RECENT CHANGE
USERS GUIDE

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1. GENERAL

1.01 This section describes recent change messages and provides procedures for implementing recent changes in a No. 3 Electronic Switching System (ESS) office.

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

1.03 The following Bell System Practices provide additional information related to recent change messages and related procedures.

- Section 233-151-130—Basic Call Processing Software Subsystem Description No. 3 Electronic Switching System
- Section 233-151-150—Translations Software Subsystem Description No. 3 Electronic Switching System
- Section 233-152-105—Recent Change Processing and Translation Data Software Subsystem Description No. 3 Electronic Switching System
- Section 233-152-120—Teletypewriter Software Subsystem Description No. 3 Electronic Switching System
- Section 254-300-190—Teletypewriter and Teletypewriter Controller Description and Theory of Operation Common Systems
- Section 680-536-101—ESS Service Order Procedures Using the Service Order Teletypewriter No. 3 Electronic Switching System (Generic Program SO-2).

In addition, the input message manual IM-3H300-01 and output message manual OM-3H300-01 must be consulted for specific recent change message format information.

1.04 The following definitions aid in the understanding of words used in this section.

(a) Electronic Switching System (ESS): An electronic system utilizing stored program control to provide telephone service.

(b) Memory: A storage unit containing information that can be accessed at a later time.

(c) Translation: Customer service information contained in memory such as telephone numbers, central office terminal equipment, and class of service. It does not include cable pair information.

(d) Translation Store Area: The write-protected area of main store for translation data.

(e) Temporary Store: The area of main store in which translation data subject to frequent changes is stored.

(f) Central Control: The equipment that controls the operation of the other ESS equipment units according to instructions stored in the main store.

Note: When the term TOUCH-TONE® telephone service is used, it refers to the equipment required to provide this service to the customer.

1.05 Recent change messages are the means by which translation data is added, changed, or removed from the system. The messages should be accurate, complete, and conform to specific guidelines. Format errors will cause rejection of a message. **Clerical errors such as transposition of numbers cannot be detected by the ESS as errors and thus will cause incorrect translation data to be written into memory.** For this reason, it is recommended that all recent change inputs, especially those involving service orders be prepared off-line on paper tape and carefully checked before entering the message into the system.

2. TELETYPEWRITER CONTROLLERS

2.01 The basic system contains two TTY control units, each containing two controllers. However most basic systems will be equipped with two TTY control units of which each unit is equipped with only one controller. Each controller has four

ports to provide communications between operating personnel and the system. The maintenance TTY controller processes all maintenance messages between the 3A CC and maintenance personnel. The miscellaneous TTY controller processes administrative messages and serves in an autoconnect (dial-up and call back) arrangement available to users when needed.

A. Maintenance Teletypewriter Controller

2.02 The maintenance TTY controller is the basic communication link between No. 3 ESS and maintenance personnel. Input messages are used to request a specific diagnostic test or to request a special report on some internal condition. Maintenance TTY output messages consist of alarm and status conditions, trouble indications, results of trouble diagnostics, and replies to interrogation requests. Any recent change message can be entered at the maintenance TTY.

2.03 When No. 3 ESS operates as an unattended office, the maintenance of that office will be the primary responsibility of a remote location, typically a Switching Control Center (SCC) or Technical Assistance Center (TAC). This means that at least one remote maintenance TTY will be located at the attended location. Both the local and remote maintenance TTYs are connected to the same TTY controller and receive the same messages from the system.

B. Miscellaneous Teletypewriter Controller

2.04 The miscellaneous TTY controller is used in the No. 3 ESS for office administration, service orders, traffic reporting, etc. In a small office, these functions actually require very little usage of the miscellaneous controller. For instance, service orders in a small office should not be more than a few per week. Traffic printouts will be short also. For these reasons, the miscellaneous TTY controller is shared among users for various functions via an autoconnect arrangement.

2.05 The miscellaneous TTY controller is also available to serve as backup protection for the maintenance TTY. Maintenance personnel can access the miscellaneous TTY controller in the same way as any other user (dial-up and call back). During such times, the miscellaneous TTY controller is not available for other functions. The other users of the miscellaneous TTY controller are deferred until the maintenance TTY controller is restored to normal service.

3. TELETYPEWRITER OPERATION

A. Keyboard Information Direct Typing (On-Line)

Note: When a service order is typed on-line, a tape should be punched and retained for future use. When a tape is punched, 2 or 3 inches of rub out characters should be perforated at the beginning and ending of each tape to facilitate processing. (See paragraph 1.05.)

3.01 A typical example of an RC service order input message is:

```
RC:LINE/ (Note 1)
ORD 0001/
TYP NEW/
TN 253 0023/
OE 03 1210/
LCC 1FR/
TTC YES/
END! WT_OK (Note 2)
```

Note 1: The RC:LINE indicates that a recent change order is being entered. The slash (/) is used to denote continued input (linked message). This character ends a line of input and informs the system that another line of data is to be inserted.

Note 2: The END! indicates the message is completed. The OK is the system response if the message was accepted.

Input fields are separated by spaces or colons. Colons are used to separate the action field from adjacent fields except when the action field is last. In this case, an execute character would be typed. Time-out can be prevented by typing extra spaces before or after any field. The time-out period usually extends 2 minutes after typing has ceased. Time-out is a variable in the RC:LINE message associated with autoconnect.

3.02 An execute character must follow each line of an input message. One or more spaces may precede the character except when the input is from paper tape. The exclamation point (!), the standard execute character, is to be used on all single line messages. When the input message is a linked message (more than one line), the execute

or continuation character is a slash (/) indicating more information to follow. The last line is followed by the exclamation point to indicate the end of the message.

3.03 An input message may be typed at any time the TTY is not busy with an output message. After the first character is typed, a sharp sign (#) will be returned when the entire TTY buffer area is currently full. The typist should wait a few seconds and try again. When (after several tries) the area is still full, the priority of the input message can be increased. This action deletes one output message from the output buffer. The priority is increased by depressing the BREAK key, typing a SPACE, then following immediately with the desired input message. The preceding action completely discards the remaining portion of the output message and places the TTY in the input state. Any output messages generated by the current input will be placed in the output buffer.

3.04 Recent change service orders are permitted from both the miscellaneous and maintenance TTYs; however, the No. 3 ESS processes only one order at a time. When an order is in progress from the miscellaneous TTY, an order cannot be inserted at a maintenance TTY. When an order is in progress at a maintenance TTY, an order cannot be inserted at the miscellaneous TTY.

3.05 The recent change service orders are free flow (input in any order) and use mnemonic codes known as ***keywords***. The keyword indicates the type of data that follows, such as ***TN*** 555 1272 for a telephone number. The keywords and other recent change order information must be in proper language and format. The keywords (except for the beginning and ending entries) can be in any sequence convenient for a particular office. Before the end-of-message keyword is typed, the order should be proofread for errors or missing keywords. When a keyword has been omitted or typed incorrectly, it can be added or changed and then the end-of-message keyword typed. When typographical errors are discovered, they must be corrected before the order is entered.

3.06 When an error has been typed, the following procedures can be used to correct the message error(s).

(a) If recent changes are being typed from either the service order or maintenance TTY and only one or two characters need to be corrected, type an underscore symbol (_) for each character in error immediately following the error(s). Then retype the correct characters.

Example: RC:LINE/
OED_ _RD 0001/

(b) If an entire line is to be corrected, typing the $ symbol will cause the line to be erased and the system will respond with a carriage return and a line feed.

Example: RC:LINE/
ORD 0001/
TM 231$
TN 231 1246/

(c) If the continuation character (/) has been typed when the error is noticed, retype the keyword and correct data.

Example: RC:LINE/
ORD 0001/
TYP NEW/
TN 231 1244/
TN 231 1245/

The telephone number accepted by the system will be 231-1245 and not 231-1244. This procedure can be used on any line of a linked message. Re-inputting the keyword and associated data causes the entire line to be overwritten with the new data. The entire message can be canceled prior to typing keyword END and the execute symbol by delaying further inputs until the machine times out. If recent changes are being input from the maintenance TTY and a message is to be canceled, type the ampersand (&) symbol followed by ABT:MSF message.

CAUTION: When inputting recent changes, never use the ampersand (&) symbol from the service order or traffic TTYs to correct or delete message errors.

3.07 Normally, the ESS recent change service order shall be typed off-line using paper tape so it can be proofread before being entered. After the order has been proofread, the tape is

inserted into a tape reader and the order is transmitted into the translation store area.

3.08 When information received by the ESS is not in proper format or when certain information is omitted, the central processor automatically rejects the order and provides an appropriate acknowledgment. If the order is correct in all respects, an acknowledgment is returned that the order has been accepted. (Refer to paragraphs 4.01 and 4.02.)

3.09 Information that has been accepted by the ESS, but is later discovered to contain an error (such as transposition of a digit in a telephone number) can be changed or removed. To make a correction, a change order or "out" order must be used.

3.10 The teletypewriter keyboard (Fig. 1) should have uppercase characters in both red and white. There are two keys (SHIFT and CTRL) which control the uppercase and lowercase characters. The SHIFT key lettering is white and is used for control of the standard keyboard uppercase characters. The red uppercase characters are controlled by the CTRL key. The primary characters used for No. 3 ESS-TTY operations are explained in Table A.

B. Typing Operations for Paper Tape (Off-Line)

3.11 A tape is perforated (punched) by the typing reperforator while a recent change service order is being typed. This should be done with the TTY in the off-line (local) mode. This method allows for proofreading the order thereby minimizing the possibility of transmitting errors to the central processor. Tape will provide a backup file of changes and assure rapid input for changes that require more than one message sequence (such as changing the party number of an assigned telephone number).

3.12 The following is an explanation of the five mode switches located at the left of the TTY keyboard.

(a) K (Keyboard)—The message will be typed on-line and transmitted to central control as it is typed. A printed copy of the message will be made on the TTY.

(b) KT (Keyboard-Tape)—The same as above except that a paper tape will also be punched.

(c) T (Tape)—When on-line, the typed message will be transmitted to the central control and a tape punched. A message from the central control results in both a punched paper tape and a printed message. When off-line, a tape will be punched. No message will be printed.

(d) TTS and TTR—Not normally used.

C. Manual Paper Tape Preparation

3.13 To communicate using a paper tape, four extra characters must be placed into the message. Three of these are punched on the paper tape as part of the message; the fourth is variable. The message is typed in normal fashion. At the end of each message line (except the last line) the continuation execute character (/) is typed, a reader off (XOFF) character must be punched followed by a RUB OUT character. Spaces are not allowed between these two characters because the reader stops after the second character following the XOFF. After RUB OUT has been typed, a carriage return (CR) and line feed (LF) will be typed to reposition the printer head to the left margin, ready for the next line. This sequence is repeated for each line except the last line. The last line typed contains the keyword END followed by the execute character (!).

3.14 The following procedure is an example for typing a recent change service order off-line using a tape.

(a) Teletypewriter off-line (LCL).

(b) MODE key, on left side, set to the KT position.

(c) Operate CTRL and TAPE keys to activate the tape perforator.

(d) Operate RUB OUT and REPT keys until 2 or 3 inches of RUB OUT characters are perforated.

(e) Type in message using the following procedures and format. (Example: An order for a new telephone, single-party service.)

