CUSTOMER ORIGINATED RECENT CHANGES

DESCRIPTION

(1AE7 AND LATER GENERIC PROGRAMS)

1A *ESS*™ SWITCH

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1. GENERAL

This practice describes translations processing of customer originated recent changes (CORCs) and central office control and monitoring of CORCs. This practice covers the 1A ESS switch with generics 1AE7 through 1AE8A. For information on CORCs for 1AE6 and earlier generics, refer to Practice 231-300-020.

The CORC feature allows telephone subscribers to directly access the 1A ESS switch translations data base to add, change, and delete certain translations. Depending on the type of CORC, the subscriber inputs information via a terminal or by dialed digits.

A subscriber is given access to a CORC type by the central office. The central office inputs the necessary translation information to allow a CORC type via RC: messages. In some cases the central office can also input any intial CORC values desired by the subscriber with additional RC: messages (i.e., speed call list numbers via RC:SCLIST).

The CORC feature provides central office administration of CORCs as follows:

(a) Input messages for control and monitoring

(b) Output message reports of CORC changes

(c) Automatic monitoring and control of CORCS for overload and input error conditions

(d) Automatic backup and recovery of all CORCs in case of system problems.

2. ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this practice.

ACS	Authorization Code and Treatment Group
CCW	Cancel Call Waiting
CFPF	Call Forwarding Over Private Facilities
CFV	Call Forwarding Variable
CLOG	Customer Log
CORC	Customer Originated Recent Change
CSR	Centrex Station Rearrangement
DN	Directory Number

ETS	Electronic Tandem Switching
INWATS	Inward Wide Area Telephone Service
LEN	Line Equipment Number
PF	Printout Follows
PTW	Primary Translation Word
RC	Recent Change
REN	Remote Equipment Number
SCC	Switching Control Center
SCV	Speed Calling Variable
TACK	TTY Acknowledgment

3. CORC STATUS

CORCs have either permanent or temporary status. CORCs with permanent status directly modify office translations while CORCs with temporary status use temporary recent change (RC) registers and CORC blocks. Table A lists all CORCs, their status, translators affected, CORC block size (when needed), and practice numbers describing the feature.

3.1 Permanent Status CORCs

Permanent CORCs are handled like permanent RC: messages and result in a direct overwrite, addition to or deletion of translation data in call store, as well as the two disk backup copies.

3.1.1 Station Dialed Permanent CORCs

Speed calling variable (SCV) is a station dialed permanent CORC and is activated or deactivated by a telephone subscriber dialing the required digits. The dialed digits are decoded and checks are made for SCV assigned, and valid digit routing. If the checks are passed, the CORC is entered into the RC queue for processing by the RC system and confirmation tone is returned to the subscriber. If any check fails or the RC queue is full, reorder tone is returned.

3.1.2 Terminal Inputted Permanent CORCs

Centrex station rearrangement (CSR) and authorization code and treatment group (ACS) changes are made by telephone subscriber input via a

TABLE A

CORC TYPES

CORC TYPE	TRANSLATORS	STATUS	CORC BLOCK	PRACTICE
Authorization Code and Treatment Group (ACS) for ETS	AC Translator	Permanent	No	231-090-154
Call Forwarding Over Private Facilities (CFPF)	DN Subtranslator	Temporary	4-word 6-word (ETS)	231-090-073
Call Forwarding Variable (CFV)	DN Subtranslator	Temporary	2 or 3-word	231-090-073
Cancel Call Waiting (CCW)	LEN/REN Subtranslator	Temporary	No	231-090-073
Centrex Station Rearrangement (CSR)	DN/LEN Subtranslator	Permanent	No	231-390-064
Speed Calling Variable (SCV)	Speed Call List	Permanent	No	231-090-401

terminal. After initial validity checks are passed, CSR changes are placed in the RC queue for processing by the RC system. ACS changes have a direct link to translations and are not placed in the RC queue.

For each successful or unsuccessful change, the subscriber receives a response on the subscriber terminal. If an inputted change is successful, the success response indicates that the translations update is complete. If an input is unsuccessful, the outputted response indicates the reason for failure (i.e., input error, validity error, etc.).

