

CENTRALIZED AUTOMATIC REPORTING ON TRUNKS (CAROT)
CAROT 2
DATA BASE DESCRIPTION AND REQUIREMENTS
(GENERIC 2)

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7. DATA BASE ADMINISTRATION	40	1.01 The purpose of this section is fourfold:	
A. Data Base Gathering Methods	40	(a) To describe the overall data base structure for the CAROT 2 controller	
General	40	(b) To describe those aspects of the data base structure that relate to routine and demand trunk testing, circuit order testing, and test frame tape preparation procedures	
Responsibilities of ROTL Offices and CAROT Centers	41	(c) To describe the different methods available for inputting and updating data base information via mechanized and manual systems	
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for inputting data related to the equipment, administrative, and trunk and facility files.

1.02 This section is being reissued to add information for updating the COTC data base and to make general corrections. Note that this section (190-102-203) replaces Section 190-102-310.

1.03 Parts 2 through 4 describe the data base structure, content, and input transactions. Parts 5 through 7 contain information pertaining to data base preparation, work-sheet examples, administration, and data-gathering methods. Part 8 describes the completion notice file portion of the data base as it relates to circuit order activities. Part 9 contains a list of references applicable to CAROT 2. Part 10 is a glossary of terms, acronyms, and abbreviations that appear in this document and in other documents related to CAROT 2 and associated systems. Appendix 1 is provided because priming information for the expanded No. 5 crossbar remote office test line (ROTL) is more complex than for the other ROTLs.

1.04 When upgrading a CAROT 1 controller to a CAROT 2 controller, special programs are provided to convert the CAROT 1 Trunk Maintenance File (TMF) cassettes to the CAROT 2 update format. However, other portions of the data base, including equipment files (ROTL, responder, and test line records) and administrative files (control office records), must be manually converted to CAROT 2 format and updated as described in Part 5 of this section.

1.05 CAROT 2 is also used to test trunks for No. 4 Electronic Switching System (ESS) offices. Testing information from the No. 4 ESS is channeled through the Circuit Maintenance System (CMS) 1A, B to CAROT 2 via a 1200-baud dedicated data link. This interface provides the following system functions:

- Reporting of CAROT 2 routine test results to CMS 1A, B
- Demanding test usage of CAROT 2 by CMS 1A, B
- Updating CAROT 2 data base by CMS 1A, B.

Further details concerning the management and updating of the CAROT 2 data base for CMS 1A, B

application are given in the applicable portions of this practice.

1.06 A single CAROT 2 System can be used to perform tests for CMS 1A, B and non-CMS offices jointly. Updates for non-CMS trunks are made in the standard manner, while CMS updates are handled as prescribed for CMS.

2. DATA BASE DESCRIPTION

A. General

2.01 The CAROT 2 data base is a collection of data about the equipment used in testing trunks, the assigned control offices responsible for the maintenance of trunks, and the specified trunks to be tested.

2.02 Data stored in the CAROT 2 controller is compiled into records, which in turn are grouped into files. For purposes of this section, a record is defined as a collection of data items listed under a given name, and a file is defined as a collection of records with the same name (ie, responder records as a group can be identified as a responder file).

2.03 When stored, data records in different files are linked together into data networks, each network containing all of the data necessary to uniquely identify a specific trunk or trunk group to be tested.

B. Data Base Functions

Individual File and Record Functions

2.04 In a network, data records are arranged in specified sequences based on certain interdependent features within the network. Thus, records are considered as having hierarchical dependencies. To illustrate the concept of a structure with hierarchical dependencies, consider the main construction phases of erecting a building. For example, the foundation must be put down before the walls, the walls must be erected before the roof, etc; the soundness of the structure depends on this logical sequence of construction phases:

- (1) Foundation — Base
- (2) Walls — Support

(3) Roof — Dependent.

The same logical sequence applies to building a data base. (See Fig. 1.)

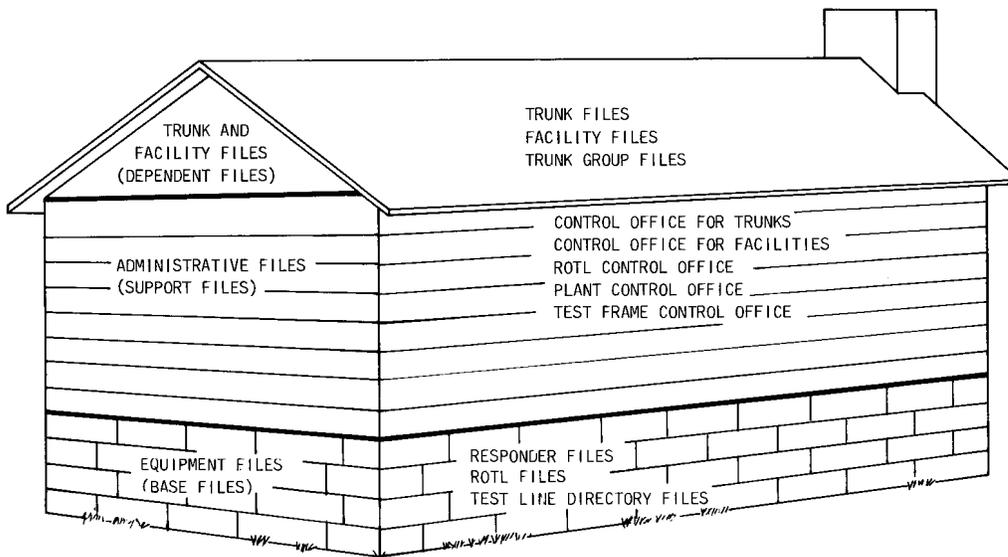


Fig. 1—Representative Construction of CAROT 2 Data Base

2.05 In this section, those data file records that function as a foundation are considered as **base** file records; those that function as walls are considered as **support** file records; and those that function as a roof are considered as **dependent** file records. Based on record function, CAROT 2 data base files are divided into three corresponding categories: (1) equipment (base), (2) administrative (support), and (3) trunk and facility (dependent).

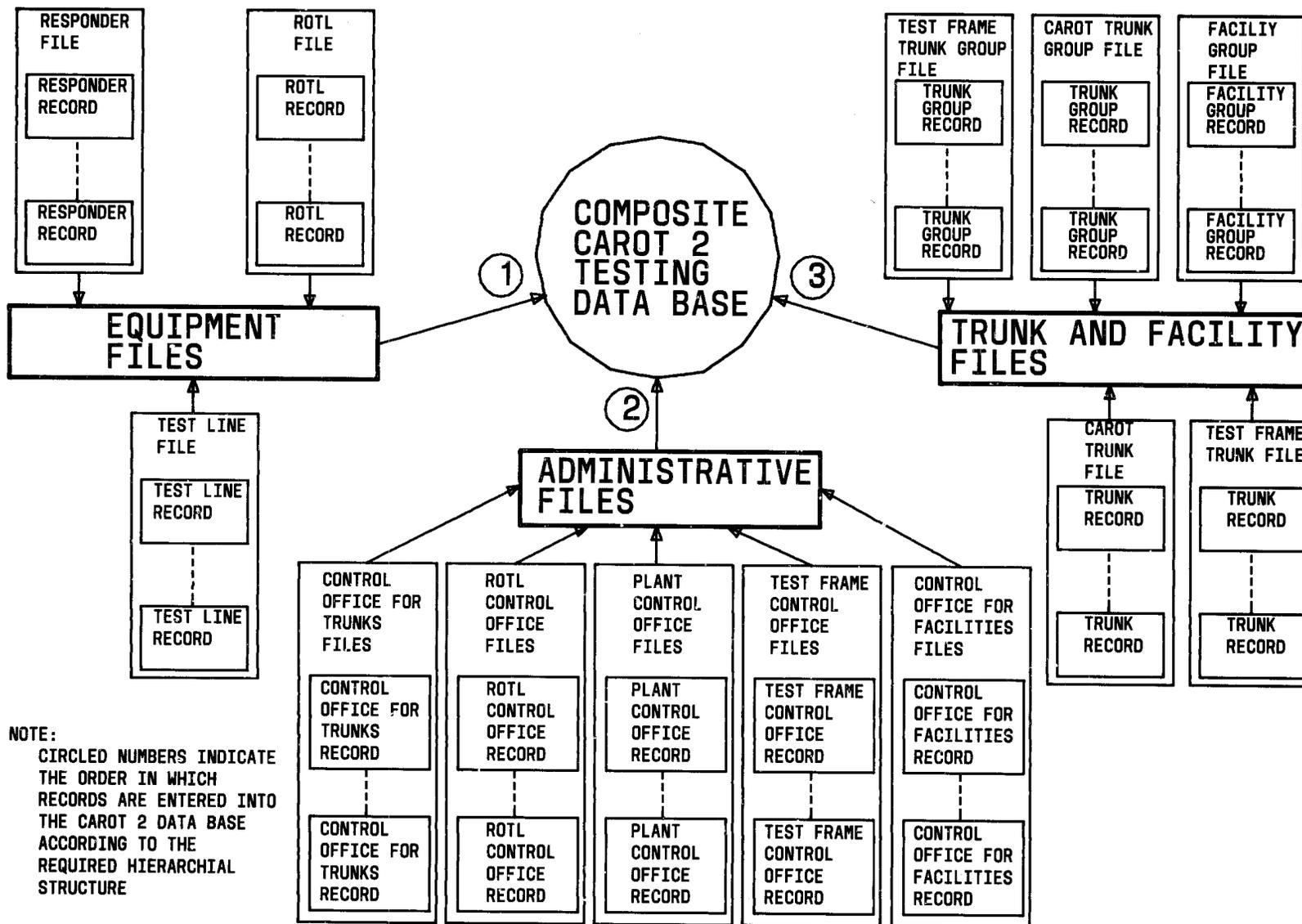
(1) **Equipment Files:** These are the **base** files containing data about the CAROT 2 System equipment, such as 105 test lines, ROTLs, and responders.

(2) **Administrative Files:** These are the **support** files containing data related to

the supervision, control, and maintenance of trunk, facility, and ROTL equipment.

(3) **Trunk and Facility Files:** These are the **dependent** files containing (a) listings of trunks according to trunk groups and associated facilities and (b) facility listings of all the trunks assigned to a specific facility. The facility of interest is the first facility that interfaces the trunk upon leaving the originating office.

2.06 A breakdown of these three data categories as related to specific data records is shown in Fig. 2.



NOTE:
CIRCLED NUMBERS INDICATE THE ORDER IN WHICH RECORDS ARE ENTERED INTO THE CAROT 2 DATA BASE ACCORDING TO THE REQUIRED HIERARCHIAL STRUCTURE

Fig. 2—CAROT 2 Testing Data Base Hierarchical Structure

Overall System Function

2.07 In addition to being categorized according to *record* function, the overall data base is divided according to *system* function. Again, there are three functional areas. Briefly, the structure is outlined as follows:

(1) Routine and Demand Testing (RDT):

This system function is directly concerned with making operational and transmission tests on trunks. The data records involved pertain to associated test equipment such as ROTLs, responders, and test lines used when testing individual trunks; administrative data specifying the responsible control offices for the trunks and related facilities under test; and trunk and facility data identifying those trunks under test. The RDT function includes recording and compiling test results for distribution to the responsible central offices.

(2) Test Frame Tape Preparation (TFTP):

This function uses information stored in the trunk-testing data file to generate punched paper tapes for use by Automatic Transmission Measuring System (ATMS) test frames to test trunks.

(3) Circuit Order Testing and Completion (COTC):

This function provides for the storage of circuit order completion data until final trunk acceptance is reported to the responsible control office.

A more detailed description is given in Part 3.

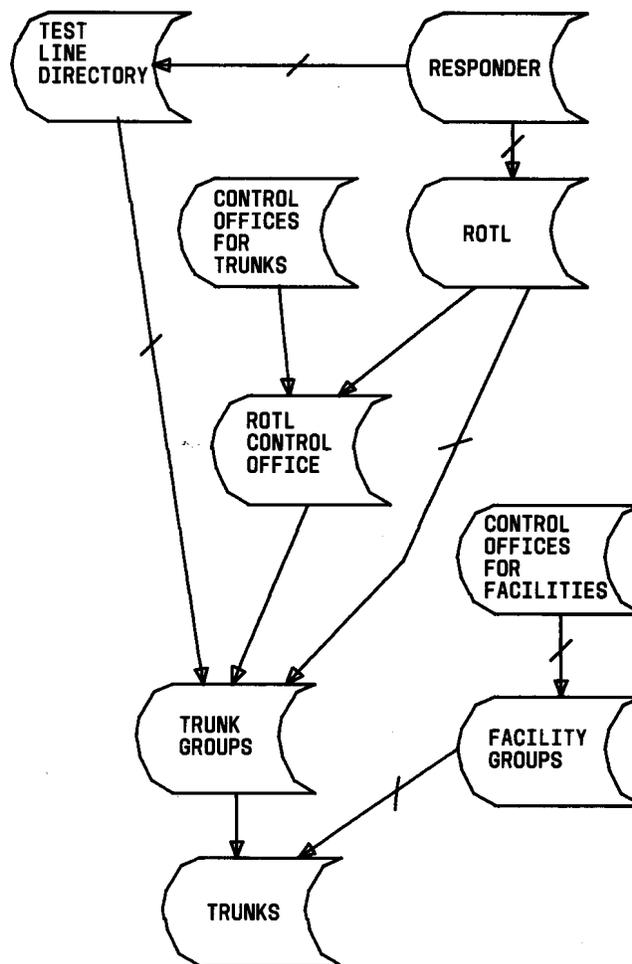
3. DATA BASE ORGANIZATION

3.01 Part 3 describes how the CAROT 2 data base is organized into data networks to perform the normal system functions related to routine and demand trunk tests, test frame tape preparation procedures, and circuit order completion reporting tasks.

A. Routine and Demand Test (RDT)

3.02 The network structure for the RDT data base is composed of nine files as shown in Fig. 3. Each file contains specific information about a set of objects. For instance, the ROTL control office file lists the ROTLs that are used by each control office to test its controlled trunks. The interdependence of these data files is governed by

their function (base, support, or dependent) as referenced in Part 2. Therefore, a responder file is cross-referenced to the test line and ROTL files with which it is associated.



LEGEND: → ARROW POINTS TO DEPENDENT FILE.
 / SLASH INDICATES DELETION OF ENTRY IN BASE FILE IS BLOCKED IF REFERENCES TO DEPENDENT FILE EXIST. OTHERWISE, A DELETION IN A BASE FILE DELETES DATA IN DEPENDENT FILES

Fig. 3—CAROT 2 Routine and Demand Test Data Base

3.03 The logic flow depicted in Fig. 3 is indicated by the arrows pointing towards logic symbols representing the various data files. The arrows are directed towards *dependent* files. Thus, as shown in Fig. 3, trunk group data cannot be

manipulated unless a test line, control office, and ROTL related to that trunk have been previously established in the data files.

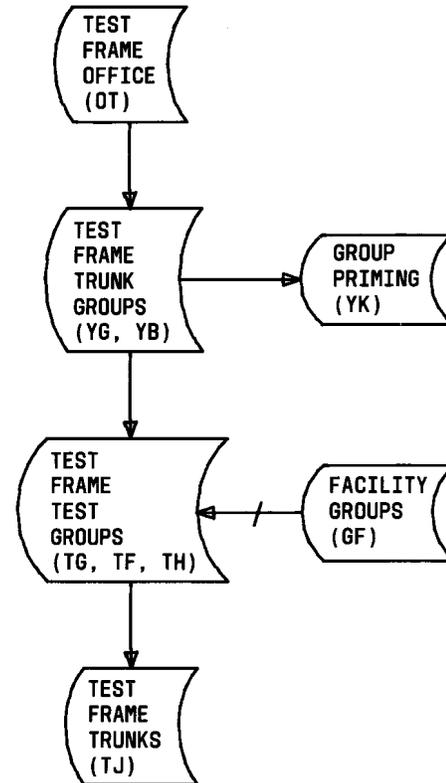
Note: Although the pictorial representation of the data files illustrated in Fig. 1 appears to be in direct conflict with that of the logic drawing of Fig. 3—ie, **base** (equipment) files are located at the **top** of Fig. 3 and **dependent** (trunk and facility) files are at the **bottom**—the interrelationships depicted in both figures are valid.

3.04 An entry in a base file cannot be deleted in most cases without first deleting related data from the associated dependent files. For example, an attempt to delete data referring to a specific responder that also is related to certain test line and ROTL data entries will cause an error condition and will not be accomplished, since the responder file acts as a base file and the test line and ROTL files act as dependent files. The correct procedure is to delete the test line and ROTL entries first and then the responder entry.

3.05 Where deletions to base files are permitted, they result in deletion of all associated dependent files. For example, deleting a control office for trunks will cause the automatic deletion of all trunk groups and trunks controlled by that office.

B. Test Frame Tape Preparation (TFTP)

3.06 Figure 4 shows the network structure of the TFTP data base. It is similar to the trunk part of the RDT data base except that it is organized around test frame offices rather than control offices and ROTLs. Test line information is carried as part of the group priming information depending on the type of test frame. Note that no equipment records (ROTL, responder, or test line) need to be input for the TFTP data base.

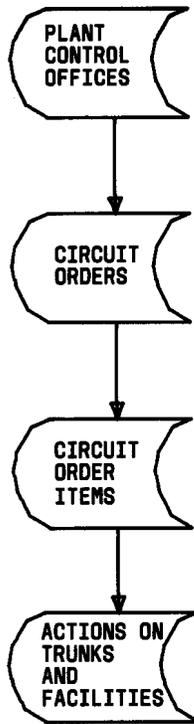


LEGEND: → ARROW POINTS TO DEPENDENT FILE.
 / SLASH INDICATES DELETION OF ENTRY IN BASE FILE IS BLOCKED IF REFERENCES TO DEPENDENT FILE EXIST. OTHERWISE, A DELETION IN A BASE FILE DELETES DATA IN DEPENDENT FILES. LETTERS IN PARENTHESES () ARE RECORD CODES

Fig. 4—CAROT 2 Test Frame Tape Preparation

C. Circuit Order Testing and Completion (COTC)

3.07 The network structure of this data base is shown in Fig. 5. This data base contains administrative information on each circuit order, information necessary to make a test, and information required for updating the other CAROT data bases once a circuit order has been completed. While the structure of this data base appears simple, it is deceptively so, since the actions on trunk and facility files involve complex, multirecord entries that must be linked with the test line and ROTL files in “real time” before the test can be made.



LEGEND: → ARROW POINTS TO DEPENDENT FILE

Fig. 5—CAROT 2 Circuit Order Testing and Completion Data Base

4. DATA BASE RECORD DEFINITIONS AND INPUT TRANSACTIONS ON WORK SHEETS

4.01 The process of updating the data base for equipment, administrative, and trunk and facility files involves the interaction of many data records. Part 4 describes how to use the work sheets to initialize and update the data base. Part 4A contains general information and instructions about action codes for adding, deleting, and changing record data. Parts 4B, 4C, 4D, and 4E cover in detail how to enter the various records on work sheets for the equipment, administrative, and trunk and facility files in the required sequence. All CAROT 2 work sheets are shown and the contents of all individual record fields are fully explained. Tables are included in association with the work sheets to help define the codes needed to complete the records. Part 4F covers the use of change transactions.

A. General

Update Transactions

4.02 Within the update file certain record sequences have been designated for performing update actions to the data base. Such a sequence will be termed a transaction. When inputting update data, the records pertaining to the transaction must be entered in the assigned order of occurrence in the data base structure. Therefore, when performing an update action (addition, deletion, or change), the transactions involving the affected records must be entered in the logical sequence specified.

4.03 Required data record field designations, definitions, and logical data entry sequences for update (and initialization) actions occur in the order in which the following referenced tables are listed:

TITLE	TABLE REF
Records Required for Actions on Responders, ROTLs, and Test Lines	C
Records Required for Actions on Control and Test Frame Offices	I
Records Required for Actions on Trunk Groups and/or Test Frame Primings	O
Records Required for Actions on Facility Groups	U
Records Required for Actions on Trunks	W
Records Required for Actions on the CAROT Circuit Order Data Base	II

Direct Access to Files

4.04 In addition to the cross-references between files, illustrated in Fig. 3 through 5, data base files have been assigned direct access "keys" that are used by the update program when update procedures are being performed. The key to a given record uniquely identifies that record and

differentiates it from other records of the same type.

4.05 Table A lists the data base files, grouped according to major categories (equipment, administrative, and trunk and facility) and cross-referenced to specified entry keys.

Action Codes

4.06 As shown on the CAROT 2 work sheets, data base entries are divided into separate data records. Before data can be entered in a record, the entry must be preceded by a slash (/) followed by a 2-letter action code. The action code indicates the type of transaction being made to the data record.

4.07 A list of action codes, their respective definitions, and assigned character positions is shown in Table B. An action code may apply to several succeeding identical transactions and need not be reentered with each transaction in this case. However, when a different transaction is initiated in a series of different transactions, the applicable action code must be entered before the associated data.

B. CMS 1A, B Input Data Transactions

4.08 When building the data base to test trunks originating from a No. 4 ESS office, equipment and administrative data records are inputted in the same manner as for a conventional (non-CMS) CAROT 2 System. However, trunk and facility records are inputted automatically via the CMS/CAROT 2 connecting data link. Trunk and facility records can be sent via the data link at any time during the day; however, these records are stored on disc and are added to the data base automatically during the update process.

4.09 When preparing data records for the No. 4 ESS office, certain unique conditions exist that must be considered in order to properly establish the CAROT 2 data base for CMS 1A, B applications. Pertinent details regarding equipment data base transactions for No. 4 ESS offices (ie, CMS 1A, B applications) are given in paragraphs 4.10 through 4.16. Details for administrative data base transactions are given in paragraphs 4.17 through 4.22.

C. Equipment Data Base Transactions

Transactions on Responders, ROTLs, and Test Lines

4.10 Equipment data base transactions must always be performed to establish a CAROT 2 data base. These transactions are necessary when initializing a conventional CAROT 2 System or a CAROT 1-to-CAROT 2 converted system, as well as a CAROT 2 System associated with CMS 1A, B.

4.11 Table C lists the data record field designations and functions and specifies the order of data entry sequences required for performing transactions on ATMS responders, ROTLs, and test lines. The associated work sheet (E-6725) for compiling related data base information is shown in Fig. 6.

4.12 Format information for completing each of the applicable data records appearing on the work sheet is detailed in each of the following referenced tables:

RECORD CODE(S)	RECORD SUBJECT/DEFINITION	TABLE REF
AD, DE, or CH	Action Code	B
RE	ATMS Responder	D
RO	ROTL	E
OD	Test Line Office	F
ID	Test Line Number	G
ED	Test Line Equipment	H

4.13 There are a maximum of four independent types of transactions that may be used when entering equipment data for a new office. They are defined as follows:

- (1) Each responder in the office is entered using an RE record.
- (2) Each ROTL in the office is entered using an RO record. The responder identification item in the RO record is the near-end responder directly associated with the ROTL, and this must have been previously entered using an RE record as stated in (1).

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- (3) If an office is to be used as a test line office, it is established in the test line file using an OD record.
- (4) Each test line in the test line office is entered via a separate ID-ED record pair (see note). For more information on far-end test line numbers stored in the ID record, refer to paragraphs 4.53 through 4.59.

The applications for these transactions are described as follows:

- If the office of concern is a ROTL but not a test line office, transactions (1) and (2) are applicable.
- If the office of concern is a ROTL and a test line office, transactions (1), (2), (3), and (4) are applicable.
- If the office is a test line office with a responder and 105 test line, transactions (1), (3), and (4) are applicable.
- If the office is a test line office but has no responder, transactions (3) and (4) are applicable.

Note: A "record pair" is a term used to designate any two records that must always be entered as a pair, ie, one cannot be entered without the other. ID and ED are a record pair, as are YG and YB.

4.14 CMS 1A, B Applications Only: When preparing ROTL and responder records for CMS 1A, B applications, certain conditions exist that must be considered in order to properly establish the CAROT 2 data base.

- A No. 4 ESS office may contain several ROTLs, each of which can access any outgoing trunk in the office.
- Each ROTL has two "heads", which may be accessed simultaneously.
- Each ROTL is connected directly to its own responder.
- The No. 4 ESS also has several responders dedicated to 105-type test lines. These

responders are not usable by ROTLs, but each 105 test line can use any one of them.

4.15 The equipment items referenced in paragraph 4.14 should be entered in the CAROT 2 data base as follows:

- Enter one responder (RE) record containing data on one of the ROTL responders. (This is the only RE record to be entered for all ROTL responders in the office.)
- Enter one ROTL (RO) record containing data on one of the ROTLs. The responder identification item entered in this record must contain the responder identification data entered above.

4.16 If the No. 4 ESS office is to be used as a far-end office, the following additional transactions apply:

- Enter an RE record containing data on one of the 105 test line responders.
- Enter one ID-ED record pair (see note in paragraph 4.13) for each 105 test line. Each ED record should contain the identification of the 105 test line responder entered above.
- Enter non-105 test lines associated with the No. 4 ESS office in the standard manner, ie, the same as for 105-type test lines.

D. Administrative Data Base Transactions

Control Office Identification

4.17 Control office identification is the 11-character common language location identification code representing those offices having administrative responsibility for maintenance of specified trunks, facilities, circuit order plant, ROTLs, and far-end test lines. With CAROT 2, data for control offices is contained in administrative data base files, and procedures for entering data pertaining to control offices and their respective equipment areas are referred to as **administrative data base transactions**.

4.18 Administrative data base transactions must always be performed in establishing a CAROT 2 data base, whether for CMS-associated

systems, conventional CAROT 2 Systems, or CAROT 1-to-CAROT 2 conversions.

4.19 CAROT 2 work sheets for compiling control office data are shown in the figures listed:

WORK SHEET NO.	TITLE	FIG. NO.
E6726	CAROT 2 Control Office for Trunks	7
E6727	CAROT 2 Control Office for Facilities	8
E6728	CAROT 2 Circuit Order Plant Control Office	9
E6729	CAROT 2 Test Frame Office	10

4.20 Table I lists the data record designations and functions and specifies the order of data entry sequences required for transactions on the following control offices:

- Control Offices for Trunks
- ROTL Control Office for Trunk File Entries
- Control Office for Facilities
- Circuit Order Plant Control Office
- Test Frame Control Office.

4.21 Format information for completing each of the applicable data records appearing on the work sheets is detailed in each of the following referenced tables:

RECORD CODE(S)	RECORD SUBJECT/DEFINITION	TABLE REF
AD, DE, or CH	Action Code	B
CT	Control Office for Trunks	J
RC	ROTL Control Office for Trunks	K
CF	Control Office for Facilities	L
CP	Plant Control Office	M
OT	Test Frame Control Office	N

4.22 **CMS 1A, B Applications Only:** When preparing the CAROT 2 data base for CMS 1A, B applications, the following administrative data base transactions must be performed:

- A control office for trunks (CT) record should be entered for each 51A test position in the No. 4 ESS office. (Each test position serves as a control office.) The control office identification must correspond exactly with the naming convention established in the CMS data base. In cases where several CMS 1B locations are served by one CAROT 2, the following information is used by CC2 to determine over which data link to send routine test results back to a CMS 1B. The parameters CMS 1, CMS 2, CMS 6 contain the physical I/O slot numbers for the CMS data links. These may be accessed using the SET and SHOW commands on the console (see Section 190-102-201, CAROT 2 Controller Administrator). In each CT record associated with a CMS, information must be given on the CMS logical slot number. (The logical slot number is a value from 1 to 6, corresponding to the parameters CMS 1 to CMS 6.) Thus, CC2 will read the CT record to obtain the logical slot number, such as 1, and then use the value of the proper parameter, such as CMS 1, as the physical slot number of the data link. If character 16 of the CT record is not a zero, no routine test results will be sent over any CMS data link. If

character 16 is a zero, CC2 looks at character 17 to determine over which data link to send the results. Therefore, character 17 must be set to one of the following values:

Blank

or 0—No routine test results are sent over any CMS data link.

1—Routine test results will be sent over the first CMS data link (ie, the I/O slot number given by the parameter CMS 1).

2—Routine test results will be sent over the second CMS data link (CMS 2).

3—Same for CMS 3

4—Same for CMS 4

5—Same for CMS 5

6—Same for CMS 6

- A control office for facilities (CF) record must also be entered for each 51A test position in the No. 4 ESS office.
- In CMS 1B operations where more than one No. 4 ESS is tested by CAROT, care must be taken to insure that different control office names (both facility and trunk control offices) are assigned for each No. 4 ESS, ie, control offices in one No. 4 ESS may be named 11, 12, and 13. However, in any other No. 4 ESS tested by the same CAROT, these same names must not be used.
- A ROTL control office for trunks (RC) record must be entered for each 51A test position employed. Each of these RC records will have the same ROTL identification but a different control office for trunks identification (one for each of the CT records).

4.23 Routine and Demand Test Data Base:

The control records for the RDT data base are the CT, RC, and CF records. The first two records are included on the Control Office for Trunks Work Sheet (Fig. 7), and the third record is on the Control Office for Facilities Work Sheet (Fig. 8).

4.24 The "start summary" date entries for the CT record (Fig. 7) will be assigned in accordance with local policy. The "start testing" date entries for the RC record should be selected to establish and maintain a balanced testing load for the designated intervals.

Note: If the CT and RC records are entered with the date entries blank, the start dates will default to the present date.

4.25 Circuit Order Testing and Completion

Date Base: The record for entering the COTC data base is the plant control office (CP) record. This record is included on the Circuit Order Plant Control Office Work Sheet (Fig. 9).

4.26 Test Frame Tape Preparation Data

Base: The control record for the TFTP data base is the test frame office (OT) record. This record is included on the Test Frame Office Work Sheet (Fig. 10).