Note: When use of the CTRL key and XOFF key is required, the CTRL key must be depressed when XOFF is operated.

(f) RC:LINE/ (CTRL key and XOFF key) (RUB OUT key, RETURN key, and LINE FEED key).

(g) ORD (space) 0001/ (CTRL key and XOFF key) (RUB OUT key, RETURN key, and LINE FEED key).

(h) TYP (space) NEW/ (CTRL key and XOFF key) (RUB OUT key, RETURN key, and LINE FEED key).

(i) OE (space) 00 (space) 1030/ (CTRL key and XOFF key) (RUB OUT key, RETURN key, and LINE FEED key).

(j) TN (space) 554 (space) 1234/ (CTRL key and XOFF) (RUB OUT key, RETURN key, and LINE FEED key).

(k) LCC (space) 1FR/ (CTRL key and XOFF key) (RUB OUT key, RETURN key, and LINE FEED key).

(l) END! (CTRL key and XOFF key).

(m) Operate RUB OUT and REPT keys until 2 or 3 inches of RUB OUT characters are punched on the tape.

(n) Operate CTRL and TAPE-OFF keys to deactivate tape perforator and remove the tape from the machine.

(o) When transmitted to the ESS (via tape), the recent change order will appear as follows:

RC:LINE/ (Note 1)

ORD 0001/

TYP NEW/

OE 00 1030/

TN 554 1234/

LCC 1FR/

END! WT_OK (Note 2)

Note 1: The RC:LINE indicates that a recent change order is being entered. The slash (/) is used to denote continued input (linked message). This character ends a line of input and informs the system that another line of data is to be inserted.

Note 2: The END! indicates that the message is completed. The OK is the system response if the message has been accepted.

D. Inputting From Tape Into the ESS

3.15 When a paper tape is entered into the No. 3 ESS, the parity of each incoming character is checked unless the parity test is inhibited. Because of the parity test, it must be known if the paper tape was punched on a machine that produces correct parity (ASR 35 TTY produces correct parity). The parity test should be inhibited for tapes that have incorrect or unknown parity. The parity test can be inhibited by using the RC:TTY message. An example is shown below:

RC:TTY/
TYP CHG/
TTYC n/ (n = 0 through 7)
PORT n/ (n = 0 through 3)
PAR NO/
END!

3.16 Communication between the system and the paper tape is accomplished as follows. Once a tape has been perforated, it is inserted into the tape reader of an on-line TTY that is in the STOP position. The reader key is then moved to the RUN position. If the reader does not begin inputting the tape immediately, type in the X-ON character to place the TTY in the tape mode and start the reader. The system will interpret the X-ON character and enter the paper tape mode which starts the paper tape reader. It proceeds to the continuation or execute character where it stops. This allows the system time to decode and execute the message and type any required acknowledgment. Unless instructed otherwise, the system will then automatically restart the reader.

3.17 Once the system has entered the paper tape mode, it remains in this mode until the keyword END is received. If END is not in the last message (line), the system will turn the reader

on and continue reading until the physical end of the tape, at which time it will time for 45 seconds. During this time another tape may be inserted without typing the X-ON character. Since the system is waiting for an input message, one can be typed from the keyboard. In this case, the paper tape mode is still in effect requiring keyword END and XOFF. If no operator response is given to the system within 45 seconds, the system will issue a ?T acknowledgment and abandon the paper tape mode.

3.18 If an error is detected while reading the paper tape, the program will respond as in typed input and will not restart the reader. When a typing error stops the tape, the faulty message or line may be retyped on the associated keyboard. The paper tape will automatically restart when it receives the continuation character following the line input manually.

3.19 The following procedure is used to transmit a tape into the ESS via the tape reader:

(a) TTY must be ON-LINE.

(b) Disable parity test by RC:TTY, if required.

(c) Tape reader switch is in the FREE position.

(d) Insert the tape in the tape reader.

(e) Place the tape reader switch to the RUN position.

(f) Depress the KT mode key on the left side of the TTY or set the mode switch to the KT position.

(g) Operate the CTRL and TAPE OFF keys to prevent punching a duplicate tape.

(h) Operate the CTRL and X-ON key to start the tape reader.

(i) If the reader does not start automatically, depress and hold the CTRL key and operate the X-ON key.

3.20 During the time the tape transmits the data into the ESS, the TTY prints a copy of the message. When END! is received (signifying the end of the message), the ESS sends an acknowledgment (accepting or rejecting). When the system sends an OK, the message was accepted. OK will be followed by an XOFF, a carriage return and line feed. When anything other than OK is sent, the message was rejected.

3.21 Any of the acknowledgment messages (Table B) may be returned from the TTY and typed immediately following the execute (!) or continue (/) character. In case of TTY system errors, the entire message (even if multiple line) will be aborted. If the input is by paper tape, the tape reader will ***not*** be turned back on.

Caution: Do not blindly repeat messages without determining the reason for a given response. Corrections will not be made automatically. Determine the error cause before attempting a retry.

3.22 Once the tape input has been completed the parity test should be restored as follows:

```
RC:TTY/
TYP CHG/
TTYC n/ (n = 0 through 7)
PAR YES/
END!
```

4. SYSTEM RESPONSES AND ERROR CODE

A. Recent Change Order Acknowledgment

4.01 Each recent change order transmitted to the ESS receives an acknowledgment. The acknowledgment is a brief output message from the ESS which indicates actions resulting from the ESS order.

4.02 A list of acknowledgment messages such as NG, OK, RL, IP, PF, and questionable type response (?I, ?D, ?E, etc) are shown in Table B.

B. Recent Change Error Code Definitions

4.03 A recent change error message (RC ERR) will follow with a numerical error code (nnnn) which describes the reason for the error. The definitions of the 4-digit recent change error codes are provided in OM-3H300-01 under RC ERR message.

5. SERVICE ORDER RECENT CHANGES

A. Summary of Recent Changes Allowed

5.01 The information in this section is of a general nature. If details are needed, Section 680-536-101 or the input manual IM-3H300-01 should be consulted.

5.02 The recent change messages which can be input from the service order TTY via the miscellaneous TTY controller are listed in Table C.

B. Service Orders for Ground Start Lines

5.03 For ground start assignments, the service order or circuit order must be coordinated with central office personnel to assure that the line ferrod is strapped for ground start service. The office equipment numbers (OE) which can be used for ground start lines are located on level 6 of switches 1, 2, 5, or 6 and on level 7 of any switch.

C. Multiline Hunt Group Recent Changes—RC:MLHG and RC:MTL

5.04 Multiline hunt groups should be allocated or established when translations are built for the office. Hunt group numbers and the maximum size (highest member or terminal number) should have been initially established. If a vacant hunt group is not available or has not been previously established, a reallocation must be made prior to assigning a multiline hunt group class of service to customer lines. Reallocation procedures are outlined in Part 9 of this document.

5.05 When setting up a new multiline hunt group, the group information (RC:MLHG) must be input first. Then the individual terminals or members data is input using the RC:MTL message.

5.06 The group data will have priority over the individual terminal data. If features such as TOUCH-TONE service is specified in the group message, then all terminals will have TOUCH-TONE service. If all terminals are not to be provided with identical features, the group message should indicate the keyword of the feature followed by NO. The feature then is handled separately for each terminal using the RC:MTL message. Paragraph 5.07 displays an example of a multiline hunt group established for three individual lines. Each line is equipped for ground start and TOUCH-TONE service. However only the first two lines are provided with the threeway calling feature (ESC).

5.07 Example:

```
RC:MLHG/
ORD 0001/
TYP NEW/
HML 04/
HSZ 02/
LCC TCG/
ESC NO/
TTC YES/
GST YES/
BTN 231 2156/
END!

RC:MTL/
ORD 0002/
TYP NEW/
TN 231 2156/
OE 01 0223/
HML 04/
TER 00/
LCC TCG/
ESC YES/
END!

RC:MTL/
ORD 0003/
TYP NEW/
TN 231 2157/
OE 01 0122/
HML 04/
TER 01/
LCC TCG/
ESC YES/
BTN 231 2156/
END!

RC:MTL/
ORD 0004/
TYP NEW/
TN 231 3055/
OE 01 0323/
HML 04/
TER 02/
LCC TCG/
ESC NO/
BTN 231 2156/
END!
```

5.08 If an entire multiline hunt group is to be removed, the individual lines must be removed

first using RC:MTL messages. The group information (RC:MLHG) should be removed last. If one individual line is to be removed, only the RC:MTL message is required. Removing a line from the middle of the hunt group does not require all terminals to be reassigned to fill the vacancy. The TER removed will be placed in an unassigned state until needed for service.

5.09 If a TER must be changed for any reason, TYP CHG classification is not allowed. Keyword TYP OUT must be used and the new TER number input using TYP NEW classification. Caution should be taken when changing group information or individual line information. One may conflict with the other causing still other data to be changed. For example, changing the line class code (LCC) of the group will only change the originating major class and screening class of the group. It will not change the LCC of the individual lines.

D. Multiparty Recent Changes—RC:MPTY

5.10 The recent change message for multiparty service orders is RC:MPTY. The keyword IOE is not allowed in RC:MPTY messages. Keyword PTY is required on each message; however, a party number cannot be changed using TYP CHG messages. If a party must be changed due to regrouping of party lines or similar activities, then the old information must be removed (TYP OUT) and re-input as new (TYP NEW).

E. Two-Party Recent Changes—RC:TWOPTY

5.11 As in multiparty lines, the keyword IOE is not allowed. A party (PTY) number cannot be changed using a TYP CHG message. The old information must be removed and new information must be input as TYP NEW.

5.12 Software message registers can be assigned on 2-party lines, but cannot be used on multiparty. Software message registers (MRs) cannot be assigned in offices with AMARC and AMA. Whenever RC:OFFICE data contains the keyword AMA it will block MR assignments.

F. Recent Change Message to Establish WATS—RC:LINE

5.13 The RC:LINE message is used to establish a Wide Area Telephone Service (WATS) line. If WATS has not been defined previously, a line class code, charge index tables, a screening class, and appropriate screening table must be defined and entered into memory. If required the line class code, the screening class, and charge index information will have to be input from the maintenance TTY. The RC:LCC, RC:SCR, and RC:CHI messages **cannot** be input from the service order TTY.

5.14 A typical example of a message for providing WATS is:

RC:LINE/
ORD 0012/
TYP NEW/
TN 231 7846/
OE 03 1276/
LCC WAT/
WATS 086 2176/ (Note 1)
RTI 033/ (Note 2)
TTC YES/ (TOUCH-TONE service)
ESF YES/ (Speed call 30 list provided)
END!

Note 1: WATS billing number 086 2176.

0 = Designation for full time WATS. If WATS was to be measured the numeral 1 would be used.

8 = Assigned by telephone company and used to represent the local state for identification purposes.

6 = Service area or band subscribed to.

2176 = Represents the special billing number which is obtained from the state WATS coordinating group.

Note 2: If the terminating major class of the line is 30, a route index must be assigned.

6. TRAFFIC TTY RECENT CHANGES

6.01 All the recent change messages which are allowed from the traffic TTY can also be input from the service order and maintenance TTYs.