3.1.3 Permanent CORC System Acceptance

When a permanent CORC is accepted by the ESS switch and if the customer log (CLOG) output is allowed, a REPT:CORC message is outputted

on the maintenance terminal. If the CLOG output is inhibited, no report is outputted. Refer to 4.2.3 for the CLOG inhibit/allow messages.

If a permanent CORC cannot be accepted due to an error condition (i.e., validity error), an RC18 or RC16 message is outputted on the maintenance terminal and RC monitor channel (if equipped). An RC29 message will follow containing the contents of the message which failed. Refer to Practice 231-048-302 for more information on these output error messages. These messages are outputted even if the CLOG output is inhibited.

When a permanent CORC is accepted, a rollback block is created containing the old translation data replaced by the CORC. This rollback block contains the address and contents of every translation word overwritten or in any way altered as a result of the CORC. The rollback information is needed in case it is necessary to return translations to a state prior to the CORC. Refer to Practice 231-048-301 for more information on RC rollback.

> ***Note:*** If a telephone subscriber inputs a large number of permanent CORCs, a significant percentage of the RC rollback area could be filled.

3.2 Temporary Status CORCs

CORCs with temporary status use temporary RC registers and, if needed, CORC blocks to store subscriber inputted information. Temporary CORCs can be built against the line equipment number/remote equipment number (LEN/REN) (originating) and directory number (DN) (terminating) translations. CORCs with temporary status are:

- Call Forwarding Over Private Facilities (CFPF)
- Call Forwarding Variable (CFV)
- Cancel Call Waiting (CCW)

Temporary CORCs are established by a telephone subscriber dialing the required digits for the type of CORC desired. After the digits are received, they are decoded and checks are made for CORC type assigned and a valid input. When the temporary CORC is accepted, the subscriber receives a confirmation tone. If the temporary CORC is not accepted, a reorder tone is returned.

3.2.1 Temporary RC Registers

Each temporary RC register contains 3 words (Fig. 1). Word 1 contains the TAG (translations address) of the LEN/REN or DN subtranslator word which contains the pointer to the temporary RC register or a back pointer to another temporary RC register (3.2.1.4). Word 2 contains the temporary RC data or CORC block information. Word 3 contains the permanent subtranslator primary translation word (PTW) that the temporary CORC is replacing or a pointer to another temporary RC register (3.2.1.4).

3.2.1.1 Seizing a Temporary RC Register

When a temporary CORC is accepted, the RC system seizes a temporary RC register (and CORC block, if needed). The RC system then places the TAG of the subtranslator PTW that is being replaced by the CORC into word 1 of the temporary RC register. The RC system writes the CORC data (or CORC block information) into word 2 of the temporary register and then writes the permanent PTW of the subtranslator word into word 3 of the temporary RC register. Finally, the permanent PTW in the subtranslator is overwritten with the TAG of the temporary RC register.