Note: When entering test frame tape data into the test frame office (OT) record, tape-type data entries (character positions 24 through 38) will not be required until features utilizing these data are incorporated in the program. These characters should be left blank.

E. Trunk and Facility Data Base Transactions

General

4.27 Trunk and facility data base transactions involve entering trunk group, facility group, test parameter, and trunk priming (location address) information into the CAROT 2 data base records.

4.28 When originating the data base for a new conventional CAROT 2 System, the standard trunk and facility transactions are as described in paragraphs 4.31 through 4.82.

4.29 When converting a CAROT 1 System to a CAROT 2 System, a conversion program is employed to transfer trunk and facility data from the CAROT 1 TMF cassettes to 9-track magnetic tape in the CAROT 2 update format (see note). This data is then entered into the CAROT 2 data base using the standard update procedures, as are all future entries into the CAROT 2 data base. Records for trunk groups (YG and YB records), facility groups (GF records), and trunks (TG, TF,

TH, and TT records) that apply specifically to the CAROT 1 office need **not** be prepared and entered using work sheets and paper tape. Procedures for making this conversion are described in the Task Oriented Practice (TOP) for the CAROT 2 controller, TOP 190-102-300.

Note: The update magnetic tape produced by the conversion program cannot be used until after the equipment and administrative records have been entered in the standard manner.

4.30 For No. 4 ESS applications, all trunk and facility transactions are automatically entered into the CAROT 2 data base via the CMS/CAROT 2 data link. Therefore, records for trunk groups (YG and YB records), facility groups (GF records), and trunks (TG, TF, TH, and TT records) under CMS 1A, B control are **not** entered via the standard process using work sheets and paper tape or magnetic tape.

4.31 As shown in the data base hierarchy diagram (Fig. 3), trunk group records must be entered before any trunks can be entered. The trunk groups are entered by YG-YB record pairs. In addition, facility groups must be entered, via GF records, before any trunks assigned to these facilities can be entered. After the trunk groups and facility groups have been entered, trunks may be entered using sequences of TG, TF, TH or TI, and TT or TL records. Further information on these records is given in the following paragraphs.

4.32 Trunk Group Identification: Trunk group identification data is entered in the YG record on the Trunk Group and Test Frame Priming Work Sheet (Fig. 11) and in the TG record of the CAROT 2 Trunk File (Fig. 13) and Circuit Order (Fig. 20) Work Sheets. This represents the common language identification of trunk groups as defined in Section 795-400-100 (Common Language Circuit Identification Message Trunks). In the trunk group identification field, the name for the originating office (office A) usually appears before the name of the terminating office (office Z).

4.33 The entry in character position 45 of the YG and TG records is the CAROT directional testing code (A, B, Y, or Z). It is used to indicate two pieces of information: the number of directions (either one or two) in which CAROT should be able to seize and test the trunks in the group,

and the direction (A to Z or Z to A) in which the trunks should be routinely tested.

(a) If the code used indicates a 2-way trunk group, ie, character is B or Y, the Update program checks that a ROTL and a test line for each end of the trunk exist in the data base. If they do not exist, the record is rejected with an error message.

(b) If the code indicates a 1-way group (A or Z), the update program checks that a ROTL on the originating end and a test line on the terminating end exist in the data base. The originating end is defined by CAROT testing codes A and Z as office A or office Z, respectively. **Important:** Although a trunk group may in reality be a 2-way group, unless ROTLs exist at both ends of the trunk it must be entered in CAROT as a 1-way group in character position 45.

4.34 For trunk groups that will be tested in more than one mode, ie, in both directions of a 2-way group or in several trunk usage modes, the trunk group is entered only once using a YG-YB record pair. Trunks to be tested in the principal mode are entered by the TG, TF, TH, and TT record series. Trunks to be tested in alternate modes also must be entered by the TG, TF, TI, and TL record series. Be certain that the TG record contains the same exact data as its previously entered YG record. Further information on entering principal and alternate mode trunks is given in paragraphs 4.48 through 4.52.

4.35 Facility Group Identification: Facility group identification data is entered in the GF record on the CAROT 2 Facility Group Work Sheet (Fig. 12), the TF record on the Trunk File Work Sheet (Fig. 13), and the GF record on the Circuit Order Work Sheet (Fig. 20). To change the facility group identification, the GN record on the Facility Group and Circuit Order Work Sheets is used in conjunction with the GF record to enter a new facility group identification to replace the old facility group identification specified in the original GF record. This identification represents the first major specific facility nearest the originating office and the terminal locations for that facility as defined in Section 795-450-100 (Common Language Facility Identification). The near-end location is designated as terminal A while the far-end location is designated as terminal Z. Control office data

for facility groups is entered only on the Facility Group Work Sheet.

4.36 Test Parameters: Trunk testing parameters concerning the use and transmission characteristics of the trunks are entered in the TH or TI record of the CAROT 2 Trunk File Work Sheet (Fig. 13) and the Circuit Order Work Sheet (Fig. 20). Information pertaining to the testing parameters is obtained from the circuit layout record card and from Sections 660-402-300 (Loss Measurements) and 660-403-500 (Noise Measurements).

4.37 Trunk Priming Information: Trunk location address information for each trunk to be tested is specified in the TT or TL record on the Trunk File Work Sheet (Fig. 13) and the Circuit Order Work Sheet (Fig. 20). This data must be provided to the ROTL so that the designated trunk can be seized and tested by CAROT.

Transactions on Trunk Groups and/or Test Frame Primings

4.38 Table O lists the data record field designations and functions and specifies the order of data entry sequences required for performing transactions on trunk groups and/or test frame primings. The Trunk Group and Test Frame Priming Work Sheet (E6732) for compiling pertinent data base information is shown in Fig. 11.

4.39 Format information for completing each of the applicable data records appearing on the work sheet is detailed in each of the following referenced tables:

RECORD CODE(S)	RECORD SUBJECT/ DEFINITION	TABLE REF
AD, DE, or CH	Action Codes	B
YG	Initial Trunk Group Record Definition	P
YB	Control Office and ROTL Identification	Q
YK	No. 4 Crossbar (4XB) Automatic Outgoing Trunk Test Frame (AOTT) Priming	R
YK	Step-by-Step (SXS) AOTT Priming	S
YK	No. 5 Crossbar (5XB) Automatic Progressive Trunk Test Frame (APTT) Priming	T

4.40 RDT Data Base Transactions:

Information for RDT tests includes trunk group data and control office and ROTL names. This data is entered on the Trunk Group and Test Frame Priming Work Sheet (Fig. 11), in the YG and YB records, respectively. (The YK record is not involved in this application.)

- Addition, deletion, or change of trunk group information must take place independently of actions on trunks.
- Addition of a trunk for which no trunk group has been entered does *not* cause the automatic addition of the group; rather an error message will result. However, deletion of a trunk group will cause the deletion of the designated trunk group and all of its trunks.
- It is important to note that trunk group transactions are entered in the combination of YG-YB record pairs.
- When entries are being made in the control office and ROTL identification (YB) record, the office A and office Z entries, when left blank, default to the office A and office Z identifications appearing in the associated trunk group (YG) record. If the referenced ROTL office has more than one ROTL, the

full ROTL identification, including the count character, should be entered.

4.41 TFTP Data Base Transactions:

Information for the TFTP data base involving test frame priming for a trunk group is entered in the YK record on the Group and Test Frame Priming Work Sheet (Fig. 11). More than one YK record can be used. If test frame tests are performed from both ends of a trunk between No. 5 crossbar and step-by-step offices, both an APTT YK record and an AOTT YK record will be used. Character position 46 of the YG record is used to relate the YK records to the proper test frame offices just as character position 45 was used in the RDT data base.

- When test frame tape data is entered into the YB record, the control office character positions 4 through 14 must be left blank.

Transactions on Facility Groups

4.42 Table U lists the data record field designations and functions and specifies the order of data entry sequences required for performing transactions on facility groups. The Facility Group Work Sheet (E6733) for compiling pertinent data base information is shown in Fig. 12.

4.43 Format information for completing each of the applicable data records appearing on the work sheet is detailed in each of the following referenced tables:

RECORD CODE(S)	RECORD SUBJECT/ DEFINITION	TABLE REF
AD, DE, or CH	Action Codes	B
GF, GN	Facility Group Identification	V

4.44 If the name of a facility changes, as sometimes occurs due to carrier rearrangements, its name may be changed in the CAROT data base by a sequence of CH, GF, and GN records. This causes the entry under the old name to be deleted, a new entry to be made, and the cross-references to the old entry to be reestablished to the new entry. The control office name need not be entered on the GN record but must be on the GF record.

4.45 When transactions on trunks are entered via the TG, TF, TH or TI, and TT or TL record sequence (described in the next paragraphs), the facility specified in the TF record must have been previously entered as a GF record.

Transactions on Trunks

4.46 Table W lists the data record field designations and functions and specifies the order of data entry sequences required for performing transactions on trunks. The Trunk File Work Sheet (E6731) used for compiling pertinent data base information is shown in Fig. 13.

4.47 Format information for completing each of the applicable data records appearing on the work sheet is detailed in each of the following referenced tables:

RECORD CODE(S)	RECORD SUBJECT/ DEFINITION	TABLE REF
AD, DE, CH AP, DP, CP	Action Codes	B
TG	Trunk Group Record Definition	X
TF	Facility Group Identification Record Definition	Y
TH, TI	Test Parameters Record Definition	Z
TT, TL	Trunk Record Definition	AA

4.48 To effectively use the work sheet, the concepts of principal and alternate direction and of principal and alternate traffic use must be understood. The **principal direction** of a trunk is the direction in which test calls will be placed for routine testing. It is defined by character position 45 (CAROT DIR) of the TG record as being A to Z or Z to A.

4.49 The **principal traffic use** of the trunk is the one to be used for routine testing. The trunk will be tested in an originating-end access condition and to a terminating-end test line, which are equivalent to the state of the trunk as used for the principal traffic use by subscriber connections. Any other traffic use is an alternate

traffic use. Table BB lists the traffic usage codes of the testable trunks in CAROT/ROTL, the possible tests, and the types of ROTLs used. If additional traffic usage codes are assigned locally, it must be determined whether or not they are CAROT testable.

4.50 The *principal mode* of a trunk involves both principal direction and principal traffic use. A TH record contains test parameters applying to the principal mode, and a TT record contains trunk data applying to the principal mode. The principal mode of the trunk must always be entered into the data base and it must be entered before alternate modes are entered. For CAROT 2, the principal mode relates only to the direction of routine testing for a specific CAROT; a 2-way trunk between CAROT regions would appear in both CAROT data bases but with different principal modes.

4.51 The *alternate mode* of a trunk applies to cases where there exists a mixture of principal and alternate use and direction. The alternate mode may be any one of three types:

- (1) Principal traffic use—alternate direction
- (2) Principal direction—alternate traffic use
- (3) Alternate direction—alternate traffic use.

The TI and TL records apply to alternate modes. Character position 4 of each record specifies whether the record applies to the principal or alternate direction, and character positions 5 and 6 indicate the specific traffic use.

Note: To minimize the introduction of errors when filling out the Trunk File Work Sheet, it is suggested that the principal mode data be entered in the upper TH and TT records and the alternate mode data be entered in the lower TI and TL records.

4.52 Points to remember when making transactions on trunks:

- Trunks are tested in the alternate mode according to the schedule code entered in the alternate mode testing parameters record (TI).

- Trunks tested in the alternate mode are not indexed. If indexing is not desired, 99 must be entered in character positions 12 and 13 of the TI record.
- When entering trunk priming data (TT or TL record), set the preupdate test flag to zero until this feature is implemented in the program. After implementation, the preupdate test flag may be set to 1.
- All 2-way trunks have a facility group record (TF) for each test direction. Therefore, with 4-wire, 2-way metallic trunks both cable pairs may be entered, ie, the transmit pair for each direction.
- If a 2-way trunk has a ROTL associated with it at only one end, the trunk should be entered in the data base as a 1-way trunk.
- For a 2-way trunk to be entered into the data base, a ROTL for each end of the trunk must have been previously entered into the data base.
- Until routine operational testing is implemented in CAROT 2 controller software, characters 99 must be entered in the operational test schedule code (character positions 39 and 40 of the TH or TI record). Also, the echo suppressor or flag (character position 31) of the TH or TI record must contain either a 0 (meaning no echo suppressor) or a 1 (meaning echo suppressor present). Blanks are not permitted.
- When changing trunk data in the trunk priming (TT or TL) record but *not* in the associated facility group (TF) and test parameters (TH or TI) records, only one \$ need be entered at the beginning of the associated TF and TH or TI records (character position 4). Unchanged *embedded* fields within the TT or TL record can be filled in completely with \$ characters instead of with a repetition of the existing unchanged data. For example, this could occur where the channel or pair number remains the same and the trunk location address changes.
- To delete individual trunks from a trunk group, when entering the trunk group (TG)

and trunk priming (TT or TL) records, all that is required in the TT record entry is the trunk number. All other entries in the TT record can be the \$ character.

Test Parameter Information

#FETL Digits, Replacement Numbering Plan Area (NPA), and Replacement NNX

4.53 Far-end test line (FETL) access information is entered on the Trunk File Work Sheet, in the TH or TI data record (character positions 32 through 38), to provide access to the proper FETL. The information stored here is the number of FETL digits to outpulse (from CAROT to the ROTL), a replacement NPA code, and a replacement NNX. For trunks tested by small ROTLs, ie, step-by-step (SXS) and No. 5 crossbar (5XB) ROTL 1, this information is not necessary since FETL numbers are wired into the ROTL and not provided by CAROT. For expanded ROTLs these character positions should also be left blank in most cases. These items in the TH record are used mainly for the following situations:

- (a) In expanded SXS and No. 1 crossbar/crossbar tandem (1XB/XBT) ROTLs, it may be necessary to specify the number of digits to outpulse. The replacement NNX may also be necessary to handle code conversion. See paragraphs 4.54 through 4.57.
- (b) In 5XB expanded ROTLs, toll connecting and tandem originating trunks using 10X FETL numbers may require a replacement NNX. See paragraph 4.58.
- (c) For all other ROTLs (ESS or 4XB), these characters should be filled in only in special situations requiring modification of the basic FETL numbers in the FETL directory. Refer to paragraph 4.59, which describes how the CAROT controller software constructs the FETL number for a trunk. This process should be understood before filling in the FETL information in the TH or TI record.

4.54 The FETL number for ROTLs such as SXS and 1XB/XBT that access trunks through test connectors must be shortened to the length expected by the far-end switch. The FETL number must also reflect any code conversion (deletion or prefix) that the originating machine would normally

perform. This information must be provided in character position 32 (number of FETL digits to be outpulsed by CAROT to the ROTL) and in character positions 36 through 38 (replacement NNX after code conversion). This is further explained in paragraphs 4.55, 4.56, and 4.57.

4.55 For test connector ROTLs with variable length outpulsing, the number of digits outpulsed to the far end may vary from trunk to trunk. In SXS offices, trunks may leave the switch at different selector levels. Thus, the number of digits "used up" in switching a call through the SXS machine may vary from trunk to trunk; however, all trunks in a trunk group will usually leave at the same selector level. In any case, the far-end office expects to receive the number of digits remaining, which depends on the originating office. The number of digits remaining in SXS calls can be determined from the selector level at which the trunk originates or from common control information. In 1XB/XBT offices, it can be determined from the common control cross-connect records. This information need be entered only if other than seven or ten digits are to be outpulsed and only if the NPA or NNX is different from that found in the test line directory. For test connector ROTLs, the number of FETL digits outpulsed by CAROT to the ROTL is the same as the number of FETL digits outpulsed by the far-end switch via the trunk under test.

4.56 To ensure the proper routing of calls, common control offices sometimes examine the NNX of the called number and replace it with a substitute NNX before outpulsing to the next office in the switching network. The far-end office translates the substitute NNX and continues the switching of the call. A typical case of such code conversion may occur on a call to a class 5 office having more than one NNX with the same third digit (947 and 637, for example). A near-end office may, instead of outpulsing six or seven digits to reach a far-end address, outpulse only five. By arrangement between the two offices, the near end can outpulse 7XXXX for a 947 number, and 5XXXX for a 637 number. The far end will then recognize the prefix 5 as an indication of the 637 exchange. The code conversion used and the replacement NNX required can be obtained from common control information.

4.57 For the conditions described in paragraphs 4.55 and 4.56 (for test connector ROTLs),

the ROTL must be given the number normally outpulsed at the point of the test connector. Thus, it must be given the proper number of digits as well as the "post-code conversion" form of the number. The number of digits is counted from right to left, starting at the first nonblank digit. Thus, trailing blanks in the test line directory number, such as the blank after the 5 in "212 393 105-", are not counted in determining which digits will be outpulsed. In the above example, if the number of digits to be outpulsed were five, 93105 would be used.

4.58 For trunks outgoing from an 5XB office to tandem or toll offices (trunks which normally require a 3-digit FETL number in the format of 10X or NNX), the 5XB marker requires a far-end NNX from the ROTL to find the route relay for a trunk group. If the test call is on a trunk terminating at a tandem office, the NNX used is that of an exchange beyond the tandem office to which traffic would ordinarily be routed over the trunk under test. The 5XB marker uses the NNX along with other information to find the route relay, and then deletes the NNX before outpulsing. If the tandem office is also a toll office with a 3-digit terminating toll center (TTC) code, the TTC code may be used instead of an NNX. The use of an NNX causes problems when, for example, a direct trunk group is initiated between the 5XB office and the far-end local NNX. The FETL number for the tandem office trunk group must be changed to use some other NNX routed through the tandem office. Thus, routing changes at 5XB/ROTL offices must be coordinated with CAROT FETL directory changes. An additional difficulty occurs for trunk groups from a 5XB office to a tandem office if they carry traffic only to a foreign NPA from both the 5XB and tandem office NPAs. This situation may occur, particularly in common control switching arrangement (CCSA) networks. For this case, the 5XB marker must be provided with the NPA-NNX of an office on the far side of the tandem office. The home NPA of the tandem office cannot be used, and a replacement NPA as well as a replacement NNX must be provided in the TH or TI record.

4.59 The test line directory stores an FETL number in the format of NPA-NNX-XXXX or NPA-000-XXXX for each traffic use of trunks terminating in the office. The terminating office and the traffic use are both used to determine the basic FETL number. For example, this basic

FETL number is modified by the information in the TH or TI record, character positions 32 through 38, as follows.

(a) **ESS ROTLs:** Either NPA-NNX-XXXX or NNX-XXXX is used, depending on whether the terminating office is in the same NPA as the ESS office. (In either case, the FETL number may be of the format 10X rather than XXXX, if so specified in the test line directory.)

(b) **Expanded SXS and 1XB/XBT ROTLs:** If a replacement NNX is entered in the TH or TI record, it is substituted for the NNX in the test line directory and the number of FETL digits specified in character position 32 is used. Numbers of format NPA-000-10X are converted to 10X.

(c) **Expanded 5XB ROTL:** If a replacement NPA is entered in the TH or TI record, it is substituted for the NPA in the test line directory. If a replacement NNX is used in the TH or TI record, it is substituted for the NNX or 000 in the test line directory. If the number of digits to outpulse (character position 32) is left blank, NPA-NNX-XXXX or NNX-XXXX (NPA-NNX-10X, NPA-10X, or NNX-10X, if using the 10X-type format) is outpulsed. If the number of digits to outpulse is nonblank, the specified number of digits is outpulsed to the ROTL.

Trunk Record Information

4.60 Trunk priming (TT or TL record) information is obtained from both the office description forms and traffic information. Trunk priming varies, depending on the type of ROTL, since this information is used by the ROTL to gain access to a specific trunk. Table CC shows the trunk location addresses of the TT or TL record of the Trunk File Work Sheet and gives the contents of the character positions. The VF appearance and SMAS number as referenced to the test frame trunk location address are defined in Table DD. They are the same as for CAROT 1 except for the 5XB APTT, where AGRA has been added and the order of appearance for ITH, IHT, ITT, and IUT has been changed.

4.61 SXS ROTL, Small (J34305A): The SXS ROTL gains access to a specific trunk through a test connector. The test connector number identifies the trunk uniquely and is outpulsed

to the ROTL from CAROT 2. Figure 14 shows the trunk priming part of the TT or TL record of the Trunk File Work Sheet and provides a list of data items for each character position. If the ROTL is equipped for MF outpulsing, information must be provided in character position 23 to indicate the pulsing used on the particular trunk: a 1 for MF or a 2 for DP.

4.62 5XB ROTL, Small (J23263A): The 5XB ROTL gains access to a specific trunk through the switching network of the office. To identify a trunk, the ROTL requires the number of the trunk link frame and the busy test lead location on the trunk block relay. In addition, a route translation is needed to access one of 20 cross-connect fields containing marker priming and test line directory number information for each trunk group. Figure 14 shows the trunk priming part of the TT or TL record of the Trunk File Work Sheet and lists the data items for each character position.

4.63 No. 1 ESS ROTL (J2H018): The No. 1 ESS ROTL gains access to a specific trunk through the switch. It consists of software, generic programs CC- and SP-CTX6 or later, and hardware. The trunk priming information required for the Trunk File Work Sheet is a trunk location address, occupying character positions 17 through 23 of the TT or TL record and consisting of a 1-digit modifier to specify local or tandem mode and a 6-digit trunk network number (TNN).

4.64 The six digits making up the TNN (character positions 18 through 23, TT or TL record) and an explanation of each are given in Table EE. Figure 15 shows the trunk priming part of the Trunk File Work Sheet and lists the data items for each character position. The TNN designates the specific appearance of the trunk on the switch and may be initially assigned by Western Electric Company. Additions, deletions, and changes are generally administered by traffic assignment groups.

4.65 The 1-digit modifier that specifies local or tandem mode is either 0, 1, or 2. The digit 0 represents a local originating mode, meaning that the trunk can be reached only by line origination on the same machine. The digit 1 represents tandem 1 mode, and the digit 2 represents tandem 2 mode. Tandem 1 or tandem 2 controls the configuration of the trunk circuit and refers to the use of a specific isolation transformer.

4.66 If the trunk can be accessed in the tandem mode, a 1 or a 2 should be entered on the TT or TL record as the modifier digit (character position 17). Otherwise, a 0 should be entered for local originating only. However, in many systems the No. 1 ESS trunk may be accessed in both originating and tandem modes. The maximum number of components are in the transmission path when the trunk is used as local originating, and the trunk should be routinely tested in this mode. When the trunk is tested in the local mode, care must be taken to insure that the EML (entered in the TH record) includes the loss of the trunk circuit in the local mode. This EML will differ from the EML of the trunk in the tandem mode. If testing is to be done in both modes on the same trunk, a separate record is necessary for the tandem mode as described in paragraphs 4.46 through 4.52.

4.67 No. 2 ESS ROTL (J2039): The No. 2 ESS ROTL gains access to a specific trunk through the switch. It consists of software, generic program EF1 (Issue 3 or later), and hardware. The trunk priming information required for the Trunk File Work Sheet (TT or TL record, character positions 17 through 23) is a trunk modifier digit, a 3-digit trunk group number (TGN), and a 3-digit member (MEM) number. The TGN and MEM numbers are software designations for the trunk and may be initially assigned by Western Electric Company. Additions, deletions, and changes are generally administered by traffic assignment groups. The TGN range is 066 to 511; the MEM number range is 000 to 255.

4.68 The 1-digit modifier is either 0 or 1. A 0 specifies that the trunk is to be placed in the "talk tandem off-hook" state *without* a transformer in the talking path. A 1 specifies that the trunk is to be placed in the "talk tandem off-hook" state *with* a transformer in the talking path.

4.69 Figure 15 shows the trunk priming part of the Trunk File Work Sheet and lists the data items for each character position.

4.70 No. 4 ESS ROTL (J4A007): The No. 4 ESS ROTL is controlled by CAROT 2. CMS 1A, B administers the CAROT 2 data base as it concerns the No. 4 ESS. The No. 4 ESS ROTL gains access to a specific trunk through the switch. The trunk priming information required is a 7-digit trunk appearance number (TAN).

4.71 SXS ROTL 2, Expanded (J34306A and B): The expanded SXS ROTL gains access to a trunk through a crossbar test connector. The test connector access point is identified by a 4-digit number to which a 1-digit pulsing identification number is added to comprise the trunk location. Table FF describes the entries required for pulsing. Figure 16 shows the trunk priming part of the Trunk File Work Sheet and lists the data items for each character position.

4.72 The test connector information is either directly related to the selector switch or trunk equipment if it is hardwired, or assignable if the equipment is not hardwired. Test connector assignments should be made and records maintained by the organization responsible for trunk assignment. In either case, the test connector appearance should appear on all new traffic trunk orders. The office description forms described in paragraph 7.24 and the TGD form described in paragraph 7.27 should be used as references for obtaining the trunk priming information.

4.73 1XB/XBT ROTL (J28555): The 1XB/XBT ROTL gains access to a trunk through a test connector. The test connector number is a 5-digit number to which two digits of pulsing information are added to comprise the trunk location. Table GG describes the pulsing information required. Figure 17 shows the trunk priming portion of the Trunk File Work Sheet and lists the data items for each character position.

4.74 The test connector number (TT or TL record, character positions 17 through 21) is directly related to the office link appearance of the trunk. The office link frame appearance is assigned by the trunk assignment organization. Records are kept there and at the switching office. The relationship between office link frame appearance and ITTC appearance is documented by Western Electric T drawings.

4.75 4XB OTTS ROTL (J1P012AJ): The 4XB OTTS ROTL gains access to a trunk through the Outgoing Trunk Testing System (OTTS). The OTTS access is by way of the intertoll and toll connecting test connectors. The test connector number is a 5-digit number indicating the test connector appearance of a trunk. In addition, information is required on signaling class and modifiers, pad mark, switch train, and relay type. Table HH describes the priming information required.

Figure 18 shows the trunk priming portion of the Trunk File Work Sheet and lists the data items for each character position.

4.76 5XB ROTL 2, Expanded (J23263D, E, and F): The 5XB ROTL gains access to a trunk through the switching network of the office. The expanded 5XB ROTL receives all of its priming information from the CAROT controller, in contrast to the small 5XB ROTL where marker priming and test line information is cross-connected in the ROTL. The expanded 5XB ROTL is more flexible and is able to access a greater number of trunks but it requires much more complex trunk location information. Figure 19 shows the trunk priming part of the Trunk File Work Sheet and lists the data items for each character position. For more detailed information on the trunk location address (TT or TL record, character positions 17 through 30), refer to Appendix 1.

Transactions on Circuit orders

4.77 Table II shows the data record field designations and functions and specifies the order of data entry sequences required for performing transactions on circuit orders. The Circuit Order Work Sheet (E6730) for compiling related data base information is shown in Fig. 20.

4.78 Format information for completing each of the applicable data records appearing on the work sheet is detailed in each of the following referenced tables:

RECORD CODE(S)	RECORD SUBJECT/ DEFINITION	TABLE REF
AD, DE, CH AP, DP, CP	Action Codes	B
PC	Circuit Order Control	JJ
GF, GN	Facility Group	V
TG	Trunk Group	X
TF	Facility Group	Y
TH, TI	Test Parameters	Z
TT, TL	Trunk Record	AA
PV, PU	Circuit Order Item	KK

4.79 These are complex transactions because they are compound transactions: the circuit order contains a transaction on the COTC data base and possibly several transactions on the RDT data base which are pending and which may be performed upon completion of the circuit order. The action on the COTC data base is given a normal action code of AD, DE, or CH. In order to distinguish pending actions on the RDT, these are given action codes AP, DP, and CP.

4.80 The transactions on the RDT data base are embedded within a series of transactions on the COTC data base. It looks like this: PC, RDT transaction, PV, RDT transactions, PV, etc. The sequence of transactions is terminated by a new action code.

Updating COTC Data Base

4.81 Updating the COTC data base (adding, deleting, or changing trunk data) requires specific data records to be entered in a specific order.

4.82 A previous item must exist in the COTC data base before the /PV record with the previous item specified can be entered update. This is because these items, which are concerned about the same circuit (trunk), are linked together in order of due dates.

4.83 The supplement character should be blank unless there has been a change in the item. The supplement character tells the CAROT update system that some of the information concerning this item is to be changed in the COTC data base. If this character is not blank, the new information will overwrite the old item information at update.

4.84 Before data can be entered, some basic rules must be understood. First, the circuit order items (COIs) may be completed in any order regardless of due date (except, of course, items pertaining to the same circuit). Second, the action data (RDT update records accompanying each item) will, if the option is selected by the operating company, be used to update the RDT data base. These two rules, in turn, require that the action data associated with each COI in the data base be sufficient to accomplish the update of the RDT data base. Thus, if a trunk is being added, the action data must include the necessary records to add the RDT data base.

4.85 A third rule to remember is that the circuit order items involving additions of new trunks, or changes to existing trunks, will be tested by CAROT before completion is allowed. In order for this to happen, the action data must contain enough information for CAROT to perform a test. This includes the ROTL which will test the trunk, the far-end test line (FETL), and the test parameter and trunk location address. Given this data, CAROT will access its own equipment files and obtain the ROTL telephone number, the FETL dialing number, and then perform the test.

4.86 To meet the general requirements stated in paragraph 4.85, action data will be stored in the data base. The action data stored is associated with a specific COI record. The makeup of this data depends upon the data transaction for which the COI calls. Figure 21 displays the possible transactions called for by a COI and the action data series to be stored for each.

