

WHICH PORT NUMBER?     (STOP)
STOP

MONITOR RUNNING!
PROGRAM NAME (OR "LIST"):
```

Fig. 3—▶Change of Previous Data◀

Fig. 1, 2, and 3

```
MONITOR RUNNING!
PROGRAM NAME (OR "LIST"): PREPARE

CAROT TEST DATA PREPARATION PROGRAM.

NEW DATA, CHANGE OR INDEX COUNT. (NEW, CHANGE OR INDEX):
CHANGE

WHICH PORT NUMBER? (STOP)
4

LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)

T  ELSBCA1122C        Ø8/31/72
WHICH TRUNKS? INTERVAL,NUMBERS,INDEXED
DE

DEMAND TEST. TRUNK GROUP OR FACILITY
ELSBCA1122CM-ALBYCA1152F
452N1OKLDCAØ3
ELSBCA1122CM-RCMDCA11
T
LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)

T  MORGCA1237A        Ø9/14/72
WHICH TRUNKS? INTERVAL,NUMBERS,INDEXED
WE,ALL
MO,ALL
T
LOAD TMF ON DECK 2. PRESS SPACE BAR. (END)
END

WHICH PORT NUMBER? (STOP)
STOP

MONITOR RUNNING!
PROGRAM NAME (OR "LIST"):
```

Fig. 4—Demand Test File Preparation

```
MONITOR RUNNING!
PROGRAM NAME (OR "LIST"):  PREPARE

CAROT TEST DATA PREPARATION PROGRAM

NEW DATA, CHANGE OR INDEX COUNT (NEW, CHANGE OR INDEX):
INDEX

LOAD TMF ON DECK 2.  PRESS SPACE BAR. (END)

T  RDCYCAØ136C              Ø6/17/74

      CATEGORY          #TRUNKS
      9  1Ø  1Ø          ØØØ45
      9  1Ø  2Ø              Ø
      9  Ø5  2Ø          ØØØ54
      9  Ø5  3Ø          ØØØ88
      8  Ø5  2Ø          ØØ156
      8  Ø5  3Ø          ØØ129

LOAD TMF ON DECK 2.  PRESS SPACE BAR. (END)
```

Fig. 5—Typical Printout Showing Count of CAROT Indexable Trunks

```
MONITOR RUNNING!
PROGRAM NAME (OR "LIST"): TEST

THE CAROT TEST PROGRAM IS RUNNING

ROUTINE OR DEMAND TEST (R OR D):
R

THE FOLLOWING PORTS ARE AVAILABLE

Ø1  Ø2  Ø3

ARE ALL AVAILABLE PORTS ON? YES

START OF NEW MANAGEMENT SUMMARY INTERVAL?: NO

ARE TONIGHT'S TRUNKS TO BE INDEXED?: YES

START OF NEW INDEX INTERVAL?: NO

Q2/H&D PRINTOUT OFF? : YES

PUNCH OUTPUT? YES

TURN ON THE HIGH SPEED PUNCH.

DATE, TIME:  ØØ/ØØ/ØØ ØØØØ
DATE, TIME:  Ø9/23/7414lILLEGAL REQUEST
DATE, TIME:  Ø9/23/74 1413

START TESTING NOW?:  YES

SYSTEM INPUT OK?:  YES

TESTING HAS STARTED !!

