

**CITY WIDE CENTREX (CWC)  
IMPLEMENTATION PROCEDURES  
(1AE9 GENERIC PROGRAM)**

**1A *ESS*<sup>TM</sup> SWITCH**

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## 1. GENERAL

This practice provides CWC (City Wide Centrex) implementation procedures. Included are translator descriptions, RC verification data, RC input message format data, and CWC feature implementation procedures.

Refer to AT&T Practice 231-390-175 for additional descriptions of CWC features and attributes. Familiarity with AT&T Practice 231-390-175 is assumed for understanding of this practice.

Refer to Table A for abbreviations and acronyms used in this practice. Items and fields shown in translator layouts and keywords shown in RC and verify messages are not necessarily included in Table A (CWC abbreviations and acronyms). These items and keywords are defined in legends included in the translator layout figures or within the RC and verify message descriptions.

Refer to AT&T Practice 231-318-316 for additional general information on RC and verify formats and the interpretation of the message flowcharts.

Refer to Translation Guide TG-1A for documentation of translation data and associated ESS forms.

Refer to Input Manual IM-6A001 and Output Manual OM-6A001 for a complete description of input and output messages.

### 1.1 Flowchart Symbols

The following flowchart symbols are used in RC message flowcharts.

- **OPTION Symbol:** The OPTION symbol is used to indicate that all flowlines leaving the symbol are optional. None, one, some, or all such flowlines may be selected.
- ⊗ **EXCLUSIVE OR Symbol:** The EXCLUSIVE OR symbol is used to indicate that exactly one of two or more flowlines leaving the symbol must be selected.
- ⊕ **NONEXCLUSIVE OR Symbol:** The NONEXCLUSIVE OR symbol is used to indicate that one or more of the flowlines leaving the symbol must be selected (no less than one, but more than one may be selected).
- **AND Symbol:** The AND symbol is used to indicate that all flowlines leaving the symbol must be used.
- ⌈  
%  
⌋ **Repeatable Segment:** The repeatable segment symbol is used to indicate that the keyword unit or the specific group of keyword units within the segment bracket can be repeated within the RC message without reentering previous keyword units. Each segment is terminated by the percent sign.

In message flowcharts, keywords without a variable shown are YES/NO keywords. When a YES/NO feature is added, enter the keyword; when a YES/NO feature is removed, enter the keyword followed by NO or N.

<b>TABLE A</b>	
<b>ABBREVIATIONS AND ACRONYMS</b>	
ACOF	Attendant Control of Facilities
BCD	Binary Coded Decimal
CFBL	Call Forwarding Busy Line
CFDA	Call Forwarding Don't Answer
CFV	Call Forwarding Variable
CWC	City Wide Centrex
DN	Directory Number
ETS	Electronic Tandem Switching
FRL	Facility Restriction Level
FRSI	Flexible Route Selection Index
IOIII	Inhibit Originating Interlocation Intercom Indicator
ITIII	Inhibit Terminating Interlocation Intercom Indicator
LEN	Line Equipment Number
MHT	Master Head Table
MLHG	Multiline Hunt Group
NPA	Numbering Plan Area (Area Code)
NXX	Office Code
PADNPA	Pad Remote Numbering Plan Area Indicator
PTW	Primary Translation Word

## 2. OVERALL DESCRIPTION OF CWC

CWC provides centrex capabilities to large businesses with multiple locations that are served by separate 1A ESS switches. Each location will remain as part of its own switch with its capabilities, but will be able to operate as part of the CWC system as if it was its own centrex group. All intragroup capabilities are extended to all interlocation calls. CWC uses LCCIS (Local Common Channel Interoffice Signaling), therefore all CWC locations must be within the same LATA (Local Access and Transport Area) because LCCIS is intraLATA.

### 3. GENERAL RC INFORMATION

#### 3.1 Translators Affected by CWC

Translators affected by CWC are listed below, including the associated data input RC and verify messages.

- DN (Directory Number) Translator (RC:LINE, VF:DNSVY)
- LEN (Line Equipment Number) Translator (RC:LINE, VFY-LEN)
- Centrex Supplementary Translator (RC:CTXCB, VFY-CSTG-35)
- Centrex Digit Interpreter Tables (RC:CTXDI, VFY-XDGNT)
- CWC Translator (RC:CWCTX, VF:CWC)
- DN-CTX Translator (RC:TNCTX, V-DNCTX)
- MLHG (Multi-line Hunt Group) Translator (RC:MLHG, VFY-CSTG-34)
- SCIW (Supplementary Call Identification Word) Translator (RC:CCOL)
- CORC (Customer Originated Recent Change) Block (RC:CFV, VF:DNSVY)

### 4. TRANSLATOR DESCRIPTIONS

#### 4.1 DN Translator

##### Assigning Satellite DNs to Main Location

The DN translator is used to assign CWC satellite DNs to the main location. These DNs are associated with a RI (route index) at the main location for routing DID (direct inward dialing) calls to the proper satellite location. CWC satellite DNs are assigned in the main location using either a DN head table type 3 entry or a DN subtranslator type 4 entry. The DN head table type 3 entry associates an entire number group of CWC satellite DNs with an RI and a DN subtranslator type 4 entry associates an individual CWC line with an RI. In both the type 3 or type 4 entry the DNs have an abbreviated code of 10 and a program index of 2. The type 3 or type 4 entry can **not** be associated with an RI less than 200.