Update Record Entry Sequence

4.87 The sequence of records input for updating the data base must be entered in a specific order to accomplish the proper transaction. The action code (AD, DE, or CH) is entered first followed by the records. The types of records involved are the PC (circuit order), the PV (circuit order item), and the action data records (RDT data base records). The AP, DP, and CP (pending add, pending delete, or pending change action) records are also used as required by COI to indicate a transaction is in progress. However, when stored as action data, and submitted for update (after completion), these records are converted to the AD, DE or CH record.

4.88 The circuit order record (PC) is next in the series of data input and indicates action data is to follow. A pending action code (AP, DP, CP) is entered between the PC and action data when transactions are in progress.

4.89 The body of the update records is the action data. This data immediately precedes the COI (PV record). When entering the data, the programs assume all action data preceding a PV, belongs to that PV record. For example, in the update record entry: AD, PC, AP, YG, YB, GF, TG, TF, TH, TT, PV, the underlined data is associated with the PV at the end of the series. As additional records are added, an additional PV will also be

added to be associated with that data series. Thus, the beginning of the action data is indicated by a PC or a PV record, and ended by a PV record.

4.90 When it is necessary to enter a string of data records (for example, add several trunks to the same trunk group), the simplest way is to enter all necessary action data records with each PV record, even if it involves redundant record entry as illustrated in the following:

AD, PC, YG, YB, GF, TG, TF, TH, TT, PV,
YG, YB, GF, TG, TF, TH, TT, PV

In the particular example the YG, YB record pair, which adds the trunk group, is repeated for each PV record.

4.91 Although it is perfectly acceptable to enter redundant data records as explained in the previous example, the redundancy can be reduced. When entering a string of data records to, for example, add several trunks to the same trunk group, all necessary data records must be entered for the first trunk to be added followed by the PV record (example—AD, PC, AP, YG, YB, GF, TG, TF, TH, TT, PV). To enter additional trunks to the same group, merely add the new TT record data followed by a PV for each trunk. The entire input sequence data string will look like the following:

AD, PC, AP, YG, YB, GF, TG, TF, TH, TT,
PV, TT, PV, TT, PV

It is important to remember that although only one action data record (TT) precedes the second, third, and fourth PV record in this update series, the entire sequence from YG, YB through TT is stored in the data base with the PV record.

4.92 Several additional rules to remember for the COTC update process are as follows:

- (1) The entry of two or more pending action codes with a single PV is acceptable. However, the action data string for the subsequent PV must begin with a pending action code and therefore contain records for all levels.
- (2) The supplement character may be used to identify changed COI that is stored in the data base, whether blank or nonblank, and is displayed with the COI. Thus, the user can

identify which issue of COI is in the CAROT data base. It is important to understand that only one item with the same number (characters 4 through 24 of the PV record) can exist in the CAROT data base at one time.

Figure 22 contains typical examples of COTC updates.

4.93 The PU record is used when a circuit order that cancels a previously issued circuit order is added to the data base. The PU record identifies the circuit order item to be deleted from the COTC data base when the canceling item is completed. The item that is specified in the /PU record need not be in the COTC data base when the item in the /PV record is entered at update. Note that, while action data always precedes the PV record with which it is associated, the PU record follows the PV with which it is associated.

F. Change Transactions

General

4.94 This part describes those data manipulation aspects related to making changes to existing records. The sequence for entering data to implement a change transaction requires that a CH command precede the revised record. For example, with a given ROTL as identified in character positions 4 through 15 of an RO record, a CH, RO sequence of ROTL input records causes the CAROT 2 controller to replace existing data in the data base with new data as entered in character positions 16 through 73 of the new RO record. Once the CH command is entered it will remain in effect for successive change transactions and need not be repeated for each change entry. Thus, the sequence of CH, RO, RE, and CT records will cause changes to be made in the given ROTL, responder, and control office for trunks records consecutively. Tables LL, MM, and NN show which records must be entered and in what order, for each type of change transaction permitted.

4.95 The character \$ will be used to fill in data items comprising data fields on records that do not require a change for the transaction taking place. If the last nonblank character appears somewhere before the end of the data record and the nonblank character is a \$, the remaining characters of the record will be filled in by the update routines with the character \$. This will have the effect of not changing data items appearing

after the character \$ for the remainder of the record. A given **field** within a record must not contain a mixture of \$ characters and data. Thus, each **field** must contain either all \$ characters or all data.

4.96 For some records, changes are permitted on all data items within the record; while for others, only certain data items within the record can be changed. Implementation of the types of changes permitted is determined by the structure of the specific record to be altered. When making changes to records containing key items, no changes can be made to the identification key.

Large-Scale Data Base Changes

4.97 For those items that are not changeable by using the CH transaction, the necessary procedure to follow involves the addition of the new record containing the proper data, and then the deletion of the old record. This process often involves the deletion and addition of many other records lower in the hierarchy than the initial incorrect record. For example, if a ROTL identification changes, all trunk groups and trunks assigned to the old ROTL must be deleted and then reentered using the new ROTL identification. Such transactions obviously may involve a large number of records. To facilitate making bulk changes of data the select program is employed.

4.98 *Select Program:* The select (SELEC) program examines the existing data base and constructs a file of records that can be produced on disc, paper tape, magnetic tape, line printer, or operator console. The paper tape is punched in a form suitable for direct input using the update program. The output on disc is used for storage and editing purposes and is also suitable for direct input via the update program. Outputs on the line printer and operator console are strictly for viewing purposes. For a more detailed explanation of the SELEC and EDIT instructions, refer to Section 190-102-206 (CAROT 2 Data Base Manipulation Using the Select Program and Test Editor).

Details of Individual Record Changes

4.99 Points to be mindful of when making responder and ROTL transactions are these:

- A change in responder (RE) record data will automatically cause corresponding changes

in associated records (eg, RO, ID, and ED records).

- To change the identification of a responder, the following data record transactions must be made in sequence:

- (1) Add the new responder identification RE record.
- (2) Change all RO records containing the old responder ID so that they contain the new responder ID.
- (3) Change all ID-ED record pairs containing the old responder ID so that they contain the new responder ID.
- (4) Delete the old responder RE record.

4.100 The following paragraphs discuss all of the data records that can be altered using change transactions. Detailed listings are included for each record, itemizing the data to be filled in for each character position.

Responder File

4.101 Change transactions for responder information are implemented by entering a revised RE record. The following is a detailed listing of data items contained within this record. It should be noted that while **all** data items are listed, **only those marked with an asterisk (*)** can be altered via a CH transaction.

- RE Record—Responder

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	RE
4—26	Responder ID
27—29	Responder Type
30—32	Responder Options Code

ROTL File

4.102 Change transactions for ROTL files are implemented by entering a revised RO

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record. When new responder data is to be entered in this record, the same data must have been previously entered via the RE record. The data items contained in this record are as follows (only the starred items can be revised via a CH transaction):

● RO Record—ROTL

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	RO
4—15	Office ID (Includes count character, position 15, for the number of ROTLs that access the same sets of trunks. When left blank, this character defaults to zero [Ø].)
16—18	ROTL Type
19	2- or 4-Wire
20	Make-Busy Flag
21—32	ROTL Telephone Number
33—36	Routine Test Startup Time
37	No. of ROTLs That Test Same Set of Trunks
38	No. of Heads per ROTL for CAROT Testing
39—50	Alternate ROTL ID
51—73	New Responder ID (A new responder must have been previously entered via the RE record.)

4.103 The following conditions may make it necessary to change a ROTL ID or to change the ROTL to which trunk groups are assigned:

- (1) A change in the common language name of the ROTL office
- (2) The addition of another ROTL to the same office, causing the count character (position 15 of the RO record) to change for some trunk groups

- (3) The initial assignment of trunk groups to the wrong ROTL.

4.104 To make a change in the ROTL identification (character positions 4 through 15 of the RO record), the following transactions must be made:

- (1) Add an RO record containing the new ROTL ID.
- (2) Add new RC records containing the new ROTL ID.
- (3) If there are trunk groups assigned to the old ROTL that are to be reassigned to the new ROTL, these must first be deleted using a DE-YG-YB series. (The YB record used for the deletion must be the same as when the groups were added initially.) This transaction also deletes all the trunks in these trunk groups. The SELEC program should be used *before* these groups are deleted, to produce a file of the trunk groups and trunks for subsequent reentry into the data base.
- (4) Enter trunk groups and trunks to be assigned to the new ROTL, using the YG-YB record pairs with the new ROTL identification in the YB record. The EDIT program should be used to edit the YB records such that they contain the new ROTL IO.
- (5) Delete the old RC and RO records (in that order), provided no trunk groups are still assigned to the old ROTL.

Test Line Office File

4.105 Change transactions for test line office files are implemented by entering a revised OD record. The data items contained in this record are as follows (only the starred item can be revised via a CH transaction):

● OD Record—Test Line

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	OD
4—14	Office ID

15-19

Switching System Type

4.106 Since the office ID part of the OD record (character positions 4 through 14) cannot be changed directly by using a CH transaction, the following procedure must be performed to make office ID changes:

- (1) Add the new test line office (OD record).
- (2) Add the proper test lines, using ID-ED record pairs containing the new test line office ID.
- (3) Delete the old test lines and then delete the old test line office **if the data base contains no trunk groups that terminate at the old office.**
- (4) If trunk groups do terminate at the old test line office, follow the procedures in either (a) or (b):
 - (a) If none of the trunk groups terminating at the old test line office are to be reentered into the data base, perform the following steps:
 - (1) Delete trunk groups.
 - (2) Delete old test lines.
 - (3) Delete old test line office.
 - (b) If trunk groups terminating at the old test line office are to be reentered with the new test line office, perform the following steps:
 - (1) Use SELEC program to make a file containing the related trunk groups and trunks.
 - (2) Delete trunk groups.
 - (3) Delete old test lines.
 - (4) Delete old test line office.
 - (5) Edit file and reenter during the update process.

Test Line File

4.107 Change transactions for test line data are implemented by entering a revised ID record followed by a revised ED record (ID-ED record pair). The data items contained in these records are as follows (only the starred items can be revised via a CH transaction):

● ID Record—Test Line Number

CHAR POS	DATA ITEM
1	/—Beginning of Line
2-3	ID
4-14	Office ID
15-17	Test Line Type
18-28	Test Line Telephone Number
29-46	Traffic Use List
47-58	Location

● ED Record—Test Line Equipment

CHAR POS	DATA ITEM
1	/—Beginning of Line
2-3	ED
4-26	Responder ID
27	No. of Test Lines in Hunting Group
28	Option Code for Test Line
29-44	Test Line Priming for ROTL (If this entry consists of all 9s, the HOTL is deleted from the record.)

4.108 If changes are to be made in the record but not in the ED record, the ED record must still be entered as part of the ID-ED record pair, but the data items in the ED record may be filled in with \$.

4.109 To change the test line office identification, test line type, and other entries in the

ID-ED record pair that are not changeable via a CH transaction, use the following procedures:

- (1) Ascertain that the test line office identification to be changed in the ID record has been previously changed in the OD record (see paragraph 4.97).
- (2) Delete the old ID-ED record pair(s).
- (3) Add new ID-ED record pair(s) containing the revised data.
- (4) To delete a HOTL entry, enter all 9s in character positions 29 through 44 of the ED record.

4.110 Control Office for Trunks File:

Change transactions for control office for trunks files are implemented by entering a revised CH record. The data items contained in this record are as follows (only the starred items can be revised via a CH transaction):

- CT Record—Control Office For Trunks

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	CT
4—14	Control Office ID
15—26	Dispersal Telephone Number
27—29	Equipment Code for Dispersal
30—37	Data Management Summary Interval Starts
38—45	Data Index Summary Interval Starts

4.111 To change the control office identification item in a CT record, the following steps are required:

- (1) Add a new CT record containing the correct ID.
- (2) Delete the old CT record containing the old ID.

4.112 When a control office for trunks is deleted from the data base (DE, CT), **all trunk groups and trunks assigned to the control office are deleted automatically.** Therefore, unless the intent is to delete all these trunks, the SELEC program should be used to produce a file of the trunks assigned to the old control office before the old control office is deleted. This input file can then be edited and reentered as assigned to the new control office.

4.113 ROTL Control File: Change transactions for ROTL control office files are implemented by entering a revised RC record. The data items contained in this record are as follows (only the starred items can be revised via a CH transaction):

- RC Record—ROTL Control

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	RC
4—15	ROTL ID
16—26	Control Office for Trunks ID
27—29	Q1 Value for Loss
30—37	Date to Start Testing Daily Trunks
38—45	Date to Start Testing Weekly Trunks
46—53	Date to Start Testing Biweekly Trunks
54—61	Date to Start Testing Monthly Trunks
62—69	Date to Start Testing Quarterly Trunks

4.114 To change the ROTL or control office identification entries in the RC record (items that cannot be revised using a CH transaction), the succeeding steps must be followed:

- (1) Add the new ROTL (RO record) and control office for trunks (CT record), if not already in the data base.

- (2) Add the new RC record.
- (3) Delete the old RC record **if there are no trunk groups assigned to the old ROTL control office.**
- (4) If there are any trunk groups assigned to the old ROTL control office, follow these procedures:
 - (a) Use the SELEC program to make a tape copy of the file containing the related trunk groups and trunks.
 - (b) Delete the trunk groups.
 - (c) Delete the old RC record.
 - (d) Edit the file containing the old YB record and reenter the trunk groups and trunks with the proper ROTL control office data in the YB record.

4.115 Control Office for Facilities File:

Change transactions for control office for facilities files are implemented by entering a revised CF record. Data items contained in this record are as follows (only the starred items can be revised via a CH transaction):

● CF Record—Control Office for Facilities

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	CF
4—14	Control Office ID
15—26	Dispersal Telephone Number
27—29	Equipment Code for Dispersal

4.116 To change the control office for facilities identification entry (an item that cannot be revised using a CH transaction), the following steps must be performed:

- (1) Add the new CF record.
- (2) Change all facility group (GF) records associated with the old control office for facilities.

- (3) Delete the old CF record.

4.117 Test Frame Office File: Change transactions for test frame office files are implemented by entering a revised OT record. Data items contained in this record are as follows (only the starred items can be revised via a CH transaction):

● OT Record—Test Frame Office

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	OT
4—14	Office ID
15—20	Test Frame Type
21—23	Issue Number

4.118 To change the test frame office identification entry (an item that cannot be revised using a CH transaction), the following steps must be performed:

- (1) Add the new OT record.
- (2) Using the SELEC program, initialize an input file of all trunk groups and trunks associated with the old test frame office identification.
- (3) Delete these trunk groups.
- (4) Edit the SELEC file so that the proper test frame office appears in the YB records.
- (5) Add the edited SELEC file during update.

4.119 Trunk Group File (CAROT or Test Frame):

Change transactions for trunk group test parameter files can be implemented via a special type of YB record. Trunk group identification and application codes contained in the YG record and control office and ROTL identification data contained in the standard YB record can only be revised using the delete and add transactions.

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4.120 To implement a CH transaction using the special YB record, use the following procedure:

- (1) Enter the applicable YG record, as it appears in the data base.
- (2) Enter the special YB record containing the data changes. Only the data items containing the corrected data need be filled in with data; all other items in the record must contain \$ characters.

4.121 The following is a listing of data record items that are contained in the YG and special YB records (only the starred items can be revised via a CH transaction):

● YG Record—Trunk Group

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	YG
4—43	Trunk Group ID
45	CAROT Testing Code
46	Test Frame Testing Code

● YB Record—Trunk Group Test Parameters

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	YB
4	Impedance
5	Test Pad Level
6	Rering Flag
7—8	Transmission Schedule Code (test frame only)
9—10	Index Code
11—13	EML
14—15	Circuit Order Loss Limit

16—17	Circuit Order Noise Maintenance Limit
18—19	Noise Immediate-Action Limit
20—21	Return-Loss Class
22—23	Gain-Slope Class
24—25	Noise-With-Tone Limit
26—27	P/AR Limit
28	Echo Suppressor
29	No. of Far-End Test Line Digits to Outpulse
30—32	Replacement NPA
33—35	Replacement NNX
36—37	Operation Test Schedule Code (test frame only)

4.122 The special YB record does not resemble the standard YB record as listed on the Trunk Group and Test Frame Priming Work Sheet, E6732, but more closely resembles the TH record shown on the Trunk File Work Sheet, E6731. This special YB record facilitates making test parameter changes applicable to the whole trunk group. A data item change via this method affects all trunks within a trunk group: ie, for the same data item category if different values have been initially assigned to specified trunks within the same trunk group, the different values will be replaced by the single value entered via the special YB record change. To revise test parameter data for different test parameter categories imbedded within a given trunk group, refer to the single-trunk change transaction guidelines given in paragraphs 4.118 through 4.121.

4.123 Facility Group File: Change transactions for facility group files are implemented by entering revisions via GF-GN record pairs. Data items contained in these records are as follows (only the starred items can be revised via a CH transaction):

● GF Record—Facility Group

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	GF
4—41	Facility ID
42—52	Control Office for Facility ID

- GN Record—New Facility Group

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	GN
4—41	New Facility ID
42—52	Control Office for Facility ID

4.124 When entering a control office identification change, the GF record must contain the revised control office identification and the GN record should contain \$ characters.

4.125 To revise the facility identification itself, the GF record must contain the old facility identification and \$ characters for the associated control office. The companion GN record in this case must contain the revised facility identification and \$ characters for the control office.

4.126 When a GN record for a new facility is to be entered, there must be no other facility listed in the data base with the same name; otherwise, an error message will result and the new GN record entry will be aborted.

4.127 *Trunk File:* Change transactions for trunk files containing trunk records (CAROT principal mode, CAROT alternate mode, test frame principal mode, test frame alternate mode) are implemented by entering revised records in the hierarchical sequence of TG, TF, TH, and TT records for the principal mode; and TG, TF, TI, and TL for the alternate mode. Data items contained in these records are as follows (only the starred items can be revised via a CH transaction):

- TG Record—Trunk Group

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	TG
4—43	Trunk Group ID
44	Trunk and Facilities Maintenance System
45	CAROT Testing Code
46	Test Frame Testing Code

- TF Record—Facility Group

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	TF
4—41	Facility ID

- TH or TI Record—Test Parameters

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	TH (Principal Mode) or TI (Alternate Mode)
4	Direction
5—6	Traffic Use
7	Impedance
8	Test Pad Level
9	Rering Flag
10—11	Transmission Test Schedule Code
12—13	Index Code
14—16	EML
17—18	Circuit Order Loss Limit
19—20	Noise Maintenance Limit

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21—22	Noise Immediate-Action Limit
23—24	Return-Loss Class
25—26	Gain-Slope Class
27—28	Noise-With-Tone Limit
29—30	P/AR Limit
31	Echo Suppressor Flag
32	No. of Far-End Test Line Digits to Outpulse
33—35	Replacement NPA
36—38	Replacement NNX
39—40	Operational Test Schedule Code

● TT or TL Record—Trunk Priming

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	TT (Principal Mode) or TL (Alternate Mode)
4	Direction
5—6	Traffic Use
7—11	Trunk Number
12—16	Channel Number
17—30	Trunk Priming (CAROT)
31	Pretest
32—50	Trunk Priming (Test Frame)

4.128 The TG, TF, TH, and TT record series or the TG, TF, TI, and TL record series can be used to change the following data items:

- (a) The facility to which trunks in the associated TT records are assigned
- (b) Test parameters for a subset of trunks within a trunk group.

Trunks whose test parameters are to be changed are entered as TT records following the entry of the associated TH records. If no changes are to be made in the TF and TH records (ie, the changes are to be made only in the TT records), the TF and TH records need contain only \$ characters. Data base changes of the type referenced above are greatly facilitated by the use of the SELEC program.

Note: If the revised test parameter value is the same for the entire trunk group, the special YG-YB change transaction described in paragraph 4.119 should be used.

4.129 When using this record series to enter a revised facility group identification in the TF record, this action merely changes the facility to which the trunks listed in the associated TT records are assigned. This action does not change the facility group identification stored in the data base. To accomplish a facility group identification change, the GF-GN record change described in paragraph 4.123 should be used.

4.130 If the facility record referenced in the TF record has not been previously entered via a GF record, an error message will result when data base changes are attempted.

4.131 K Priming for Test Frame File:

Change transactions for test frame K priming files can be implemented provided the direction and traffic use for that priming data have been established. Priming changes are implemented by entering the YG record first and then the revised YK record. The data items for these records are as follows (only the starred items can be revised via a CH transaction):

● YG Record—Trunk Group

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	YG
4—43	Trunk Group ID
44	Trunk and Facilities Maintenance System
45	CAROT Testing Code

46 Test Frame Testing Code

- YK Record—Test Frame Priming

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	YK
4	Direction Code
5—6	Traffic Use
*7	Control Flag
*8—61	Test Frame Priming

4.132 Change Transaction for Circuit Order

Data Base: Change transactions for the CP record are permitted as shown in this paragraph. Change transactions are also permitted for the PV record as shown. **However, if a change transaction on a circuit order item (PV) is associated with action data in the input record string, the new action data will replace the action data existing in the data base for the item (†).** Note also that the circuit order record (PC) has no changeable fields.

- CP Record—Plant Control Office

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	CP
4—14	PCO ID
15—29	† Telephone Number and Equipment Code for Test Results Dispersal
30—44	† Telephone Number and Equipment Code for Management Results Dispersal
45—52	† Date to Begin Accumulating Management Summary Data on Circuit Order Activity

- PV Record—Circuit Order Item

CHAR POS	DATA ITEM
1	/—Beginning of Line
2—3	PV
4—24	Circuit Order and Item Number
25	† Supplement Character
26	Item Action Code
27	Item Type
28	Circuit Order Testable Flag
29	CAROT Completion Flag
30	Automatic COTC Update Flag
31	Automatic RDT Update Flag
32—39	† Due Date for Completion
40—41	Blanks
42—63	CLO and Item Number of Previous CDI

5. INPUT FILE PREPARATION, LOADING, AND ASSOCIATED ERRORS

A. Input File Preparation

5.01 The input file consists of a group of data records assembled on an input medium of magnetic tape, paper tape, cards, or the CRT console from which data may be entered into the CAROT 2 data base. American Standard Code Information Interchange (ASCII) code is used. The general flow of data will be from CAROT 2 work sheets to paper tape or cards or magnetic tape, and eventually to disc.

5.02 The preparation of the input files will normally be done at one central location specializing in transferring data from work sheets to paper tapes or cards. Therefore, details pertaining to the general techniques of preparing data in these forms will not be covered in this section except for those cases where exceptions to the general rule occur.

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5.03 Detailed instructions for loading the input files via the various mediums onto the disc and into the CAROT 2 data base are given in TOP 190-102-300 (CAROT 2 Controller).

Paper Tape Input

5.04 The following details apply when preparing an input file on paper tape:

- A 1-inch wide, 8-level paper teletypewriter tape is used for CAROT 2 input file paper tapes. Ordering information is specified in Section 801-250-171.
- Records can be of variable length up to a maximum of 80 alphanumeric characters.
- The limits of a record are defined as those data elements appearing between successive carriage return and line feed commands.
- The CAROT 2 input file does not require a start-of-file record. Instead, the designated action code (ie, AD, DE, CH, etc) serves as the introduction.
- Each record must be terminated by a carriage return and line feed.
- When inputting successive records of the same type (ie, all additions, deletions, or changes), the applicable action code need be entered only once at the beginning of a group of specified entries. The only time it will be necessary to enter another action code on the same tape is when there is a change in action code for subsequent record entries.
- An end-of-file record containing /END is required at the end of each reel of tape.
- The beginning and end of a paper tape should contain at least 5 or 6 inches of feed holes for convenient loading.
- When using paper tapes in a single-update run, the process may involve entering several individual paper tapes, sequentially. The input data can be prepared on more than one paper tape, which then must be entered according to the record entry sequence as

determined by the hierarchical structure of the data base.

- A record containing a RUBOUT character will be ignored by the CAROT 2 Update program. Therefore, when an error occurs while entering a record on tape, the RUBOUT key must be struck and followed by a carriage return and line feed. The record should then be reentered correctly.

Card Input

5.05 The following details apply when preparing an input file on paper cards:

- Standard IBM-type paper cards are used.
- Only one record per card is permitted.
- Records can be of variable length up to a maximum of 80 alphanumeric characters
- No beginning-of-file card is required. Instead, the designated action code (ie, AD, DE, CH, etc) serves as the introduction.
- When entering successive records of the same type (ie, all additions, deletions, or changes) on cards, the applicable action code need be entered only once at the beginning of a group of cards containing the specified entries. The only time it will be necessary to enter another action code is when there is a change in action for subsequent record entries. The new action code must then appear on the first card of the group representing new record entries.
- An end-of-file record containing /END is required at the end of a deck of cards.
- A record containing a RUBOUT character will be ignored by the CAROT 2 Update program. Therefore, when an error is made while entering a record on a card, operate the RUBOUT key (or remove the card containing the error from the deck) and reenter the record correctly on the next card.

Magnetic Tape Input

5.06 The following details apply when preparing an input file on magnetic tape:

- Nine-track, IBM-compatible magnetic tape is used.
- Data is recorded at the density of 800 or 1600 characters per inch (CPI), depending on the compatibility with the magnetic tape drive used at the CAROT center.
- Data records must be extended to 80 characters with blanks and blocked in 320-character, 4-record blocks.
- If the tape is unlabeled, it must have an 80-character block at the beginning. This block will be printed to identify the tape. If the tape is labeled, the standard label records will be expected. These are VOL 1, HDR 1, HDR 2, EOF; DATA BLOCKS, EOF; and EOVI, EOF. For further information regarding tape labels, refer to the AT&T general letter (72-04-163, M456A), entitled Magnetic Tape Standards for Interchange.

B. Procedures for Initial Load and Updates of Data Base Records

Data Entry Sequences

5.07 Before attempting to input any data into the CAROT 2 controller data base via the update process, the following records must be entered as a data base initialization procedure via the controller console. (R means operate the RETURN key; ___ means operate the SPACE bar.)

```
/AD R
/CFNOT_KNOWN R
/RENOT_KNOWN R
/GFNONE_ENTERED R
/END R
```

Note: In later generics of the CAROT 2 software, the initialization procedure given previously may be incorporated in the software and therefore would not have to be entered manually.

5.08 Once these records are in the data base, any of the following actions is allowable:

- (a) Leave the responder ID blank in the RO and ED records.
- (b) Leave the control office for facilities ID blank in the GF or GN record.
- (c) Leave the facility group ID blank in the RF record.

These blank items may be used when the information on the responder ID, facility group ID, or control office for facilities ID is not available or is nonexistent.

- The responder record entry (RE NOT KNOWN) permits the subsequent addition of non-105 type test lines (ie, test lines not associated with a responder) to the data base.
- The control office for facilities record entry (CF NOT KNOWN) permits the subsequent addition of facility group (GF) records which are not assigned to any control office. Thus, the control office for facilities item in that GF record can be left blank and will default to the "not known" category.
- The facility group record entry (GF NONE ENTERED) permits the subsequent addition of trunks that are not assigned to a facility group. Therefore, in the record entry sequence of AD, TG, TF, TH, and TT, leaving all blanks in the TF record will cause these trunks to be assigned to the "none entered" facility group.

5.09 For an initial load of the CAROT 2 data base or for conversion from the CAROT 1 to the CAROT 2 data base, the order in which data records must be inputted follows the specified sequence of entering equipment records first, administrative records second, and trunk and facility records last. As mentioned previously, for all trunks controlled by CMS 1A, B, only the equipment and administrative records need be entered via the standard method using paper tape, cards, or magnetic tape; trunk and facility data is entered via the connecting CMS/CAROT 2 data link.

5.10 Data may be entered by either manual or automatic processes. **Console updating**

(manual) involves the use of the cathode-ray tube (CRT) console keyboard for making small additions or changes to the data base. **Automatic updating** involves the use of 9-track magnetic tape or paper tape, disc file cards, or the CMS 1A, B data link.

5.11 It is recommended that the input data for an initial load be prepared at a centralized data processing center on 9-track magnetic tape. This data will then be entered using the automatic update process. However, the input data for an initial load may exist in the form of paper tape or cards. To produce paper tapes or cards for the automatic update process, the work sheets should be filled out using the definitions given in Tables B through HH (for routine trunk tests and test frame records) and in Tables II through KK (for circuit order work). These work sheets should then be used to generate paper tape or cards. The order in which the records are typed using the work sheets is described in the following paragraphs.

5.12 Equipment Data Base Transactions:

These transactions are performed first and pertain to those records containing equipment-related data for all ROTL and test line offices that are to exist in the testing network. The records involved include the RE, RO, OD, ID, and ED records as required for each office. (See paragraph 4.13.)

5.13 Administrative Data Base Transactions:

These transactions pertain to entering those records containing administrative data for the control offices that exist in the testing network. These records are entered after the equipment records and will include the CT, RC, CF, CP (if the circuit order data base is required), and OT (if the test frame data base is required) records. (See paragraphs 4.17 through 4.24.)

5.14 Trunk and Facility Data Base Transactions:

These are transactions for entering record data pertaining to trunk groups, facility groups, testing parameters, and trunk identification for those trunks that are the objective of the test effort. These are the last groups of records to be entered and will include a YG-YB record pair for each CAROT trunk group and a YG-YB-YK record set for each test frame trunk group followed by the TG, TF, TH or TI, and TT or TL records. Trunks are added to the data base by a series of TG, TF, TH or TI, and TT or TL records.

(a) The TH or TI records may be followed by as many TT or TL records as there are trunks assigned to the same test parameters (TH record) and facility group (TF record). **Example:** TG, TF, TH, TT, TT, TT . . .

(b) If the test parameters change but not the facility group or trunk group, a new TH or TI record must be entered followed by its associated TT or TL records. **Example:** TG, TF, TH, TT, TT, TT, TH, TT, TT . . .