6.02 The recent change messages which can be input from the traffic TTY are listed in Table D.

7. MAINTENANCE TTY RECENT CHANGES

A. Summary of Maintenance TTY Recent Change Messages

7.01 All recent change messages may be input from the maintenance TTY located in the No. 3 ESS office or from the remote maintenance TTY. The messages listed in Table E **cannot** be input from either the service order or traffic TTYs.

B. Maintenance TTY Recent Change Procedures

Autoconnect Using Issue 3 Generic

7.02 To establish a TTY autoconnect facility using Issue 3 generic, the autoconnect facility must first be defined by the RC:LINE message. This includes the trigger number and OE to be associated with the autoconnect circuit pack (FB518). Next the RC:TTY message may be required to define a teletypewriter controller (TTYC) and a TTYC port. The maintenance TTY backup facility will usually share the same port with autoconnect and will most always be defined by the ODA. If the maintenance backup has not been established on TTYC 1, port 1, the RC:AC message will have to be input. The RC:AC message provides the link to associate the autoconnect circuit with TTYC port and return telephone number (RTN) of the TTY circuit. The example in paragraph 7.03 illustrates procedures required, including the RC:TTY message (which is not always needed), to establish a new autoconnect facility for the service order TTY.

7.03 Example:

```
RC:LINE/
ORD 0001/
TYP NEW/
TN 231 1278/ (Trigger number assigned to
              service order autoconnect)
OE 01 0215/ (OE assigned to FB518 circuit
             pack. Note 1)
LCC ATC/
AC YES/
DP 0 002 2/ (One of four fixed DP assignments
             for autoconnect)
END!

RC:TTY/
TYP NEW/
TTYC 1/
PORT 1/
SC 00 06/ (Fixed I/O address for TTYC 1)
PAR YES/ (Note 2)
WRU YES/ (Note 3)
END!

RC:AC/
TYP NEW/
TN 231 1278/ (Trigger number for service
              order TTY)
RTN 727 3779/ (Return telephone number)
OE 01 0215/ (OE assigned to FB518 circuit
             pack)
CLS 2/ (2 = Message class for service
            order TTY)
TTYC 1/
PORT 1/
TO 120/ (Note 4)
FUN 0/ (0 = Specifies function will be
            TTY)
END!
```

Note 1: A dummy OE must be assigned if the first autoconnect is not already defined for the TTYC port.

Note 2: PAR YES indicates all input characters will be checked for even parity. Omit the keyword if even parity is not desired.

Note 3: WRU YES indicates that answer back option is required.

Note 4: TO 120 establishes 120 seconds as the time-out interval. If the TTY remains silent for 120 seconds, it will time out and be disconnected from autoconnect. See IM-3H300-01 for other time-out intervals, message RC:AC.

7.04 When changes to existing data are to be made, use TYP CHG message for minor changes, such as parity check (PAR), answer back option (WRU), automatic dial-up feature (AUTO), and time-out feature (TO). If other data is to be changed, it is recommended to remove the data entirely using a TYP OUT message and input the new data using a TYP NEW message.

7.05 For Issue 3 generic if autoconnect information is removed, then perform RC:AC, TYP OUT first. Then do RC:LINE, TYP OUT.

Autoconnect Using Issue 4 or Later Generic

7.06 Establishing a new autoconnect TTY with Issue 4 generic or later programs requires input of only two messages, RC:TTY and RC:LINE. With Issue 4 or later generic if the RC:TTY message is required, it must be input prior to inputting the RC:LINE message. The following example illustrates how the same service order TTY facility established in paragraph 7.03 would be established using Issue 4 generic or later programs:

```
RC:TTY/
TYP NEW/
TTYC 1/
PORT 1/
CLS 1/ (Maintenance backup)
PAR YES/
WRU YES/
HS NO/ (Note 1)
END!

RC:LINE/
ORD 0001/
TYP NEW/
TN 231 1278/ (Trigger number assigned to
              service order autoconnect)
OE 01 0215/ (OE assigned to FB518 circuit
             pack)
LCC ATC/
BTN 231 1278/ (Billing number)
DP 0 005 3/ (One of four fixed DP assignments
             for autoconnect)
RTN 727 3779/ (Return telephone number
               for service order TTY)
CLS 2/ (2 = Message class of service order
            TTY) .
TTYC 1/
PORT 1/
TO 120/ (Time-out feature for 120 seconds)
TONE 0/ (0 = Provide high tone [carrier
           tone])
ETYP 0/ (0 = Function is TTY)
END!
```

Note 1: NO must be specified for TTYCs 0 and 1. YES must be specified for TTYCs 2 and 3.

7.07 A high speed (1200 baud) printer may be used with TTY controller 2 and 3. Other auxiliary controllers (4 and 6) may or may not have the high-speed feature. Keyword HS in the RC:TTY message will provide this feature. For more detailed information, refer to IM-3H300.

7.08 To change data using Issue 4 or later generic issue, use TYP CHG messages. Only the keywords always required and those in which data is to be changed is needed. For details of change messages, refer to IM-3H300-01.

Multiple TTY Assignments to Same Port

7.09 It may be necessary to assign more than one TTY facility to the same port. For example, it may be beneficial or necessary to connect the traffic TTY and the service order TTY to the same port. Each TTY assignment will require separate service order recent changes. Certain keywords for each message will reflect identical data, such as TTYC, PORT, LCC, OE, and other pertinent keywords. The keywords TN, RTN, CLS, and TO will contain data which pertains to the individual TTY facility which is being added. Paragraph 7.10 provides an example of connecting a traffic TTY to the same port as the service order TTY (paragraph 7.06). Two RC:LINE messages will be necessary to establish the second TTY facility. The first RC:LINE message will define the trigger number for traffic. For Issue 3 generic, a vacant OE will be used as a fictitious OE to establish the telephone number in memory. The second RC:LINE message associates the traffic trigger number to the autoconnect facility.

7.10 Examples of recent change messages required to connect second TTY facility to an autoconnect port.

For Issue 3 generic:

```
RC:LINE/
ORD 0002/
TYP NEW/
TN 231 1150/ (Trigger number assigned to
              traffic TTY autoconnect)
OE 02 0110/ (Fictitious OE assignment)
LCC ATC/
DP 0 005 2/ (One of four fixed DP assignments
             for autoconnect)
END!
```

```
RC:AC/
TYP NEW/
```

```
TTYC 1/
PORT 1/
TN 231 1150/
RTN 727 9999/
OE 01 0215/
CLS 3/ (Traffic TTY)
AUTO YES/
TO 120/
FUN 0/
END!
```

For Issue 4 generic:

```
RC:LINE/
ORD 0003/
TYP NEW/
TN 231 1150/ (Trigger number assigned to
              traffic TTY autoconnect)
OE 01 0125/ (OE assigned to FB518 circuit
             pack)
LCC ATC/
BTN 231 1150/
DP 0 002 2/
RTN 366 2170/ (Return telephone number
               for traffic TTY)
CLS 3/ (3 = Message class for traffic TTY)
TTYC 1/
PORT 1/
AUTO YES/  (Note 1)
TO 120/
TONE 0/
ETYP 0/
END!
```

Note 1: AUTO YES indicates automatic dial-up feature is wanted.

Establish New Incoming Trunk Groups

7.11 Before a new trunk group can be added or defined in memory, reallocation of memory will probably be required. Reallocation procedures are outlined in Part 9.

7.12 To establish a new incoming trunk group, consideration must be given to type of trunk circuit, signaling, supervision, digits expected, type of holding, and charging capabilities. For example, signaling maybe MF (multifrequency) or dial pulse, supervision and/or charging may or may not be required when a free number is called. Also call holding may be desired to be controlled by the incoming caller or the subscriber being called or both. If more than four digits are expected, a 1-digit translator may be required to provide translations for the extra digit or digits received.

7.13 The RC:ODIG message would be required to provide necessary additional translations if more than four digits are to be received. Next the RC:GRP message to provide group data and RC:CKT messages for each circuit in the group are required. An example of necessary messages to provide translations data for a typical new incoming trunk group being established is provided in paragraph 7.14. Six digits will be received, dial pulse signaling utilized and the RC:CKT message is typical for the last circuit in a new group of ten trunks.

7.14 Example of messages required to provide new incoming trunk group with dial pulse signaling and set up to receive six digits.

```
RC:ODIG/
TYP NEW/
TBL 00/ (00 = New 1-digit translation table
            number)
ODIG 2/ (2 = If office prefix is 321, 2 is
          the table entry digit)
NTBL 01/ (01 = The next 1-digit translation
           table number to translate the digit
           1 of 321 prefix)
END!

RC:DIG/
TYP NEW/
TBL 01/
ODIG 1/
NDE 5/
CODE 321/
END!

RC:GRP/
TYP NEW/
GRP 141/
DR 1/ (1 = 1-way incoming trunk group)
SCHED 2/ (2 = Hourly traffic schedule)
EM YES/ (Designates E&M type supervision
          is required)
CKT 01/ (1 = 2-way E&M trunk circuit
            [FB361])
DISC 0/ (0 = Regular hold, standard
```

```
          disconnect procedures to be used)
BYLK YES/ (Indicates bylink trunk from
          SXS. Fast trunk scanning will
          be required)
IMF NO/ (Designate MF not required and
        dial pulses will be used for
        signaling)
CHGE YES/ (Specifies calls to a free number
          will be given answer supervision
          and be charged)
TBL 00/ (00 = 1-digit translation table
        number)
END!

RC:CKT/
TYP NEW/
GRP 141/
TER 009/ (009 = Last circuit in the group
         of ten)
OE 02 1267/
SP 01 31 04/ (Assigns scanner 01, row 31,
             scan point 04)
DP 0 025 1/ (Note 1)
EQL M0001203/ (Note 2)
TOC 10203/ (Note 3)
END!

RST:TRK 141,009!
```

Note 1: Keyword DP (distributor triplet) assign the peripheral pulse distributor (0), peripheral decoder (025), and the triplet (3).

Note 2: EQL shows the physical location of the trunk circuit pack. In this example, the pack is located on miscellaneous frame 00 (M00), bay 0, level 12 and pack position 3. (Keyword is **not** allowed for Issue 3 generic.)

Note 3: The trunk order code (TOC) will be found on the traffic order. It is a number assigned by the traffic engineer and designates function, circuit ID and feature or option of the trunk circuit. (Keyword is **not** allowed for Issue 3 generic.)

7.15 An incoming trunk circuit in which only four digits are expected would not require the 1-digit translation table. For example a new incoming trunk group for eight trunks, with MF inpulsing, four digits expected to be received from the distant office and using trunk circuit pack FB371 (incoming reverse battery trunk) would require only two messages. The following example illustrates these messages.

```
RC:GRP/
TYP NEW/
GRP 142/
DR 1/ (1 = 1-way incoming trunk group)
SCHED 2/ (2 = Hourly traffic schedule)
CKT 03/ (3 = Incoming reverse battery
        trunk [FB371])
DISC 0/ (0 = Regular hold, standard
        disconnect procedures to be used)
IMF YES/ (Designates MF pulses are expected)
CHGE NO/ (Designates if call is to a free
         terminating line do not return
         answer supervision)
CODE 321/ (321 = Office code or prefix)
NDE 4/ (4 = Number of digits to be
       expected)
END!

RC:CKT/
TYP NEW/
GRP 142/
TER 007/ (007 = Last circuit in group of
         eight)
OE 01 0110/
SP 02 31 10/
DP 0 164 3/
EQL N0102844/
TOC 10203/
END!

RST:TRK 142,007!
```

7.16 Information for keywords EQL and TOC will be used only to provide information on a printout of office records for offices equipped with Issue 4 generic or later programs. It provides useful information to the craftperson in clearing trouble conditions.