Ø1RT1
Ø923741413
Ø2RT1
Ø923741414
Ø3RT1
Ø923741414
Ø1RT2
Ø923741414
```

Fig. 6—Routine Test Mode Initialization

Fig. 4, 5, and 6

TABLE A

TYPICAL RESPONSES FOR TRUNKS TO BE SELECTED

RESPONSES	TRUNKS SELECTED
DA,ALL	All daily trunks.
DA,ALL,I	All daily trunks flagged for indexing.
DA,1,5∅	Daily trunks 1 through 50 in the TMF.
DA,51,X,I	All daily trunks from the 51st trunk to the end, flagged for indexing.
ALL	All trunks in the TMF.
ALL,I	All trunks in the TMF flagged for indexing.
T or O	Designates type of trunk test (transmission or operational) and follows the last entry of trunks to be tested.

Note 1: WE, BI, or MO may be substituted for the DA in the example given above.

Note 2: An entry may be made for each interval. If an interval is omitted, it is assumed no trunks are to be selected for that testing interval.

TABLE B

DIAGNOSTICS FOR CAROT TEST DATA PREPARATION PROGRAM

MESSAGE	MEANING	OPERATOR ACTION
ATTENTION CASSETTE DECK 2. STATE REQUEST: STOP, GO, BEGIN	Cassette drive not on-line or cassette not loaded properly.	Ensure that cassette unit is on and that cassette is properly loaded. To continue, type "GO."
DEMAND BUFFER OVERFLOW.	Too many demand requests were entered.	Re-enter one less request.
END OF TAPE ON CASSETTE, PROGRAM TERMINATED	End of tape has been detected on cassette. All data in the test files, exclusive of this office, prepared up to this point is valid.	Use change mode of operation (see 2.09) to try to prepare this office again. If it fails again, use backup copy of TMF.
INCORRECT FAR-END OFFICE DATA FOR *XXXXXXXXXXX*.	Invalid data or format error in test line directory for far-end office *XXXXXXXXXXX*.	Terminate program and correct test line directory.
INCORRECT MESSAGE FORMAT.	Last line entered was invalid response.	Type correct message.
INCORRECT OFFICE DIRECTORY FORMAT FOR *XXXXXXXXXXX*.	Invalid data or format error in test line directory for office *XXXXXXXXXXX*.	Terminate program and correct test line directory.
INCORRECT ROTL OFFICE DATA FOR *XXXXXXXXXXX*.	Invalid data or format error in test line directory for ROTL office *XXXXXXXXXXX*.	Terminate program and correct test line directory.
INVALID TEST LINE DIR. HEADER.	Invalid data in heading of test line directory.	Terminate program and use recovery procedure to reload test line directory on disc.
MORE TRUNKS WERE EXPECTED.	Typed after END or after label of TMF. Operator specified more trunks to be prepared than actually existed on previous TMF. All valid trunks requested were prepared.	If error was made, terminate program and use change mode of operation (see 2.09) to reprepare this port. If error does not affect trunks prepared, type "GO" to continue.
NO END OF FILE IN TEST LINE DIRECTORY.	Format error in test line directory.	Terminate program and use recovery procedure to reload test line directory on the disc.
XXXXXXXXXXX NOT FOUND IN OFFICE FILE.	Office *XXXXXXXXXXX* was not found in test line directory. Program skips to next trunk group or ROTL office, as appropriate, and continues.	Add office entry to test line directory after normal completion of preparation. If it is desired to test the trunks involved, use change mode of operation to reprepare port.
THAT PORT IS NOT AVAILABLE FOR TESTING.	Hardware not available or not functioning properly for a port selected under the change mode of operation.	Terminate program or select another port.
TMF CHAR. NOT A, F, G, H, N, NULL	Invalid character has been read from TMF cassette.	Retry program using same TMF. If error persists, run cassette diagnostic. If cassette unit is functioning properly, use backup TMF.
STATE REQUEST: STOP, GO, BEGIN	Typed in response to operator striking keyboard and after some diagnostics.	Type "GO" to continue, "STOP" to terminate program, or "BEGIN" to restart program.
OVERFLOW OF ROTL BUFFER	Disc file capacity has been exceeded. All data prepared up to the point of the diagnostic is valid and may be used for testing. The program terminates and returns to the Monitor Program.	No additional data may be prepared for the current test run. The next time data is prepared for testing, the new mode of test data preparation must be utilized to reassign the data prepared for each port.
OVERFLOW OF TEST GROUP TABLE		
TRUNK TABLE OVERFLOW		
INVALID TRUNK IMPEDANCE FOR: *XXXXXXXXXXX*	For an expanded ROTL an impedance value other than 6 or 9 has been encountered for the trunk group terminating at *XXXXXXXXXXX*.	The program inserts a default impedance of 900 ohms and continues. At the next update, the correct value of impedance should be inserted in the TMF.

Note: The *X*s represent the 11-character office ID.