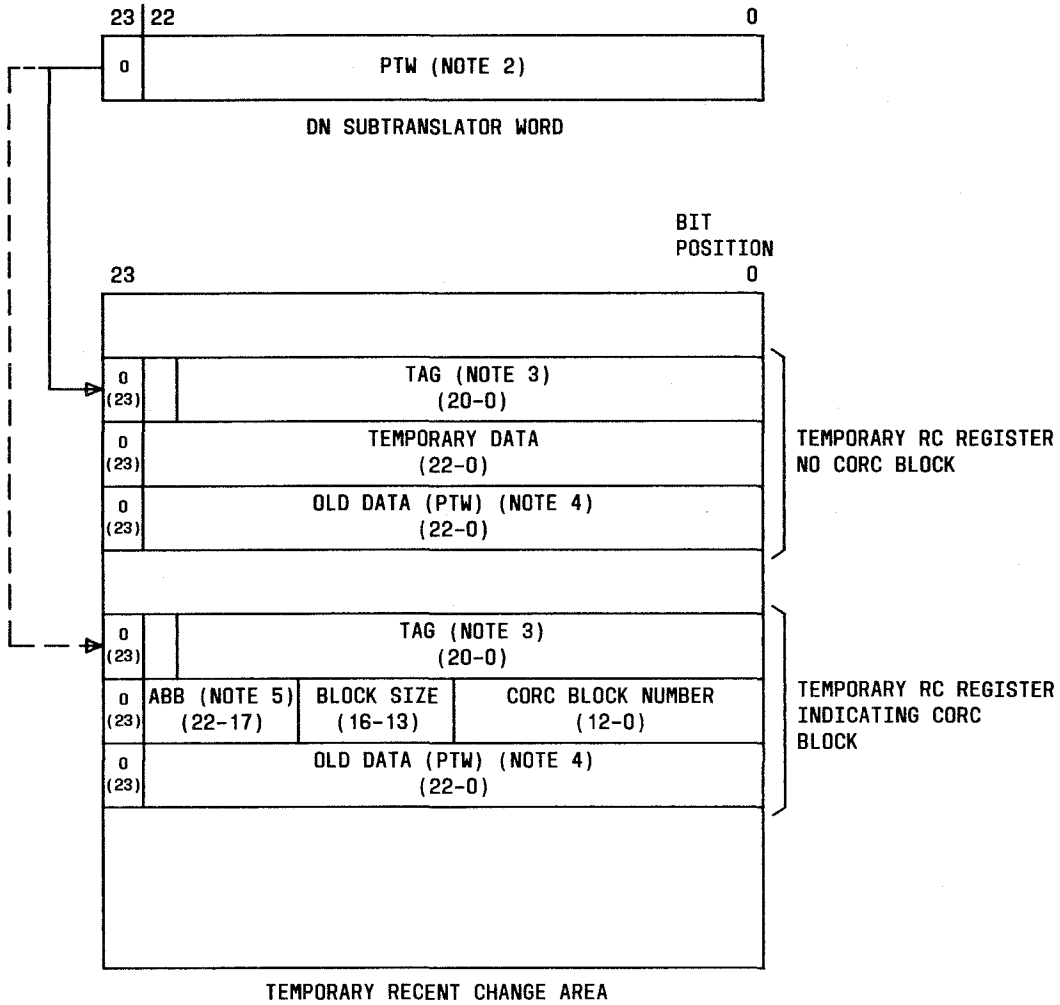
3.2.1.2 Call Processing Access of a Temporary RC Register

When a call is made, a LEN/REN translation is done on the calling LEN/REN in the originating office and a DN translation is done on the called DN in the terminating office. If a temporary CORC is in effect, a LEN/REN or DN subtranslator word will contain the TAG of a temporary RC register. A check is made on word 1 of the temporary RC register to verify the temporary CORC. If the contents of this word match the TAG of the subtranslator word, then a temporary RC is in effect, and word 2 is checked for temporary data or a CORC block indicator.

> ***Note:*** If word 1 of the temporary RC register does not match the TAG of the subtranslator word, then the contents of the subtranslator word is an actual PTW and not a temporary RC register TAG.

3.2.1.3 Releasing a Temporary RC Register

When a temporary CORC is deleted, word 3 of the temporary register, which contains the permanent PTW of the LEN/REN or DN subtranslator word, is written back into the subtranslator at the TAG specified in word 1 of the temporary RC register. The temporary RC register and CORC block (if any) are released.



NOTES:
1. Refer to 3.2.1.4 for information on linked temporary RC registers.
2. The subtranslator permanent PTW is overwritten with the TAG of the temporary RC register when the temporary RC is originated.
3. TAG is the address of the permanent PTW against which the temporary RC is written.
4. Old data is the permanent data in the LEN/REN or DN subtranslator that was overwritten when the temporary RC was originated.
5. Abbreviated code of CORC type.

Fig. 1 — Temporary RC Registers

3.2.1.4 Linked Temporary RC Registers

Temporary RC registers are linked to allow more than one temporary RC to exist against a subtranslator PTW. Temporary RC registers that can be linked are:

(a) Temporary features (for CCW)

(b) Service and complant observing

(c) Plug-up.