Establish Incoming Trunk Group for Local Test Desk

7.17 Two circuits are available for remote local test desk testing. The incoming trunk group established for these circuits will require MF pulsing. An example of the messages needed to establish the trunk group is contained in example:

```
RC:GRP/
TYP NEW/
GRP 140/
DR 1/ (1 = Incoming trunk group)
```

```
SCHED NO/
EM NO/ (Loop supervision is used)
CKT 17/ (17 = Incoming local test desk)
DISC 2/ (2 = Service hold)
IMF YES/ (MF signals expected from distant
        office)
RTEQ YES/ (Remote test equipment)
NT YES/ (No test trunk required)
SCR 00/ (Screening class must be determined
        locally)
END!

RC:CKT/
TYP NEW/
GRP 140/
TER 000/
OE 01 0210/
SP 00 08 07/
DSP 00 31 12/
DP 0 000 1/
EQL T0005225/ (Do not use with Issue 3
              generic)
TOC 20605/ (Do not use with Issue 3 generic)
END!

RST:TRK 140,000!
```

Establish New Outgoing Trunk Groups

7.18 When establishing new outgoing trunk groups, consideration must be given not only to signaling, type of circuit, disconnect procedure, and other general information, but also routing, code index tables, screening, and charging information must be handled. Input manual IM-3H300-01 is well commented, explaining each message and its associated keywords. However the sequence of message input is not always clear. Examples will be provided for various types of outgoing trunk groups to aid in identifying formats and sequence of messages for offices equipped with Issue 4 generic or later. Issue 3 generic formats will follow the same pattern except certain keywords will not be allowed. IM-3H300-01 outlines each keyword if it is generic related and should be referred to when using RC messages for trunk group translation data.

Establish Outgoing Trunk Group to TSPS

7.19 To establish an outgoing trunk circuit group to a TSPS office would require four different types of recent change messages, plus an additional RC:CKT message for each trunk circuit in the group. A typical example would be:

```
RC:GRP/
TYP NEW/
GRP 144/
DR 0/ (0 = 1-way outgoing trunk group)
SCHED 2/ (2 = Hourly traffic schedule)
EM NO/ (Loop supervision will be used)
CKT 05/ (5 = Outgoing reverse battery
        trunk [FB399])
DISC 2/ (2 = Service hold. Disconnect
          when distant party goes
          on-hook)
OTYP 3/ (3 = TSPS trunk group)
OMF YES/ (MF outpulsing is required)
ST 2/ (2 = Wink start trunks)
INBD YES/ (Inband signaling is required)
TOTANI 01/ (Terminal Office Test Access
           Number Index 01 assigned
           for automatic trunk tests)
END!

RC:RTI/
TYP NEW/
RTI 041/ (New route index assigned for
         TSPS trunk group)
ETYP 02/ (02 = 10-digit interoffice trunk
         group. No overlap outpulsing is
         permitted)
GRP 144/
DLT NO/ (No digits are to be deleted)
END!

RC:CDI/
TYP NEW/
CDI 025/ (Code index assigned for TSPS,
         "0" and "0" + 10-digit toll)
ETYP 1/ (1 designates that all prefixes are
        to be ignored)
RTI 041/
SCRTBL 03/ (Screening table assignment
           for TSPS, "0", "0" + 7-digit,
           and "0" + 10-digit trunk
           groups)
END!

RC:CKT/
TYP NEW/
GRP 144/
TER 011/ (Number of twelfth trunk in the
         trunk group)
OE 03 1270/
SP 03 28 01/
```

```
DP 0 051 0/
EQL M0001603/
TOC 50204/
END!

RST:TRK 144,011!
```

Establish Outgoing Trunk Group for 10-Digit Toll

7.20 The 10-digit outgoing trunk group translations are very similar to TSPS trunk group translations. The main differences are type of disconnect, type of outgoing trunk class, code index, and code index entry type. A typical example noting the entries which are different from those provided in the TSPS example (paragraph 7.19).

```
RC:GRP/
TYP NEW/
GRP 145/
DR 0/
SCHED 2/
CKT 05/
DISC 0/ (0 = Regular hold. Standard
        disconnect procedures used)
OTYP 1/ (1 = CAMA trunk group)
OMF YES/
ST 2/
END!

RC:RTI/
TYP NEW/
RTI 042/ (New route index assignment for
        10-digit toll)
ETYP 02/
GRP 145/
DLT NO/
END!

RC:CDI/
TYP NEW/
CDI 026/ (New code index assigned for
        10-digit toll)
ETYP 2/ (2 designates prefix "1" normally
        received. Code indexes are provided
        to allow "0" or no prefix)
NPCI 003/ (If no prefix received route call
        to CDI 003 [a recorded
        announcement for misdialed toll])
P0C1 026/ (If "0" prefix dialed route call
        to CDI 026 [TSPS, "0" + 10-digit
        trunk group])
RTI 042/
SCRTBL 03/
END!

RC:DIG/
TYP NEW/
FAT 0/
DIG 321/
CDI 026/
END!

RC:CKT/
TYP NEW/
GRP 145/
TER 000/
OE 04 0160/
SP 01 28 00/
DP 0 017 0/
EQL N0102403/
TOC 00206/
END!

RST:TRK 145,000!
```

Establish 2-Way Trunk Group to an SXS Office

7.21 Telephone service to an SXS office will usually require dial pulse signaling. If the circuit provides for 2-way calling, dial pulses will be required in both directions. Whenever dial pulses are received from an SXS office, always input keyword BYLK in the RC:GRP message. This will provide for fast scanning of trunks for digits. This is necessary because an SXS office starts outpulsing immediately and does not wait for a start dial or wink signal. If the trunk group being added is the first trunk group to use dial pulses for outward dialing, a dial pulse transmitter group must be established.

7.22 A 2-way trunk group to provide Extended Area Service (EAS) between two communities requires the following recent change messages:

```
RC:GRP/
TYP NEW/
GRP 145/
DR 2/ (2 = 2-way trunk group)
SCHED 2/
EM YES/
CKT 01/ (01 = 2-way E&M trunk circuit
        [FB361])
DISC 0/
OTYP 0/ (0 = Regular trunk group)
ODP YES/ (DP outpulsing is required)
```

```
ST 0/ (0 = Immediate start. 0 required
      for bylink trunks)
BYLK YES/ (Bylink trunk from an SXS
          office)
CHGE YES/
CODE 321/ (Local office code or prefix)
NDE 5/ (Five digits are expected from
        distant office)
END!

RC:RTI/
TYP NEW/
RTI 043/
ETYP 05/ (05 = 7-digit interoffice [overlap
          pulsing permitted])
GRP 145/
DLT NO/ (No digits are to be deleted)
END!

RC:CDI/
TYP NEW/
CDI 027/ (New code index assigned for
          EAS trunk group)
ETYP 3/ (3 = Normally no prefix is received)
P1CI 003/ (003 = Code index for routing
           to recorded announcement)
P0C1 000/ (000 = Code index for routing
           to vacant code announcement)
RTI 043/
SCRTBL 04/ (04 = Screening table for local
            and EAS calls)
END!

RC:DIG/
TYP NEW/
FAT 0/
DIG 322/
CDI 027/
END!

RC:CKT/
TYP NEW/
GRP 145/
TER 007/ (007 = Eighth circuit of the
          group)
OE 03 1040/
SP 04 30 05/
DP 0 075 2/
EQL N0402840/
TOC 00206/
END!


RST:TRK 145,007!
```

Changing Information on Trunk Groups

7.23 When changing information using TYP CHG, caution should be taken to also update or change all related translations. For example if changing a route index (RC:RTI), the keyword RTI also must be changed in the code index table. A TYP CHG cannot be used to change the entry type (ETYP) on a RC:CDI recent change message. The code index (CDI) must be removed and reentered as a new order with the appropriate ETYP.

Establish or Change Billing Number Thousands Group—RC:BTN

7.24 Directory numbers to be used as billing telephone numbers are identified in groups of one thousand. To add or establish a new thousands group for billing numbers, the RC:BTN message is used. An example is:

```
RC:BTN/
TYP NEW/
CODE 321 7/ (Office code 321 and identifying
             7000 as the thousands group)
END!
```

7.25 To change the thousands group from 7000 to 3000, a TYP CHG message is used. An example of the change message is:

```
RC:BTN/
TYP CHG/
CODE 321 7/
NCODE 321 3/
END!
```

Establish No-Test Terminals—RC:OE

7.26 The RC:OE message is used to establish both circuit test multiples and wire test multiples to the odd and even numbered concentrators when new network frames are added to an existing office. The message is also used to specify the terminal equipment numbers for the trunk and line test panel (TLTP) access trunks 1 and 2.

Office Identification and Options—RC:OFFICE

7.27 The office identification, options, and parameters No. 3 ESS may be added or changed by the RC:OFFICE message. It is used to update the office parameters when new additions, such as network frames, main store modules, and

automatic message accounting recording service (AMARS) are installed. It is also available for changing daisy chain testing intervals, selection of automatic line insulation test (ALIT), and establishing other office options. The RC:OFFICE message may be used with only one keyword or as many keywords as necessary to add or change the office data. The keyword TYP is needed only when working with main store areas. It is never required for keywords pertaining to other areas. This section will define the keywords of the RC:OFFICE message to further clarify their application.

7.28 The RC:OFFICE message and all its associated keywords available through Issue 4 generic program are listed in paragraph 7.29. To obtain the most up to date information, refer to IM-3H300-01.

7.29 Example showing all available keywords associated with the RC:OFFICE message.

```
RC:OFFICE/
NPA1 nnn/
NPA2 nnn/
DPG YES or NO/
ZPLUS YES or NO/
SUP YES or NO/
MOT YES or NO/
OID oooooooooooo/
CUPANELS YES or NO/
STLIM nnn/
JC n/
SVC n/
TRK n/
NETS n/
CFEM oooooo/
MFEM oooooo/
RANGE n/
MODE n/
PRECUT YES or NO/
RVS911 YES or NO/
AMA YES or NO/
SLU YES or NO/
TRF YES or NO/
CMPOBS YES or NO/
MODSIZ n/
MASNO n/
MODNO n/
DIP nn/
TYP ttt/
END!
```

NPA1 507/ — Area Code
NPA2 515/

7.30 These codes indicate the office serves customers in both area codes 507 and 515. The lower numerical number is always listed first following keyword NPA1. If the office serves customers all located in the same area code, keyword NPA2 is not required.

DPG YES/ — Dial Pulse Receiver Group

7.31 This indicates that dial pulse receivers are provided. If the data field indicated NO, dial pulse receivers are not provided and dial pulse customers would be routed to use the TOUCH-TONE receiver group.

ZPLUS YES/ — O+ Calls

7.32 This is provided to allow operator plus (O+) calls. A NO in the data field will not allow O+ calls to be processed.

SUP YES/ — Superimposed Ringing

7.33 The data field must reflect YES for this keyword when trunk group 070 is provided for superimposed ringing circuits. If the office is equipped for only ac-dc type ringing, trunk group 069, the data field would indicate NO.