Bit 2 of the DN head table type 3 entry and the DN subtranslator type 4 entry contains the CWSI (CWC Satellite DN Indicator). If bit 2 equals 1, the DN or number group is a CWC satellite DN. If bit 2 of the type 3 entry equals 0 the DN is given standard office interrupt treatment.

**Call Forwarding Busy Line/Call Forwarding Don't Answer**

The DN translator auxiliary block (Fig. 1) for centrex lines and attendants contain 1- or 2-word CFBL/CFDA options. One option word (type 1, word 1) is used if the DN is intraoffice (stored in binary) and two option words (type 2, words 1 and 2) are used if the DN is interoffice (stored in BCD).

Bit 16 of the type 2, word 1 CFBL/CFDA option words indicates the satellite station DN is a CWC DN and contains the last four digits of the DN in BCD. The type 1, option word 1 contains the complete DN in binary. The type 2, word 2 option word contains the NPA (Numbering Plan Area) digits and the NXX (office code) digits of the DN in BCD.

Bit 23 of the type 1, word 1 or type 2, word 1 CFBL/CFDA option word indicates the satellite DN is an interoffice DN. Bit 23 of the type 1, word 1 CFBL/CFDA option word is always equal 0 indicating an intraoffice remote station DN. Bit 23 of the type 2, word 1 CFBL/CFDA option word is always equal 1 indicating a inter-office remote station DN.

**Note:** If bit 23 equals 1, bit 16 must also equal 1.

CFBL/CFDA OR CFBL OPTION WORD(S)

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
TYPE 1 WORD 1	0	*1	*2	*3	*4	*5	DN (IN BINARY)																	

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
TYPE 2 WORD 2	NPA 1				NPA 2				NPA 3				NXX 1			NXX 2			NXX 3					
TYPE 2 WORD 1	1	*1	*2	*3	*4	*5	*7	DIG 7		DIG 8			DIG 9			DIG 10								

CFDA OPTION WORD(S)

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
TYPE 1 WORD 1	0	*6	-D-			*5	DN (IN BINARY)																	

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
TYPE 2 WORD 2	NPA 1				NPA 2				NPA 3				NXX 1			NXX 2			NXX 3					
TYPE 2 WORD 1	1	*6	-0-			*5	*7	DIG 7		DIG 8			DIG 9			DIG 10								

\*1 = CFUS AND CFBLUS      \*2 = CFIMB      \*3 = CFILB  
 \*4 = CFOV      \*5 = CFDAT      \*6 = CFDAUS      \*7 = CWCI

NOTES:

1. DIG, NPA, AND NXX ARE STORED IN BCD.
2. CFBLUS AND CFDAUS ARE ONLY VALID IF CFBL AND CFDA ARE ASSIGNED.

LEGEND:

- CFUS - CALL FORWARDING UNRESTRICTED SOURCE.
- CFBLUS - CALL FORWARDING BUSY LINE UNRESTRICTED SOURCE (SEPARATE REMOTE STATION DNs).
- CFIMB - CALL FORWARDING INHIBIT MAKE BUSY INDICATOR.
- CFILB - CALL FORWARDING INHIBIT LINE BUSY INDICATOR.
- CFOV - CALL FORWARDING OVERFLOW INDICATOR.
- CFDAT - NUMBER OF RINGING CYCLES TO BE APPLIED TO THE CFDA BASE STATION BEFORE THE CALL IS FORWARDED.
- CFDAUS - CALL FORWARDING DON'T ANSWER UNRESTRICTED SOURCE.
- CWCI - CITY-WIDE CENTREX INDICATOR.
- DIG - LAST FOUR DIGITS OF DN.
- NXX - OFFICE CODE.
- NPA - AREA CODE.

Fig. 1 — DN Auxiliary Block - CFBL/CFDA Option Words

4.2 DN-CTX Translator

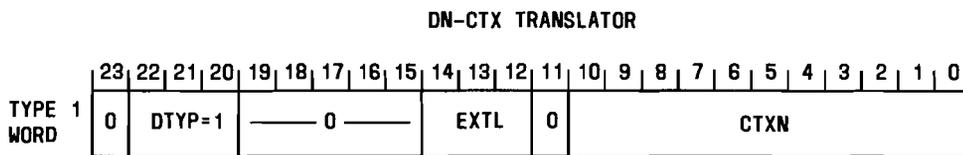
The DN-CTX translator translates a DN to a centrex group number and CTX extension given the following requirements:

- The legal size of a CTX extension is between two and seven digits.
- CTX extensions match the last n-digits of the corresponding DN in nearly all cases.
- The last two-digits of a CTX directory number (D6 and D7) must always match the last two digits of the CTX extension.