When a second temporary RC is built against a subtranslator PTW, then the permanent PTW of the subtranslator that was written into word 3 of the first temporary RC register is moved to word 3 of the second temporary RC register. The pointer to the second temporary RC register is then written into word 3 of the first temporary RC register. A back pointer is written into word 1 of the second temporary RC register pointing to word 3 of the first temporary RC register. If additional RC registers are built against the subtranslator PTW, the last temporary RC register will always contain the permanent PTW in word 3 and be pointed to by the previous temporary RC register. Each additional temporary RC register will also contain a back pointer (in word 1) to word 3 of the previous temporary RC register.

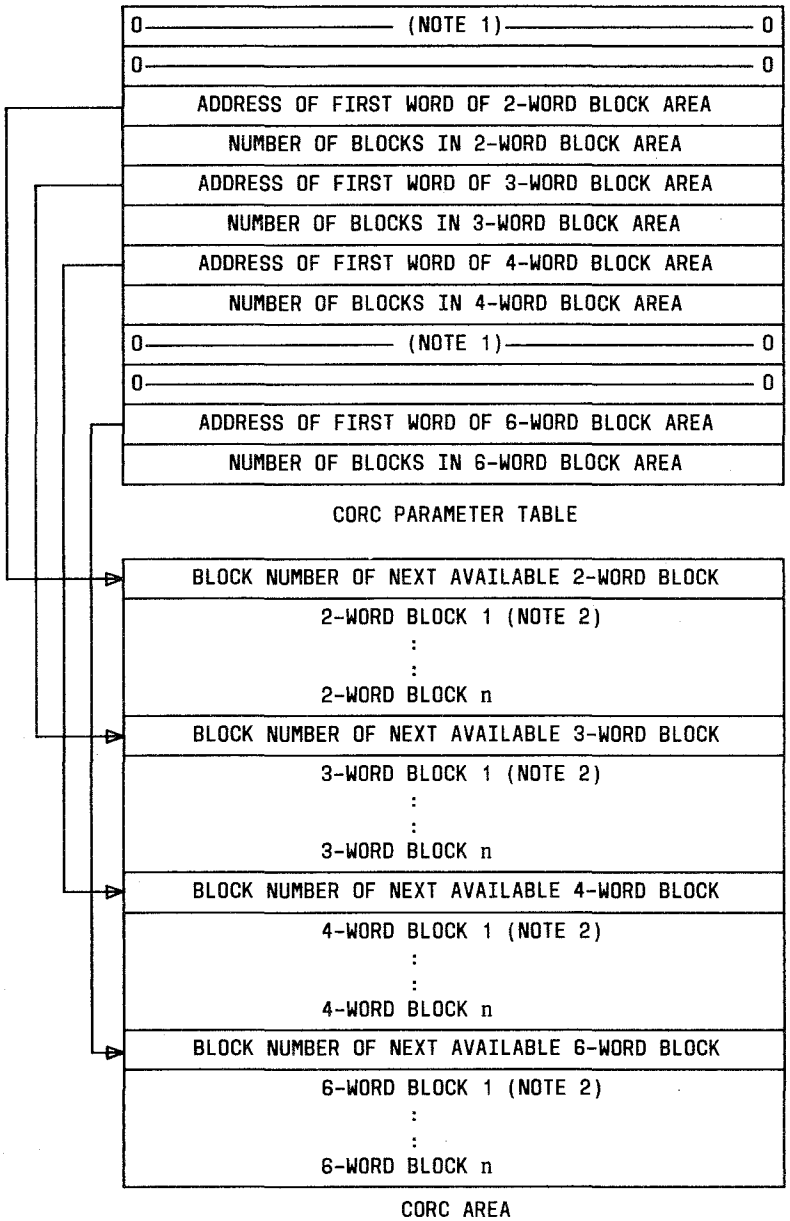
As linked temporary RC registers are released, pointers are changed or the permanent PTW is moved as required.

3.2.2 CORC Blocks

The CORC area is located in call store and contains dedicated areas for 2, 3, 4, and 6 word blocks. The dedicated areas are pointed to from the CORC parameter table located in program store. The CORC blocks provide additional data for temporary CORCs in place of using several temporary RC registers. CORC blocks are seized only when a temporary RC register cannot hold all the data for a temporary CORC. A layout of the CORC area and CORC parameter table is shown in Fig 2.