Tables A and B

TABLE C

ROUTINE TESTING INITIALIZATION DIALOGUE

PROGRAM MESSAGE	OPERATOR REPLY	COMMENTS
1. THE CAROT TEST PROGRAM IS RUNNING ROUTINE OR DEMAND TEST? (TYPE R OR D):	R ⓒⓡ ⓛⓕ	This message is printed on the TTY in response to the operator's typing "TEST" while the Monitor Program is running. This message is printed out after the Test Program has been loaded and is the beginning of the initialization dialogue. To operate in the routine test mode, the operator types "R" in reply to the program message. Carriage return ⓒⓡ and line feed ⓛⓕ are operator actions for completing the reply.
2. THE FOLLOWING PORTS ARE AVAILABLE Ø1 Ø2 Ø3 Ø5 Ø7		This message indicates the number of ports that have been prepared with testing data. In this case there were five ports prepared, and ports 4 and 6 were not prepared.
3. ARE ALL AVAILABLE PORTS ON?	YES or NO ⓒⓡⓛⓕ	"PORTS ON?" refers to those ports that have been prepared for testing *and are operable.* (a) If the reply is "YES," the program advances to message 5. (b) If the reply is "NO," the program requests, by port number, the status of each port in the format shown in message 4.
4. PORT XX: ON OR OFF PORT Ø1: PORT Ø2: PORT: (Last)	 ON or OFF ⓒⓡ ⓛⓕ ON or OFF ⓒⓡⓛⓕ ON or OFF ⓒⓡ ⓛⓕ	
5. START OF NEW MANAGEMENT SUMMARY INTERVAL?	YES or NO ⓒⓡⓛⓕ	Messages 5 and 6 are questions that must be answered because the CAROT Results Analysis Program, which is automatically run at the termination of routine testing, needs this information. A detailed explanation of the implications of the answers to these questions can be found in Section 010-410-315. (a) If question 6 is answered "YES," the program advances to 7. (b) If question 6 is answered "NO," the program advances to 8.
6. ARE TONIGHT'S TRUNKS TO BE INDEXED?	YES or NO ⓒⓡⓛⓕ	
7. START OF NEW INDEX INTERVAL?	YES or NO ⓒⓡⓛⓕ	
8. Q2/H&D PRINTOUT OFF?	YES or NO ⓒⓡⓛⓕ	If this question is answered "YES," any Q2s or H&Ds which occur during the routine testing will *not* be printed on the TTY.

Note: See note at end of table.

TABLE C

ROUTINE TESTING INITIALIZATION DIALOGUE (Cont)

PROGRAM MESSAGE	OPERATOR REPLY	COMMENTS
9. PUNCH OUTPUT?	YES or NO (CR)(LF)	If the reply is "YES," a paper tape copy of the demand test results will be provided. If the reply is "NO," only the TTY printout will be provided. Advance to message 11.
10. TURN ON THE HIGH SPEED PUNCH		This is an operator action that must be performed to obtain a printout of the Results Analysis Program. The operator should ascertain that the paper tape punch has a sufficient supply of paper tape.
11. DATE, TIME: 00/00/00 0000 DATE, TIME:	01/15/73 1400 (CR) (LF)	The current date is entered in the sequence of month, day, and year. The time entered is based on the 24-hour clock where: 2:00 a.m. = 0200 11:15 a.m. = 1115 1:00 p.m. = 1300 11:15 p.m. = 2315 *Note:* Make certain that this data is correct. An error in day, month, or year may result in no tests performed that evening and will go undetected until the operator returns the following morning.
12. START TESTING NOW?	YES or NO (CR) (LF)	This question allows the operator to defer testing until a later specified time. (a) If the operator types "YES," the program advances to 14. (b) If "NO" is typed, the program advances to 13.
13. START AT DATE, TIME:	01/15/73 2230 (CR) (LF)	The operator must enter the desired start time in the format shown in message 11. *Note:* Make certain that this data is correct. An error in day, month, or year may result in no tests performed that evening and will go undetected until the operator returns the following morning.
14. SYSTEM INPUT OK?	YES or NO (CR) (LF)	This question affords the operator the opportunity to check the accuracy of the responses made during the initial dialogue. If an error was made, the operator can type "NO" and the dialogue will be restarted. If "YES" is typed, one of two things will occur, depending upon whether testing is to start immediately or is to be delayed. (a) If "YES" is typed as a reply to this question and "YES" was typed in reply to 12, testing will commence and message 15 will be printed. (b) If "YES" Is typed as a reply to this question but "NO" was typed as a reply to 12, deferring testing to some later time, message 16 will be printed.

Note: See note at end of table.

TABLE C

ROUTINE TESTING INITIALIZATION DIALOGUE (Cont)

PROGRAM MESSAGE	OPERATOR REPLY	COMMENTS
15. TESTING HAS STARTED!!		The operator may now interact with the system via the TTY as explained in Part 3B (Real-Time Operator Interaction).