The "TYPE 1" (DTYP=1) translation word (Fig. 2) of the DN-CTX translator is used when the n-digits of the DN match the CTX extension exactly. Bits 12-14 dictate the size of the extension. Therefore the last n-digits of the input DN produce the desired extension.

The "TYPE 6" (DTYP=6) translation word (Fig. 3) is used when the CTX extension does not match the CTX extension exactly, however the last 2-digits (D6 and D7) must still match the last 2-digits of the extension. The "TYPE 6" entry replaces the previous "TYPE 1" final data entry and contains the address of an auxiliary block (Fig. 3) created for cases where the CTX DN and extension do not match and the EXTL (Centrex Extension Length) exceeds 2-digits. Word 1 of the auxiliary block contains the EXTL and CTXN. Word 2 contains the replacement digits (D1-D5) for the first five digits of the associated CTX DN (D1-D5). If a valid BCD (binary coded decimal) replacement digit is present, then this value replaces the corresponding digit of the CTX DN and the result is the CTX extension.

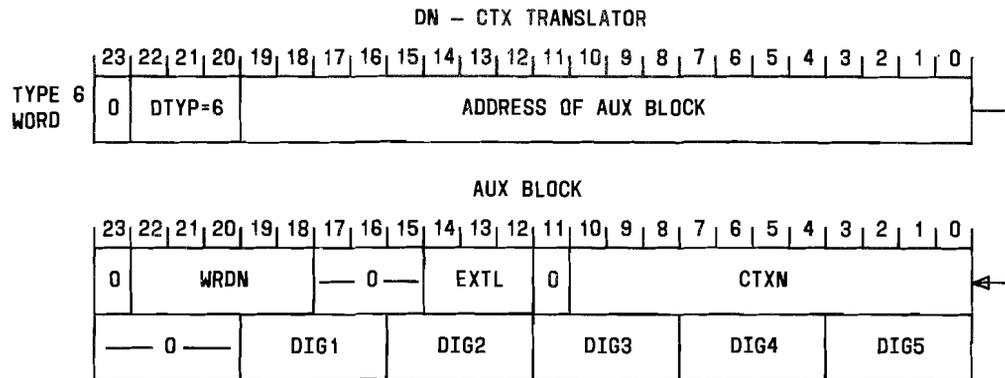
**Note:** Digits 6 and 7 of the CTX DN are the last 2-digits of the CTX extension.



LEGEND:

- DTYP - DATA TYPE: "001" FOR DN BLOCKS THAT ARE ALL ASSIGNED IN THE SAME CENTREX GROUP
- EXTL - CENTREX EXTENSION LENGTH
  - 0 = EXTENSION UNAVAILABLE OR UNASSIGNED
  - 001 = INVALID
  - 011-111 = EXTENSION LENGTH AT LEVEL ZERO OF TRANSLATOR, i.e., DN TO CTX TABLE
  - 010-111 = EXTENSION LENGTH AT LEVEL 1-3 OF TRANSLATOR, i.e., D5-D7 IN INTERPRETER TABLES
- CTXN - CENTREX GROUP NUMBER

Fig. 2 — Type 1 Translation Word - DN-CTX Translator



## NOTE:

1. Digits 6 and 7 of the centrex DN must be the last 2 digits of the centrex extension.

## LEGEND:

- DTYP - DATA TYPE; "110" FOR DNs WHERE THE CTX EXTENSIONS DO NOT MATCH THE LAST *n* DIGITS OF THE DN AND EXTENSION LENGTH EXCEEDS 2 DIGITS
- WRDN - NUMBER OF WORDS IN AUX BLOCK
- EXTL - CENTREX EXTENSION LENGTH  
000-010 = INVALID  
011-111 = EXTENSION LENGTH
- CTXN - CENTREX GROUP NUMBER
- DIG1-5 - REPLACEMENT DIGITS (BCD) FOR THE FIRST FIVE DIGITS OF THE CENTREX DIRECTORY NUMBER (D1-D5)  
0 = NO REPLACEMENT  
1010 = DIALED ZERO  
0001-1001 = DIGITS 1-9  
1011-1111 = INVALID

Fig. 3 — Type 6 Translation Word and Auxiliary Block - DN-CTX Translator

#### 4.3 LEN Translator

The FRL (facility restriction level) indicator and field in the LEN translator auxiliary blocks for centrex is used for ETS (electronic tandem switching). The FRL indicator and field are also used as a selector into a table of screening LENs located in the CWC translator for individual chart column screening for remote access to non-ETS facilities.