3.2.2.1 CORC Area

The CORC area contains dedicated areas for 2, 3, 4, and 6 word blocks. The first word in each dedicated area contains the block number of the first available block in an area. The second word in each dedicated area indicates the total number of blocks and number of available blocks in an area. The first word in each available block contains the block number of the next available block in that area with the last available block containing zeros.



NOTES:
1. 1-word and 5-word block areas are not used.
2. The first word in each available block will contain the block number of the next available block. The next available block number is written into the first word of the block area as each new block is seized.

Fig. 2 — CORC Area and Parameter Table

3.2.2.2 CORC Parameter Table

The CORC parameter table contains the parameter defined starting addresses of each dedicated block area in the CORC area. The pointer to the CORC parameter table is located at program store address 7732220 (F2CORC). The CORC parameter table contains 2 words for each possible dedicated block area (1 through 6 word blocks). The first word contains the address for the start of the respective block area. The second word indicates the total number of blocks in the block area.

3.2.2.3 Seizing a CORC Block

When a CORC block is needed, the CORC parameter table is checked for the starting address of the dedicated area for the required block size. Word 1 of the dedicated area is checked for the block number of the first available block. The block number, block size, and CORC block indicator are then stored in word 2 of the temporary RC register which uses the CORC block.

Word 1 of the seized CORC block contains the block number of the next available block in the dedicated area. This block number is placed in the first word of the dedicated area and is now the next available block. CORC data is then entered in the seized CORC block.

3.2.2.4 Call Processing Access of a CORC Block

When call processing accesses a temporary RC register (2.2.1.2), word 2 of the temporary RC register contains either CORC data or indicates a CORC block. A CORC block is indicated by the abbreviated code for the CORC type in bits 22 through 17. Bits 16 through 13 will contain the CORC block size with the remaining bits containing the block number.

When a CORC block is indicated, the block is accessed by multiplying the block number by the block size (from word 2, temporary RC register), subtracting the block size and adding this to the starting address of the dedicated area plus 1. The block size is subtracted because there is no zero block number. The starting address of the area is found in the CORC parameter table and one is added because the first word in each dedicated area is the pointer to the next available block.

3.2.2.5 Releasing a CORC Block

When a CORC block is released, the block number of the next available block from word 1 of the dedicated area is placed in word 1 of the released

block. The block number of the released block is then placed in word 1 of the dedicated area. The released block is now the next available block.

3.2.3 Temporary RC Backup (TRCB)

The TRCB feature allows automatic or manual restoral of the temporary RC area and CORC area if temporary RCs or temporary CORCs are lost due to call store zeroing.

Temporary RC backup periodically writes the call store copy of the temporary RC area and CORC area to disk. If the temporary RC area or CORC area of call store is zeroed due to a phase, TRCB automatically restores all lost temporary RCs and temporary CORCs. Manual restoral of the temporary RC area and CORC area is done via the RST:TRCA! input message. The TRCB feature is activated by inputting:

ALW:RCSOURCE TRB!

and inhibited by inputting

INH:RCSOURCE TRB!.

4. CORC CONTROL AND MONITORING

The following paragraphs provide information on central office control and monitoring of CORCs. Input and output messages for control and monitoring are provided.

4.1 Automatic CORC Control

All temporary CORCs are inhibited when the total number of temporary RC registers (CORC plus non-CORC) in use exceeds the capacity of the temporary RC area. Any temporary CORC requiring a CORC block is inhibited if the required block size is not available. The automatic inhibiting of temporary CORCs is independent of manual RC control and cannot be overridden by the ALW:RCSOURCE message.

4.2 Manual CORC Control

Manual CORC control allows the central office to allow, inhibit, and monitor CORCs by inputting specific messages. The following paragraphs provide input messages, output messages, and information on the CORC customer log.

4.2.1 Input Messages

The following input messages are listed in alphabetical order. The output message(s) for each input message is explained in 4.2.2.

4.2.1.1 ALW:RCCHAN

The ALW:RCCHAN message assigns a terminal channel to accept RC inputs. Central office RC inputs are restricted to one channel at a time. The ALW:RCCHAN message is inputted as follows:

ALW:RCCHAN aaa!

aaa = LOC = Local Maintenance
= REM = Remote
= SC1 = Switching Control Center (SCC) Primary
= SC2 = SCC Secondary
= SRM = Supplementary Remote

The system response is a PF (printout follows) TTY acknowledgment (TACK) and REPT:RC WARNING output message. A minor alarm light is also lighted.