MOT YES/ — Coin Control Polarity

7.34 MOT YES would be used when the coin telephones are wired to use -130V polarity for the coin collect function and +130V polarity for coin return. The data field must indicate NO if reverse polarities (+130V for coin collect and -130V for coin return) are needed.

OID NTHWD515324/ — Office Identification

7.35 The office identification code or alphanumeric identifier which will appear on teletypewriter printouts. It may consist of 1 through 14 characters. The alpha characters function as an abbreviated code for the office, the first three numerical digits represent the NPA and the last three digits should be the office prefix. The example represents Northwood Area Code 515 and a office prefix of 324.

CUPANELS YES/ — Control Unit Panels

7.36 Indicates the control units are equipped with control unit (3A) panels. If 3A panels have not been provided, the data field will be NO.

STLIM nnn/ — Store Limit

7.37 The variable data field nnn may represent 96, 128, . . ., 256 (multiples of 32) and defines the number of words of memory in the office.

JC 4/
SVC 4/
TRK 2/ — Diagnostic Rates

7.38 The rates for automatic daily diagnostics (daisy chain) are established by the above keywords for junctors, service circuits, and trunks. In the example, daisy chain will test each night one-fourth of the junctors, one-fourth of the service circuits, and half the trunks (odd numbered trunks one night and even numbered trunks the next night).

NETS n/

7.39 This keyword defines the number of control frames installed in the office. The data field n, may be either 0 or 1. Control frame 0 relates to network frames 1 through 7. Control frame 1 is provided when network frames 8 through 15 are installed.

CFEM oooooo/

7.40 The data field of this keyword provides a 16-bit mask in octal to indicate the installed network frames that are to be scanned and used for call processing. The keyword and data field for an office with five network frames would be:

CFEM 000077

000077 converted to binary would appear as 0000000000111111. Bit 0 is always set and bits 1 through 5 are set to reflect networks 1 through 5.

7.41 If two additional networks were to be installed and because space limitations in the building will not permit networks 6 and 7 to be installed, then networks 8 and 9 could be provided. This would also require installing control frame 1. Keyword CFEM 001477 would be input to reflect this addition. The 16-bit word would now appear as 0000001100111111.

MFEM oooooo/

7.42 The data field in this keyword provides a 16-bit mask in octal to indicate the installed network frames that are to be tested and diagnosed by the maintenance frame. The keyword and data field for an office with five network frames would be:

MFEM 000077

When installing new network frames, the keyword MFEM may be changed without changing keyword CFEM. This will permit testing the new frames before they are made available for call processing. The following example depicts the RC:OFFICE message required to provide these testing capabilities.

RC:OFFICE/
NETS 1/
MFEM 001477/
END!

This message reflects the addition of control frame 1 and networks 1 through 5 plus networks 8 and 9 to be made available for testing. Refer also to RC:OE message which is required to establish the test verticals. To make the frames available for call processing, the following message must be input.

RC:OFFICE/
CFEM 001477/
END!

RANGE 2/

7.43 The range is established to select the resistance sensitivity of tests to be performed by ALIT. The ranges to be selected are:

1 = 20 — 40 — 80K
2 = 80 — 160 — 320K
4 = 640K — 1.28M — 2.56M

For example, RANGE 2 will select the 80 — 160 — 320K ohm range for testing customer lines. The actual resistance of 80K, 160K, or 320K being used in this range is determined by a hardware wiring option. The median range is standard wiring,

that is 40K for range 1, 160K for range 2 and 1.28M for range 4. The other options may be requested by the telephone companies.

MODE 4/

7.44 The keyword MODE selects the type of tests to be performed by ALIT. The example of MODE 4 will select FEMF (foreign electromotive force or foreign battery) tests. This keyword may be used to select seven different modes or tests to be performed.

MODE 1 = SRG (Short or ring to ground test)
MODE 2 = TRG (Tip and ring to ground test)
MODE 3 = SRG and TRG
MODE 4 = FEMF
MODE 5 = SRG and FEMF
MODE 6 = TRG and FEMF
MODE 7 = SRG, TRG, and FEMF

PRECUT YES/

7.45 The keyword PRECUT YES indicates the office may activate subroutine PRECUT by inputting the correct maintenance TTY messages. When activated, all line cutoff contacts are opened to prevent battery and ground being applied to customer lines from both the old and new offices.

7.46 After the office has been cutover and service is considered to be stable, the precut mode should be removed. This is accomplished by inputting:

RC:OFFICE/
TYP CHG/
PRECUT NO/
END!

The precut map can be removed by reallocation of memory. Reallocation procedures are described in Part 9.

RVS911 YES/

7.47 This keyword is used if the office provides 911 emergency service and reversal of the circuit tip and ring is required for the trunk being used.

AMA YES/

7.48 Offices equipped with AMARS will use this keyword to identify the parameters of AMA. AMARS is available with Issue 4 generic and later programs. To provide AMARS, TTY controllers 2 and 3 must be equipped. Any circuits assigned to TTY controllers 2 and 3, Port 1 must be removed prior to assigning AMA class of service. The messages required for providing AMA are listed as follows:

RC:OFFICE/
AMA YES/
END!

RC:TTY/
TYP NEW/
TTYC 2/ (AMA primary facility)
PORT 1/
CLS 6/ (6 = Message class for AMA primary facility)
HS YES/ (Provides for high speed [1200 baud] device)
END!

RC:TTY/
TYP NEW/
TTYC 3/ (AMA backup facility)
PORT 1/
CLS 7/ (7 = Message class for AMA backup facility)
HS YES/
END!

7.49 Messages will also be required to change screening tables which apply to AMA billing. If 4- and/or 8-party class of service is provided, the screening class to route calls to a CAMA or TSPS trunk group will not change.

7.50 Reallocation will be required to remove all software message registers from memory. Software registers cannot be utilized by software in an office defined with AMA service. An RC:LINE, TYP CHG message will be required on each line to remove software message register assignment. Reallocation procedures are outlined in Part 9.

SLU YES or NO/
TRF YES or NO/
CMPOBS YES or NO/

7.51 These three keywords above make up the special studies field. Keyword SLU will provide for special studies of subscriber line utilization. Keyword TRF provides a special study of coin usage for division of revenues when coin telephones are installed in more than one area. Keyword CMPOBS is for complaint observing on lines where customers have complained about billing of toll calls.

7.52 To establish a special study for complaint observing, for example, would require two messages:

```
RC:OFFICE/
CMPOBS YES/
END!

RC:LINE/
TYP CHG/
ORD 0001/
TN 321 1215/
OE 02 1010/
SS YES/ (Special studies bit set)
END!
```

MODSIZ n/

7.53 MODSIZ is the keyword to define the memory module size or more specially, the type of chip being used in the memory configuration.

n = 1 for 32K memory modules (4K chips)
n = 4 for 128K memory modules (16K chips)

MASNO 0/

7.54 For all No. 3 ESS applications, the main store number (MASNO) will always be 0.

MODNO n/

7.55 This keyword is the identifier for the memory module being installed. This allows for mixing of 128K modules with 32K modules.

n = 0 or 1 for 128K modules
n = 0 through 7 for 32K modules

DIP nn/

7.56 Keyword DIP is used in conjunction with TLM data.

TYP ttt/

7.57 Keyword TYP will be used only when working with main store areas. TYP data field (ttt) may be NEW, CHG, or OUT and it is to be used whenever keywords MODSIZ, MASNO, MODNO, and DIP are used.

Assign Miscellaneous Scan Points—RC:SP

7.58 Rows 16 through 27 in the master scanner are available for assignment as miscellaneous scan points. These scan points may be used for toll alarms, carrier group alarms, concentrators, and other miscellaneous type alarms. The type of alarm, whether the alarm circuit state is normally open or closed and user identification is required when inputting the message. IM-3H300-01 explains each keyword in detail and provides a table of all fixed alarm scan points.

7.59 To establish a scan point for a carrier group alarm is similar to the following example:

```
RC:SP/
TYP NEW/
SP 00 16 05/
ACT YES/ (Activate the scan point)
USERID 46/ (User ID assigned to CGA)
ALM 1/ (Major alarm)
CKT OPEN/ (Circuit is normally open)
END!
```

Terminal Office Test Access Number Index—RC:TOTANI

7.60 TOTANI provides for automatic testing of specified trunk groups. Manual trunk tests may also be requested. A 1- or 2-digit access number, permanent busy or operational test, NPA and test number to be dialed, and billing number of calls are set up by recent change messages. Before assigning TOTANI tables, space must be available (tables defined) in memory. TOTANI tables can be defined by reallocation procedures provided in Part 9. The following messages would then be necessary if TOTANI is to be established on an existing trunk group to TSPS:

```
RC:TOTANI/
TYP NEW/
TOTANI 00/ (00 = Index number)
APT 2/ (2 = Operational, synchronous test)
NPA 312/ (312 = Area code of test number)
OPTN 391 9911/ (Operational test line TN)
```

SYNC YES/ (Synchronous operational test specified)
END!

RC:TOTANI:TMBN 321 1150! (TN which test calls are to be billed)

RC:GRP/
TYP CHG/
GRP 144/ (TSPS trunk group number)
TOTANI 00/ (TOTANI index number)
END!

First form of the RC:TOTANI message establishes the TOTANI index number, type of test, and operational test line telephone number. The second RC:TOTANI message establishes a telephone number for billing of all test calls placed on the trunks. The RC:GRP message is necessary to assign the TOTANI index to a particular outgoing trunk group.

7.61 If the NPA is to be changed to set up tests to a different test location, the following message may be used:

RC:TOTANI/
TYP CHG/
NPA 312/ (Old area code)
NWNPA 319/ (New area code)
END!

Zero Translations—RC:ZERO

7.62 The RC:ZERO message is used to zero translation words that appear to be incorrect and the normal RC message (RC:LINE, RC:MPTY, RC:TWOPTY, RC:RTI, or RC:MTL) is unable to correct the problem.

CAUTION: This message must be used with extreme caution. When used, only the translation words pointed to by the input data will be zeroed. Any expansion blocks pointed to by the data are not zeroed, thereby leaving garbage in translation store.

7.63 The translation not zeroed however should never be pointed to or accessed. This data will be deleted when a reallocation is performed and tables are repacked.

8. VERIFICATION OF RECENT CHANGE INFORMATION

8.01 The information in this section is designed only to outline the various verification messages for recent change data. For detailed information of each message or the detailed system responses, refer to the appropriate IM-3H300-01 or OM-3H300-01 document.

A. Customer Line Verification

8.02 Verification of customer lines can be made using one of several type messages, all producing the same or very similar responses. These messages are:

VER:OE
VER:LINE
VER:TWOPTY
VER:MTL
VER:MPTY

8.03 The various types of verification messages to verify customer line translations data are provided as a convenience for the user. Following is a list of various verification message formats for customer line translations data, several providing identical responses.

VER:LINE:TN nxx xxxx!
or
VER:OE:TN nxx xxxx!
or
VER:LINE:OE gg cwsl!
or
VER:OE:OE gg cwsl!

Response: Customer line originating and terminating translation data for an individual (one party) line or party one of a party line (two, four, or eight party).

nxx xxxx = 7-digit telephone number

gg = Concentrator group (01 through 15)

c = Concentrator (0 or 1)

w = Switch group (0 through 2)

s = Switch (0 through 7)

l = Level (0 through 7)

VER:LINE/
OE gg cwsl/
PTY n/
END!