(c) If the facility group within the trunk group changes, a new TF record must be entered followed by its TH or TI and TT or TL records. **Example:** TG, TF, TH, TT, TT, TT, TF, TH, TT, TT, TT . . .

(d) When a new trunk group is to be entered, a new TG record followed by TF, TH or TI, and TT or TL records is necessary. **Example:** TG, TF, TH, TT, TT, TT, TG, TF, TH, TT, TT, TT . . .

5.15 The sequence described in paragraph 5.14 must be followed to ensure that the hierarchical constraints of the data base structure are satisfied, thereby avoiding errors when subsequently adding trunks and facilities to the data base. Tables LL, MM, and NN summarize the data record transactions (cross-referenced to work-sheet types applicable to RDT, TFTP, and COTC system operations, respectively). Transactions are listed in the order in which they must be entered according to the established data base hierarchy shown in Fig. 2. These tables list the data records as related to addition, deletion, and change transactions when making equipment, administrative, and trunk and facility data entries.

5.16 When establishing a completely new CAROT 2 data base (with no previous CAROT 1 data base to build from), the referenced procedures are somewhat flexible as long as the hierarchical constraints are satisfied. (See Fig. 2, 3, 4, and 5.) An example of this flexibility is that instead of entering all of the sets of interrelated equipment records (ie, RE, RO, OD, ID, and ED) grouped on a per-office basis, certain records can be entered as a group of the same type (ie, all REs, then all ROs, then all ODs, then all ID-ED pairs) as long as the hierarchical structure is maintained in the building process. The order of record entry sequences following this procedure is detailed in

paragraph 5.17. This approach makes it easier to check the accuracy of the data before entering it into the data base. This is done by obtaining a printout of the data prepared on magnetic tape, paper tape, or cards. An erroneous data entry on the printout then becomes more apparent since it will break the repetitious visual pattern established by valid data entries of multiple RE, RO, OD, etc, records. (See Fig. 52A.)

5.17 The following is a listing of recommended data entry sequences for inputting records according to specified central offices. (See notes at end of listing.)

Equipment Records

[RE, RE, RE . . . RE]
[RO, RO, RO . . . RO]
[OD, OD, OD . . . OD]
[ID-ED, ID-ED, ID-ED . . . ID-ED]

Administrative Records

[CT, CT, CT . . . CT]
[RC, RC, RC . . . RC]
[CF, CF, CF . . . CF]
[CP, CP, CP . . . CP]
[OT, OT, OT . . . OT]

Trunk and Facility Records

[GF, GF, GF . . . GF]
[YG-YB, YG-YB, YG-YB . . . YG-YB]
[TG, TF, TH or TI, TT or TL . . . TL or TL]
⋮
⋮
[TG, TF, TH or TI, TT or TL . . . TL or TL]

OR

[GF, GF . . . GF, YG-YB, YG-BY . . . YG-YB]
[TG, TF, TH or TI, TT or TL . . . TT or TL]
⋮
⋮
[TG, TF, TH or TI, TT or TL . . . TT or TL]

OR

[GF, GF, GF . . . GF]
[YG-YB, TG, TF, TH or TI, TT or TL . . . TT or TL]
⋮
⋮
[YG-YB, TG, TF, TH or TI, TT or TL . . . TT or TL]

OR

[YG-YB, GF, TG, TF, TH or TI, TT or TL . . . TT or TL]
⋮
⋮
TG, TF, TH or TI, TT or TL . . . TT or TL]

Note 1: Individual records are designated by a 2-letter code, ie, RE or RO, etc.

Note 2: Record pairs are designated by two record codes separated by a hyphen, ie, ID-ED.

Note 3: Record listings are shown in the recommended sequence for ease of data entry. Those records enclosed in brackets are intended to be submitted as a single-entry unit, eg, a single-paper tape. That is, all RE records are entered at one time, after which all RO records are entered at one time, etc. For trunk and facility records, the sequence can be to enter all GF records at one time, then all YG-YB record pairs at one time, then all associated TG, TF, TH or TI, TT or TL . . . TT or TL records, repeating this last group of record entries as required for all trunk groups established via YG-YB record pair entries.

Converting From CAROT 1 to CAROT 2

5.18 When converting from a CAROT 1 to a CAROT 2 data base, follow the same sequence listed in paragraph 5.17 for equipment and administrative records. However, to enter trunk and facility data, the CAROT 2 program for converting CAROT 1 TMFs to an acceptable CAROT 2 data base may be employed. For this procedure refer to TOP 190-102-301. It is emphasized that in order for the data base conversion to be effective, the CAROT 1 TMFs must be in the most recent CAROT 1 format, including FETL information (number of digits to outpulse, replacement NPA, and NNX) where necessary.

Interfacing With CMS 1A, B

5.19 When interfacing with CMS 1A, B, the procedures for entering equipment and administrative data records are the same as for a conventional (non-CMS) CAROT 2 System. However, the trunk and facility records are inputted automatically via the CMS/CAROT 2 connecting data link. The trunk and facility records can be sent at any time during the day. However, these records are stored on disc and are entered into the data base during the update process. Refer to Part 4 of this section for specific details regarding the entry of equipment and administrative records for a No. 4 ESS office.

C. Errors to Avoid When Loading Data

Data Entry Sequences

5.20 The order in which data records are entered, revised, or deleted in the CAROT 2 data base must occur in a prescribed sequence. If an attempt is made to enter a record out of sequence,

the effort is aborted for the intended entry, and an error message code is outputted. These codes are defined in TOP 190-102-300 (CAROT 2 Controller).

5.21 When the *automatic updating* process is being used, an erroneous entry will be detected and ignored and the update process will continue until completed. The seriousness of the consequences will vary, depending upon the magnitude and type of data entry. If the data entry error involves records comprising equipment (ROTLs and test lines) or administrative (control offices for ROTLs, test lines, or trunks) files, those offices assigned to the trunks to be tested (according to the equipment and administrative file assignments) will not be entered into the RDT data base and therefore will not be tested.

- If a data entry error involves the identification of a control office for trunks, those trunks assigned to that control office will not be tested.
- If the data entry error involves all the offices in the data base, no testing will take place.
- If the data entry error involves trunk groups or trunks assigned to specific offices, only those intended entries will be affected; the offices not involved will be tested as usual.

5.22 During the update process, error messages are outputted on the line printer when loading errors occur. This information is used to identify the type of loading error so that the appropriate corrections can be reentered in a later update procedure.

5.23 When the *console updating* (manual) process is being used for making small additions or changes to the data base, an erroneous data entry will be detected immediately via the appropriate error message printed out on the CRT and/or line printer. Since by their very nature the data entries are small, affecting usually trunk groups and/or trunks, the consequences are not too severe. Since this method of data entry is done in "real time," the error can be recognized, the necessary correction can be made, and the data can be reentered.

Input File Preparation

5.24 To minimize data entry errors, strict adherence to the details given in paragraphs 5.04, 5.05,

and 5.06 concerning the preparation of data on paper tape, cards, and magnetic tape, respectively, must be observed.

6. WORK-SHEET EXAMPLES FOR INITIAL DATA BASE LOAD AND SUBSEQUENT UPDATES

General

6.01 Data base transactions involve the following data manipulations:

- Filling out data records on specified work sheets
- Transferring information from work sheets to punched paper cards or punched paper tape
- Transferring data from paper cards or tape to 9-track magnetic tape.

6.02 The content of this part will be confined to the preparation of CAROT 2 work sheets for those types of trunks that are testable via CAROT (see Table BB). The preparation of resultant paper tape, paper cards, and 9-track magnetic tape will be accomplished at a centralized data processing center and, therefore, will not be covered in this section. Details covered in this part pertain to those efforts involved in completing work sheets for the initial establishment of a data base and for subsequent revisions of the data base to accommodate an expanding system. Examples of completed work sheets are provided in Fig. 21 through 50 to illustrate data record transactions involved when entering data for RDT and TFTP system operations. Figure 51 shows the development of the CAROT 2 System configuration as it evolves from the initial data base load through updates 1, 2, and 3. Figure 52 shows printouts of data contained in the example work sheets for the initial data base load and subsequent updates 1, 2, and 3. This figure shows how the record data would appear when a paper tape of input records is printed out by a teletypewriter for visual examination.

6.03 Before beginning the initial loading of the data base, certain "not known" categories must be initialized. Details regarding the entry of "not known" categories are given in paragraph 5.07.

Initial Data Base Load

6.04 The following paragraphs cover the data transactions involved in establishing a typical initial data base, via the update process, for a CAROT universe encompassing four switching offices. Two of the offices in the examples will have ROTLs associated with them and all four will have test lines.

6.05 The data base transactions comprising the initial data base load establish the RDT data base. A listing of applicable data record transactions and sequences related to the RDT data base is given in Table LL.

6.06 *Equipment Files:* As stated before, the equipment files must be entered first. They include those data records representing offices containing responders, ROTLs, and test lines that comprise the CAROT 2 trunk testing network. The equipment data record entries are compiled on the CAROT 2 Responder, ROTL, and Test Line Work Sheet.

6.07 Examples of Responder, ROTL, and Test Line Work Sheets containing data record entries for adding equipment offices to the data base are shown in Fig. 23, 24, 25, and 26.

6.08 *Administrative Files:* The administrative files contain records of those central offices that are assigned the maintenance responsibility for the trunks and facilities undergoing tests by CAROT. Entry of an office into the administrative files also designates that office as the control office for two additional functions:

- (1) Requesting copies of the previous night's test results via the remote terminal
- (2) Receiving the periodic management summary and TTMI reports that list test results according to control office identification.

6.09 For each control office entered in the administrative files, the identification of the associated ROTL is included. (There will be instances when several ROTLs will be under control of a single office as well as instances when several offices will share a common ROTL.) Also included are start dates for the management and TTMI summaries as well as start dates for periodic test intervals (daily, weekly, biweekly, etc).

6.10 The administrative data record entries are compiled on the CAROT 2 Control Office for Trunks and Control Office for Facilities Work Sheets. Examples of the Control Office for Trunks Work Sheet containing data record entries for adding control office assignments to the data base are shown in Fig. 27 and 28.

6.11 *Trunk and Facility Files:* The trunk and facility files contain those data records pertaining to trunk group, facility group, test parameters, and trunk data for the principal and alternate test directions. Data for initial trunk group and facility group entries is recorded on the CAROT 2 Trunk Group and Test Frame Priming Work Sheet and the Facility Group Work Sheet, respectively. Subsequently, record entries for trunk and facility group identification, trunk testing parameters, and trunk priming data are compiled on the CAROT 2 Trunk File Work Sheet.

6.12 The initial trunk group data record entries as compiled on the CAROT 2 Trunk Group and Test Frame Priming Work Sheet consist of the trunk type with near- and far-end terminal designations, and the control office with near- and far-end ROTL and FETL designations for the respective terminals. Examples of work sheets containing data record entries for adding trunk group assignments to the data base are shown in Fig. 29, 30, and 31.

6.13 The initial facility group data record entries as compiled on the Facility Group Work Sheet consist of the facility designation and type, near- and far-end terminal designations, and the associated control office identification. If a control office for facilities is assigned, the control office field (character positions 42 through 52) can be used for this purpose. If this field is left blank, the CAROT 2 controller will automatically assign the facility to the default control office category called "not known". This is possible only if the initialization of the "not known" category has been performed as described in paragraph 5.07. An example of a facility group record (GF) entry on the Facility Group Work Sheet is shown in Fig. 32.

6.14 Trunk-related data record entries as compiled on the CAROT 2 Trunk File Work Sheet consist of trunk group and associated facility group identifications. Also included are trunk testing parameters along with trunk priming data for

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individually identified trunks appearing within specified facility groups. Examples of Trunk File Work Sheets containing typical record entries appear in Fig. 33 and 34.

6.15 Following is a summary of all the data records entered in the typical initial load represented by the work-sheet examples shown in Fig. 23 through 34.

WORK-SHEET

EXAMPLE	INITIAL LOAD SUMMARY
Fig. 23	AD, RE, RO, OD, ID, ED, ID, ED
Fig. 24	RE, OD, ID, ED, ID, ED
Fig. 25	OD, ID, ED, ID, ED
Fig. 26	RE, RO, OD, ID, ED, ID, ED
Fig. 27	CT, RC
Fig. 28	CT, RC
Fig. 29	YG, YB
Fig. 30	YG, YB
Fig. 31	YG, YB
Fig. 32	GF, GF, GF
Fig. 33	TG, TF, TH, TT, TT, TF, TH, TT
Fig. 34	TG, TF, TH, TT, END

6.16 The records referenced in Fig. 23 through 32, if entered serially on a single-paper tape, would appear in the sequence AD, RE, RO, OD, ID, ED, ID, ED, RE, OD, . . . TG, TF, TH, TT, END. These same records, when entered using the grouped sequencing arrangement described in paragraph 5.16, would appear as shown in Fig. 54A.

6.17 The CAROT 2 System equipment configuration represented by the data compiled on the above work-sheet examples and entered during the initial load of the data base is shown in Fig. 53A. **Important:** No trunk can be entered using the Trunk File Work Sheet (via TG, TF, TH,

and TT records) until the associated trunk group identified in the TG record and the facility group identified in the TF record have been entered via the YG, YB, and GF records.

Update 1

6.18 The first update to the data base (initialized in the examples given in paragraphs 6.04 through 6.17) consists of data record additions and deletions. An example of a typical first update is represented by the following transactions:

Add:

- Two responders
- Two ROTLs
- One test line
- One administrative control office
- Three trunks to existing trunk group.

Delete:

- One trunk from existing trunk group.

6.19 Examples of update 1 data entered on the Responder, ROTL, and Test Line Work Sheet are shown in Fig. 35 and 36.

6.20 An example of using the Control Office for Trunks Work Sheet to enter update 1 records is shown in Fig. 37.

6.21 Figures 38 and 39 show examples of update 1 addition and deletion records entered on the Trunk File Work Sheet.

6.22 Following is a summary of all the data records entered during the update 1 data base load exemplified in Fig. 35 through 39.

WORK-SHEET

EXAMPLE	UPDATE 1 SUMMARY
Fig. 35	AD, RE, RO, ID, ED
Fig. 36	RE, RO
Fig. 37	CT, RC, RC

Fig. 38 TG, TF, TH, TT, TT, TT

Fig. 39 DE, TG, TT, END

6.23 The CAROT 2 System equipment reconfiguration represented by the data compiled on the work sheets referenced previously and entered as the first update of the initial data base is shown in Fig. 53B. Figure 54B shows a printout of data contained in those work-sheet examples pertaining to update 1 of the data base.

Update 2

6.24 The second update of the previously established data base could typically consist of adding a new trunk group to an existing office file and changing priming information for four trunk records.

6.25 An example of update 2 record entries adding trunk group and control office data to the data base via the Trunk Group and Test Frame Priming Work Sheet is shown in Fig. 40.

6.26 Figure 41 shows an example of using the Trunk File Work Sheet to enter update 2 records changing trunk priming for four trunks previously entered into the data base.

6.27 Following is a summary of all data records entered during the update 2 data base load exemplified in Fig. 40 and 41.

WORK-SHEET

EXAMPLE UPDATE 2 SUMMARY

Fig. 40 AD, YB, YB

Fig. 41 CH, TG, TF, TH, TT, TT, TT, TT, END

6.28 The CAROT 2 System equipment configuration represented by data compiled on the work sheets referenced previously remains unchanged. Therefore, the equipment configuration shown in Fig. 53B applies to the data base resulting from update 2 changes. Figure 54C shows a printout of data contained in those work-sheet examples pertaining to update 2 of the data base.

Update 3

6.29 A typical third update of the established data base consists of the following data transactions:

Add:

Three new trunks

One 5XB APTT test frame office.

Change:

Option code for a responder

Startup testing time of a ROTL

Startup date for management and index summary reports

Identification of a responder.

6.30 The 5XB APTT test frame office data base transactions comprise the initial load for the test frame tape preparation (TFTP) data base. A listing of the TFTP data record transactions and entry sequences is given in Table MM.

6.31 Data record transactions adding three 2-way trunks to the data base are shown in the example record entries on the CAROT 2 Trunk Group and Test Frame Priming Work Sheet (Fig. 42), the Facility Group Work Sheet (Fig. 43), and the Trunk File Work Sheet (Fig. 44). In this case, a new trunk group and a new facility group must be entered first, since the new trunks were not associated with trunk and facility groups already established in the data base.

6.32 Observe that the trunk group data in Fig. 42 and 44 indicates that the referenced trunk group contains 2-way trunks (B is entered in character position 45 of the YG and TG records). Therefore, the data records for testing parameters and trunk priming must be completed for **both the principal and alternate** directions of testing; ie, the TH and TT records must be entered for the principal direction, and the TI and TL records must be entered for the alternate direction.

6.33 The addition of a 5XB APTT test frame office and associated trunk data to the data base is accomplished as shown by the examples

given in Fig. 45 through 48. The update 3 record entries shown in the examples involve the CAROT 2 work sheets listed:

Test Frame Office — Fig. 45

Trunk Group and Test Frame Priming — Fig. 46

Facility Group — Fig. 47

Trunk File — Fig. 48.

6.34 A change in the responder option code and ROTL testing startup time is entered on the Responder, ROTL, and Test Line Work Sheet as shown by the example in Fig. 49.

6.35 Changes in the management and index summary report start dates for an existing control office and the ROTL testing startup time are entered on the Control Office for Trunks Work Sheet. (See example, Fig. 50.)

6.36 Data entries required for changing the identity of a responder involve the Responder, ROTL, and Test Line Work Sheet (see Fig. 51 and 52 for examples). This change must be accomplished by making the following record entries in the order listed:

- (1) Responder record (RE)—Add the new responder identification (Fig. 51).
- (2) ROTL record (RO)—Change all ROTL records associated with the old responder identification to be consistent with the new responder identification (Fig. 51).
- (3) Test line office identification record (ID) and responder office identification record (ED)—Change all test line and responder office identification records associated with the old responder identification to be consistent with the new responder identification (Fig. 51).
- (4) Responder record (RE)—Delete the old responder identification (Fig. 52). If desired, the old responder can remain associated with the test lines (via the original ID and ED records), but the new responder must be associated with a ROTL. In this case omit the transactions specified in (3) and (4).

6.37 A summary of all the data records entered during the update 3 data base load exemplified in Fig. 42 through 52 is as follows:

WORK-SHEET EXAMPLE	UPDATE 3 SUMMARY
Fig. 42	AD, YG, YB
Fig. 43	GF
Fig. 44	TG, TF, TH, TT, TT, TT, TI, TL, TL, TL
Fig. 45	OT
Fig. 46	YG, YB, YK
Fig. 47	GF
Fig. 48	TG, TF, TH, TT
Fig. 49	CH, RE, RO
Fig. 50	CT, RC
Fig. 51	AD, RE, CH, RO, ID, ED
Fig. 52	DE, RE, END

6.38 The CAROT 2 System equipment reconfiguration represented by data transactions compiled on the referenced work sheets and entered as the third update of the established data base is shown in Fig. 52. Figure 54D shows a printout of data contained in these work-sheet examples.

7. DATA BASE ADMINISTRATION

A. Data Base Gathering Methods

General

7.01 This part describes the procedures involved in compiling CAROT 2 data base information related to ROTLs and to those trunks capable of being tested via the ROTLs.

7.02 The details cover the CAROT 2 System controlling small and expanded SXS ROTLs, small and expanded 5XB ROTLs, 1XB and XBT ROTLs, and No. 1, No. 2, and No. 3 ESS ROTLs. Because priming information for the expanded 5XB ROTL is more complex than for the other ROTLs,

a more detailed description is included in Appendix 1 (attached).

7.03 The forms used in the various phases of data collecting and all of the ROTL data required on them are covered in Part 7B; however, instructions for use of some of the office description forms may be found in Section 800-102-100 (ATMS and Associated Testing Arrangements, Centralized Tape and Card Administration).

Responsibilities of ROTL Offices and CAROT Centers

7.04 To establish the appropriate data base for trunk testing operation, office description forms and trunk group description forms should be completed for each ROTL office. This information will then be transferred to the Trunk File and Trunk and Facility Group Work Sheets for each trunk outgoing from a ROTL. Related information on each ROTL, responder, and test line, and on the respective control offices must also be entered on the designated work sheets. To accommodate test frame tape and circuit order completion operations, related information must be entered on the appropriate work sheets.

7.05 The initial data must be an accurate record of those equipment and trunk areas involved as of a predetermined date; and to ensure the continued accuracy of the data base, methods must be established to incorporate all additions, deletions, and changes as they are subsequently reported.

7.06 Additional supporting information required by the CAROT center, other than that just described, may be found in the following sections:

- (a) Section 660-402-300 for loss deviation guides
- (b) Section 660-403-500 for noise limits, if not provided on the circuit layout record card.

7.07 Since methods of record keeping, trunk design and provision, and information distribution vary within the Bell System, an objective of the CAROT/ROTL universe must be to combine as much data as possible close to its source, by either manual or mechanized methods. This will allow the CAROT center to receive one complete input record for each trunk. Equally important, it will allow most of the convert-and-prepare process to take place outside the CAROT center. Part 7B provides more specific information about the data

forms available for data compiling; and Part 4 tells how to complete the CAROT 2 work sheets.

Data Base Information Flow

7.08 Initially, much of the information required to establish the CAROT 2 controller data base may have to be obtained from records and physical inventories in the central offices involved. However, once the data base has been established, as much information as possible should be obtained from other sources so that involvement of central office forces is minimized.

7.09 Information required to access and test trunks can be classified as trunk identification, facility identification, transmission parameters, trunk priming (trunk channel or pair number and trunk location address), test line, responder and ROTL type, and telephone numbers. As shown in Fig. 55, information is available from three primary sources:

- (1) Facility and equipment assignment group, referred to as the engineering circuit design and provision group
- (2) Trunk and common control assignment groups
- (3) Central office operations groups.

The appropriate engineering, assignment, and operating groups should forward copies of all circuit layout records, traffic and trunk orders, and in-effect notices, together with changes in test connector assignment, to the circuit provision organization functioning as the mechanized data base support group. This data will then be forwarded to the CAROT center on 9-track magnetic tape.

7.10 While the activities of these various functional groups are often correlated, each source may also act independently. For example, the facility assigned to a specific trunk may be changed without a simultaneous change in the trunk equipment assignment, and vice versa. A machine-load-and-balance adjustment may occur independently as a result of equipment additions and changing traffic patterns in an office. Since screening and coordinating data inputs for the data base is the responsibility of the CAROT center, the full cooperation of all groups should be obtained early in CAROT implementation, and formal methods should be established to assure a timely and accurate flow of information.

Trunk File Preparation

7.11 The local methods used to gather the data base information required to generate the trunk file for the CAROT System should be established well in advance of the actual start of automatic testing by the controller.

7.12 Once these methods have been established, the collection of data should be started and the trunk files prepared prior to the turnup of the ROTLs. Some factors to consider in advance preparation are as follows:

- (a) Size and number of trunk groups to be tested
- (b) Availability of information required for the trunk file
- (c) Number of updates that would occur because of rearrangements during the advance preparation stage.

7.13 As stated in paragraph 7.07, an objective must be to combine as much data as possible close to its source and to provide one input to the CAROT center. The next three paragraphs outline types of administrative interaction methods utilized between trunk and common control assignment, circuit provision, and operating organizations that lead to an efficient and straightforward initial load and update process.

Trunk File Initial Load Process

7.14 This process for gathering ROTL data for the initial load should minimize the involvement of the central office forces and allow most of the convert-and-prepare process to occur outside the CAROT center.

7.15 As shown in Fig. 56, the CAROT center is responsible for identifying testable trunk groups. If the ROTL installed is an ESS or small electromechanical ROTL, the trunk assignment organization will provide the per-trunk priming information and pass this information directly to the circuit provision organization. If the ROTL installed is an expanded electromechanical ROTL, the trunk assignment organization will prepare a trunk group description (TGD) form and enter the per-trunk priming information on the TGD form. The trunk assignment organization will then forward

the TGD form to the common control assignment organization. The common control assignment organization is responsible for providing the trunk group priming information on the TGD form and then forwarding the form to the circuit provision organization. The circuit provision organization is responsible for the convert-and-prepare process and for providing facility assignment and transmission parameter information.

Trunk File Update Process

7.16 As shown in Fig. 57, the responsibilities of the different organizations for the update process are the same as for the initial load process except that the CAROT center is not responsible for identifying testable trunk groups. It is important to note that for 1XB/XBT ROTLs and for expanded SXS and 5XB ROTLs, when the trunk activity does not affect the entire trunk group, TGD forms are not required.

B. Input Data Forms and Examples

General

7.17 This part describes forms used when collecting data for both CAROT 1 and CAROT 2 Systems. For CAROT 2 applications, these forms provide a means for compiling data into the required formats for subsequent entry into the data base. The forms involved and their applications are as follows:

Office Description Forms: These forms are used in the initial assembly of information related to arrangements for automatic trunk testing in each office, ROTL directory numbers, and test connector assignments.

Trunk Group Description Forms: These forms are used in the initial assembly of trunk group dependent data as related to expanded SXS, expanded 5XB, and 1XB/XBT ROTLs.

CAROT 2 Work Sheets: The work sheets are used in the intermediate phase of data manipulation. They are used to format information derived from other sources, ie, office description forms, trunk group description forms, etc, for entry into the CAROT 2 data base via the manual or mechanized data entry processes.

7.18 A listing of forms that will be useful in collecting CAROT 2 data base information follows. Those forms identified by reference numbers enclosed in parentheses may be ordered from Western Electric Company, and those that are not must be reproduced locally.

Office Description Form
Trunk Maintenance File Data
SXS ROTL Office
(ODF-D CAROT)

Office Description Form
Trunk Maintenance File Data
No. 5XB ROTL Office
(ODF-C CAROT)

Office Description Form
Trunk Maintenance File Data
Expanded Step-By-Step ROTL Office
(ODF-E CAROT)

Office Description Form
Trunk Maintenance File Data
Expanded Step-By-Step ROTL Office
(ODF-E CAROT)

Office Description Form
Trunk Maintenance File Data
1XB/XBT ROTL Office
(ODF-G CAROT)

Expanded Step-By-Step ROTL
Trunk Group Description Form

Crossbar Tandem and No. 1 Crossbar ROTL
Trunk Group Description Form

Expanded No. 5 Crossbar ROTL
Trunk Group Description Form

CAROT 2 Responder, ROTL, and Test Line
Work Sheet (E6725)

CAROT 2 Control Office for Trunks
Work Sheet (E6726)

CAROT 2 Control Office for Facilities
Work Sheet (E6727)

CAROT 2 Circuit Order Plant Control Office
Work Sheet (E6728)

CAROT 2 Test Frame Office
Work Sheet (E6729)

CAROT 2 Circuit Order
Work Sheet (E6730)

CAROT 2 Trunk File
Work Sheet (E6731)

CAROT 2 Trunk Group and Test Frame
Priming Work Sheet (E6732)

CAROT 2 Facility Group
Work Sheet (E6733).

Office Description Forms

7.19 Office description forms are used to aid in assembling information required at the CAROT center for trunk priming. These forms will be needed initially and from time to time as changes occur in testing arrangements.

7.20 *Small SXS ROTL Office:* Form ODF-D (Fig. 58) is provided for use with small SXS ROTLs. This testing arrangement uses a test connector to gain access to trunks. Since test connector positions are directly cabled or permanently assigned to the trunk relay equipment, the test connector assignment should be entered on this form. This form is then used as a translation table by the CAROT center to translate trunk relay assignments appearing on the traffic trunk order into trunk priming digits on the Trunk File Work Sheet. This information (assignments) must be determined before installation so that WEC Co can cable and cross-connect. The form should be filled out at the time of assignment and updated as office rearrangements occur.

7.21 *Small 5XB ROTL Office:* Form ODF-C (Fig. 59) is used to record the route translation assignments for the 20 trunk groups that can be tested via a small 5XB ROTL. This form should be filled out when the cross-connections are assigned during ROTL installation and updated as trunk groups are added or disconnected.

7.22 For 5XB ROTL offices using 160-point trunk link frames, there is a fixed relationship between the trunk equipment assignment (switch, level, and appearance) made by traffic and the test access information (busy test lead) required as part of the ROTL priming. Tables OO and PP

provide the information necessary to translate from one to the other.

7.23 For 5XB ROTL offices using 200-point trunk link frames (miniswitch), the relationship between the trunk equipment assignment (switch, level, and appearance) made by traffic and the test access information (busy test lead) is flexible and may be assigned in the central office. This arrangement makes CAROT data base administration quite complicated. Effort should be made to have traffic assign the busy test leads or make assignments inflexible as given in Table PP. Traffic should, in either case, provide the information on the traffic trunk order.

7.24 Expanded SXS ROTL Office: Form ODF-E (Fig. 60) is used to prepare a table relating equipment or selector switch assignment to test connector appearance for expanded SXS ROTLs when the test connector appearances are permanently cabled. Information for this table can be obtained from Western Electric T drawings. Form ODF-F (Fig. 61) is used to record the cross-connect assignments of assignable test connector appearances for expanded SXS ROTL offices.

7.25 1XB/XBT ROTL Office: Form ODF-G (Fig. 62) is used to prepare a table that may be used to convert office link frame appearances to ITTC appearances for 1XB/XBT ROTL offices. Information for the table may be obtained from Western Electric T drawings. The T drawings may be used directly, if convenient.

Trunk Group Description Forms

7.26 Trunk group description (TGD) forms are used for expanded SXS, expanded 5XB, and 1XB/XBT ROTL offices to collect dependent data for trunk groups. These forms will be needed initially and from time to time as changes occur in testing arrangements that affect the trunk group.