#### 4.4 Centrex Supplementary Translator

A new option word (Option word D) (Fig. 4) is added to the centrex supplementary translator. Option word D contains:

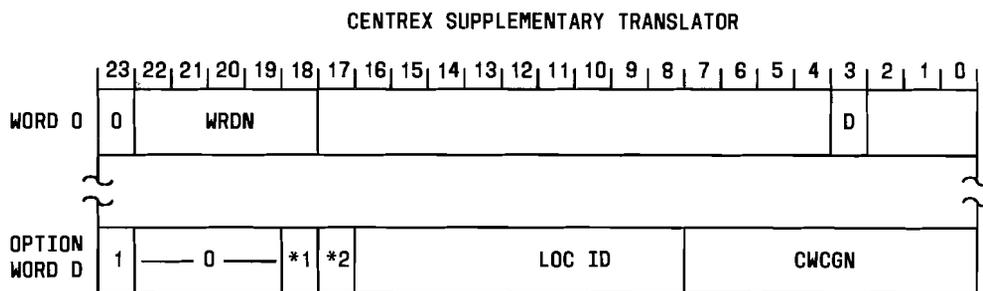
- The CWC group number
- The location identifier
- The IOIII (inhibit originating interlocation intercom indicator)
- The ITIII (inhibit terminating interlocation intercom indicator)

The CWC group number is the number of the CWC group. All offices in the group for a specific customer have the same group number.

A different location identifier is associated with each location in the CWC group. These locations may or may not be in the same office, (i.e., a CWC group can have locations in different offices and different centrex groups can exist in the same office).

The IOIII restricts all fully-restricted stations in the centrex group from originating or forwarding interlocation intercom calls. The IOIII applies only to CWC stations with a fully-restricted originating major class.

The ITIII restricts all fully-restricted stations in the centrex group from receiving interlocation intercom calls. The ITIII applies only to CWC stations with a fully-restricted terminating major class.



- LEGEND:**
- WRDN - NUMBER OF WORDS IN THE CENTREX SUPPLEMENTARY TRANSLATOR.
  - D - OPTION WORD D INDICATOR.
  - \*1 = ITIII - INHIBIT TERMINATING INTERLOCATION INTERCOM INDICATOR.
  - \*2 = IOIII - INHIBIT ORIGINATING INTERLOCATION INTERCOM INDICATOR.
  - LOC ID - LOCATION ID ASSOCIATED WITH THIS 1A ESS SWITCH FOR THIS CWC GROUP. VALUES = 1 TO 127.
  - CWCGN - CITY-WIDE CENTREX GROUP NUMBER. VALUES = 1 TO 255.

**Fig. 4 — Option Word D - Centrex Supplementary Translator**

**4.5 Centrex Digit Interpreter Tables**

The data type field of the centrex digit interpreter tables is expanded; it is in bits 20 through 23. Data type 8 of the centrex digit interpreter tables defines 3 CWC functions:

- Interlocation Intercom Dialing
- Indicates the Interlocation Directory Number
- Allows CWC Access to Centralized Facilities

Interlocation intercom dialing allows the CWC customer to dial intercom numbers in other offices but in the same CWC group. The data type 8, subtype 1 (Fig. 5) is used to form a 10 digit DN associated with the intercom number dialed. Bit 17 of word 0 is the ACOF (attendant control of facilities) bit and is always equal 0.

The data type 8, subtype 2 (Fig. 6) contains a 10 digit interlocation DN. Bit 17 of word 0 is the ACOF (attendant control of facilities) bit and is always equal 0.

The data type 8, subtype 3 (Fig. 6) provides a 10 digit DN at the CWC main office to allow a CWC customer to access private facilities at a single location from any customer location. Treatment codes are used to deny access to this capability on a per station basis. Bit 17 of word 0 is the ACOF (attendant control of facilities) bit and is always equal 0.

The centrex digit interpreter tables data type 5, subtype 19 (Fig. 7) auxiliary block is modified to allow the FRSI (flexible route selection index) field to contain up to 8 bits without requiring the use of bit 23 of the data word. The final data is a PTW (Fig. 7) contained in the common block if the FRSI is less than or equal to 127. The final data is an auxiliary block (Fig. 7) if the FRSI is greater than 127 or if ACOF with FRS is specified. The auxiliary block layout is required if the FRSI field is greater than 127 because the FRSI field in the PTW layout is only 7 bits long. The FRSI field in the auxiliary block layout is 8 bits long which allows for FRISs greater than 127.