Response: Line data for PTY n of the particular office equipment number.

VER:LINE/
TN nxx xxxx/
LIST nnn/
END!

or

VER:OE/
TN nxx xxxx/
LIST nnn/
END!

Response: A list is printed of line data beginning with the TN requested and continuing consecutively up through LIST nnn or until a hundreds boundry is encountered nnn = 1 to 100. For example, input of this message and keyword LIST 25 will result in verification of line data for 25 consecutive numbers beginning with telephone number input with keyword TN.

8.04 The following message is used to verify a customer call forwarding telephone number.

VER:CFN:TN nxx xxxx!

Response: VER CFN TN nxx xxxx CFN abcd

nxx xxxx = 7-digit telephone number

abcd = One of the following formats:
P NPA nxx xxxx (Note 1)
P nxx xxxx (Note 1)
nxx xxxx
X11

Note 1: Call forwarding is provided outside the local calling area only with Issue 4 generic or later and then office must be equipped with AMARC service.

8.05 The following message is used to verify a customer speed calling list.

VER:SCN:TN nxx xxxx!

Response: ADN SCN
ADN abcd
. .
. .
. .
. .
ADN abcd

ADN = Abbreviated dial number

abcd = The telephone number to be automatically dialed (speed calling number). It may appear in any of the following formats:
P NPA nxx xxxx
P nxx xxxx
nxx xxxx
X11
0

8.06 This message lists all working office equipment numbers in a specified concentrator, including the telephone numbers and screening class.

VER:LSTOE gg,c!
Response: A list of all assigned OE equipment and associated telephone numbers and screening class in a particular concentrator.

gg = Concentrator group number

c = Concentrator number.

B. Group Data Verification

8.07 The following messages may be used to verify group data of multiline hunt groups, service circuit groups, and trunk groups.

VER:GRP nnn!
Response: Group data only.

VER:GRP nnn;ALL!
Response: Group data is printed out along with all the data for each member of the group.

VER:GRP nnn;TER mmm!
Response: Group data is printed and also data for only the member requested.

VER:GRP nnn;STD:TER mmm!
Response: Member data only.

nnn = Group number

mmm = Member number.

C. Code Index Entry Verification

8.08 Code index translator entries may be verified using the following messages.

VER:CDI!
Response: Prints contents of all code index translator entries.

VER:CDI ccc!
Response: Contents of code index translator entry of code index specified.

VER:CDI ddd,eee!
Response: Prints the contents of each code index entry requested in the range of ddd,eee.

ccc = Code index

ddd = A beginning code index

eee = An ending code index.

8.09 The following messages are used to verify the code index with a 3- or 6-digit code.

VER:DIG nxx!
Response: Prints the code index associated with the 3-digit code nxx.

VER:DIG nxx;ALL!
Response: Prints the code index associated with the 3-digit code nxx and the contents of the code index translator entry.

VER:DIG npa,nxx!
Response: Prints the code index associated with the 6-digit code npa nxx.

VER:DIG npa,nxx;ALL!
Response: Prints the code index associated with the 6-digit code npa nxx and the contents of the code index translator entry.

npa = Numbering plan area

nxx = Office code.

8.10 The following message verifies the default code index for all local and foreign area translator tables of the search type.

VER:FATDEF!
Response: FAT CDI
f ccc
f ccc
f ccc
f ccc

f = Area translator number of the search type

ccc = Default code indexes.

8.11 This message will verify all 3-digit codes that point to a specified code index.

VER:LSTTCI nnn!
Response: FAT DIG
f ddd
f ddd
f ddd

nnn = Code index

f = Area translator numbers

ddd = 3-digit codes.

D. Route Index Entry Verification

8.12 To verify a thousands digit that indicates routing to another office, the following message would be used.

VER:THDIG nxx,t!
Response: May be one of three formats indicating that routing is provided to another office and showing the code index.

VER THDIG nxx t CDI ccc

or

An indication that the office code is unassigned

VER THDIG nxx t OCD UNAS

or

An indication that the thousands digit is not assigned

VER THDIG nxx t THD UNAS

nxx = Office code

t = Thousands digit

ccc = Code index used to route the call to another office.

8.13 The following messages are used to verify route index translator entries.

VER:RTI!
Response: Verification of all route index entries from 0 to the maximum for the office.

VER:RTI rrr!
Response: Verification of one route index translator entry requested.

VER:RTI sss,ttt!
Response: Verification of all route index entries between and including sss and ttt.

rrr = 1- through 3-digit route index entry for a single verification

sss = 1- through 3-digit route index entry used as a starting location when a range of route index verifications are to be requested

ttt = 1- through 3-digit route index entry used as a stopping location when a range of route index verifications are requested.

8.14 The following message will provide a list of all route indexes that point to a specified trunk or service circuit group.

VER:LSTRIG nnn!
Response: A tabular printout listing the route indexes pointing to a trunk or service circuit group specified by nnn.

8.15 Screening tables may be verified by using one of the following formats.

VER:SCR!
Response: Verification of all screening tables and all screening classes.

VER:SCR cc!
Response: Verification of a specified screening class (cc) in all the screening tables.

VER:SCR 99,SCRTBL tt!
Response: Verification of all the screening classes in one specified screening table (tt).

VER:SCR cc,SCRTBL tt!
Response: Verification of a specific screening class (cc) in one specific screening table (tt).

E. Line Class Code (LCC) Verification

8.16 Three formats for verification of line class codes are:

VER:LCC/
LCC lcc!
Response: Verification of a specific line class code, listing the line class index, originating and terminating major classes, screening class, rate area, and party number.

VER:LCC/
LCI lci!
Response: Verification of line class codes associated with a specific line class index (lci).

VER:LCC/
DMP ALL!
Response: Verification and printout of all line class codes.

F. Verification of Defined Office Codes

8.17 The following message is used to verify all the defined office codes and their corresponding normalized office codes.

VER:OCDNOC!
Response: OCD NOC
OCD NOC
OCD NOC
OCD NOC

OCD = Office codes

NOC = Normalized office codes.

When no output is printed. There are no defined office codes.

9. REALLOCATION PROCEDURES

9.01 Although reallocation is not a function of recent changes, it is of significant importance that reallocation procedures will be covered in this BSP. Reallocation in many instances is required prior to inputting many of the recent change translations. The reallocation procedure is not available in Issue 3 generic.

9.02 The reallocation messages are used to create translators, add translation entries to existing translators, delete vacant entries in translators, or remove vacant translators. Data is entered into the translators by means of recent change (RC) messages.

A. Preliminary Steps for Reallocation

9.03 The following steps should be completed before inputting the first reallocation message. A brief summary of the steps are listed in Table F.

(a) Prepare or secure a list of the required allocations to be performed. List the requirements which will influence the translations size. Also all the required TG-3 input forms should be completely filled out as if for an ODA run.

(b) Notify the service order bureau of the reallocation schedule. Inputting of recent changes, except for customer dialed in changes (CFN and SCN) should be avoided during the interval when reallocation is in process.

Note: Reallocation can only be done from the maintenance teletypewriter with access to the system status panel.

(c) At the maintenance TTY type REPT:TAPE STAT! to verify that both TDC0 and TDC1 are in service. Do not proceed unless both TDCs are in service.

(d) Perform system diagnostic tests on both tape units to verify that both tapes are in good order.

(e) Update the current copy of translations by inputting message:

OP:DATA;CURR!

(f) Update the backdate tape copy of translations by inputting message:

OP:DATA;OLD!

(g) The line class code table is in nonresident memory and is not updated with main store memory (MAS). To update the line class code table, input message:

COPY:LCCTBL CURR:OLD!

(h) Verify that the off-line SYC is in standby.

B. Reallocation Steps

9.04 A brief summary listing the reallocation steps is provided in Table G. The steps pertain to only one reallocation. The steps must be repeated for each reallocation required. For example, reallocating for a new trunk group would require one reallocation for defining the new group using message DIST:GRP ggg! Another reallocation would be required after memory is switched and updated to allocate the size of the group using message DIST:GRP ggg ttt! The following step will perform reallocation of memory.

(a) Place the system in a locked state by operating the LOCK key on the SSP (Fig. 2).

(b) Input the following message to activate the administrative functions control program:

ALW:ADM!

The system should respond with ADM PROG READY before proceeding.

(c) Input the selected reallocation message on maintenance TTY. Reallocation messages and associated comments are listed in paragraph 9.08.

(1) If a response is NG, an error message, DIST ERR nnnn will be printed. The message and reason for failure can be found in OM-3H300-01. If a message of this type occurs, abort the reallocation typing DIST:ABT!

(2) A response of IP indicates that reallocation is in progress. When the reallocation is completed, the message DIST COMPL followed by date, time, and office ID will be printed. If not completed and the system aborts the

process, error message DIST ERR nnnn will be printed.

Note: The reallocation message may be aborted any time during the procedure or after DIST COMPL has been received. The message DIST:ABT! may be used anytime before the update message (DIST:UPD!) is input.

(d) At the system status panel, release the LOCK key.

Note: Verify that the system does not switch sides. If it does, abort the procedure. The tape action must stop before going to the next step. Tape action will stop approximately 20 seconds after the DIST COMPL message is received.

(e) Switch the off-line SYC to on-line by inputting message:

DIST:SW!

System should switch active sides and respond with an OK.

(f) Place test calls to assure that call processing is being performed with the new translations layout.

(g) Use the appropriate verification messages for the reallocation performed to verify that information was added or deleted as desired.

(h) If call processing and verification have been satisfactorily completed, update memory of the off-line main store by typing:

DIST:UPD!

If the update is not successful, an NG and error message will be received. If IP is returned, the main store of the off-line SYC is being updated and on completion the message UPD OMAS COMPL will be printed.

(i) If another reallocation is to be performed, repeat the reallocation steps.

C. Post Reallocation Steps

9.05 A summary of post reallocation steps are listed in Table H. After all reallocations have been completed, update the current tape copy. Use message OP:DATA;CURR!

9.06 Allow the system to operate for at least 24 hours with the new translation layout. Then update the backdate tape using message:

OP:DATA;OLD!

9.07 If an abort request should fail or if the system reaches a failed state in which it will not process calls, a memory reload is necessary. In this case, all customer dialed in changes are lost. It will be necessary to manually input these changes.

D. Reallocation Input Messages

9.08 The messages in the following paragraphs are all part of the reallocation procedures and should only be input when following the steps outlined earlier for reallocation procedures.

Abort Procedures

9.09 The message to abort a reallocation procedure is:

DIST:ABT!

If may be input during the reallocation procedure or after the message is received showing acceptance of the reallocation. It must be input prior to updating, that is before inputting DIST:UPD message.

AMA Reallocation

9.10 To generate a new AMA buffer, add to an existing buffer or to delete or remove an AMA buffer one of the following messages may be used:

DIST:AMA nnnn!
or
DIST:AMA;RMV!

The first form of the message will generate a buffer nnnn (1 through 4096) words long. If a new buffer is being generated, the RC:OFFICE message will be required with keyword AMA YES to provide AMA as an office option. Likewise if the AMA buffer is to be removed, the office option

must be changed (keyword AMA would indicate NO).