16. TESTING IS SCHEDULED FOR 0115732230		The date and time in this message correspond to the date and time entered in response to message 13. The system will now stay in a dormant state until the specified testing time, when testing will commence and message 17 will be printed. While the system is in this waiting state, the operator may interact via the TTY with the exceptions noted in Part 3B (Real-Time Operator Interaction).
17. TESTING HAS STARTED!!		Testing has started after the delay specified in response to message 13.

Note: If an error is detected in typing a reply (before the Ⓒ𝐑 and Ⓛ𝐅), it may be corrected by pressing the RUBOUT key, following with a Ⓒ𝐑 Ⓛ𝐅 , and then entering the correct reply.

TABLE D

DEMAND TESTING INITIALIZATION DIALOGUE

PROGRAM MESSAGE	OPERATOR REPLY	COMMENTS
1. THE CAROT TEST PROGRAM IS RUNNING ROUTINE OR DEMAND TEST? (TYPE R OR D)	D ⒸⓇ ⒸⒻ	This message is printed on the TTY in response to the operator's typing "TEST" while the Monitor Program is running. This message is printed out after the Test Program has been loaded and is the beginning of the initialization dialogue.
		To operate in a demand test mode, the operator types "D" in reply to the program message.
		Carriage return ⒸⓇ and line feed ⒸⒻ are operator actions for completing the reply.
2. PUNCH OUTPUT?	YES or NO ⒸⓇ ⒸⒻ	If the reply is "YES", a paper tape copy of the demand test results will be provided.
		In the reply is "NO", only the TTY printout will be provided. Advance to message 4.
3. TURN ON THE HIGH SPEED PUNCH		This is an operator action that must be performed to obtain a printout of the results of the demand test. The operator should ascertain that the paper tape punch has a sufficient supply of paper tape.
4. DATE, TIME: 00/00/00 0000 DATE, TIME:	01/15/73 2230 ⒸⓇ ⒸⒻ	The date entered is in the sequence of month, day, and year. The time entered is based on the 24-hour clock where: 2:00 a.m. = 0200 11:15 a.m. = 1115 1:00 p.m. = 1300 11:15 p.m. = 2315
5. SYSTEM INPUT OK?	YES or NO	If the operator reply is "YES," the program goes into a demand request mode by requesting ROTL ID, etc, as explained in Part 3B (Real-Time Operator Interaction).
		If an error was made with the system input, the operator can type "NO" and the dialogue will be restarted.

Note: Once the program has been initialized in a demand test mode, it will stay in a demand mode until reloaded and reinitialized.

TABLE E

DIAGNOSTIC MESSAGES ENCOUNTERED DURING INITIALIZATION OF CAROT TEST PROGRAM

PROGRAM MESSAGE	OPERATOR REPLY	COMMENTS
1. ILLEGAL REQUEST *Example:* START TESTING NOW? ILLEGAL REQUEST START TESTING NOW?	 NG	This message is typed by the program when the operator has typed a reply that cannot be identified by the program as a valid operator reply. If the program receives an operator reply that it cannot act upon, the "ILLEGAL REQUEST" message will be printed by the program and the previous question will be asked as shown in the associated example. The operator can type in the correct request. "NG" is an illegal request. The program recognizes "NG" as an illegal request and repeats the previous question.
2. DISC NOT AVAILABLE		This message is printed when the disc is malfunctioning. The Monitor Program is automatically recalled after this message is printed.
3. DISC IS NOT READY STATE REQUEST: (STOP, BEGIN):	STOP or BEGIN	This message is printed by the program if the disc is not ready to accept commands. The disc may not be ready due to inadequate time allowed to reach operating speed. If the disc has been on for less than 30 seconds, the operator should wait for the required interval and then type "BEGIN." If this message is received after the elapse of the 30-second interval, the operator should type "STOP" and the disc diagnostic should be run.
4. NO PORTS ARE AVAILABLE		This message is printed out when the operator has erroneously specified a port (or ports) for which no test file was prepared. Control is automatically transferred back to the Monitor Program. Test files should be prepared on disc using the CAROT Test Data Preparation Program.

TABLE F

CAROT TEST PROGRAM REQUEST CODES

OPERATOR REQUESTS	MEANING
GO	Continue with previous operation.
ANALYSIS	Load and execute CAROT Results Analysis Program.
STOP	Return to Monitor Program.
DEMAND	Demand test request.
XXON01	Turn port XX on. Start at beginning of prepared test data for this port.
00ON01	Turn all ports on. Start at beginning of prepared test data for this port.
XXON02	Turn port XX on. Start at current trunk.
00ON02	Turn all ports on. Start at current trunks.
XXON03	Turn port XX on. Start at beginning of current ROTL office.
XXON04	Turn port XX on. Start at beginning of next ROTL office.