7.27 Expanded SXS ROTL Office: Figure 63 shows a form which may be used to collect trunk group dependent information for expanded SXS ROTL offices. The number of FETL digits and the replacement NNX may be transferred directly to character positions 32 and 36 through 38 in the TH or TI record of the Trunk File Work Sheet. Character position 23 in the TT or TL record may be determined as shown in Fig. 64.

7.28 1XB/XBT ROTL Office: The form shown in Fig. 65 may be used to collect the trunk group dependent data for 1XB/XBT ROTL offices. The number of FETL digits and the replacement NNX may be transferred directly to character positions 32 and 36 through 38 in the Th or TI record of the Trunk File Work Sheet. Character positions 22 and 23 in the TT or TL record may be determined as shown in Fig. 66 and 67.

7.29 Expanded 5XB ROTL Office: When initializing a 5XB ROTL data base or adding a new trunk group, a form similar to the one shown in Fig. 68 can be used to provide a permanent record of the trunk group dependent data. The form can also be used as a reference when future per-trunk actions are taken on the trunk group.

7.30 The trunk group location address on the TGD form may be moved directly to the Trunk File Work Sheet TT or TL record character positions as follows:

TGD CHAR	TT/TL RECORD CHAR POS
TYP	17
TR	23
MG	24
CTA	25
CU	26
CRU	27
CG	28

If 2-digit, 5-digit, or XII translation (TR = 4, 9, or 5, respectively) is used, or if no translation is used (TR = 6 or 7), the number of FETL digits must be used to specify the number of digits in the test line number outpulsed by CAROT to the ROTL and acted on by the translator. It may be left blank in other cases. If code conversion is used, an NPA-NNX, NPA, or NNX which may be routed over the trunk group (paragraph 4.58) must be specified, with consideration given to the previously specified route advance, class, rate treatment, and translation information. Ordinarily, this need not be entered and may be left blank since the NPA and NNX or TTC of the distant office will normally already appear in the entry for the distant office test line directory.

CAROT 2 Work Sheets

7.31 The process of entering data onto the CAROT 2 work sheets is described in Part 4 of this section. Details for entering information into the various data records are provided under the applicable equipment, administrative, and trunk and facility data base categories.

C. Data Base Update Methods

7.32 The CAROT 2 data base may be updated by magnetic tape provided by a mechanized records system or by cards or punched paper tape containing data entered on manual records (work sheets). These methods can be used for entering data pertaining to routine and demand trunk (RDT) tests, test frame tape preparation (TFTP) procedures, and circuit order testing and completion (COTP) work.

Update From Mechanized Records System

7.33 The CAROT 2 data base may be updated from an update file on 9-track, IBM-compatible, magnetic tape written by a mechanized records system. As shown in Fig. 69, the tape is read by an RDT update process that then updates the RDT data base. This, in turn, supports the process in servicing the requests placed by craft personnel. If the TFTP process is implemented, its data base is updated from the same input file.

7.34 The process of updating the COTC data base for implementing circuit order testing is shown in Fig. 70. Information on pending circuit orders is passed from the mechanized records system to CAROT 2 on the COTC update tape as the circuit orders are issued. The information is held in the COTC data base for the purpose of testing only, ie, craft personnel can ask for normal demand tests of the trunk by circuit layout order number. The completion would then be reported through established channels back to the mechanized records system, and when the order became effective, the mechanized system would update CAROT 2 by deleting the pending order from the COTC data base and adding it to the RDT data base (or changing or deleting the circuit from the RDT data base). In this scheme CAROT 2 has no control over the circuit order completion.

7.35 The COTC process is shown in Fig. 71. When craft personnel have finished circuit

order testing and have reported the completion to CAROT 2, the completion is entered in the CAROT 2 data base. This causes a flag to be set on the trunk, if it exists in the RDT data base, to prevent routine testing until the RDT data base has been updated to reflect the circuit order work. The completion is also marked in the COTC data base so that the completion-report-generation process will issue a completion notice back to the mechanized records system and put it on the completion report printed at the CAROT center. The mechanized records system must return the proper updates back to CAROT once the circuit order completion is accepted and becomes effective. It is not advisable to implement updates to the COTC and RDT data bases at the CAROT center, since the completion report may well be rejected by the mechanized records system. Local updates (ie, at the CAROT center) to COTC and RDT data bases would then cause the CAROT 2 and mechanized records system data bases to diverge.

7.36 Completion reporting will be implemented so that the CAROT System will reject a completion report unless the trunk has passed the circuit order test limits for those tests that CAROT can perform. A rejection may be overridden by a second completion message, but this will be noted on the completion notice file. Such overrides may be legitimate since the capability for correcting information in the COTC data base by remote terminal request may not have been provided.

Update From Manual Records

7.37 To update the data base using the manual process, a clerk assembles data from manual records and enters it on cards or 8-level paper tape. Once the data is entered, the CAROT System proceeds as before. Figure 72 shows the manual-update process for the RDT data base. Information on pending circuit orders can also be assembled manually and entered on cards or paper tape as shown in Fig. 73. To avoid entering the data manually more than once (ie, once to the COTC data base and then to the RDT data base), local COTC update and local RDT update processes are enabled, causing updates to the COTC and RDT data bases after the completions have been reported. Cross-checks between the CAROT data base and manual records must be made manually to prevent divergence of the two data bases.

Update in Mixed Systems

7.38 All of the processes that would be obtained by overlaying Fig. 69 through 73 can coexist in the same CAROT center. The update software is not changed to enable one process or another; rather, the input data is changed. Details concerning circuit order record items used to enable circuit order testing, circuit order completion, and local RDT data base updating are covered in Part 4D. Mixed systems might occur where some parts of a company have a mechanized records system and other parts have a manual one; or where completions on message trunks could be accepted through CAROT 2 but completions to CCSA trunks would have to be completed manually.

Operation of Update Software

7.39 The update software is arranged to operate at a set time each day as specified to the CAROT 2 controller by the operator. Prior to this time, cards and paper tape must be placed in the readers and the magnetic tape must be mounted if any data is to be entered into the data base. Updating can then run unattended. There are advantages to attended operation since a backup copy of the data base can be written onto another magnetic tape immediately after updating. Procedures for performing update procedures are given in TOP 190-102-300 (CAROT 2 Controller).

CAROT Audit Tape

7.40 The CAROT audit tape is generated by the CAROT 2 controller, via the ASIN program. It provides a 9-track magnetic tape copy of the CAROT 2 controller data base as recovered from disc storage and arranged in the format employed by the Update program to update the data base. Figure 74 depicts the data sources comprising the audit tape.

7.41 The audit tape is primarily intended to be used by the mechanized data base center to verify the content accuracy of the CAROT 2 controller data base as compared to the data retained in the circuit layout record file located at the mechanized data base center.

7.42 An audit tape containing the complete CAROT 2 controller data base can also be used to reload the system data base in the event of a data base crash. This is possible since the

tape, as outputted by the ASIN program, contains the data base arranged in the same format as the update tapes prepared by the mechanized data base. When an audit tape is used to reload the data base, the data must be treated as "add-in" information.

7.43 The ASIN program allows the selection of one or more data files or all of the files comprising the CAROT 2 controller data base. The CAROT trunk and trunk group files can be selected by the assigned control office or trunk group identification. The test frame trunk and trunk group files can be selected by the assigned control office or trunk group identification. The following is a list of files that may be included on an audit tape:

- Responder Files
- ROTL Files
- Test Line Directory Files
- Control Office for Facilities Files
- Control Office for Trunks Files
- Test Frame Control Office Files
- Facility Group Files
- CAROT Trunk and Trunk Group Files
- Test Frame Trunk and Trunk Group Files.

7.44 When an audit tape containing only CAROT 2 trunk-related data (TT or TL record information) is generated, additional information representing an extension of the TT or TL record is outputted on the tape. This information consists of data accumulated during the last routine test of the trunk identified by the trunk record. This extension of data appears **only** on the audit tape.

7.45 Items referenced in the extension of the TT or TL record according to character position are the following:

CHAR POS	DATA ITEM
51-52	Month

		CONDITION	LEVEL	NOISE
53-54	Day	No Measurement	-999	99
55-56	Year	Out-of-Range High	+080	56
57-60	Time (based on 24-hour clock)	Out-of-Range Low	-160	14
61-62	Call Disposition 1			
63-64	Call Disposition 2			
65-68	Far-to-Near Level Test			
69-72	Near-to-Far Level Test			
73-74	Near-End Noise Level			
75-76	Far-End Noise Level			
77-78	Call Disposition 3			
79-80	Call Disposition 4			

When analyzing the test results, the date and time are those for the measurements recorded only when **one** of the dispositions is ANSWER. Also, those dispositions prior to the ANSWER disposition apply to the date recorded. If none of the dispositions is ANSWER, the date and time apply to the fourth disposition and the test results apply to a previous test run.

7.50 A listing of call disposition entries that may be encountered is as follows:

7.46 The call dispositions (character positions 61 through 64 and 77 through 80) are recorded for the four test attempts made in each routine test run. Thus, if a trunk was reported busy on all four test attempts during the first test run and an answer was received on the first attempt during the second test run, the corresponding call dispositions are these:

1st Test Run: BUSY BUSY BUSY BUSY
 2nd Test Run: ANSWER BUSY BUSY BUSY

Note that the call dispositions corresponding to those test attempts not acted upon during the second test run are not updated and therefore retain the status recorded during the first test run.

7.47 Character positions 65 through 68 and 69 through 72 (far-to-near and near-to-far test tone levels) are expressed in tenths of a dB. Thus, a properly lined-up trunk with an EML of 4.0 dB would have each level recorded as -040 on the printout of the audit tape.

7.48 Character positions 73 through 74 and 75 through 76 (near-end and far-end noise levels) are expressed in dBrc.

7.49 Exceptions to the values referenced in paragraphs 7.47 and 7.48 are the following:

VALUE	MEANING
00	No attempt made
01	Far-end test line busy
02	Milliwatt received in error
03	Answer
04	Voice announcement
05	Audible ring
06	Parking circuit time-out
07	Dial tone or broadband signal
08	Reorder
09	Busy
10	Pretrip failure
11	High and dry
12	ROTL error
13	Operational test equipment busy
14	Priming data error
15	Near-end responder busy

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- 16 No answer supervision
- 17 Supervisory hit
- 18 Equipment failure or blockage
- 19 Test progress tone longer than expected (ROTL calls only)

8. COMPLETION NOTICE FILE

8.01 The circuit order portion of the CAROT 2 data base contains uncompleted circuit orders for trunks within the designated CAROT 2 testing area. This data includes trunk identification; testing parameters; ROTL priming information; and control office, trunk group, and facility group identification. The circuit order data base, consisting of additions of new pending circuit orders and deletions of those circuit orders completed, will be supplied to the CAROT center via the telephone company circuit provision department (or equivalent organization).

8.02 Updates to the CAROT 2 controller data base may be made via direct peripheral inputs and/or the CMS 1A, B data link. Direct peripheral inputs include 9-track magnetic tape, paper tape, cards, and the command console. It is not mandatory that mechanized data base updating procedures be used for the CAROT 2 controller. The manual process used by the CAROT 1 controller, ie, filling out data record sheets and punching paper tape for input to the controller, may also be followed in the CAROT 2 controller environment.

8.03 When the CAROT 2 controller uses the initial issue of the software, circuit order completions will be reported by central office personnel in the normal manner to the circuit provision organization. This will not alter the present process used by the telephone companies for reporting circuit order completions.

8.04 Generic 2, CAROT 2 controller software provides an option employing the remote-user terminal to automatically update the data base when reporting circuit order completions. Upon completing the work on a circuit order, including any required testing, craft personnel will report the completion of the assigned circuit order and the corresponding CAROT 2 controller item number to the controller via the remote-user terminal. The CAROT 2 controller will then remove the item from

its circuit order data base and insert it (or delete it if appropriate) in the routine testing data base.

8.05 When completion reports are made directly to the CAROT 2 controller via the remote-user terminal, a 9-track magnetic tape will be produced periodically listing all completed circuit orders. This tape will be identified as the completion notice file (CNF). This file will in turn be sent, via the mechanized records system, to the circuit provision organization for the purpose of updating records. See Fig. 71. Two mag tape formats are available. One is specifically designed for use by the Circuit Order Control System (COCS) module of TIRKS. This tape is written in EBCDIC. The other CNF tape is written in ASCII. Note that the results of the circuit order tests may, at operator request, be included in or excluded from the CNF records on the tape. Refer to Section 190-102-201 for more information on these two formats.

8.06 If the completion report is forwarded directly to the responsible telephone company organization, circuit order updates will be supplied to the CAROT 2 controller as part of the regular circuit order update procedure. See Fig. 73.

9. REFERENCES

9.01 The following is a list of Bell System Practices referenced in this section that relate to the preparation of information to be entered in the CAROT 2 data base. Also listed are practices related to the description, operation, and maintenance of the CAROT 2 controller and remote terminal.

SECTION	DESCRIPTION
190-102-010*	CAROT 2 Center—Duties and Responsibilities
190-102-015	CAROT 2 Center—Analysis of Test Results
190-102-100	CAROT 2 Controller and Remote Terminal Description
190-102-103†	CAROT 2 Remote User— General Description
190-102-201†	CAROT 2 Center—Duties and Responsibilities of Data Base Administrator

190-102-202	CAROT 2 Controller Administration	660-450-501	Circuit Order or Trunk Order Tests—Message Trunks Testing Methods
190-102-204†	Circuit Order Activity—Implementation and Description	660-450-502	Circuit Order or Trunk Order Tests—2-Wire Switching Offices
190-102-206†	CAROT 2 Controller—Data Base—Edit and Select Programs	660-450-503	Circuit Order or Trunk Order Tests—4-Wire Switching Offices
190-102-207†	CAROT 2 Controller—Report Program Generator	660-450-504	Circuit Order or Trunk Order Tests—Intermediate Office
190-102-301†	CAROT 2 Controller TOP		
190-102-305*	CAROT 2 Remote-User Manual TOP	660-450-505	Circuit Order or Trunk Order Tests—Channel Net Gain and Frequency Response
190-102-308†	CAROT 2 Controller—Optional Trunk-testing Schedule		
190-102-500*	CAROT 2 System Trouble-Locating Procedures	660-450-506	Circuit Order or Trunk Order Tests for Overseas Operator Bridged Access Trunks
218-220-301	Compiling Data for Control Tapes	795-100-100	Common Language Location Identification—Description
218-220-302	Preparation of Control Tapes		
218-220-303	Compiling Data for Control Tapes	795-400-100	Common Language Circuit Identification—Message Trunks
660-402-300	Transmission Maintenance	795-402-100	Common Language Circuit Identification—Special Service Circuits
660-403-011	Trunk Transmission Maintenance Index		
660-403-500	Message Circuit Noise Measurements	795-450-100	Common Language Facility Identification—General
660-450-300	Circuit Order or Trunk Order Tests—General	800-102-100	Cross Reference Lists—Administrative Information
660-450-301	Circuit Order or Trunk Order Tests—Message Trunks	865-203-100	CAROT 1 and CAROT 2—Engineering and Implementation Methods System
660-450-302	Circuit Order or Trunk Order Tests—Telegraph Layouts	865-203-101	CAROT 1 and CAROT 2—Engineering Considerations

*This practice has not been reissued (issue 2) for generic 2 information as of this date. Consult future issues of indexes to determine when this document becomes available.

*This practice has not been reissued (issue 2) for generic 2 information as of this date. Consult future issues of indexes to determine when this document becomes available.

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10. CAROT 2 GLOSSARY

AD	Action record code identifying data additions	CRU	Rate treatment units digit
AGRA	Allotted group and route advance digit	CT	Identifies control office for trunks name and data
AOTT	Automatic outgoing trunk test frame	CTA	Class-of-service tens/tandem screening
AP	Action record code identifying records that are pending additions to COTC data base	CU	Class-of-service units digit
APTT	Automatic progression trunk test frame	DATA BLOCK	A group of records which is written on or read from magnetic tape as a single operation
ASH	APTT CAMA access switch hold magnetic number	DATA NETWORK	Same as program network structure
ASIN	Program which will list portion of existing data base in update format	DE	Action record code indicating data deletions
ASN	APTT CAMA access switch number	DEFAULT	That value assigned by CAROT when a data item position is left blank
ATMS System	Automatic Transmission Measuring System	ED	Identifies test line equipment (responder) data
CCSA	Common control switching arrangement	EMBEDDED FIELD	In a data record, a subfield of data appearing within a larger data field
CF	Identifies control office for facilities name and data	END	End-of-file record
CG	Rate treatment tens/trunk class group	EOF	End-of-file mark
CH	Action record code indicating data changes	EOV1	First end-of-volume record on an IBM-labeled tape
CKTO	Circuit Order	FILE	A collection of data records
CLCI	Common language circuit identification	FT	Trunk link frame No. tens digit
CLFI	Common language facility identification	FT/FTCD	Frame tens/frame tens called digits
CLLI	Common language location identification	FU	Trunk link frame No. units digit
CLO#	Circuit layout order number	GF	Record code identifying facility group and data to be processed (manipulated, processed, or transacted)
CNF	Completion notice file	GN	Identifies new name and data for facility group
COI	Circuit order item	HDR1	First header record on an IBM-labeled tape
COTC	Circuit order testing and completion	HDR2	Second header record on an IBM-labeled tape
COTCU	Circuit order testing and completion update		
CP	Identifies circuit order plant control office name and data		

HIERARCHICAL DEPENDENCIES	Interdependent features of some programs—with prescribed methods for inputting data in an ordered sequence	POFU	Pending order file updates
HOTL	Home office test line	PROGRAM NETWORK STRUCTURE	A group of data files related to one another in specified ways, via access paths, for the purpose of acquiring and transferring information from one file to another during program execution
ID	Identifies test line (number) name and data	PTF	Operational test line pretrip failure
IHT	CAMA intermarker group trunk number hundreds digit	PU	Identifies circuit order item to be canceled
ITEM	Circuit order item	PV	Identifies circuit order item related to previous set of actions
ITH	CAMA intermarker group trunk number thousands digit	RA	Route address and group allotted
ITT	CAMA intermarker group trunk number tens digit	RC	Identifies ROTL control office entry
IUT	CAMA intermarker group trunk number units digit	RDT	Routine and demand test
L	Local	RDTU	Routine and demand test update
LM	Combined local and tandem	RE	Identifies ATMS responder name and data
LT	Combined local and toll	RECORD	A collection of data items under a given name
M	Tandem	RECORD IDENTIFIER	A name which can be used to locate and retrieve the record
MG	Marker group	RO	Identifies ROTL name and data
NON	Nonsynchronous operational test line	ROTL	Remote office test line
NSAPTT	No. 5 crossbar APTT	RTT	Small No. 5 crossbar ROTL route translation tens digit
OD	Identifies test line office name and data	RTU	Small No. 5 crossbar ROTL route translation units digit
OPBY	Operational test line busy	SMAS	Switched Maintenance Access System
OT	Identifies test frame office name and data	SSX	Small step-by-step ROTL
OTTS	Outgoing Trunk Testing System for No. 4 crossbar	S5X	Small No. 5 crossbar ROTL
PAN	Panel	SXS	Step-by-step (ROTL)
PC	Identifies whole circuit order composed of many items as related to the responsible plant control office	SYN	Synchronous operational test line

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T	Toll	XBT	Crossbar tandem (ROTL)
TF	Identifies facility group	YB	Identifies control office and ROTL names for a trunk related to transactions on trunk groups
TFMS	Trunk and Facility Maintenance System	YG	Identifies a trunk group name and data as related to transactions on trunk groups
TFTP	Test frame tape preparation	YK	Identifies test frame priming data for trunk group as related to transactions on trunk groups
TG	Identifies trunk group name as related to transaction on trunks	1ES	No. 1 ESS (ROTL)
TH	Identifies trunk test parameters applying to principal mode	1XB	No. 1 crossbar (ROTL)
TI	Identifies trunk test parameters for alternate mode	2ES	No. 2 ESS (ROTL)
TL	Identifies trunk data for secondary traffic use	3ES	No. 3 ESS (ROTL)
TM	Toll tandem	4ES	No. 4 ESS (ROTL)
TMF	Trunk maintenance file	4XAOTT	No. 4 crossbar AOTT
TMFU	TMF update	4XB	No. 4 crossbar (ROTL-OTTS)
TR	No. 5 crossbar ROTL translation digit	5XB	No. 5 crossbar (ROTL)
TRM	Terminating traffic area	51B	J94051B ATMS responder
TT	Trunk No. tens digit	52A	J90052A ATMS responder
TT	Identifies trunk data applying to the principal mode	100	Combined 100-type test line
TU	Trunk No. units digit	102	102-type test line
TU/SSN	Trunk units or CAMA access switch selecting magnet units digit	103	Code 103 test line
TYP	Type of call—local originating, toll originating, etc	105	105-type test line
VF	Voice frequency	/	Identifies beginning of line for action record
VOL 1	First record (four characters) on IBM-labeled magnetic tape	\$	Character indicating no change to corresponding or successive characters in data base.

TABLE A

KEYS FOR DIRECT ACCESS TO DATA BASE FILES

FILE NAME	ACCESS KEY (NOTES 1-4)
<i>Equipment Files:</i> Responder Test Line ROTL	CLLI + Equipment Mounting CCLI + Type + Traffic Use* CCLI + ROTL Character
<i>Administrative Files:</i> Control Office for Trunks Control Office for Facilities ROTL Control Office for Trunks Plant Control Offices Test Frame Office	CLLI CLLI CLLI CLLI CLLI
<i>Trunk and Facility Files:</i> Trunk Group Trunk Facility Group Test Frame Trunk Group Circuit Order Circuir Order Item	Trunk Group Part of CLCI CLCI Facility Group Part of CLFI Trunk Group Part of CLCI CLO# Minus Item Number and Supplement CLO# Minus Supplement

Note 1: The CLLI is the common language location identification code. (See Section 795-100-100.)

Note 2: The CLCI is the common language circuit identification code. (See Section 795-400-100.)

Note 3: The CLFI is the common language facility identification code. (See Section 795-450-100.)

Note 4: The CLO# is the circuit layout order number.

* Not necessarily unique. May identify a subset of test lines that are identical for testing purposes

TABLE B
ACTION RECORD DEFINITIONS

CHAR POS	ACTION CODE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	AD	Following records cause additions to the RDT and TFTP or COTC data bases
	DE	Following records cause deletions from the RDT and TFTP or COTC data bases
	CH	Following records cause changes to the RDT and TFTP or COTC data bases
	AP	Following records are pending additions to be stored in the COTC data base
	DP	Following records are pending deletions to be stored in the COTC data base
	CP	Following records are pending changes to be stored in the COTC data base

TABLE C

RECORDS REQUIRED FOR ACTIONS ON RESPONDERS, ROTLS, AND TEST LINES

RECORD NAME	RECORD CODE	FUNCTION OR MEANING
Action	AD, DE, or CH	Adds, deletes, or changes a responder in the data base
ATMS Responder	RE	Name and data for the responder
Action	AD, DE, or CH	Adds, deletes, or changes a ROTL in the data base
ROTL	RO	Name and data for the ROTL
Action	AD, DE, or CH	Adds, deletes, or changes a test line office in the data base
Test Line Office	OD	Name and data for the test line office
Action	AD, DE, or CH	Adds, deletes, or changes a test line in an office
Test Line No.	ID	Name and data for the test line
Test Line Equipment	ED	Responder data for the test line

TABLE D

ATMS RESPONDER RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	RE	Identifies an ATMS responder record
4-14		Common language location identification code of the responder office
15-26		Mounting position of the responder within that location
27-29	51B	J94051B ATMS responder
	52A	J94052A ATMS responder
30-32		<i>For the J94051B:</i>
	000	No options or modifications (used only for terminating 150-type test lines)
	001	M option for use with small SXS and 5XB ROTLs and terminating test lines
	002	N option for use with expanded ROTLs and terminating test lines
		<i>For the J94052A:</i>
	000	Equipped with List 1 for use with terminating 105-type test lines only
	001	Equipped with Lists 1 and 2 for use with all ROTLs and terminating 105-type test lines
	002	Equipped with Lists 1 and 3 for use with terminating 105-type test lines (automatic self-checking feature for No. 4 ESS)
	003	Equipped with Lists 1, 2, and 3 for use with all ROTLs and 105-type test lines (automatic self-checking feature for No. 4 ESS)

TABLE E
ROTL RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	RO	Identifies a ROTL record
4-15		Common language location identification code and count character used to identify the ROTL*
16-18	S5X	Small No. 5 crossbar ROTL
	SSX	Small step-by-step ROTL
	1XB	No. 1 crossbar ROTL
	4XB	No. 4 crossbar ROTL-OTTS
	5XB	No. 5 crossbar ROTL
	SXS	Step-by-step ROTL
	XBT	Crossbar tandem ROTL
	1ES	No. 1 ESS ROTL
	2ES	No. 2 ESS ROTL
	3ES	No. 3 ESS ROTL
	4ES	No. 4 ESS ROTL
19	2	2-wire switching system
	4	4-wire switching system
		Blanks not acceptable
20	Ø	ROTL not equipped with make-busy feature
	1	ROTL equipped with make-busy feature
		Blanks not acceptable
21-32		ROTL telephone number, left-justified. Include the area code and toll access code (eg, 1) if necessary
33-36		Time of day to start routine testing, in 24-hour clock format
37		Number of ROTLs called by the same name and able to test the same set of trunks. When blank, defaults to a 1

* This entry is the CLLI of the traffic entity for which the ROTL tests outgoing trunks. If there is more than one ROTL testing outgoing trunks and if each ROTL does not have access to all outgoing trunks, the first is numbered Ø, the second 1, and so forth. When left blank, this defaults to ROTL zero (Ø)

TABLE E (Contd)

ROTL RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
38		The number of "heads" on each ROTL which may be used simultaneously for testing by CAROT. When blank, defaults to a 1
39-50		Another name by which this ROTL is known. For example, a No. 5 crossbar ROTL may be used to test in three marker groups and hence be known by three names. When it is entered under the last two names, this item is used to relate it to the first name with which it was entered
51-73		Identity of the ATMS responder used by this ROTL. See RE record definition (Table D), character positions 4-26

TABLE F

TEST LINE OFFICE RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	OD	Identifies a test line office record
4-14		Common Language Location Identification code used to identify the test line office
15-17	SXS	Step-by-step
	PAN	Panel
	1XB	No. 1 crossbar
	4XB	No. 4 crossbar
	5XB	No. 5 crossbar
	1ES	No. 1 ESS
	2ES	No. 2 ESS
	3ES	No. 3 ESS
	4ES	No. 4 ESS
	XBT	Crossbar tandem
18-19	L	Local. Right-justified
	T	Toll. Right-justified
	M	Tandem. Right-justified
	LT	Local-toll
	LM	Local-tandem
	TM	Toll-tandem

TABLE G
TEST LINE NUMBER RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	ID	Identifies a test line number record
4-14		Common Language Location Identification code used to identify the test line office.
15-17	100	Combined 100-type test line
	102	102-type test line
	103	103-type test line
	105	105-type test line
	SYN	Synchronous operational test line
	NON	Nonsynchronous operational test line
18-20		Numbering plan area code
21-23		Exchange NNX for 7-digit test line number or filler (000) for 10X code test lines or test line access by 3-, 2-, or 1-digit numbers
24-27		Remainder of test line directory number, left-justified
28		Blank
29-46		List of 2-character traffic use codes of trunks incoming to the office which may terminate on this test line. See Section 795-400-100
47-58		Test line location. Similar to RE record definition (Table D), character positions 15-26

TABLE H

TEST LINE EQUIPMENT RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1		Beginning of line
2-3	ED	Identifies a test line equipment record
4-26		Identifies the ATMS responder used by this test line. See RE record definition (Table D), character positions 4-26. If the test line has no responder associated with it (ie, 102-type), these character positions must be left blank
27		Number of test lines in the hunt group accessed by the same directory number. Blank defaults to 0
28	0	0-dB test pad loss, 900 ohms impedance
	1	0-dB test pad loss, 600 ohms
	2	2-dB test pad loss, 600 ohms
	3	3-dB test pad loss, 600 ohms
	4	2-dB test pad loss, 900 ohms
		When blank, defaults to 0
20-44		Home office test line priming. Leave blank until home office test line testing is implemented in CAROT 2 controller software

TABLE I

RECORDS REQUIRED FOR ACTIONS ON CONTROL AND TEST FRAME OFFICES

RECORD NAME	RECORD CODE	FUNCTION OR MEANING
Action	AD, DE, or CH	Adds, deletes, or changes a control office for trunks
Control Office for Trunks	CT	Name and data for the control office for trunks
Action	AD, DE, or CH	Adds, deletes, or changes a ROTL control office file entry
ROTL Control Office for Trunks	RC	Name and data for the ROTL control office entry
Action	AD, DE, or CH	Adds, deletes, or changes a control office for facilities
Control Office for Facilities	CF	Name and data for the control office for facilities
Action	AD, DE, or CH	Adds, deletes, or changes a circuit order plant control office
Circuit Order Plant Control Office	CP	Name and data for the circuit order plant control office
Action	AD, DE, or CH	Adds, deletes, or changes a test frame office
Test Frame Office	OT	Name and data for the test frame office