Autoconnect Callback Blocks

9.11 To generate autoconnect callback memory blocks, or add or delete entries to existing blocks, use the following message.

DIST:CALLBK nn!
or
DIST:CALLBK;RMV!

The range for nn is 0 through 31. The second form of the message will remove the callback table if all the entries are vacant.

Code Index Expansion Table

9.12 The messages pertaining to code index expansion tables are:

DIST:CDI nnn!
or
DIST:CDI;RMV!

The first form allocates memory for a code index expansion table for indexes nnn (0 through 255). When a table already exists, entries will be added or deleted as required. When the second form is used and all entries are vacant, the CDI expansion table will be removed.

Call Forwarding Table

9.13 The first form of the following message generates a call forwarding table for nnnn customers. The range of nnnn is 1 through 1024. If a CF table already exists, entries may be added or deleted with this message. The second form of the message will remove the call forwarding table if all entries are unassigned. The messages are:

DIST:CF nnnn!
or
DIST:CF;RMV!

Coin Triplet Tables

9.14 The messages associated with establishing, adding to, or removing coin triplet tables and an associated coin triplet status table for nnn distributor triplets are:

DIST:CNTRIP nnnn!
or
DIST:CNTRIP;RMV!

The range for nnn is 1 through 1024. Each triplet has three distributor points and will serve three dial tone first coin line circuits. If the tables already exist, entries will be added or deleted as required. If all coin triplet entries are unassigned, the coin triplet table and status table can be removed using the second form of the message.

Expansion Blocks

9.15 The messages described in this paragraph generates 1-word, 2-word, and 4-word expansion blocks. If expansion blocks already exist, expansion blocks may be added or deleted as required. If fewer expansion blocks are required, there must be a sufficient number of unassigned expansion blocks to delete. If the second form of each message type is used, all entries must be vacant before the expansion block will be removed.

(a) One-word expansion blocks

DIST:EXP1 nnnn!
or
DIST:EXP1;RMV!

(b) Two-word expansion blocks

DIST:EXP2 nnnn!
or
DIST:EXP2;RMV!

(c) Four-word expansion blocks

DIST:EXP4 nnnn!
or
DIST:EXP4,RMV!

nnnn = Maximum number of 1-word, 2-word, or 4-word expansion blocks is 4096.

Group Data Tables

9.16 This message will generate a group table for a specified group:

DIST:GRP ggg!

ggg = 0 through 63 multiline hunt groups

= 64 through 127 service circuit groups

= 128 through 191 trunk groups

= 192 through 255 trunk groups.

Note: If more than one trunk or service circuit group is to be added (DIST:GRP ggg), ggg or group number should indicate the highest group number desired. The vacant entries will be allocated. The exception would be if the trunk group number exceeded Group 191. This is because of the trunk grouping scheme.

Example:

If the last trunk group assigned is Group 188 and five additional groups are to be reallocated, the reallocation message would be:

DIST:GRP 191!

The next reallocation pass would be:

DIST:GRP 193!

Groups 189 through 193 will be reallocated.

9.17 The following message generates a specific multiline hunt group, service circuit group, or trunk group and specifies the maximum size of the group by indicating the largest terminal number.

DIST:GRP ggg ttt!

ggg = Group number to be assigned

ttt = Maximum number of terminals to be assigned.

9.18 If a group table is to be removed, all terminals must be unassigned. The following message will remove the group.

DIST:GRP ggg;RMV!

Message Registers

9.19 To generate new, additional, or possibly delete message registers, use the following message:

DIST:MR nnnn!

The range of nnnn is 1 through 4096. There must be a sufficient number of unused message registers if the request is to delete or reduce the number of registers.

Number Group Table

9.20 A number group table for an office nxx is generated using the following message:

DIST:NG nxx!

The nxx must be assigned an RTI before inputting this message.

9.21 A hundreds group table contains 100 telephone numbers. To generate a hundreds group table for office nxx using the message below, t is equal to the thousands digit and h is equal to the hundreds digit.

DIST:NG nxx t h!

If the associated number group table and thousands group table do not exist, they will be generated with this message. The office index or billing number for the nxx must be assigned before inputting this message.

9.22 To remove a vacant hundreds group, use the following message.

DIST:NG nxx t h;RMV!

9.23 If the entire number group table is vacant and is to be removed, the following message will remove the table.

DIST:NG nxx;RMV!

Precutover State

9.24 To place an office in the precut state, all terminals in the office must be defined by a scan point. Scan points for customer lines are located in scanners 1 through 15. Scanner 0 is

the master scanner. To establish a scan point number, translators for logical scanners 0 through nn use the following message:

DIST:SCAN nn!

9.25 After scan point translators have been established, the terminal equipment precut map with one entry per terminal is generated by inputting message:

DIST:PRECUT!

9.26 To discontinue the precut state after the office has been cutover, the following message is required:

DIST:PRECUT;RMV!

Route Index Tables

9.27 To generate a route index expansion table and an alternate route index table for route indexes 000 through nnn, use the following message:

DIST:RTI nnn!

If tables already exist, entries will be added or deleted depending on the quantity of nnn. To be deleted, the route indexes must be vacant.

9.28 If the second form of this message DIST:RTI;RMV! is used and all entries in the tables are vacant, the RTI expansion and the alternate RTI table are removed.

Special Billing Table

9.29 The following message generates a special billing table used for WATS billing information.

DIST:SBIL nnnn!

The range of nnnn is 1 through 1024. Entries will be added or deleted with this message if the table already exists, however there must be a sufficient number of vacant entries if table size is reduced.

9.30 If all special billing table entries are vacant and the special billing table is to be removed from memory, use the following message:

DIST:SBIL;RMV!

Screening Classes and Screening Tables

9.31 Screening tables are created by using the following message:

DIST:SCRTBL tt!

The range of tt is 0 through 31. Tables may be added to or deleted as required, however tables to be deleted must be vacant.

9.32 Screening classes 0 through 30 (cc) are generated for all defined screening tables by use of the following message:

DIST:SCRCLS cc!

Screening classes may be added or deleted. If screening classes are deleted, they must be vacant in all screening tables.

9.33 If all screening tables are vacant and are to be removed, use:

DIST:SCRTBL;RMV!

Speed Calling Lists

9.34 For generating speed call 30-number lists, use message:

DIST:SC30 nnnn!

9.35 To generate speed call 8-number lists, use:

DIST:SC8 nnnn!

For both the speed call 8-number and speed call 30-number lists, the range of nnnn is 1 through 1024.

9.36 If the speed call lists are to be removed and all entries are vacant, use one of the following appropriate messages:

DIST:SC30;RMV!
or
DIST:SC8;RMV!

TOTANI

9.37 The message to generate or delete a terminal office test access number table is:

DIST:TOTANI nn!

nn = 1 through 31.

9.38 If all TOTANI entries are vacant and the TOTANI table is to be removed, enter the message:

DIST:TOTANI;RMV!

Translators

9.39 To generate a complete area translator containing 400 entries for all nxx codes, use the following message:

DIST:DIG a!

a = 0 for local area translator

a = 1, 2, or 3 for a foreign area translator.

9.40 To generate a partial translator containing from 1 through 128 entries, use message:

DIST:DIG a sss!

a = 0 for local area translator

a = 1, 2, or 3 for a foreign area translator

sss = 1 through 128.

If a partial translator already exists, entries will be added or deleted as required.

9.41 To remove a translator, all entries must be vacant. The message to remove a translator is:

DIST:DIG a;RMV!

9.42 To generate 1-digit translator tables, use message:

DIST:0DIG nn!

nn = Table number 0 through 63.

9.43 To remove a 1-digit translator, all 1-digit tables must be unassigned. The message to remove a 1-digit translator is:

DIST:0DIG;RMV!

Updating Reallocations in Off-Line MAS

9.44 When reallocation has been initially input and the LOCK condition released, the sides must be switched to verify that reallocations have been successful and then update the other side of MAS with the new reallocation. To switch sides when performing reallocation, use message:

DIST:SW!

9.45 To update the translation portion of off-line MAS type:

DIST:UPD!