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
WORD 0	WRDN=3				*1															SUBTYPE=1				
WORD 1	DTYPE=8				DEL			0							PREF 1		PREF 2		COLL					
WORD 2	NPA												NXX											

\*1 = ACOF

LEGEND:

- ACOF - ATTENDANT CONTROL OF FACILITIES. EQUALS 0.
- WRDN - NUMBER OF WORDS IN THIS BLOCK.
- SUBTYPE - SUBTYPE EQUALS 1; INTERLOCATION INTERCOM DIALING.
- DTYPE - DATATYPE EQUALS 8; CWC FEATURE.
- DEL - DELETE DIGITS; NUMBER OF DIGITS TO DELETE.
- PREF1 - VALUE OF THOUSANDS DIGIT IF EXTENSION LENGTH IS 2 DIGITS. VALUE IS IN BCD.
- PREF2 - VALUE OF THOUSANDS DIGIT IF THE EXTENSION LENGTH IS 3 DIGITS. VALUE OF HUNDREDS DIGIT IF EXTENSION LENGTH IS 2 DIGITS. VALUE IS IN BCD.
- COLL - NUMBER OF ADDITIONAL DIGITS TO COLLECT.
- NPA - AREA CODE. USED TO FORM INTERLOCATION DN.
  - D1 = BITS 23-20.
  - D2 = BITS 19-16.
  - D3 = BITS 15-12.
  - DIGITS ARE IN BCD.
- NXX - OFFICE CODE. USED TO FORM INTERLOCATION DN.
  - D4 = BITS 11-8.
  - D5 = BITS 7-4.
  - D6 = BITS 3-0.
  - DIGITS ARE IN BCD.

Fig. 5 — Data Type 8 Subtype 1 - Centrex Digit Interpreter Tables

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
WORD 0	WRDN=3				*1	RESTR										SUBTYPE								
WORD 1	DTYPE=8						EXT																	
WORD 2	NPA										NXX													

\*1 = ACOF

NOTE: EXT, NPA, AND NXX DIGITS ARE STORED IN BCD.

LEGEND:

ACOF - ATTENDANT CONTROL OF FACILITIES. EQUALS 0.

WRDN - NUMBER OF WORDS IN THIS BLOCK.

SUBTYPE - SUBTYPE = 2 - INTERLOCATION DN  
 3 - CWC ACCESS TO CENTRALIZED FACILITIES.

DTYPE - DATATYPE EQUALS 8; CWC FEATURE.

EXT - FOUR DIGIT EXTENSION. USED TO FORM INTERLOCATION DN.

O1 = BITS 15-12.

O2 = BITS 11-8

O3 = BITS 7-4.

O4 = BITS 3-0.

NPA - AREA CODE. USED TO FORM INTERLOCATION DN.

D1 = BITS 23-20.

D2 = BITS 19-16.

D3 = BITS 15-12.

NXX - OFFICE CODE. USED TO FORM INTERLOCATION DN.

O4 = BITS 11-8.

O5 = BITS 7-4.

O6 = BITS 3-0.

Fig. 6 — Data Type 8 Subtypes 2 and 3 - Centrex Digit Interpreter Tables

PTW

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
TYPE 5D	0	1	0	1	RESTR								FRSI								SUBTYPE=19			

AUXILIARY BLOCK

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
WORD 0	0	WRDN=4				*1	— 0 —				FRSI								— 0 —						
WORD 1	0	1	0	1	RESTR								— 0 —								SUBTYPE=19				
WORD 2	0	*2	*3	*4	— 0 —				MSN																
WORD 3	0	— 0 —				AIRI																— 0 —			

\*1 = ACOF   \*2 = ACNR   \*3 = AIR   \*4 = ACPF

NOTE: IF ACOF IS NOT SPECIFIED, ONLY WORDS 0 AND 1 ARE BUILT AND THE ACOF BIT EQUALS ZERO.

LEGEND:

- RESTR - TREATMENT CDDE
- FRSI - FLEXIBLE ROUTE SELECTION INDEX (1-255).
- WRDN - NUMBER OF WORDS IN AUX BLOCK.
- MSN - DIRECTED MASTER SCANNER POINT.
- AIRI - ATTENDANT CONTRDL INTERCEPT ROUTE INDEX.
- ACOF - ATTENDANT CONTROL OF FACILITIES
- ACNR - ATTENDANT CONTROL NIGHT RESTRICTION
- AIR - ATTENDANT CONTROL INTERCEPT ROUTING
- ACPF - ANNOUNCEMENT FOR CALL FORWARDING OVER PRIVATE FACILITIES.

Fig. 7 — Data Type 5 Subtype 19 - Centrex Digit Interpreter Tables

4.6 City Wide Centrex Translator

The CWC translator is not required in all CWC applications. The CWC translator is needed if simulated private facilities are used for CWC routing and if FRLs or PADNPAs (pad remote numbering plan area) are used for CWC access to private facilities. The CWC translator is not needed if CWC access is not used or if public facilities are used.