TABLE J

CONTROL OFFICE FOR TRUNKS RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	CT	Identifies a control office for trunks record
4-14		Common Language Location Identification code of the control office for trunks
15*	∅	Results are automatically dispersed via CAROT 2 controller line printer
	1	Results are not automatically dispersed via line printer
		When blank, defaults to ∅
16-26*		<p>Telephone number of the control office remote-user terminal used for automatic results dispersal. Must be left-justified and includes toll access code (eg, 1), if used, and area code</p> <p><i>For character position 16:</i></p> <p>A ∅ indicates that results are dispersed to CMS 1A, B. If character 16 equal ∅, then character 17 is the slot number for the control office's data link to CMS 1B. See paragraph 4.22 for CMS slot number information</p> <p>A blank indicates that no results are dispersed to CMS 1A, B or to the control office remote-user terminal. (Character positions 17-26 are left blank.) See paragraph 4.22 for CMS slot number information</p> <p>An entry other than a ∅ or a blank becomes the first digit of the remote-user terminal telephone number as entered in character positions 16 through 26. See paragraph 4.22 for CMS slot number information</p>
27†	∅	Full-duplex
	1	Half-duplex
28†	∅	110 baud
	1	300 baud
	2	1200 baud

* Character positions 15-26 apply only to obtaining copies of routine test results when the controller dials up the remote terminal on an automatic basis. This automatic dialup feature is not available in the initial issue of the generic program

† If there is no remote terminal or if the control office is a CMS installation, leave character positions 27, 28, and 29 blank

TABLE J (Contd)

CONTROL OFFICE FOR TRUNKS RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
29†	0	Even parity
	1	Odd parity
	2	No parity
30-37		Date to start management summary
38-45		Date to start trunk Transmission Maintenance Index summary

† If there is no remote terminal or if the control office is a CMS installation, leave character positions 27, 28, and 29 blank

TABLE K

ROTL CONTROL OFFICE FOR TRUNKS RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	RC	Identifies a ROTL control office for trunks record
4-15		ROTL identification. See RO record definition (Table E), character positions 4-15
16-26		Common Language Location Identification code of the control office for trunks. Must be same as CLLI in CT record, character positions 4-14
27-29		Temporary upper boundary for loss maintenance limit. Deviation from EML in tenths of dB. The value specified will override the loss maintenance limit (obtained by adding 0.5 dB to the circuit order loss limit, character positions 17-18 of the TH or TI record). This should be left blank unless a specific Q1 override value is desired
30-37		Date to start testing trunks scheduled for daily tests
38-45		Date to start testing trunks scheduled for weekly tests
46-53		Date to start testing trunks scheduled for biweekly tests
54-61		Date to start testing trunks scheduled for monthly tests
62-69		Date to start testing trunks scheduled for quarterly tests

TABLE L

CONTROL OFFICE FOR FACILITIES RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	CF	Identifies a control office for facilities record
4-14		Common Language Location Identification code of the control office for facilities
15-26		Terminal's telephone number. Left-justified. See CT record definition (Table J), character positions 15-26
27-29		Terminal's equipment code. Left-justified. See CT record definition (Table J), character positions 27-29

TABLE M

PLANT CONTROL OFFICE RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	CP	Identifies a plant control office record
4-14		Common Language Location Identification code of the plant control office
15-29		Telephone number and equipment code of the terminal used to disperse test results. Left-justified. See CT record definition (Table J), character positions 15-29
30-44		Telephone number and equipment code of the terminal used to disperse management reports. Left-justified. See CT record definition (Table J), character positions 15-29
45-52		Date to begin accumulating management summary data on circuit order completion activity

TABLE N

TEST FRAME OFFICE RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	OT	Identifies a test frame office record
4-14		Common Language Location Identification code identifying the test frame
15-20	STAOTT	Step-by-step AOTT
	N5APTT	No. 5 crossbar APTT
	4XAOTT	No. 4 crossbar AOTT
21-23		Issue number of the test frame
24	1 or 0	1 to punch 5XB composite tape 1. See Section 218-220-302
25	1 or 0	1 to punch 5XB APTT composite tape 1 for reverse-polarity trunks. See Section 218-220-302
26	1 or 0	1 to punch composite tape 2
27	1 or 0	1 to punch composite tape 3
28	1 or 0	1 to punch composite tape 4
29	1 or 0	1 to punch composite tape 5
30	1 or 0	1 to punch tape of busy-line tests for SXS AOTT tape
31	1 or 0	1 to punch tape of daily tested indexable trunks which will score deviation registers
32	1 or 0	1 to punch tape of weekly tested indexable trunks
33	1 or 0	1 to punch tape of biweekly tested indexable trunks
34	1 or 0	1 to punch tape of monthly tested indexable trunks
35-38		Same as for character positions 31-34, only for tapes of trunks that will not be indexed and that will not score deviation registers

Note: For character positions 24 through 38, a 1 indicates a request to punch tape and a 0 indicates that no tape should be punched

TABLE O

RECORDS REQUIRED FOR ACTIONS ON TRUNK GROUPS AND/OR TEST FRAME PRIMINGS

RECORD NAME	RECORD CODE	FUNCTION OR MEANING
Action	AD, DE, or CH	Adds a trunk group to the data, deletes a trunk group from the data base, or changes data on a trunk group
Trunk Group	YG	Trunk group name and data
Control Office and ROTL Identification	YB	Control office and ROTL names for the trunk group. (Not optional; must be entered even if it contains only blanks .)
Test Frame Priming	YK	Contains test frame priming data for the trunk group. Record is optional and may be repeated to provide data for alternate directions and traffic uses

TABLE P

INITIAL TRUNK GROUP RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	YG	Record is part of a transaction affecting a trunk group
4-43		Trunk group identification consisting of the Common Language Circuit Identification code for message trunks without the trunk number. See Section 795-400-100
44		Trunk and Facility Maintenance System (TFMS) code identifying the Long Lines or Associated Company maintenance group responsible for the trunk group
45		CAROT testing code, left blank if CAROT does not test
	A	One-way trunk, routinely tested from office A
	Z	One-way trunk, routinely tested from office Z
	B	2-way trunk, routinely tested from office A
	Y	2-way trunk, routinely tested from office Z
46		Test frame testing code, left blank if not tested by test frame tapes prepared by CAROT
	A	Tested by test frame in office A
	Z	Tested by test frame in office Z
	B	Tested by test frames in office A and office Z, routinely from office A
	Y	Tested by test frames in office A and office Z, routinely from office Z

TABLE Q

CONTROL OFFICE AND ROTL IDENTIFICATION RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	YB	Identifies a control office and ROTL identification record
4-14		Control office identification: The Common Language Location Identification code of the plant administrative group responsible for the maintenance of the trunk group and for Trunk Transmission Maintenance Index results on it
15-25		The Common Language Location Identification code used to identify both ROTLs and far-end test lines in office A. If left blank, the office A traffic entity in the Common Language Circuit Identification code will be used
26		A number used to indicate which ROTL in office A is to be used to test the trunk group if there is more than one ROTL in office A and each ROTL cannot access all outgoing trunks. The first ROTL is numbered 0, the second 1, and so forth. When left blank, this defaults to ROTL 0
27-37		Same as character positions 15-25, only for office Z
38		Same as character position 26, only for office Z

TABLE R

NO. 4 CROSSBAR AOTT PRIMING RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	YK	Identifies a test frame priming record
4	0	Parameters apply to the routine test direction
	1	Parameters apply to the other direction
5-6		Traffic use of the trunk to which the parameters apply
7	0	Do not score deviation registers for Trunk Transmission Maintenance Index testing
	1	Score deviation registers for Trunk Transmission Maintenance Index testing
8	0	100-type transmission test line, combined milliwatt and balance termination
	2	102-type transmission test line, milliwatt
	4	104-type transmission test line, transmission and noise checking circuit
	5	105-type transmission test line, Automatic Transmission Measuring System

TABLE S

STEP-BY-STEP AOTT PRIMING RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	YK	Identifies a test frame priming record
4	0	Priming applies to the routine test direction
	1	Priming applies to the other direction
5-6		Traffic use of the trunk to which the priming applies
7	0	Do not score deviation registers for Trunk Transmission Maintenance Index testing
	1	Score deviation registers for Trunk Transmission Maintenance Index testing
8	0	Test performed by test frame
	1	Test performed by SXS ROTL
	2	Test performed by 5XB ROTL
9	0	ROTL test, "1" prefix not required
	1	ROTL test, "1" prefix required
10	0	Far-end office does not have common control equipment
	1	Far-end office has common control equipment
11	0	Trunks do not use MF pulsing
	1	Trunks use MF pulsing
12	0	Trunks do not use simplex supervision
	1	Trunks use simplex supervision
13	0	100-type test line, combined milliwatt and balance termination.
	2	102-type test line, milliwatt
	4	104-type test line, transmission and noise checking circuit
	5	105-type test line, Automatic Transmission Measuring System
14-20		1- to 7-digit terminating test line number or code or ROTL directory number. Left-justified

TABLE S (Contd)

STEP-BY-STEP AOTT PRIMING RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
21	1	Synchronous test line test
	2	Nonsynchronous test line test
	3	103-type test line test
22	0	No centrex-transfer test
	1	Centrex-transfer test
23-29		Like character positions 14-20
30-36		Like character positions 14-20

TABLE T

NO. 5 CROSSBAR APTT PRIMING RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	YK	Identifies a test frame priming record
4	0	Priming applies to the routine test direction
	1	Priming applies to the other direction
5-6		Traffic use of the trunk to which the priming applies
7	0	Do not score deviation registers for Trunk Transmission Maintenance Index testing
	1	Score deviation registers for Trunk Transmission Maintenance Index testing
8	0	100-type transmission test line, combined milliwatt and balance termination
	2	102-type transmission test line, milliwatt
	4	104-type transmission test line, transmission and noise checking circuit
	5	105-type transmission test line, Automatic Transmission Measuring System
9-16		See Section 218-220-301 for data items with names as shown on the Trunk Group and Test Frame Priming Work sheet
17	T	Priming for transmission test tape. See Section 218-220-303
	N	Priming for composite test tape 1, normal polarity. See Section 218-220-302
	R	Priming for composite test tape 1, reverse polarity
	2	Priming for composite test tape 2
	3	Priming for composite test tape 3
	4	Priming for composite test tapes 3 and 4
	5	Priming for composite test tapes 3 and 5
	9	Priming for composite test tapes 3, 4, and 5
	18-31	
32		Same as for character position 17
33-46		See Sections 218-220-302 and 218-220-303
47		Same as for character position 17
48-61		See Sections 218-220-302 and 218-220-303

TABLE U

RECORDS REQUIRED FOR ACTIONS ON FACILITY GROUPS

RECORD NAME	RECORD CODE	FUNCTION OR MEANING
Action	AD, DE, or CH	Adds, deletes, or changes data for a facility group
Facility Group	GF	Identifies the facility group and data to be added, deleted, or changed. On deletions, the control office is not needed
Action	CH	Changes the name and/or data on a facility group
Facility Group	GF	The old name of the facility group
Facility Group	GN	The new name and data for the facility group

TABLE V

FACILITY GROUP RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	GF	Record is part of an action affecting a facility group
	GN	Record gives the new name and control office for the renamed facility group
4-41		Facility group identification derived from the Common Language Facility Identification code by leaving the channel or pair number blank and justifying the designation and type as indicated. See Section 795-450-100
42-52		Common Language Location Identification code of the plant administrative group responsible for maintenance of the facility

TABLE W

RECORDS REQUIRED FOR ACTIONS ON TRUNKS

RECORD NAME	RECORD CODE	DEFINED IN TABLE	FUNCTION OR MEANING
Action	AD or CH	B	Adds or changes a trunk in the data base
Trunk Group	TG	X	Identifies the trunk group
Facility Group	TF	Y	Identifies the facility group
<u>Principal Mode:</u>			
Test Parameters	TH	Z	Test parameters for direction and traffic use in which the trunk will be routinely tested
Trunk	TT	AA	Trunk data for direction and traffic use in which the trunk will be routinely tested
<u>Alternate Mode, Same Facility Group:</u>			
Test Parameters	TI	Z	This set of records, TI and TL furnishes data for a second traffic use in the same (principal) direction or for any traffic use in the other direction of 2-way trunks. It is optional and may be furnished or repeated as necessary
Trunk	TL	AA	
<u>Alternate Mode, Different Facility Group:</u>			
Facility Group	TF	Y	This set of records, TF, TI, and TL, furnishes data for any traffic use in the other direction of 2-way trunks when the facility group is not the same as in the principal direction, eg, if the transmit and receive pairs of a 4-wire metallic trunk are in different cables. It is optional and may be furnished or repeated without the facility group record, as necessary
Test Parameters	TI	Z	
Trunk	TL	AA	
Action	DE	B	Deletes a trunk from the data base
Trunk Group	TG	X	Identifies the trunk group
Trunk	TT	AA	Identifies the trunk to be deleted

TABLE X

TRUNK GROUP RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	TG	Record is part of an action affecting a trunk group
4-43		Trunk group identification consisting of the Common Language Circuit Identification code for message trunks without the trunk number. See Section 795-400-100
44		Trunk and Facility Maintenance System (TFMS) code identifying the Long Lines or Associated Company maintenance group responsible for the trunk group
45		CAROT testing code, left blank if CAROT does not test
	A	One-way trunk, routinely tested from office A
	Z	One-way trunk, routinely tested from office Z
	B	2-way trunk, routinely tested from office A
	Y	2-way trunk, routinely tested from office Z
46		Test frame testing code, left blank if not tested by test frame tapes prepared by CAROT
	A	Tested by test frame in office A
	Z	Tested by test frame in office Z
	B	Tested by test frames in offices A and Z, routinely from office A
	Y	Tested by test frames in offices A and Z, routinely from office Z

TABLE Y

FACILITY GROUP RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	TF	Record is part of an action affecting a trunk
4-41		Facility group identification derived from the Common Language Facility Identification code by leaving the channel or pair number blank and justifying designation and type as indicated. See Section 795-450-100

TABLE Z

TEST PARAMETERS RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	TH	Parameters apply to the direction and traffic use of the trunk for routine testing and Trunk Transmission Maintenance Index results
	TI	Parameters apply to some alternate direction and/or traffic use
4	0	Parameters apply to the routine test direction
	1	Parameters apply to the other direction
		Blanks not acceptable
5-6		Traffic use of the trunk to which the parameters apply. It is also used in determining the far-end test line to be used. See Section 865-203-100
		Blanks not acceptable
7		Impedance of the trunk at the originating end:
	6	600 ohms
	9	900 ohms
		Blanks not acceptable
8		Test pad loss at the originating end:
	0	0 dB
	2	2 dB
	3	3 dB
		Blanks not acceptable
9	0	Trunk not equipped with rering feature
	1	Trunk equipped with rering feature
		Blanks not acceptable
10-11		Indicates the interval at which the trunk will be scheduled for transmission testing in this direction and traffic use:
	00	Daily
	10	Weekly
	20	Biweekly
	30	Monthly
	99	Never
		Blanks not acceptable. See Section 660-402-300

TABLE Z (Contd)

TEST PARAMETERS RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
12-13		Indicates transmission makeup of the trunk for Trunk Transmission Maintenance Index testing and results reporting:
	01	E repeater without hybrid
	02	E repeater with hybrid
	03	Nongain without hybrid
	04	Nongain with hybrid
	08	Voice-frequency repeater other than E
	09	Carrier
	99	Do not index
		Blanks not acceptable. See Section 660-403-011
14-16		Contains the expected measured loss in tenths of dB. See Sections 660-450-300, -301, -302, and -501 through -505
17-18		Contains the maximum allowable difference between actual measured loss and the design EML at circuit order time in tenths of dB. The maintenance limit will be the circuit order limit plus 0.5 dB
19-20		Contains the maximum noise allowed at circuit order time in dBm _c . See Section 660-403-500. Same as noise maintenance limit
21-22		Contains the noise limit above which the trunk must be removed from service until repaired. See Section 660-403-500
23-24		A 2-digit code identifying a set of six numbers giving average, minimum, and turndown echo return loss and singing point return loss requirements
25-26		Contains a 2-digit code identifying a set of four numbers giving maximum deviations for loss at 400 and 2800 Hz compared with 1000 Hz
27-28		The minimum signal-to-noise ratio allowed for the 1000-Hz-16 dBm ₀ holding tone compared with C-message weighted noise across the band
29-30		Objective for peak-to-average ratio measurement
31	0	Trunk not equipped with echo suppressor
	1	Trunk equipped with echo suppressor
		Blanks not acceptable. Set to 0 until feature is implemented
32		Number of far-end test line number digits to be passed from CAROT to the ROTL if different from 10, 7, or 3

TABLE Z (Contd)

TEST PARAMETERS RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
33-35		Numbering plan area code to be used in the far-end test line number passed from CAROT to the ROTL, if it must be different from the NPA of the terminating office
36-38		NNX to be used in the far-end test line number passed from CAROT to the ROTL, if needed to reflect code conversion in test connector-type ROTLs, or for routing when going to 10X test lines from No. 5 crossbar ROTLs
39-40		Operational test schedule codes. Same definitions as for character positions 10-11

TABLE AA

TRUNK RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	TT	Record applies to the direction and traffic use of the trunk for routine testing and Trunk Transmission Maintenance Index results
	TL	Record applies to some alternate direction and/or traffic use
4	0	Record applies to the routine test direction
	1	Record applies to the other direction
5-6		Traffic use of the trunk to which the record applies. See Section 795-400-100 and Table BB
7-10		Trunk number: the first four characters of the Common Language Circuit Identification code for message trunks. See Section 795-402-100
11		Blank
12-16		Channel or pair number part of the Common Language Facility Identification code. See Section 794-450-100
17-30		Trunk location address information used by the ROTL to seize the trunk for testing. It is defined differently for each type of ROTL. See Table CC
31	0	Enter data into data base without testing the trunk
	1	Test the trunk during the next routine test period before entering the data into the data base
32-50		Voice-frequency equipment location and SMAS number for offices equipped with the Trunk and Facilities Maintenance System (TFMS); or test frame trunk location address for offices equipped with test frames. It is defined differently for each type of office and test frame. See Table DD

TABLE BB
TYPES OF TRUNKS TESTABLE VIA CAROT/ROTL

TRAFFIC USAGE CODE	MEANING	TYPE OF TEST POSSIBLE	TYPE OF ROTLS USED*
CA	CAMA	Transmission except when ONI or CAMA Transfer	All
DD	Class 5-to-Class 4 DDD Access Trunk	Transmission and Operational	All
IA	Intraoffice	Transmission	5XB (Small and Expanded)
IE	Interexchange	Transmission and Operational	All
IM	Intermarker Group	Transmission	5XB (Small and Expanded)
IT	Intertoll	Transmission and Operational	All
MT	Intertandem	Transmission and Operational	All
SP	Traffic Service Position	Transmission	All
TC	Toll Completing	Transmission and Operational	All
TE	End-Office Toll	Transmission and Operational	All
TG	Tandem Completing	Transmission and Operational	All
TM	Toll Completing and Toll Switching Combined	Transmission and Operational	All
TO	Tandem Originating	Transmission and Operational	All
See Note.	Central Office-to-PBX Trunks Arranged for Direct Inward Dial except for those using Dial Tone as a Start Dial System	Transmission	Expanded 5XB and No. 1 ESS
CN	CCSA Network Trunks	Transmission and Operational	Expanded 5XB and No. 1 ESS
ON	CCSA Off-Network Access Lines	Transmission	Expanded 5XB and No. 1 ESS

Note: Common-language usage codes not assigned

* ESS ROTLs cannot perform operational tests

TABLE CC

TRUNK LOCATION ADDRESS DEFINITIONS

ROTL TYPE	TT OR TL RECORD CHARACTER POSITION														
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Small 5XB	RTT	RTU	FT	FU	TT	TU									
Expanded 5XB	TYP (0,1, 4,5)	RA*	FT	FU	TT	TU	TR	MG	CTA	CU	CRU	CG			
Expanded 5XB Term to PBX	TYP (2,3)			FU	TT	TU	TR	MG	CTA			CG			
Small SXS				Test Connector Number			Puls- ing								
Expanded SXS				Test Connector Number			Puls- ing								
1XB or XBT	Switch		Sel- ect	Hold		Pulsing									
No. 1 ESS	Mod- ifier	Trunk Network Number													
No. 2 ESS	Mod- ifier	Trunk Group Number			Trunk Member Number										
No. 4 ESS	Trunk Appearance Number														
4XB OTTS/ROTL	Cate- gory	Signaling Class and Modifiers			Pad Mark	Train	Conn- ector	Test Connector Number				Relay Type			

*For expanded 5XB offices with ETS fully flexible trunk assignments, the RA digit is the TB (trunk block) number, 0 through 9, assigned to the selector trunk

TABLE DD

VF APPEARANCE AND SMAS NUMBER OF TEST FRAME TRUNK LOCATION ADDRESS

TYPE OF OFFICE	TT OR TL RECORD CHARACTER POSITION																				
	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
4XB OTTS	Bay									Unit				SMAS Number							
4XB AOTT	Train	Test Connector																			
5XB APTT	AGRA		FT/ FTCD	FU	TT	TU/ SSN	ITH	IHT	ITT	IUT	ASN	ASH									
SXS AOTT		Test Connector																			

TABLE EE

**NO. 1 ESS TRUNK NETWORK NUMBER INFORMATION
TT OR TL RECORD – TRUNK FILE WORK SHEET**

CHAR POS	EXPLANATION
18–19	Trunk Link Network Number, 00, 01, 02, . . . 15
20	Trunk Switch Frame Number (0–7)
21	Grid Number (0–3)
22	Switch Number (0–7)
23	Output Switch Level (0–7)

TABLE FF

**SXS EXPANDED ROTL PULSING INFORMATION
TT OR TL RECORD – TRUNK FILE WORK SHEET**

DATA ITEM ENTRY FOR CHARACTER POSITION 23	EXPLANATION
0	Dial Pulse, Loop; or Dial Pulse, Loop, HOTL on Connector
1	Dial Pulse, Loop, Delay Dial
2	Dial Pulse, Simplex; or Dial Pulse, Simplex, HOTL on Intertoll Selector
3	Dial Pulse, Simplex, Delay Dial
4	Multifrequency, Loop
5	Multifrequency, Simplex
6	HOTL on Tandem Selectors
7 or 8	Unassigned
9	Dial Pulse, Loop (Testing SAMA Trunks to a Tandem Office)

TABLE GG

NO. 1XB AND XBT ROTL OUTPUTTING
TT OR TL RECORD – TRUNK FILE WORK SHEET

DATA ITEM ENTRIES FOR CHARACTER POSITIONS 22 AND 23		INFORMATION PROVIDED BY DATA ITEM ENTRY	
22	23	TYPE OF PULSING AND SUPERVISION REQUIRED TO COMPLETE TO DISTANT OFFICE	
∅	∅	MF Pulsing	Wink Start Supervision
∅	1	MF Pulsing	Stop-Go Supervision
∅	2	MF Pulsing	Delay Dial Supervision
∅	3	MF Pulsing	Delay Dial Supervision, 2-Way
1	∅	DP Pulsing	Without Loop Compensation
1	1	DP Pulsing	Without Loop Compensation
1	2	DP Pulsing	Without Loop Compensation
1	3	DP Pulsing	With Loop Compensation
1	4	DP Pulsing	With Loop Compensation
1	5	DP Pulsing	With Loop Compensation
1	6	DP Battery and Ground Pulsing	Start Supervision
1	7	DP Battery and Ground Pulsing	Stop-Go Supervision
1	8	DP Battery and Ground Pulsing	Delay Dial Supervision
1	9	DP Pulsing	Without Loop Compensation
2	∅	RP Pulsing	0 Ohms Loop Compensation to Panel Offices Using 24-volt Supervision
2	1	RP Pulsing	0 Ohms Loop Compensation to Panel and XBT Offices Using 48-volt Supervision
2	2	RP Pulsing	300 Ohms Loop Compensation to Panel Offices Using 24-volt Supervision
2	3	RP Pulsing	300 Ohms Loop Compensation to Panel and XBT Offices Using 48-volt Supervision
2	4	RP Pulsing	600 Ohms Loop Compensation to Panel Offices Using 24-volt Supervision
2	5	RP Pulsing	600 Ohms Loop Compensation to Panel and XBT Offices Using 48-volt Supervision
2	6	RP Pulsing	900 Ohms Loop Compensation to Panel Offices Using 24-volt Supervision
2	7	RP Pulsing	900 Ohms Loop Compensation to Panel and XBT Offices Using 48-volt Supervision
3	∅	PCI Pulsing	0 Ohms Loop Compensation
3	1	PCI Pulsing	300 Ohms Loop Compensation
3	2	PCI Pulsing	600 Ohms Loop Compensation
3	3	PCI Pulsing	900 Ohms Loop Compensation
4	∅	RP Pulsing	0 Ohms Loop Compensation to Second (High Five) XBT Office Over Same Trunk Group
4	1	RP Pulsing	300 Ohms Loop Compensation to Second (High Five) XBT Office Over Same Trunk Group
4	2	RP Pulsing	600 Ohms Loop Compensation to Second (High Five) XBT Office Over Same Trunk Group
4	3	RP Pulsing	900 Ohms Loop Compensation to Second (High Five) XBT Office Over Same Trunk Group
5	∅	DP Pulsing	Without Loop Compensation
5	1	DP Pulsing	Without Loop Compensation
			Stop-Go Supervision, 2-Way
			Wink Start Supervision, 2-Way

TABLE HH

4XB OTTS ROTL PRIMING INFORMATION
TT OR TL RECORD – TRUNK FILE WORK SHEET

CHAR POS	FUNCTION	DATA ITEM ENTRY	EXPLANATION
17	Category	0 1 2	Direct Distance Dialing Trunks Home Office Test Line (HOTL) Overseas Loop-Around
18	Signaling Class	0 1 2 3 4 5, 6, 8, 9 7	Manual, used for HOTL and Operator Trunks DC Pulsing Multifrequency Outpulsing Simplex Dial Loop Dial Unassigned Common Channel Interoffice Signaling (CCIS)
19	Signaling Class Modifier	0 1 2 3 4-9	No Modifier Expect Delay Dial (Dial Tone) Expect Stop-Go Both Delay-Dial and Stop-Go Unassigned
20	Signaling Class Modifier	0 1 2 3 4-9	No Modifier AC Ringing Simplex Ringing Automatic Call Distribution Unassigned
21	A-Pad Information	0 1 2 3 4-9	No A-Pad Control A-Pad Switched In A-Pad Switched Out A-Pad in for 0-TLP Toll Connecting Trunk Unassigned

TABLE II

RECORDS REQUIRED FOR ACTIONS ON CAROT CIRCUIT ORDER DATA BASE

RECORD NAME	RECORD CODE	FUNCTION OR MEANING
Action	AD, DE, or CH	Adds circuit orders to the circuit order data base, deletes orders from the circuit order data base, or changes orders in the circuit order data base
Circuit Order Plant Control Office	PC	Identifies the whole circuit order, which may be composed of many items, and the plant control office responsible for it
Action	AP, DP, or CP	Replaces AD, DE, or CH when the action is a pending addition, deletion, or change
Facility Group, Trunk Group, and/or Trunk Transaction	GF (or GN), TG, TF, TH (or TI), and/or TT (or TL)	Set of records comprising legitimate actions on one or more trunks, trunk groups, and/or facility groups as established in the PC record
Circuit Order Item	PV	Identifies the circuit order item related to the previous set of transactions
Circuit Order Item	PU	Identifies the circuit order item to be canceled by this order. Optional record

Note: Repeat the above circuit order data base transactions as required for additional circuit order activities

TABLE JJ

CIRCUIT ORDER CONTROL RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	PC	Identifies a circuit order control record
4-21		The part of the circuit order layout number which is the same for all items, right-justified
22-32		Common Language Location Identification code of the plant control office

TABLE KK
CIRCUIT ORDER ITEM RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
1	/	Beginning of line
2-3	PV	Record concerns a circuit order which is to be added, deleted, or changed in the CAROT 2 circuit order testing data base
	PU	Record identifies a circuit order which is canceled upon the completion of the circuit order identified by the previous PV record
4-24		The circuit layout order (CLO) number of the item concerning a specific circuit
25		Supplement character (see paragraph 4.83)
26*	A	The CLO item adds a circuit
	C	The CLO item rearranges a circuit
	D	The CLO item disconnects a circuit
	K	The CLO item cancels a previous circuit order item
27	C	The CLO item applies to a circuit (trunk)
	F	The CLO item applies to a facility
	O	The CLO item applies to neither a trunk nor a facility—No RDT action data is associated with it
28	Ø	Circuit cannot be circuit order demand-tested by CAROT 2
	1	Circuit can be circuit order demand-tested by CAROT 2
29	Ø	Circuit order completion cannot be done through CAROT 2
	1	Circuit order completion can be done through CAROT 2
30	Ø	Do not update CAROT 2 COTC data base automatically upon completion
	1	Update CAROT 2 COTC data base automatically upon completion
31	Ø	Do not update CAROT 2 RDT and/or TFTP data base automatically upon completion
	1	Update CAROT 2 RDT data base automatically upon completion

* If the type of item is O (other), no action data applies.
Go to character position 27 for meaning of the O

TABLE KK (Contd)

CIRCUIT ORDER ITEM RECORD DEFINITION

CHAR POS	DATA ITEM VALUE	FUNCTION OR MEANING
32-39		Date when circuit order is due to be completed in 00/00/00 format
40-41		Leave blank—this position is not utilized at this time
42-63		The CLO number of the most recently issued previous order against this circuit

TABLE LL

INPUT DATA RECORD TRANSACTIONS FOR ROUTINE AND DEMAND TEST OPERATIONS

FILE DESCRIPTION	RECORD CODE	RECORDS APPLICABLE WHEN MAKING DATA RECORD TRANSACTIONS			CAROT 2 WORK SHEET USED
		ADD TRANSACTIONS	DELETE TRANSACTIONS	CHANGE TRANSACTIONS	
<i>Equipment:</i>					
Responder Office	RE	AD, RE	DE, RE	CH, RE	Responder, ROTL, and Test Line
ROTL	RO	AD, RO	DE, RO	CH, RO	Responder, ROTL, and Test Line
Office Test Line Directory	OD	AD, OD	DE, OD	CH, OD	Responder, ROTL, and Test Line
Test Line	ID	AD, ID, ED		CH, ID, ED	Responder, ROTL, and Test Line
Test Line	ID		DE, ID		Responder, ROTL, and Test Line
<i>Administrative:</i>					
Control Office for Trunks	CT	AD, CT	DE, CT	CH, CT	Control Office for Trunks
ROTL Control Office	RC	AD, RC	DE, RC	CH, RC	Control Office for Trunks
Control Office for Facilities	CF	AD, CF	DE, CF	CH, CF	Control Office for Facilities
<i>Trunk and Facility:</i>					
Trunk Group	YB	AD, YG, YB	DE, YG, YB	CH, YG, YB	Trunk Group and Test Frame Priming
Facility Group	GF	AD, GF	DE, GF		Facility Group
Facility and/or Rename	GN			CH, GF, GN	Facility Group
Trunk (Principal Mode)	TT	AD, TG, TF, TH, TT	DE, TG, TT	CH, TG, TF, TH, TT	Trunk File
Trunk (Alternate Mode)	TL	AD, TG, TF, TI, TL	DE, TG, TL	CH, TG, TF, TH, TT	Trunk File

TABLE MM

INPUT DATA RECORD TRANSACTIONS FOR TEST FRAME TAPE PREPARATION

FILE DESCRIPTION	RECORD CODE	RECORDS APPLICABLE WHEN MAKING DATA RECORD TRANSACTIONS			CAROT 2 WORK SHEET USED
		ADD TRANSACTIONS	DELETE TRANSACTIONS	CHANGE TRANSACTIONS	
<i>Equipment:</i>		NO EQUIPMENT RECORDS REQUIRED			
<i>Administrative:</i>					
Control Office for Facilities	CF	AD, CF	DE, CF	CH, CF	Control Office for Facilities
Office—Test Frame	OT	AD, OT	DE, OT	CH, OT	Test Frame Office
<i>Trunk and Facility:</i>					
Trunk Group — Test Frame	YB	AD, YG, YB	DE, YG, YB		Trunk Group and Test Frame Priming
Facility Group	GF	AD, GF	DE, GF	CH, GF, GN	Facility Group
K Field	YK	AD, YG, YK	DE, YG, YK	CH, YG, YK	Trunk Group and Test Frame Priming
Trunk — Test Frame (Principal Mode)	TT	AD, TG, TF, TH, TT	DE, TG, TT	CH, TG, TF, TH, TT	Trunk File

TABLE NN

INPUT DATA RECORD TRANSACTIONS FOR CIRCUIT ORDER
TESTING AND COMPLETION OPERATIONS

FILE DESCRIPTION	RECORD CODE	RECORDS APPLICABLE WHEN MAKING DATA RECORD TRANSACTIONS			CAROT 2 WORK SHEET USED
		ADD TRANSACTIONS	DELETE TRANSACTIONS	CHANGE TRANSACTIONS	
<i>Equipment: *</i>					
<i>Administrative: *</i>					
Control Office for Trunks	CT	AD, CT	DE, CT	CH, CT	Control Office for Trunks
ROTL Control Office	RC	AD, RC	DE, RC	CH, RC	Control Office for Trunks
Control Office for Facilities	CF	AD, CF	DE, CF	CH, CF	Control Office for Facilities
Plant Control Office	CP	AD, CP	DE, CP	CH, CP	Circuit Order Plant Control Office
<i>Trunk and Facility:</i>					
Circuit Order	PC	AD, PC	DE, PC		Circuit Order
Circuit Order Item	PV	AD, PV	DE, PV	CH, PV	Circuit Order

*The equipment records are required only for the purpose of making precompletion tests on circuit order items involving trunks and for using the action data to update the RDT data base following a completion. Similarly, the administration records (except for the CP which is required) are needed only for updating the RDT data base with the action data after the completion.