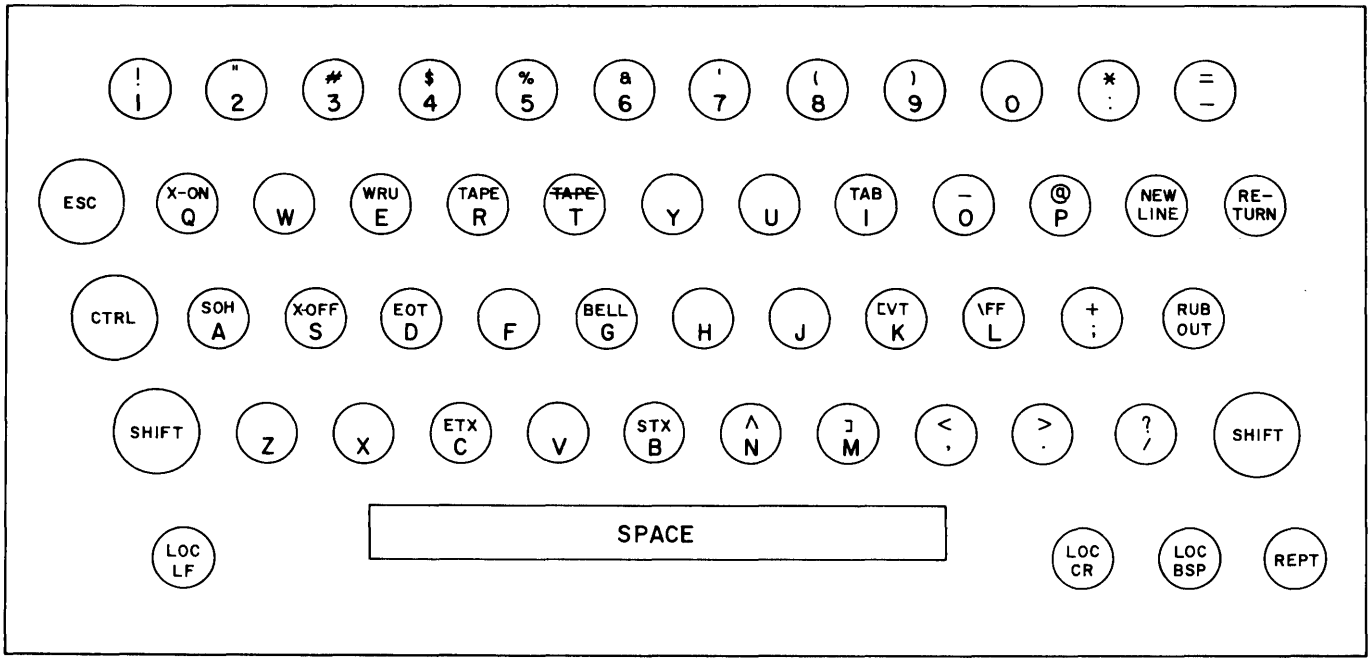

Fig. 1—Teletypewriter Keyboard

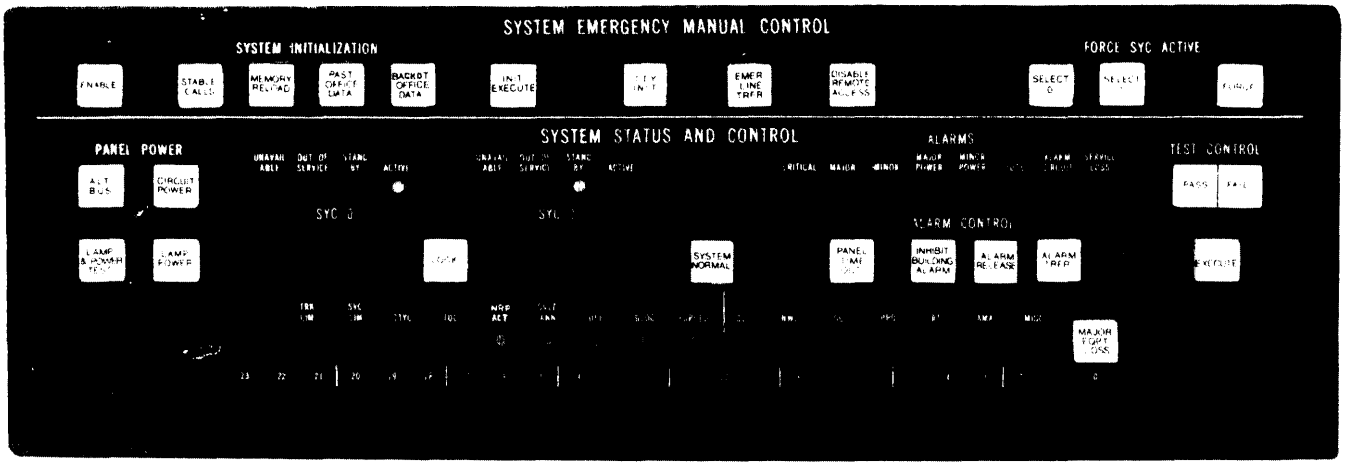

Fig. 2—No. 3 ESS System Status Panel

TABLE A

TTY CHARACTER EXPLANATIONS

CHARACTER	CONTROL KEY	PURPOSE
	CTRL	CTRL — Must be depressed and held while operating the red uppercase characters.
XON	CTRL	Uppercase Q — Turns on paper tape reader and starts tape transmissions.
WRU	CTRL	Uppercase E — TTY operational test.
TAPE	CTRL	Uppercase R — Turns on paper tape punch.
FF	CTRL	Uppercase L — Form feed advances the teletypewriter paper vertically.
XOFF	CTRL	Uppercase S — Stop character which stops the tape and turns the paper tape reader off.
TAPE-OFF	CTRL	Uppercase T — Character which turns off tape perforator.
	SHIFT	This key must be depressed and held to operate characters under its control.
!	SHIFT	An execute character which ends an ESS input message.
LINEFEED		A character which advances paper or tape one line at a time.
RETURN		A character which returns TTY carriage to left margin.
RUB OUT		A character which punches all possible holes across a tape. It is tested for leading and trailing edges of a tape.
LOC BSP		Local backspace character used to back up the tape.
REPT		Repeat key is used in conjunction with the RUB OUT key and will repeat rub outs as long as it is held down.
LOC LF		The local line feed causes the TTY to feed the paper continuously.
LOC CR		Local carriage return will return the carriage to left margin.
/		The slash is used as the continued input indication.
$		The dollar symbol is used as the line abandon character.

TABLE B

TTY SYSTEM RESPONSES

TYPED RESPONSE	DEFINITION
OK (Good)	The message was received, the requested action was initiated and completed.
NG (No Good)	The message was not accepted. The action on data fields was not accepted.
RL (Repeat Later)	The requested action cannot be executed now due to lack of system capability.
IP (In Process)	The request was received and has been initiated. A printout follows.
PF (Printout Follows)	The request was received and will be processed. A printout follows.
?A (Action Field Error)	The message contains an error in the action field of the message which is either an improper character or field delimiter.
?I (Identification Old Error)	The message has an error in the identification field. This could mean improper characters, numeric values were out-of-range for the field, or there is invalid association of field contents with the action field.
?D (Data Field Error)	The message contains an error in the data field. Improper characters or data, or omission of a keyword or delimiter.
?E (Error)	Basic format of the message appears correct, however, checks show an inconsistency and fields in error cannot be identified.
?C (Improper TTY Channel)	This message with identification field as typed cannot be accepted from this TTY channel.
?P (Parity Error)	A parity error has occurred on the TTY channel line; the system has not accepted the message.
?T (Time-Out Error)	The next input characters have not been received in the allotted time. The message was aborted.
?O (Out-of-Service Channel)	The TTY channel is out of service.
NA (No Acknowledgment)	When under abnormal conditions, a message has been accepted but control of message processing has been lost and correct acknowledgment is impossible and NA should be printed.

TABLE C

SERVICE ORDER TTY RECENT CHANGES

RC MESSAGE (NOTE 1, NOTE 2)	REMARKS
RC:CFN	Used to restore customer dialed information for call forwarding after a planned service interruption.
RC:LINE	Used to add, change, or remove individual (1-party) line information.
RC:MLHG	Used to add, change, or remove group information for multiline hunt group service orders.
RC:MPTY	Used to add, remove, or make certain changes of line information on multiparty (4- and 8-party) lines.
RC:MTL	Used to add, change, or remove line information on individual line (terminal) in a multiline hunt group.
RC:SCN	Used to change the speed calling data of a customer. This message is also used to restore a customer speed calling list after a planned service interruption.
RC:TWOPTY	Used to add, remove, or make certain changes of line information on 2-party lines.

Note 1: Messages may be input via service order TTY or maintenance TTY.

Note 2: All RC messages which are allowed on the traffic TTY can also be input from the service order TTY. See paragraph 6.01.

TABLE D

TRAFFIC TTY RECENT CHANGES

RC MESSAGE (NOTE)	REMARKS
RC:CLS	Used to assign and remove major classes to and from the class of service traffic registers. There are four registers used for originating measurements and one register for terminating measurements. A major class may be assigned to more than one register at a time. A register may also correspond to more than one class of service. However, a major class may not be assigned to all four originating registers at once.
RC:GTSA	Used to assign trunk, service circuit, and PBX (multiline hunt) groups to traffic schedules.
RC:INCP	Used to assign or remove route indexes from incoming and intraoffice intercept traffic registers. There are three incoming and three intraoffice traffic registers. One route index may be assigned to a pair of registers (one incoming and one intraoffice).
RC:QDUMP	Used to generate a printout of the traffic quarter-hourly data for the present and past three-quarter hours.
RC:QH	Used to specify whether there is a dedicated traffic TTY facility and where the quarter-hourly reports should be printed.
RC:REPT	Used to schedule busy hours (H schedule), nonbusy hours (C schedule), daily printout (D schedule), and the weekly periods (W schedule). The printout time is also set in this message.
RC:SCHED	Used to assign a section of traffic measurements to a traffic schedule.

Note: Messages may be input via traffic TTY, service order TTY, and maintenance TTY.

TABLE E

MAINTENANCE TTY RECENT CHANGES

RC MESSAGE	REMARKS
RC:AC	This message is to be used with Issue 3 generic or earlier programs. It is used to define, change, or remove a TTY autoconnect port. Before a TTY port can be referenced by this message it must be defined by an RC:TTY message. The trigger number and OE must have been previously defined by the RC:LINE message. For Issue 4 or later generics, see the RC:LINE message for establishing autoconnect information. RC:AC message is not required.
RC:BTN	Used to define a group of one thousand telephone numbers to be used as billing numbers. The telephone numbers designated by this message will be the only TNs allowed to follow keyword BTN in messages RC:LINE, RC:MLHG, RC:MPTY, RC:MTL, or RC:TWOPTY.
RC:CDI	Used to define a new code index expansion entry, change an existing code index expansion entry, or to remove an existing entry.
RC:CHI	Used to define a new charge index, to change, or remove an existing charge index.
RC:CKT	Used to associate the network terminals of individual circuits in trunk groups or service circuit groups with their particular scan points and distributor triplets.
RC:DIG	This message defines a code index for a 3- or 6-digit code or default code index for an area translator.
RC:DP	Used to define or remove a peripheral decoder.
RC:GRP	Used to specify the group features for trunk groups and service circuit groups.
RC:LCC	Used to associate an originating major class, a terminating major class, and a screening class with a line class code (LCC) and a rate area (RAX). Using this message to change LCC data will not automatically change the data on lines already defined with an LCC.
RC:NG	This message is used: 1. When calls to a thousands group are to be terminated in another office. 2. To indicate whether a hundreds group is awaiting cutover.
RC:ODIG	Defines a 1-digit translator entry, changes or removes an existing entry. One digit entries are associated with trunk group information. The tables in this translator describe how calls coming in on a trunk are to be treated based on the first incoming digit.
RC:OE	Used to specify miscellaneous office equipment numbers for access trunks and no-test trunks when a new network frame is installed.
RC:OFFICE	Used to define all the office options and office identification.
RC:RTI	This message adds, changes, or deletes a route index expansion entry and its associated alternate route index expansion entry.

TABLE E (Contd)

MAINTENANCE TTY RECENT CHANGES

RC MESSAGE	REMARKS
RC:SCR	This message adds, changes, or deletes a screening class expansion entry.
RC:SP	Defines, changes, or deletes a miscellaneous scan point in the master scanner (rows 16 through 27).
RC:TOTANI	This recent change message can be used in three different forms. 1. Used to define a Ternimal Office Test Access Number Index (TOTANI) by specifying the various test access numbers for automatic or manual trunk tests. 2. Used to supply the trunk maintenance billing number (which is used for billing on trunk maintenance calls). 3. Used to specify an area code that will be used in the first form of this message to indicate the NPA of the other office.
RC:TTY	Used to change a TTY controller or port. A controller can be added or deleted, or its input/output (I/O) subchannel (Issue 3 generic or earlier) and parity characteristics can be changed. A port can be added or deleted, or its answer back and send-receive characteristics can be changed.
RC:ZERO	This message is used to zero translations words that appear to be incorrect in those cases when the normal RC message (RC:LINE, RC:MPTY, RC:TWOPTY, RC:RTI, or RC:MTL) is unable to correct the problem.

TABLE F

PRELIMINARY STEPS FOR REALLOCATION

1. Prepare a list of reallocations required.
2. Notify service order bureau of reallocation schedule.
3. Obtain call forwarding and speed call lists for all customers having this service.
4. Verify status of TDCs. Both available for service and pass diagnostic tests.
5. Type OP:DATA;CURR! — Update current copy of translations.
6. Type OP:DATA;OLD! — Update backdate copy of translations.
7. Type COPY:LCCTBL CURR:OLD — Update LCC table. ~~4A~~ 4A.2 GENERIC ONLY
8. Verify that off-line SYC is in standby.

TABLE G

REALLOCATION STEPS

1. Depress LOCK key to lock system on one side.
2. Type ALW:ADM!
3. Type in reallocation message.
4. Release LOCK key. Verify that system DOES NOT switch.
5. Type DIST:SW! — Verify that system does switch.
6. Make test calls.
7. Type verification message to verify reallocation.
8. Type DIST:UPD!PF = ADM PROG ART
9. Perform next reallocation or notify service order bureau reallocations have been completed.

TABLE H

POST REALLOCATION PROCEDRUES

1. Type OP:DATA;CURR!
2. Wait at least 24 hours, then update backdate files. Type OP:DATA;OLD!