The CWC translator (Fig. 8) originates or terminates CWC interlocation calls. The CWC head table is pointed to by word 142 of the master head table and is fixed at 257 words, one word per CWC group (maximum of 256) plus one word containing the length of the head table (the -1 word). The CWC head table contains addresses of the CWC option blocks. If the options blocks are unassigned the head table addresses contain zeros. Each CWC option block length is variable and its length is in word 0 if the block is smaller than or equal to 31. The option blocks length is in the -1 word if the block is greater than 31 words long. Word 0 of the option block also contains auxiliary block option bit indicators, bit 0 indicates option

A, bit 1 option B and so on up to bit 17 indicating option R. Options B and C are the only ones defined for use with CWC. The option indicators are set only for the CWC group for which the option block is built for.

**Option B - Individual Chart-Column Screening**

Option B is used for CWC access to private facilities. Option B is an 8-word individual chart-column screening auxiliary block containing screening LENSs in bits 0-16 of each word. The screening LENSs are indexed by the FRL stored in the LEN translator, see 4.3. A screening LEN field of zero indicates an unassigned screening entry. The individual chart column screening auxiliary block is required when CWC access to CFPF is used.

**Option C - Location ID Information Block**

Option C is a variable length auxiliary block from 2 to 129 words long containing auxiliary block addresses. Word 0 of the location ID information block contains the size of the block if it is less than or equal to 31 words; if its larger than 31 words the -1 word of the block contains the size. Words 1 through 127 of the location ID information block contain location ID information auxiliary block addresses and are indexed by location IDs. Valid location IDs are 1 through 127.

**Location ID Information Auxiliary Block**

The location ID information auxiliary blocks length is variable. Word 0 contains the length of the auxiliary block if it is less than or equal to 31 words; if it is greater than 31 words the -1 word contains the length. Word 0 also contains option indicators, bit 0 indicates location ID option A, bit 1 indicates location ID option B and

bit 17 indicating location ID option R. Location ID options B and C are the only ones defined at this time. The option indicators are set only for the location ID for which the auxiliary block was built.

**Location ID option B** -- One word used for CWC routing that contains the outgoing and/or incoming SFG (simulated facilities group). The SFGs must be type 0 SFGs. Option B is used for CWC routing.

**Location ID option C** -- One word used for CWC access where a PADNPA is necessary and contains the NPA of the location ID. The NPA is stored in BCD.

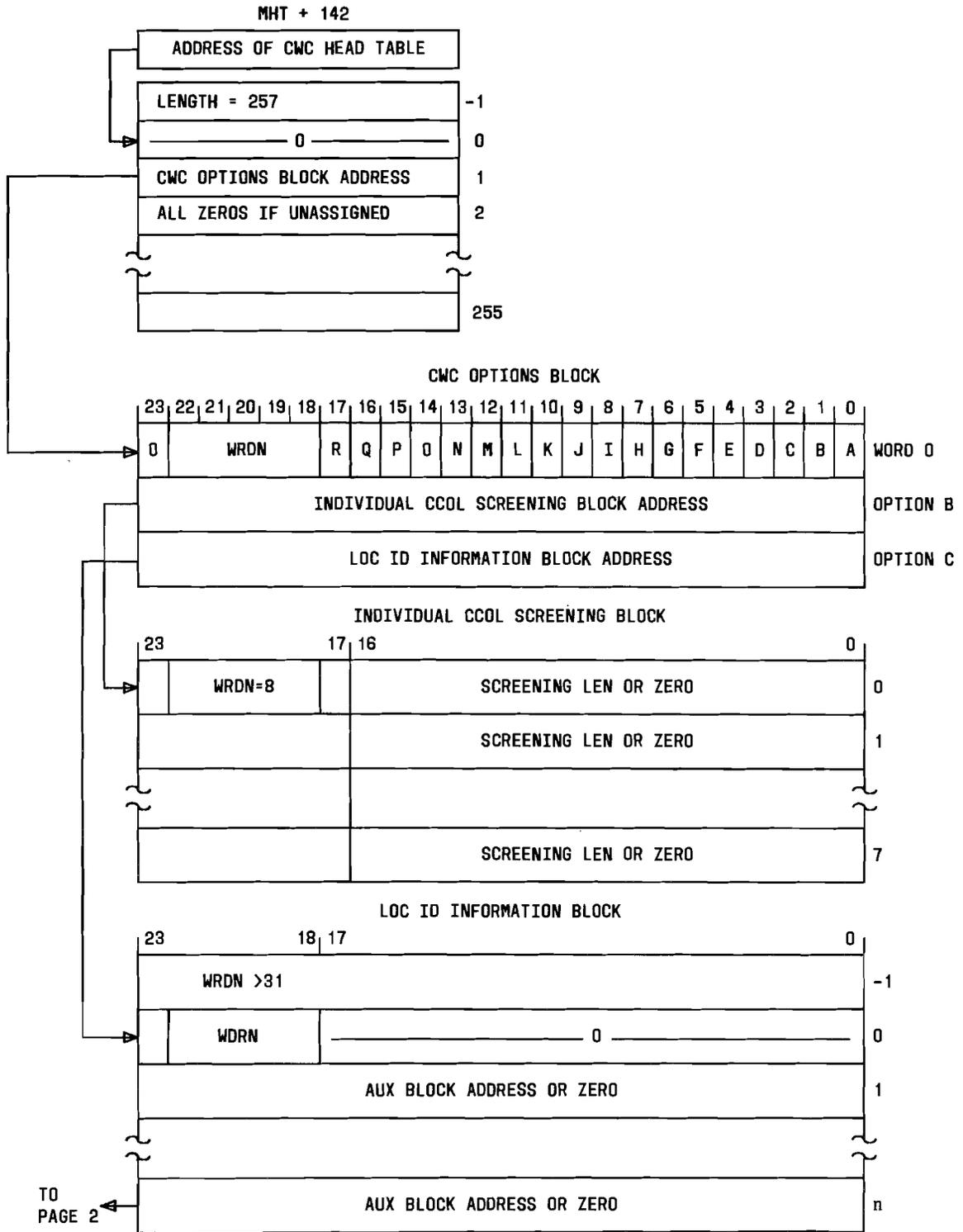
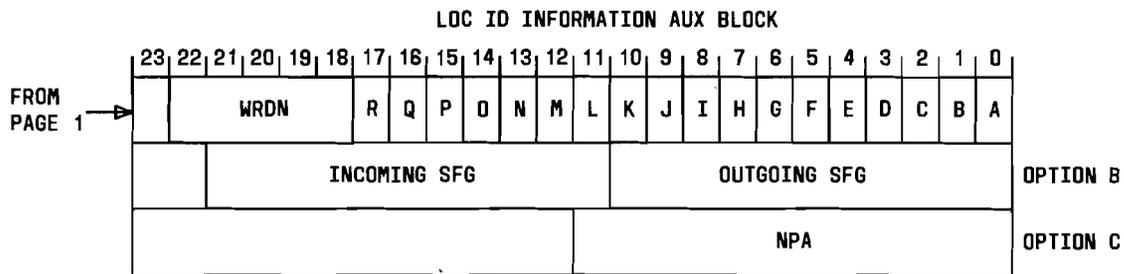