TABLE OO

NO. 5XB – RELATIONSHIP BETWEEN TRUNK MACHINE ASSIGNMENT AND TRUNK LOCATION ADDRESS

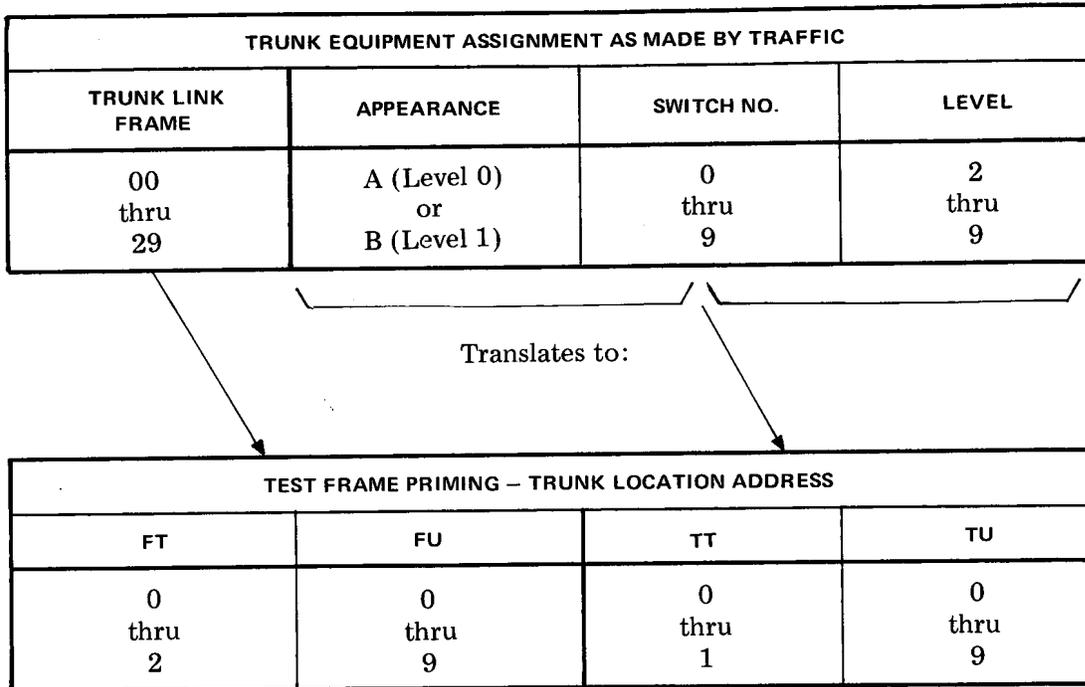


TABLE PP

NO. 5XB TRUNK LINK FRAME TRUNK ASSIGNMENT TO TEST ACCESS TRANSLATION DATA APPEARANCE, SWITCH, AND LEVEL TRANSLATION TO BUSY TEST LEAD (TT, TU)

TRUNK LINK FRAME	APPEARANCE	LEVEL	TT	TU
160-Point	A	2, 3, 4, 5, 6, or 8	0	Same as Switch No. (0–9)
		7 or 9	1	
	B	2, 3, 4, or 5	1	
200-Point*	A	2, 3, 4, 5, 6, or 8	0	
		7 or 9	1	
	B	2, 3, 4, 5, 7, or 9	1	
		6 or 8	0	

* This assignment is flexible in 200-point trunk link frames and may be locally administrated (see paragraph 7.23)

T/L			DIRECTION	TRAFFIC USE	TRUNK NUMBER						CHANNEL OR PAIR NUMBER						TRUNK LOCATION ADDRESS													
1	2	3			7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
/	T																													
/	T																													
/	T																													
/	T																													
/	T																													
/	T																													
/	T																													
/	T																													

CHARACTER POSITION	DATA ITEM	
1	/ - BEGINNING OF LINE	
2-3	TT OR TL RECORD IDENTITY	
4	PRINCIPAL OR ALTERNATE DIRECTION OF TEST Ø FOR ROUTINE TEST DIRECTION 1 FOR OTHER TEST DIRECTION	
5-6	TRAFFIC USE OF TRUNK ON RECORD	
7-10	TRUNK NUMBER - ALPHANUMERIC OR BLANK	
11	BLANK	
12-16	CHANNEL NUMBER OF FIRST FACILITY - NUMERIC OR BLANK	
17-30	TRUNK LOCATION ADDRESS - ALPHANUMERIC OR BLANK	
	SEE BELOW:	
	NO. 1 ESS ROTL	NO. 2 ESS ROTL
17	MODIFIER	MODIFIER
18	TRUNK LINK NETWORK NUMBER	TRUNK GROUP NUMBER
19	TRUNK LINK NETWORK NUMBER	TRUNK GROUP NUMBER
20	TRUNK SWITCH FRAME	TRUNK GROUP NUMBER
21	GRID NUMBER	MEMBER NUMBER
22	SWITCH NUMBER	MEMBER NUMBER
23	OUTPUT SWITCH LEVEL	MEMBER NUMBER

Fig. 15—TT or TL Record—No. 1 and No. 2 ESS ROTLs

T/L			DIRECTION	TRAFFIC USE	TRUNK NUMBER						CHANNEL OR PAIR NUMBER	TRUNK LOCATION ADDRESS																		
1	2	3			4	5	6	7	8	9		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
/	T																													
/	T																													
/	T																													
/	T																													
/	T																													
/	T																													
/	T																													
/	T																													

CHARACTER POSITION DATA ITEM

1 / - BEGINNING OF LINE

2-3 TT OR TL RECORD IDENTITY

4 PRINCIPAL OR ALTERNATE DIRECTION OF TEST
 Ø FOR ROUTINE TEST DIRECTION
 1 FOR OTHER TEST DIRECTION

5-6 TRAFFIC USE OF TRUNK ON RECORD

7-10 TRUNK NUMBER - ALPHANUMERIC OR BLANK

11 BLANK

12-16 CHANNEL NUMBER OF FIRST FACILITY - NUMERIC OR BLANK

17-18 BLANK

19-20 TEST CONNECTOR SWITCH NUMBER

21 TEST CONNECTOR SELECT MAGNET NUMBER

22 TEST CONNECTOR HOLD MAGNET NUMBER

23 PULSING (SEE TABLE EE)

Fig. 16—TT or TL Record—Expanded SXS ROTL

T/L			DIRECTION	TRAFFIC USE	FACILITY	TRUNK NUMBER					CHANNEL OR PAIR NUMBER					TRUNK LOCATION ADDRESS												
1	2	3				7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
/	T																											
/	T																											
/	T																											
/	T																											
/	T																											
/	T																											
/	T																											
/	T																											

CHARACTER POSITION DATA ITEM

1 / - BEGINNING OF LINE

2-3 TT OR TL RECORD IDENTITY

4 PRINCIPAL OR ALTERNATE DIRECTION OF TEST
 0 FOR ROUTINE TEST DIRECTION
 1 FOR OTHER TEST DIRECTION

5-6 TRAFFIC USE OF TRUNK ON RECORD

7-10 TRUNK NUMBER - ALPHANUMERIC OR BLANK

11 BLANK

12-16 CHANNEL NUMBER OF FIRST FACILITY - NUMERIC OR BLANK

17-18 ITTC SWITCH NUMBER (00-39)*

19 ITTC SELECT MAGNET NUMBER (0-9)

20-21 ITTC HOLD MAGNET NUMBER (00-19)

22-23 PULSING (SEE TABLE FF)

*ITTC SWITCH NUMBER MAY INCLUDE A CONSTANT TO DISTINGUISH BETWEEN ITTCs ASSOCIATED WITH DIFFERENT MARKER GROUPS

Fig. 17—TT or TL Record 1XB/XBT ROTL

T/L		DIRECTION		TRAFFIC USE		TRUNK NUMBER					CHANNEL OR PAIR NUMBER					TRUNK LOCATION ADDRESS													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
/	T																												
/	T																												
/	T																												
/	T																												
/	T																												
/	T																												
/	T																												
/	T																												

CHARACTER POSITION	DATA ITEM
1	/ - BEGINNING OF LINE
2-3	TT OR TL RECORD IDENTITY
4	PRINCIPAL OR ALTERNATE DIRECTION OF TEST Ø FOR ROUTINE TEST DIRECTION 1 FOR OTHER TEST DIRECTION
5-6	TRAFFIC USE OF TRUNK ON RECORD
7-10	TRUNK NUMBER - ALPHANUMERIC OR BLANK
11	BLANK
12-16	CHANNEL NUMBER OF FIRST FACILITY - NUMERIC OR BLANK
17	CATEGORY*
18-20	SIGNALING CLASS AND MODIFIERS*
21	PAD MARK*
22	TRAIN (Ø-TC; 1-IT)
23	TEST CONNECTOR (Ø-TC; 1-IT)
24-28	TEST CONNECTOR NUMBER
29	RELAY TYPE (Ø-TC; 1-IT)

*SEE TABLE HH

Fig. 18—TT or TL Record—4XB OTTS ROTL

T/L		DIRECTION	TRAFFIC USE	TRUNK NUMBER		CHANNEL OR PAIR NUMBER		TRUNK LOCATION ADDRESS																							
1	2			3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
/	T																														
/	T																														
/	T																														
/	T																														
/	T																														
/	T																														
/	T																														
/	T																														

CHARACTER POSITION DATA ITEM

1 / - BEGINNING OF LINE

2-3 TT OR TL RECORD IDENTITY

4 PRINCIPAL OR ALTERNATE DIRECTION OF TEST
 Ø FOR ROUTINE TEST DIRECTION
 1 FOR OTHER TEST DIRECTION

5-6 TRAFFIC USE OF TRUNK ON RECORD

7-10 TRUNK NUMBER - ALPHANUMERIC OR BLANK

11 BLANK

12-16 CHANNEL NUMBER OF FIRST FACILITY - NUMERIC OR BLANK

17 TYPE OF CALL (TYP)*

18 ROUTE ADVANCE AND GROUP ALLOTTER (RA)+

19 TRUNK LINK FRAME TENS (FT)+

20 TRUNK LINK FRAME UNITS (FU)+

21 BUSY TEST TENS (TT)+

22 BUSY TEST UNITS (TU)+

23 TYPE OF TRANSLATOR (TR)*

24 MARKER GROUP (MG)*

25 CLASS OF SERVICE TENS/TANDEM SCREENING (CTA)*

26 CLASS OF SERVICE UNITS (CU)*

27 RATE TREATMENT UNITS (CRU)*

28 RATE TREATMENT TENS/TRUNK CLASS GROUP (CG)

* SEE FIG. 2A OF APPENDIX 1
 + SEE FIG. 3A OF APPENDIX 1

Fig. 19—TT or TL Record Expanded 5XB ROTL

TASK	DATA INPUT
1. Add trunk to RDT	AP YG YB GF TG TF TH TT
2. Add trunk to TFTP	AP YG YB YK GF TG TF TH TT
3. Add trunk to both RDT and TFTP	AP YB YB GF TG TF TH TT AP YB YB YK GF TG TF TH TT
4. Delete trunk from <i>either</i> RDT or TFTP	DP TG TT
5. Delete trunk from <i>both</i> RDT and TFTP	DP TG TT DP TG TT
6. Change a trunk in RDT (includes a name change)	DP TG TT AP YG YB GF TG TF TH TT
7. Change a trunk in TFTP (includes a name change)	DP TG RR AP YG YB YK GF TG TF TH TT
8. Change a trunk in <i>both</i> RDT and TFTP (includes a name change)	DP TG TT AP YG YB GF TG TF TH TT DP TG TT AP YG YB YK GF TF
9. Change a trunk without requiring a name change (in <i>either</i> RDT or TFTP)	CP TG TF TH TT or, if new facility is involved, AP GF CP TG TF TH TT
10. Change a trunk in <i>both</i> RDT and TFTP	CP TG TF TH TT CP TG TF TH TT or AP GF CP TG TF TH TT CP TG TF TH TT
11. Add facility	AP GF
12. Change facility	CP GF GN

Fig. 21—Action Data Record Sequences

TASK	DATA INPUT
1. Add several trunks to the same trunk group	AD PC AP YG YB GF TG TF TH TT PV TT PV TT PV
2. Delete several trunks from the same group	AD PC DP TG TT PV TT PV TT PV TT PV
3. Change several trunks on the same group	AD PC CP TG TF TH TT PV TT PV TT PV TT
4. Add trunks to the same group with different test parameters	AD PC AP YG YB TG TF TH TT PV TH TT PV TH TT PV
5. Add trunks to the same group but two different facilities	AD PC AP YG YB GF TG TF TH TT PV

Fig. 22—Examples of COTC Updates

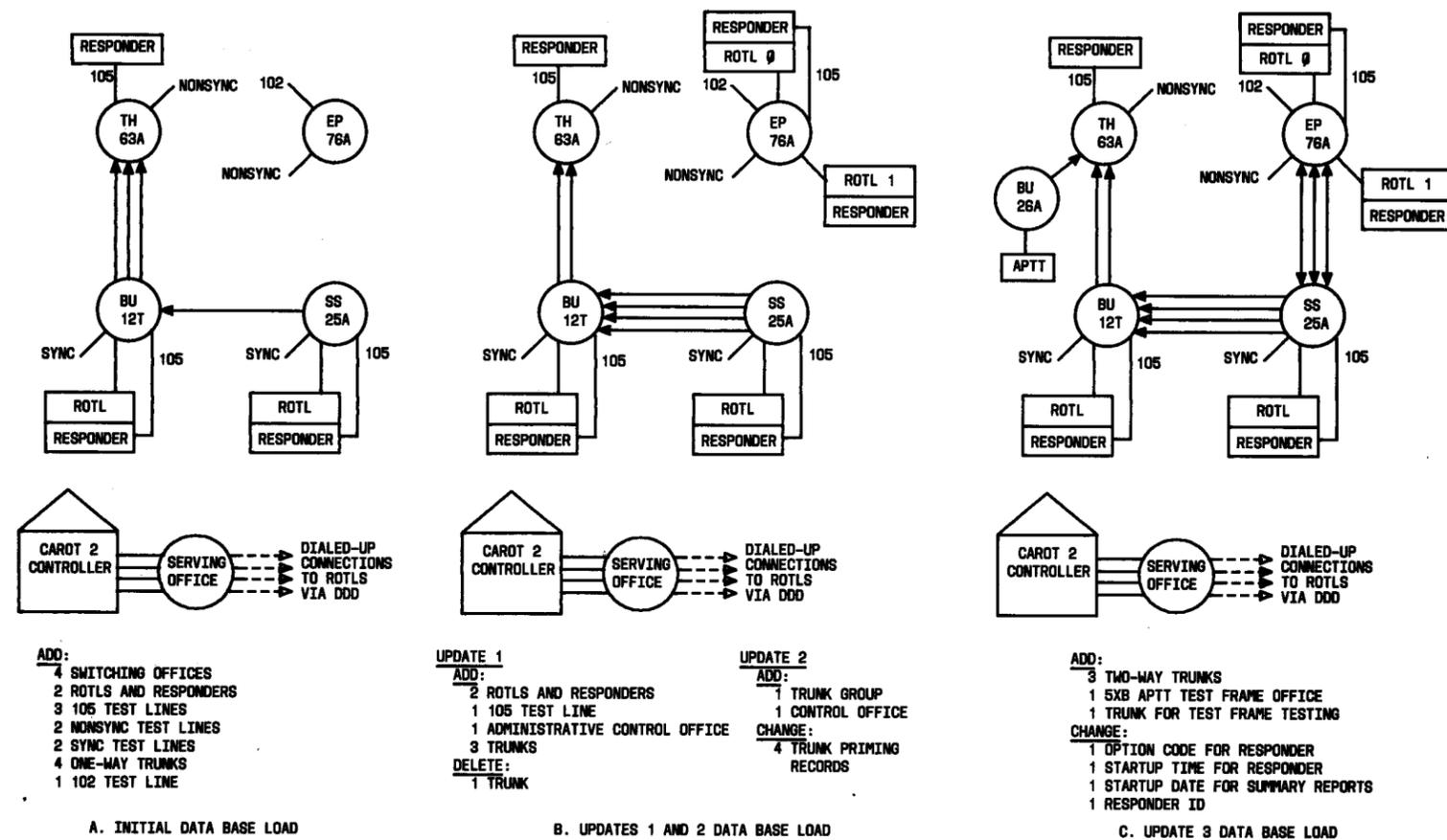


Fig. 53—CAROT 2 Data Base Load—System Configuration

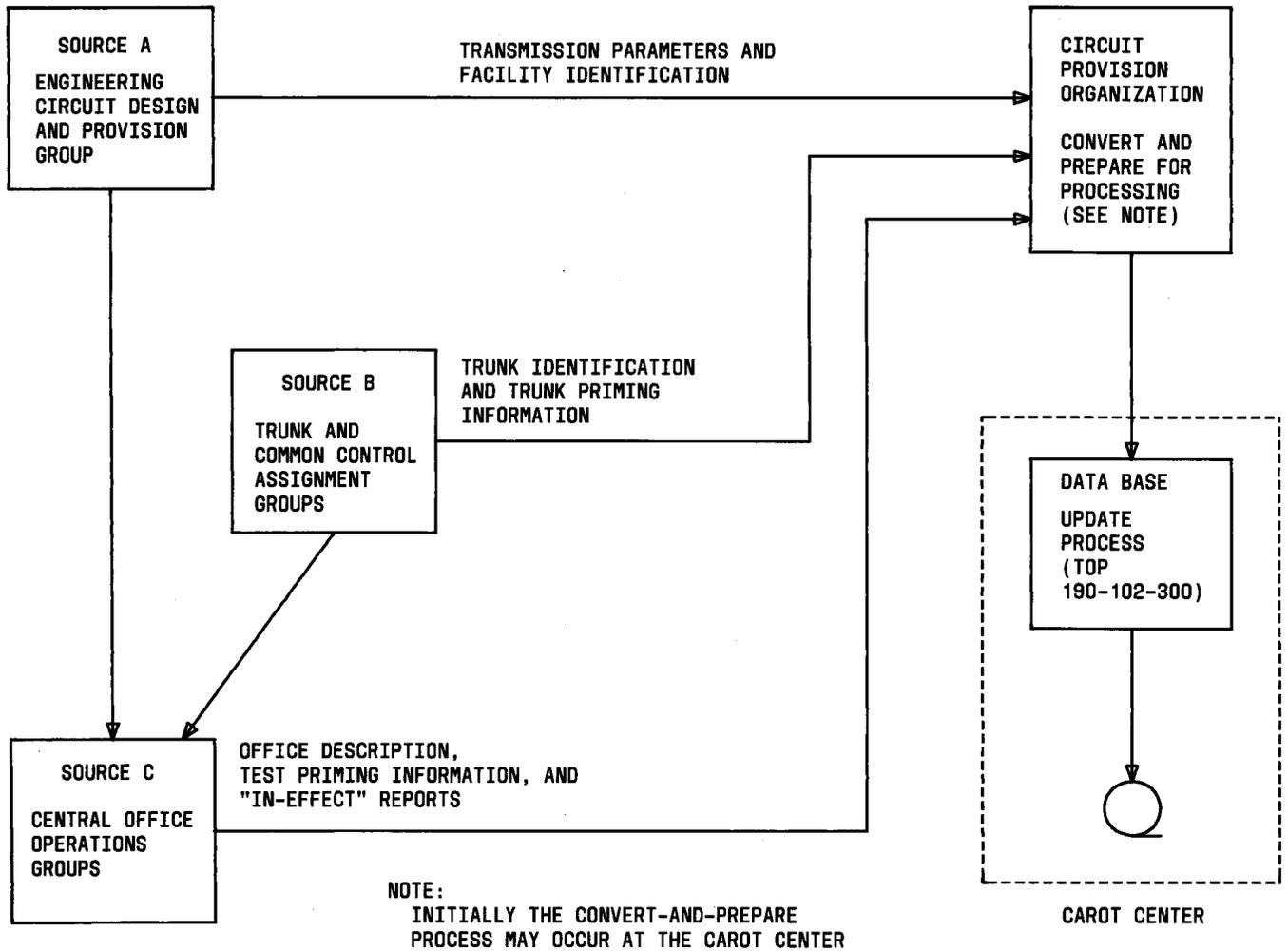
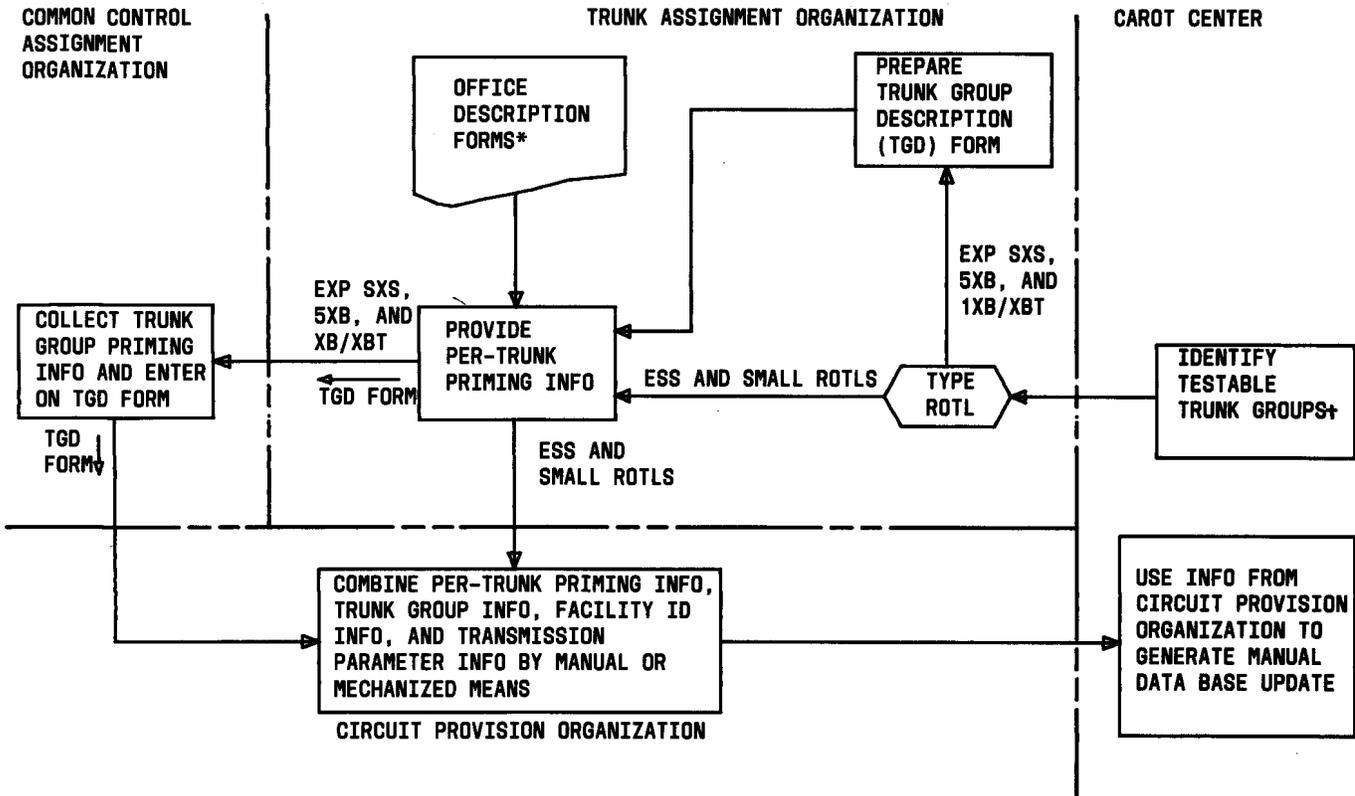