XXOF01	Turn port XX off.
00OF01	Turn all ports off.
XXPO01	Turn on real-time printout on port XX.
XXPO02	Turn off real-time printout on port XX.
XXPO03	Turn on Q2/H&D printout on port XX.
XXPO04	Turn off Q2/H&D printout on port XX.
XXPO05	Print status of port XX (ON or OFF).
00PO05	Print CAROT System status.
00PN01	Disable punch tape output during demand test request.
00PN02	Enable program to provide punch tape output on high-speed punch during demand test request.
TTY MESSAGES	**MEANING**
IL REQ	Illegal request. Determine proper request and try again.
OPDONE	Operation done.
TIMOUT	30-second timeout.
NO REQ	Request ignored or aborted.

TABLE G

DIAGNOSTIC MESSAGES FOR DEMAND TESTS

MESSAGE	MEANING
ROTL NOT AVAILABLE:	Requested ROTL was not found among those prepared. Disc must be reprepared, or error in typing.
DISC FORMAT ERROR:	Error in format in ROTL office data block. Disc must be reprepared.
DISC TRANS. ERROR:	Hardware error in disc transmission. Attempt demand request again one time and then run diagnostic for disc if another failure occurs.
XXDMOF	Demand test completed.
XXDMRO	Requested ROTL office not found in disc file. Error in typing or disc must be reprepared.
XXDMTK	Requested trunk group or facility not found in disc file. Error in typing or disc must be reprepared.
XXPOF	Power turned off on high-speed punch. Turn on punch.
XXPNP	Low paper supply on punch. Replenish paper supply.
XXDMER	Demand test software error. Attempt demand test again. If this error reoccurs, perform diagnostic test for processor.

Note 1: Any of the above diagnostic messages will cause the demand test to be terminated.

Note 2: XX stands for the number of the port being tested.

Tables F and G

TABLE H

CODED REAL-TIME DIAGNOSTIC MESSAGES

MESSAGE	MEANING	TEST PROGRAM DISPOSITION	FOLLOW-UP CORRECTIVE ACTION
XXDT∅1	Disc transmission error (hardware).	Advance to next higher level test block.*	Occasional disc failures can occur. If a significant number of disc diagnostics are encountered during a night's run, however, the disc diagnostic test should be run.
XXDF∅1	Disc format error in ROTL office.	Test pass is terminated.	
XXDF∅2	Disc format error in ROTL office.	Testing is terminated in current ROTL office.	
XXDF∅3	Disc format error in test group.	Testing is terminated in current ROTL office.	
XXDF∅4	Disc format error in test group.	Testing is terminated in current test group.	
XXDF∅5	Disc format error in trunk.	Advance to next trunk.	
XXDF∅6	Disc format error in trunk.	Terminate the current test pass.	
XXDT∅2	Disc failed to write.	No action taken.	
XXRCLF†	Recycle failure.	ROTL is reaccessed up to eight times.	If the ROTL final disposition is BDRO, investigate ROTL and ROTL tone detector.
XXRLFL†	ROTL failed to recycle on 2/6 release command.	Attempt to recycle ROTL with 1300-Hz recycle command.	If problem persists, investigate ROTL responder operation on release command.
XXMP∅1	No dial tone received within 1 minute of requesting service.	Keep looking for dial tone (remain off-hook); start new 1-minute timing interval.	Check with CAROT local serving office for possible equipment failure or overload.
XXMP∅2	Received tone other than dial tone when requesting service.	Port placed in on-hook for 1 minute. Then dial tone attempt is repeated.	
XXMP∅5	Program error — ROTL type is undefined.	All or remaining trunks in ROTL office not tested. Testing resumes at next ROTL office data record.	Check input data for errors.
XXOTP(BELL)	Program error in outpulser.	Port turned off.	
XXR/O(BELL)	Data receiver or MF oscillator failure.	Port turned off.	Use hardware diagnostic programs to isolate trouble.
XXDMOF	Demand tests completed.	Port turned off.	None.
XXDMRO	Requested ROTL office not on disc files.	Port turned off.	Check demand-request input data for errors.
XXDMTK	Requested trunk group or facility not on disc files.	Port turned off.	
XXPOF(BELL)	High-speed punch turned off.	Port turned off.	Turn on power to punch. Repeat demand request.
XXPNP	High-speed punch paper supply is low.	Port turned off.	Replace paper tape supply. Repeat demand request.
XXRT∅Y	Test/retest sequence 0Y is completed (Y = 1 through 4).	Terminate testing (Y = 4), or start next retest sequence (Y = 1 through 3).	None

Note: XX represents the number of the port affected.

* If error occurs in reading trunk record, advance to next test group.
  If error occurs in reading test group record, advance to next ROTL.
  If error occurs in reading ROTL record, terminate test pass.

◗ † Trunk identification, dispositions, and date and time are outputted along with diagnostic message. ◖