Fig. 8 — City-Wide Centrex Translator (Sheet 1 of 2)



**LEGEND:**  
 WRDN - NUMBER OF WORDS IN BLOCK.  
 A THROUGH R - OPTION INDICATOR BITS.  
 SFG - SIMULATED FACILITIES GROUP.  
 NPA - AREA CODE.  
 D1 = BITS 11-8.  
 D2 = BITS 7-4.  
 D3 = BITS 3-0.  
 DIGITS ARE STORED IN BCD.  
 LOC ID - LOCATION IDENTIFIER.

**Fig. 8 — City-Wide Centrex Translator (Sheet 2 of 2)**

**4.7 MLHG Translator**

Word 20 of the MLHG common block contains the address of a variable MLHG auxiliary block which contains CFBL and CFDA satellite station DNs data for customers with either combined satellite DNs or the separation of satellite DNs. Word 9 of the MLHG common block is always 0.

Word 0 of the auxiliary block contains option bits indicating which option words are built. The CFBL/CFDA option words are always built in two-word blocks. Option bit B indicates CFBL satellite station DN option words are built, and option bit C indicates CFDA satellite station option words are built. The CFBL/CFDA option words are always built separate even if they are equal.

The CFBL option words (Fig. 9) contain the CWC satellite station DN in BCD if an inter-office DN and in binary if an intra-office DN. Satellite station DNs that are not CWC DNs are stored in binary in the first word of the block, and the second word contains zeros. Bit 16 of the type 2, word 1 CFBL option word indicates a CWC satellite station DN. Bit 23 of the type 2, word 1 CFBL option word indicates a satellite station interoffice DN. The type 2, word 1 CFBL option word also contains the last four digits of the DN. The type 2, word 2 option word contains the NPA and NXX digits of the DN.

The CFDA option words (Fig. 9) contain the CWC satellite station DN in BCD if an inter-office DN and in binary if an intra-office DN. Satellite station DNs that are not CWC DNs are stored in binary in the first word of the block and the second word contains zeros. Bit 16 of the type 2, word 1 CFDA option word indicates a CWC satellite station DN. Bit 23 of the type 2, word 1 CFDA option word indicates a satellite station interoffice DN. The type 2, word 1 CFDA option word also contains the last four digits of the satellite DN. The type 2, word 2 CFDA option word contains the NPA and NXX digits of the satellite DN.

**Note:** If bit 23 of word 1 equals 1, then bit 16 of word 1 must also equal 1.

#### 4.8 SCIW (Supplementary Call Identification Word) Translator

The type 1 supplementary call identification word is used for proper treatment for calls using CWC access to centralized facilities.