Fig. 55—Information Flow



* USE OFFICE DESCRIPTION FORMS AS REQUIRED

† CHECK GROUPS AND NUMBER OF TRUNKS PER GROUP IN OFFICE, AND CHECK CIRCUIT ENGINEERING AND TRUNK ADMINISTRATION RECORDS

Fig. 56—CAROT 2 Trunk File Initial Load Process

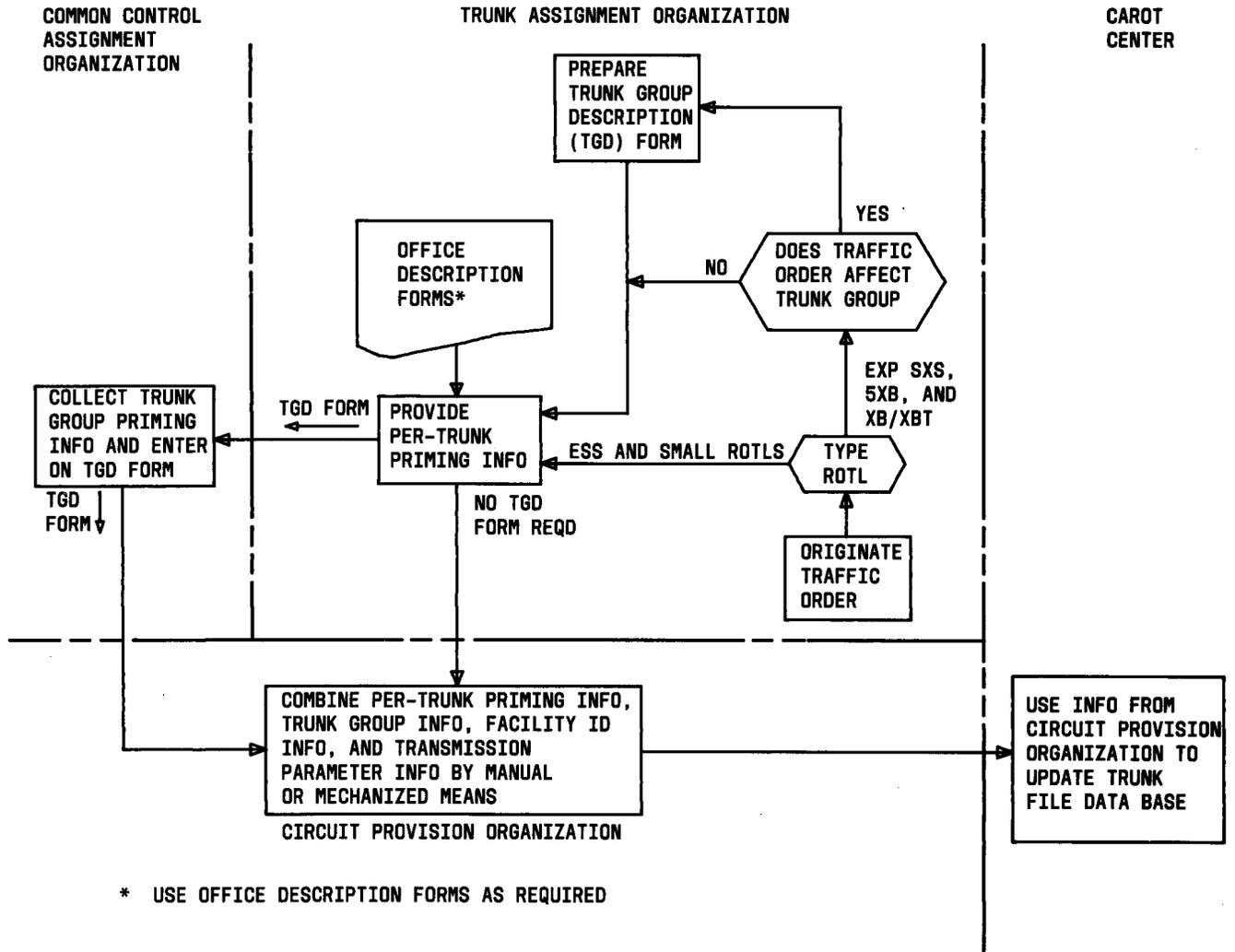


Fig. 57—CAROT 2 Trunk File Data Base

ODF-F
CAROT

OFFICE DESCRIPTION FORM
TRUNK MAINTENANCE FILE DATA
EXPANDED STEP-BY-STEP ROTL OFFICE

OFFICE _____

TRUNK NUMBER	TRUNK GROUP IDENTIFICATION	TEST CONNECTOR		
		SWITCH	SEL	HOLD
				0
				1
				2
				3
				4
				5
				6
				7
				8
				9
				0
				1
				2
				3
				4
				5
				6
				7
				8
				9
				0
				1
				2
				3
				4
				5
				6
				7
				8
				9

PREPARED BY _____ DATE _____ TELEPHONE _____

Fig. 61—Form ODF-F

ODF-G
CAROT

OFFICE DESCRIPTION FORM
TRUNK MAINTENANCE FILE DATA
IXB/XBT ROTL OFFICE

OFFICE _____

OFFICE LINK FRAME PAIR _____
LEVELS _____

OLF TERM	ITT CONNECTOR			OLF TERM	ITT CONNECTOR		
	SWITCH	SELECT	HOLD		SWITCH	SELECT	HOLD
00				25			
01				26			
02				27			
03				28			
04				29			
05				30			
06				31			
07				32			
08				33			
09				34			
10				35			
11				36			
12				37			
13				38			
14				39			
15				40			
16				41			
17				42			
18				43			
19				44			
20				45			
21				46			
22				47			
23				48			
24				49			

PREPARED BY _____ DATE _____ TELEPHONE _____

Fig. 62—Form ODF-G

EXPANDED STEP-BY-STEP ROTL
TRUNK GROUP DESCRIPTION FORM

TRUNK GROUP IDENTIFICATION				↑ LOOP SUPERVISION	↑ SIMPLEX SUPERVISION	↑ DELAY DIAL	# OF DIGITS OUTPULSED	REPLACEMENT MNX IF NEEDED FOR CODE CONVERSION	LINE NUMBER
TRUNK TYPE	OFFICE A	PULSING	OFFICE Z						
									01
									02
									03
									04
									05
									06
									07
									08
									09
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20

Fig. 63—Expanded SXS ROTL TGD Form

EXPANDED STEP-BY-STEP ROTL
TRUNK GROUP DESCRIPTION FORM

TRUNK GROUP IDENTIFICATION				↑ LOOP SUPERVISION *	↓ SIMPLEX SUPERVISION *	DELAY DIAL *	# OF DIGITS OUTPULSED	REPLACEMENT NXX IF NEEDED FOR CODE CONVERSION	LINE NUMBER
TRUNK TYPE	OFFICE A	PULSING	OFFICE Z						
									01
		}		1	0	0			02
<i>DP PULSING - OUTGOING</i>				1	0	1			03
				0	1	0			04
				0	1	1			05
									06
		}		1	0	X			07
<i>MF PULSING - OUTGOING</i>				0	1	X			08
									09
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20

0
1
2
3
4
5
TT or TL RECORD
CHARACTER
POSITION
23

* LEGEND:
I - APPLICABLE
O - NOT APPLICABLE
X - DON'T CARE

Fig. 64—Example of Using Expanded SXS ROTL TGD Form to Determine Character Position 23 (TT or TL Record, Trunk File Work Sheet)

CROSSBAR TANDEM AND NO.1 CROSSBAR ROTL
TRUNK GROUP DESCRIPTION FORM

TRUNK GROUP IDENTIFICATION				SUPERVISION													LINE NUMBER			
TRUNK TYPE	OFFICE A	PULSING	OFFICE Z	LOOP	BATT. AND GRD	0 Ω COMP.	300 Ω	600 Ω	900 Ω	TO 24V PANEL	TO 48V XBT OR BAY	WINK START	STOP-60	DELAY DIAL	TO 1ST XBT OVER GROUP	TO 2ND XBT OVER GROUP		# OF DIGITS OUTPULSED	REPLACEMENT MNX IF CODE CONVERSION USED	
																				01
																				02
																				03
																				04
																				05
																				06
																				07
																				08
																				09
																				10
																				11
																				12
																				13
																				14
																				15
																				16
																				17
																				18

Fig. 65—1XB/XBT TGD Form

CROSSBAR TANDEM AND NO.1 CROSSBAR ROTL
TRUNK GROUP DESCRIPTION FORM

TRUNK GROUP IDENTIFICATION				SUPERVISION *														
TRUNK TYPE	OFFICE A	PULSING	OFFICE Z	LOOP	BATT. AND GRD	0 Ω COMP.	300 Ω	600 Ω	900 Ω	TO 24V PANEL	TO 48V XBT OR BAY	WINK START	STOP-GO	DELAY DIAL	TO 1ST XBT OVER GROUP *	TO 2ND XBT OVER GROUP *	# OF DIGITS OUTPULSED	REPLACEMENT NMX IF CODE CONVERSION USED
		ONE WAY		X	X	X	X	X	X	X	X	/	0	0	X	X		
MF PULSING, OUTGOING		ONE WAY		X	X	X	X	X	X	X	X	0	/	0	X	X		
		ONE WAY		X	X	X	X	X	X	X	X	0	0	/	X	X		
		TWO WAY		X	X	X	X	X	X	X	X	X	X	X	X	X		
		ONE WAY		/	0	/	X	X	X	X	X	/	0	0	X	X		
		ONE WAY		/	0	/	X	X	X	X	X	0	/	0	X	X		
		ONE WAY		/	0	/	X	X	X	X	X	0	0	/	X	X		
		ONE WAY		/	0	0	X	X	X	X	X	/	0	0	X	X		
DP PULSING, OUTGOING		ONE WAY		/	0	0	X	X	X	X	X	0	/	0	X	X		
		ONE WAY		/	0	0	X	X	X	X	X	0	0	/	X	X		
		ONE WAY		0	/	X	X	X	X	X	X	/	0	0	X	X		
		ONE WAY		0	/	X	X	X	X	X	X	0	0	/	X	X		
		TWO WAY		X	X	X	X	X	X	X	X	X	X	X	X	X		

LINE NUMBER		
01	0	0
02	0	/
03	0	2
04	0	3
05		
06	/	0
07	/	/
08	/	2
09	/	3
10	/	4
11	/	5
12	/	6
13	/	7
14	/	8
15	/	9
16	TT OR TL	
17	RECORD	
18	CHARACTER POSITIONS 22-23	

* LEGEND:
 / - APPLICABLE
 0 - NOT APPLICABLE
 X - DON'T CARE

Fig. 66—Example of Using 1XB/XBT ROTL TGD Form to Determine Character Positions 22 and 23 (TT or TL Record, Trunk File Work Sheet)—MF and DP Pulsing

EXPANDED NO. 5 CROSSBAR ROTL
TRUNK GROUP DESCRIPTION FORM

TRUNK GROUP IDENTIFICATION				GROUP LOCATION ADDRESS						# OF FETL DIGITS	REPLACEMENT NPA IF NEEDED FOR ROUTING PURPOSES	REPLACEMENT NNX IF NEEDED FOR ROUTING PURPOSES	LINE NUMBER
TRUNK TYPE	OFFICE A	PULSING	OFFICE Z	TYP	TR	MG	CTA	CU	CRU				
													01
													02
													03
													04
													05
													06
													07
													08
													09
													10
													11
													12
													13
													14
													15
													16
													17
													18

Fig. 68—Expanded 5XB ROTL TGD Form

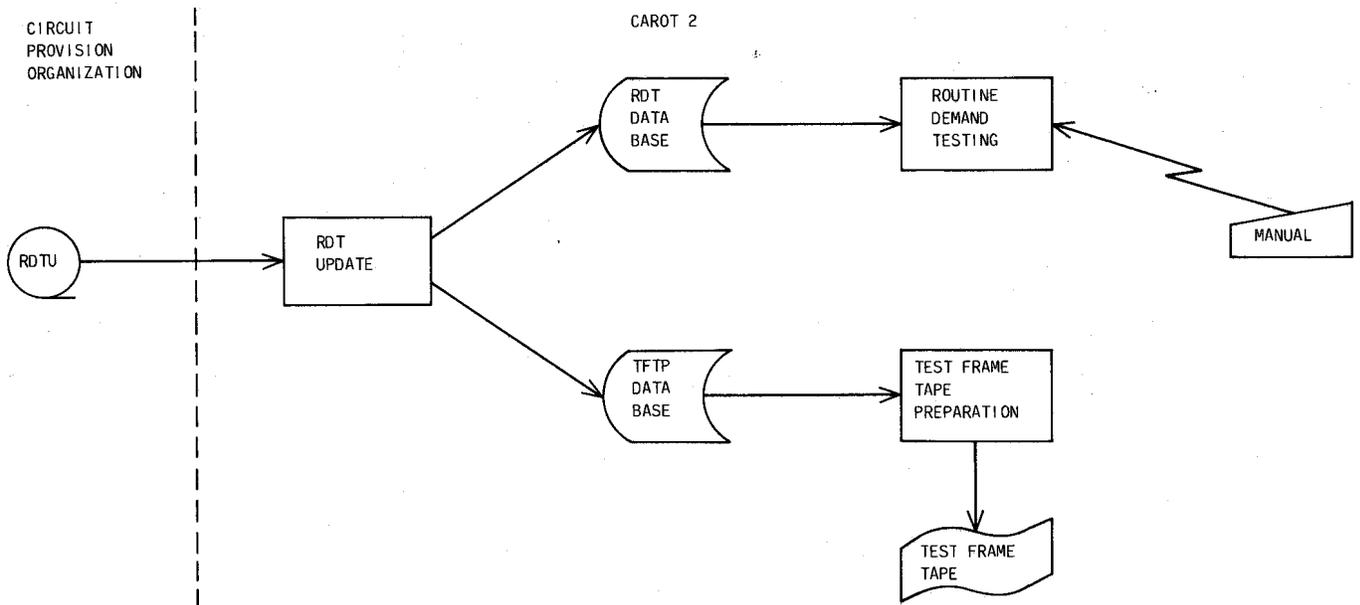


Fig. 69—CAROT 2 Mechanized Inputs—Routine and Demand Testing Implemented

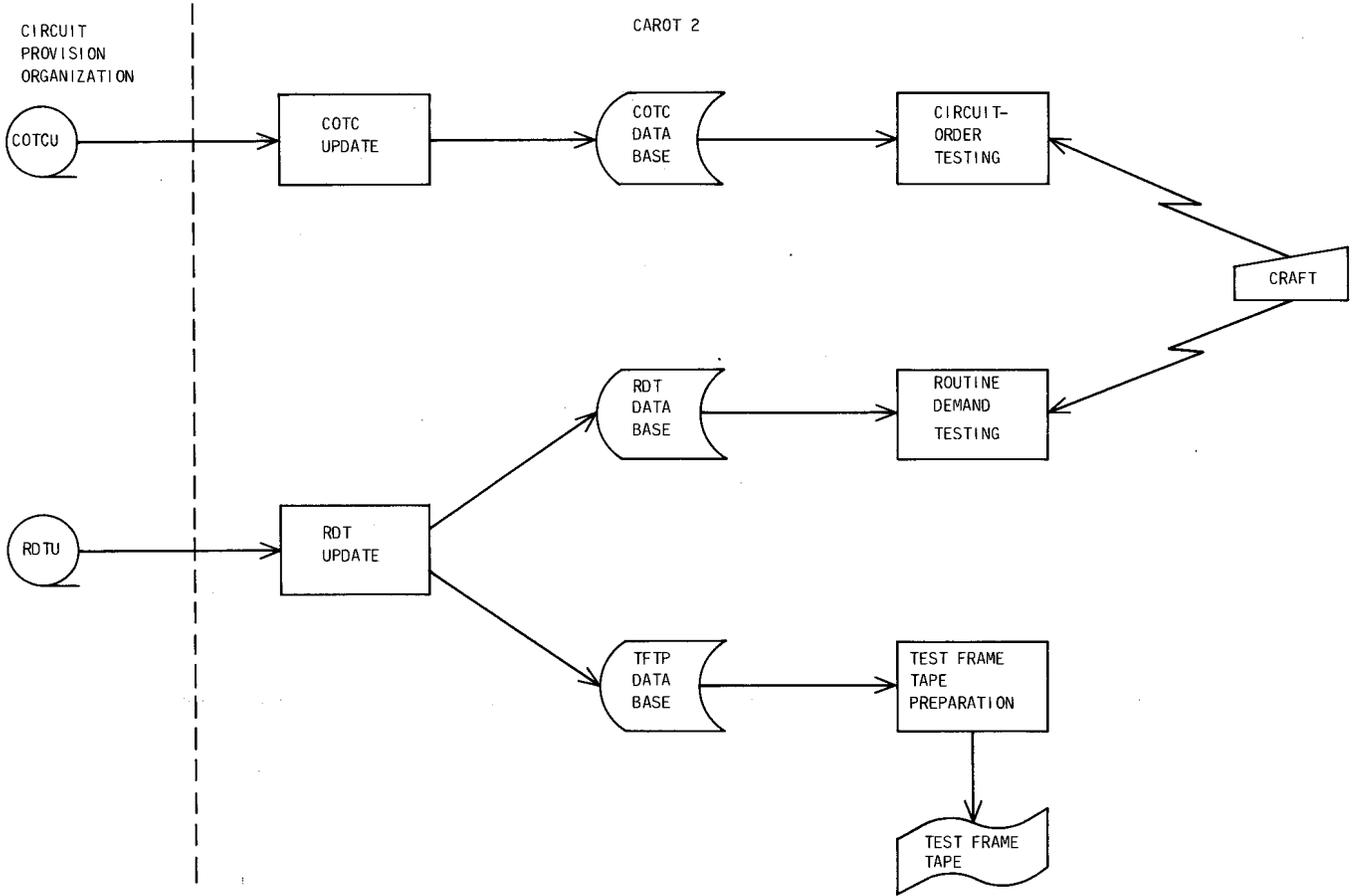


Fig. 70—CAROT 2 Mechanized Inputs—Routine, Demand, and Circuit Order Testing Implemen'

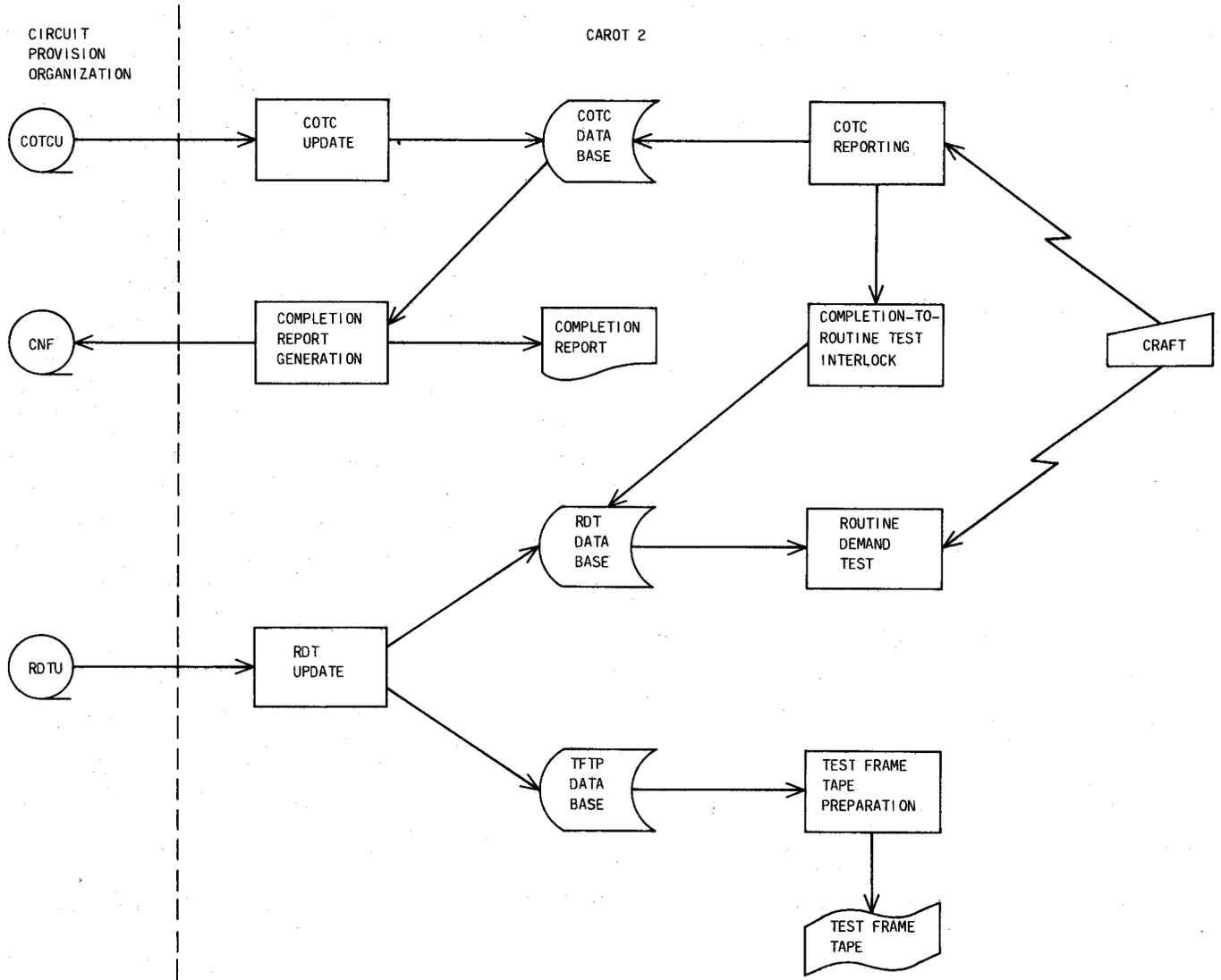


Fig. 71—CAROT 2 Mechanized Inputs—Routine and Demand Testing and Circuit Order Testing Completion Reporting Implemented

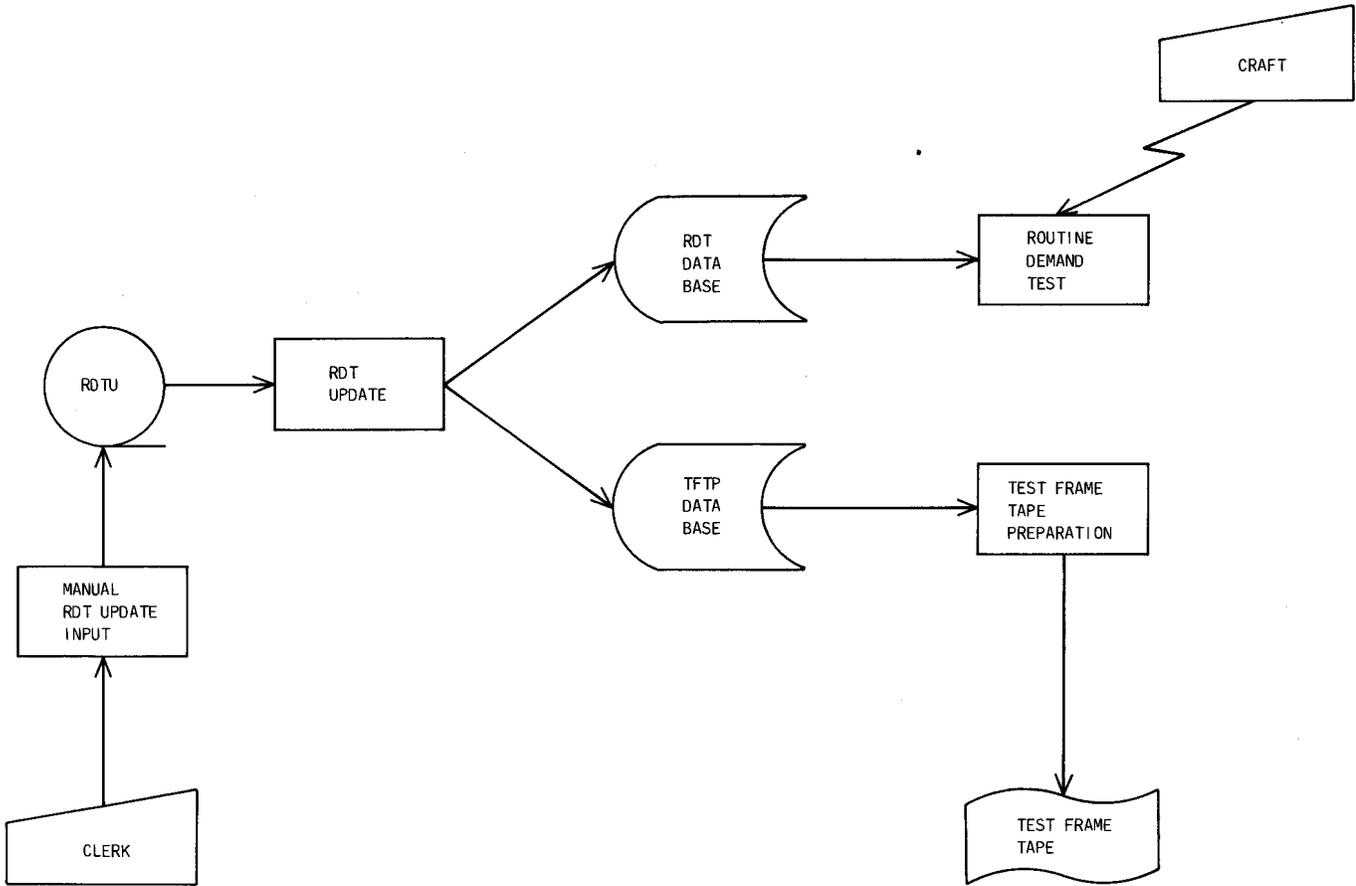


Fig. 72—CAROT 2 Manual Inputs—Routine and Demand Testing Implemented

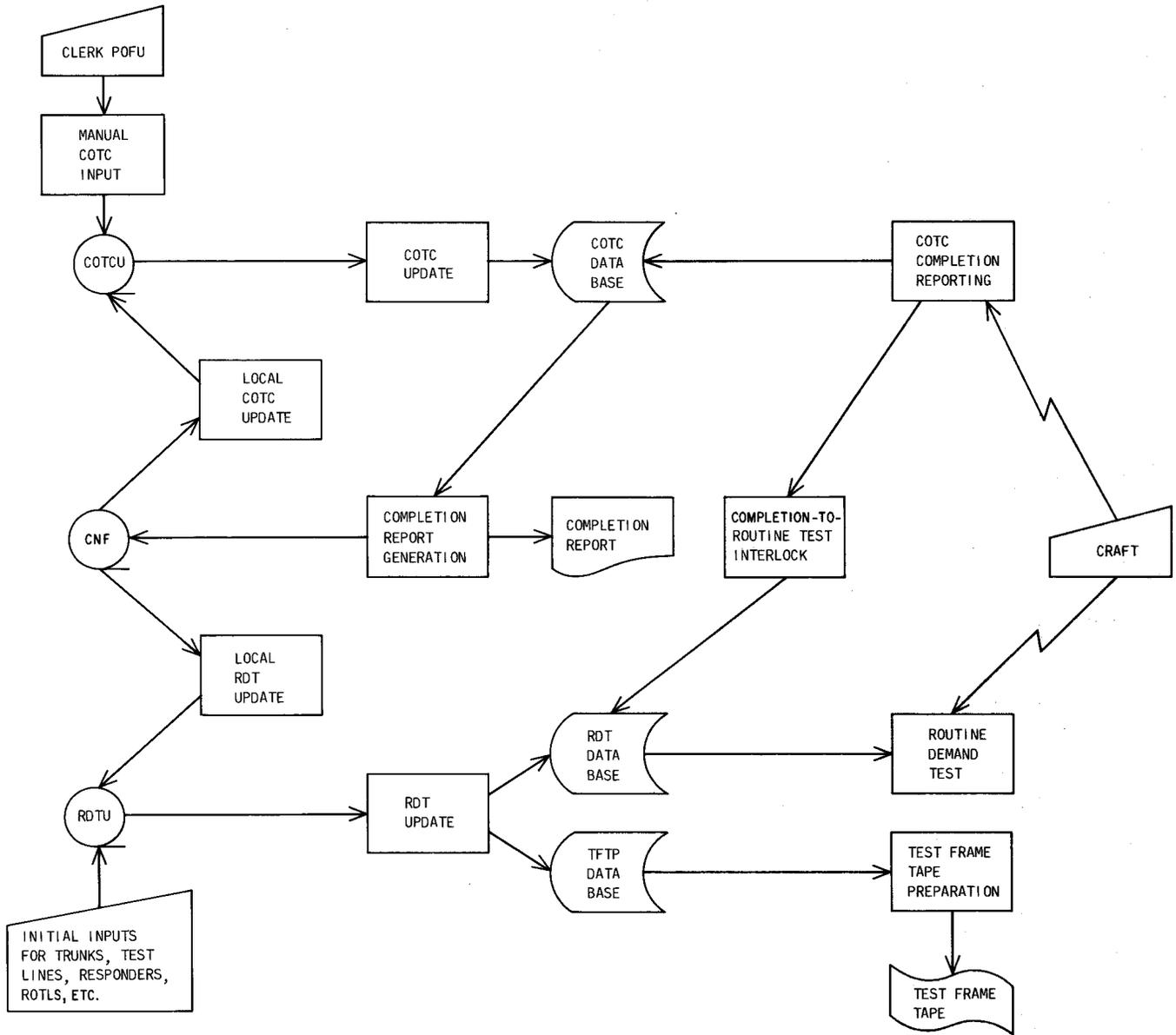


Fig. 73—CAROT 2 Manual Inputs—Routine and Demand Testing and Circuit Order Testing Completion Reporting Implemented

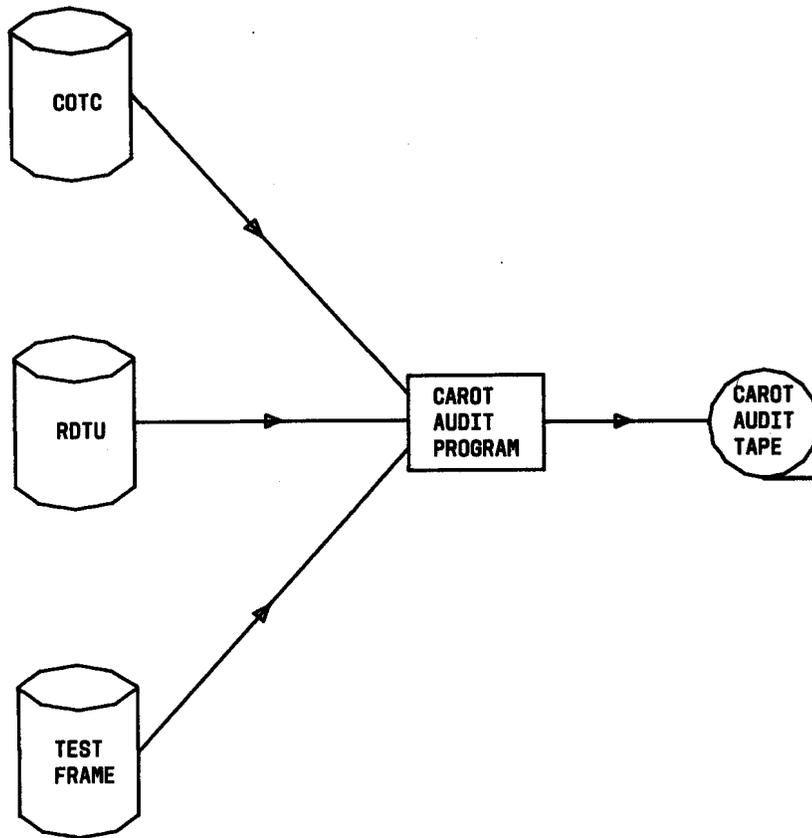


Fig. 74—CAROT 2 Data Base Files Forming Audit Tape