4.2.1.2 ALW:RCSOURCE

The ALW:RCSOURCE message allows all RCs as specified in the variable field aaa. The RC activity can be inhibited using the INH:RCSOURCE input message. The ALW:RCSOURCE message is inputted as follows:

ALW:RCSOURCE aaa!

aaa = ACS = Authorization code and treatment group changes for Electronic Tandem Switching (ETS).
= BIS = Busy/idle status indicator changes.
= CCW = Cancel call waiting RCs.
= CFV = Call forwarding variable RCs, including CFPF.
= CSR = Centrex station rearrangement.
= SCV = Speed call variable (i.e., customer changeable speed calling) RCs.

The system response is a PF TACK followed by a REPT:RC SOURCE output message.

4.2.1.3 INH:RCSOURCE

The INH:RCSOURCE message inhibits all RCs of the type specified in the variable field aaa. The RC activity can be reinstated using the ALW:RCSOURCE message. The INH:RCSOURCE message is inputted as follows:

INH:RCSOURCE aaa!

aaa = ACS = Authorization code and treatment group changes for ETS.
= BIS = Busy/idle status indicator changes.
= CCW = Cancel call waiting RCs.
= CFV = Call forwarding variable RCs, including CFPF.
= CSR = Centrex station rearrangement.
= SCV = Speed call variable (i.e., customer changeable speed calling) RCs.

The system response is a PF TACK followed by a REPT:RC SOURCE output message.

4.2.1.4 OP:RCCENSUS

The OP:RCCENSUS message provides the following:

(a) The office RC channel as specified by the ALW:RCCHAN input message

(b) The percentage of the temporary RC area filled

(c) The percentage of the rollback area filled since the latest tape

(d) The RC source inhibit status as specified in the ALW:RCSOURCE or INH:RCSOURCE input message.

The OP:RCCENSUS message is inputted as follows:

OP:RCCENSUS!

The system response is a PF TACK followed by the REPT:RC CENSUS and REPT:RC SOURCE output messages.

4.2.2 Output Messages

The following output messages are in response to the input messages in 4.2.1.

4.2.2.1 REPT:RC CENSUS

The REPT:RC CENSUS message is outputted hourly with the REPT:RC SOURCE message or in response to the OP:RCCENSUS input message. The REPT:RC CENSUS message is outputted as follows:

```
REPT:RCCENSUS
OFFICE RC CHANNEL = aaa
TRCA OVER bb % FULL
RBA OVER cc % FULL
```

aaa = Current office RC channel, assigned using the ALW:RCCHAN input message. If no channel is assigned, UNA is outputted.
bb = Percentage of temporary RC area filled.
cc = Percentage of rollback area used since the latest tape dump.

The temporary RC area and rollback area percent figures are reported in increments of 10 percent from 00 to 90 percent. If report is 00% then actual percent filled can be from 0 to 9 percent. If report is 90%, then percent filled is 90 percent or greater.

4.2.2.2 REPT:RC SOURCE

The REPT:RC SOURCE message is outputted hourly with the REPT:RC CENSUS message or in response to the ALW:RCSOURCE, INH:RCSOURCE, and OP:RCCENSUS input messages. The REPT:RC SOURCE message is outputted as follows:

REPT:RC SOURCE
SCV = a (Speed call variable)
CFV = a (Call forwarding variable)
RCS = a (RC service order channel)
DLY = a (Delayed RC activity)
ACS = a (Authorization code/treatment group)
CSR = a (Centrex station rearrangement changes)
BIS = a (Busy/idle status changes)
TRB = a (Temporary RC backup)
FDP = a (Full RC16 output)
LOG = a (Customer log, except REPT:CORC06)
CR6 = a (REPT:CORC06 output for CSR)

a = 1 - If a source is inhibited, otherwise 0.

4.2.3 CORC Customer Log (CLOG)

The CLOG feature allows the central office to monitor specific CORC changes made by a telephone subscriber. When the CLOG output is activated, CORC changes made by a subscriber that are accepted by the RC system result in a REPT:CORC output message. The REPT:CORC message outputs the RC: message equivalent of the CORC. The RC: message equivalent is recorded on magnetic tape cartridge if equipped. If the CLOG output is inhibited, no message is outputted unless a CORC fails when processed by the RC system. In this case an RC18 or RC16 message is outputted followed by an RC29 message.

4.2.3.1 Allow/Inhibit CLOG Output

The CLOG output is activated by inputting:

ALW:RCSOURCE aaa!

aaa = LOG - Output REPT:CORC messages except REPT:CORC06 (CSR)
= CR6 - Output CSR REPT:CORC06 message only.

The CLOG output is inhibited by inputting:

INH:RCSOURCE aaa!

where the variable aaa is the same as for the activate message.

4.2.3.2 REPT:CORC Output Messages

An active CLOG output will result in one of the following messages for each CORC change accepted by the ESS switch. Refer to 4.2.3.1 for information on activation and deactivation of the CLOG output.

4.2.3.3 REPT:CORC01

The REPT:CORC01 output message reports that a CORC speed call list (SCV) change has been made. The output message after the first line is the RC: message equivalent that would cause the same changes when inputted on the RC channel, with the exception that keywords prefixed by an asterisk (*) are ignored. The output format follows:

```
REPT:CORC01
RC:SCLIST:
keyword
keyword
  .
  .
  .
keyword
```

For an explanation of the RC:SCLIST: message and its keywords, refer to Practice 231-048-312.

4.2.3.4 REPT:CORC02

The REPT:CORC02 output message reports that a CORC call forwarding service (CFPF, CFV) change has been made. The output message after the first line is the RC: message equivalent that would cause the same changes when inputted on the RC channel, with the exception that keywords prefixed by an asterisk (*) are ignored.

```
REPT:CORC02
RC:CFV:     (or RC:CFV;OUT:)
keyword
keyword
  .
  .
  .
keyword
```

The RC:CFV: output indicates activation and the RC:CFV;OUT: indicates deactivation. For an explanation of the RC:CFV: messages and their keywords, refer to Practice 231-048-312.

4.2.3.5 REPT:CORC04

The REPT:CORC04 output message reports that a CORC authorization code or treatment group change for ETS has been made. The output message after the first line is the RC: message equivalent that would cause the same changes when inputted on the RC channel, with the exception that keywords prefixed by an asterisk (*) are ignored. The output format follows:

```
REPT:CORC04
RC:SAC:
keyword
keyword
  .
  .
  .
keyword
```

For an explanation of the RC:SAC: message and its keywords, refer to Practice 231-048-308.

4.2.3.6 REPT:CORC06

The REPT:CORC06 output message reports that a CORC by a CSR customer has changed a line (RC:LINE) or has moved a telephone number (RC:MOVE). The output message starting at the RC: line is the RC: message equivalent that would cause the same changes when inputted on the RC channel. Nonapplicable keywords are not outputted. The output format follows:

```
REPT:CORC06
TIME aaaaaa
CUSTID bbb
CSN ccc
GSN dddd
NPA eee
TN fffffff
RC:LINE;CHG:  (or RC:MOVE:)
keyword
keyword
  .
  .
  .
keyword
```

aaaaaa =	The time the CORC was introduced
bbb =	The 3-digit customer identification (064-127)
ccc =	The customer sequence number
dddd =	The general sequence number
eee =	The numbering plan area
ffffffff =	The directory number.

For an explanation of the RC:LINE: and RC:MOVE: messages and their keywords, refer to Practice 231-048-312.

4.2.3.7 REPT:CORC07

The REPT:CORC07 output message reports that a CORC by a busy/idle status indicator customer has activated or deactivated the busy/idle reporting of an inward wide area telephone service (INWATS) customer line group. The output message after the first line is the RC: message equivalent that would cause the same changes when inputted on the RC channel. The output format follows:

```
REPT:CORC07
RC:BISI:
keyword
keyword
  .
  .
  .
keyword
```

For an explanation of the RC:BISI message and its keywords, refer to Practice 231-048-310.