Bit 16 contains the CRACC (cancel remote access) indicator. If the CRACC bit is set routing is done through the remote location instead of using centralized facilities at the main location to route the call.

Bit 17 contains the PADNPA (pad remote numbering plan area) indicator. If the PADNPA bit is set, the NPA of the originating remote location is added to the 7 digit DN called, and the 3 digit translations are redone. The PADNPA bit is used in conjunction with call type 7 (interoffice 7-digit) calls.

#### 4.9 CORC (Customer Originated Recent Change) Blocks

CWC access to CFPF (call forwarding over private facilities) requires two CORC blocks, one at the remote location and one at the main location. The 2-word CORC block at the remote location (Fig. 10) is built against the originating DN at this location and forwards calls to a corresponding DN at the main switch. The CORC block at the main location forwards the call over private facilities to the forwarded DN.

Word 0, bit 18 of the remote location 2-word CORC block indicates a CWC DN.

Word 1, bit 23 indicates that the CORC block at the main location is built and that when call forwarding is deactivated a direct signaling message is to be sent to the main location to tear down the corresponding CORC block.

**Note:** Refer to AT&T Practice 231-090-155 for more information on the CFPF feature and the main switch CORC blocks. In addition to the current information stored in the 4- and 6-word CORC blocks, the FRL for CWC access to CFPF is also stored in word 1, bits 20 through 23 of these CORC blocks at the main location.

CFBL OPTION WORDS

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
OPTION B WORD 1 TYPE 1	0	*1	*2	*3	*4																				
OPTION B WORD 2 TYPE 1	_____ 0 _____																								

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
OPTION B WORD 1 TYPE 2	1	*1	*2	*3	*4		*7	DIG 7		DIG 8		DIG 9		DIG 10											
OPTION B WORD 2 TYPE 2	NPA 1				NPA 2				NPA 3				NXX 1				NXX 2				NXX 3				

CFDA OPTION WORDS

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
OPTION C WORD 1 TYPE 1	0	*6	—	0	—		*5																		
OPTION C WORD 2 TYPE 1	_____ 0 _____																								

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
OPTION C WORD 1 TYPE 2	1	*6	—	0	—		*5	*7	DIG 7		DIG 8		DIG 9		DIG 10										
OPTION C WORD 2 TYPE 2	NPA 1				NPA 2				NPA 3				NXX 1				NXX 2				NXX 3				

\*1 = CFUS AND CFBLUS      \*2 = CFIMB      \*3 = CFILB  
 \*4 = CFOV      \*5 = CFDAT      \*6 = CFDAUS      \*7 = CWCI

NOTE:  
 1. DIG, NPA, AND NXX ARE STORED IN BCD.

LEGEND:  
 CFUS - CALL FORWARDING UNRESTRICTED SOURCE.  
 CFBLUS - CALL FORWARDING BUSY LINE UNRESTRICTED SOURCE (SEPARATE REMOTE STATION DNS).  
 CFIMB - CALL FORWARDING INHIBIT MAKE BUSY INDICATOR.  
 CFILB - CALL FORWARDING INHIBIT LINE BUSY INDICATOR.  
 CFOV - CALL FORWARDING OVERFLOW INDICATOR.  
 CFDAT - NUMBER OF RINGING CYCLES TO BE APPLIED TO THE CFDA BASE STATION BEFORE THE CALL IS FORWARDED.  
 CFDAUS - CALL FORWARDING DON'T ANSWER UNRESTRICTED SOURCE.  
 CWCI - CITY-WIDE CENTREX INDICATOR.  
 DIG - LAST FOUR DIGITS OF DN.  
 NXX - OFFICE CODE.  
 NPA - AREA CODE.

Fig. 9 — MLHG Auxiliary Block - CFBL/CFDA Option Words

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
WORD 0	0	ID=2			*1	*2	0	*3	D4				D5			D6			D7					
WORD 1	*4	*5	D8-D10 (BINARY)										D1		D2		D3							

## LEGEND:

D1-D7 = FIRST SEVEN DIGITS OF THE DN. STORED IN BCD.

D8-D10 = LAST THREE DIGITS OF THE DN.

\*1 = AUDIT BIT CHECKED BY SACO.

\*2 = CWC CALL FORWARDING DN INDICATOR.

\*3 = PREFIX INDICATOR.

\*4 = CWC REMOTE ACCESS TO CFPF INDICATOR.

\*5 = 10 DIGIT DN INDICATOR.

Fig. 10 — Remote Location CORC Block

## 5. CWC RELATED VERIFY MESSAGES

The CWC feature affects the following verify messages:

- VF:DNSVY
- VF:CWC
- VF:TAG
- VFY-DN
- VFY-CSTG
- VFY-LEN
- VFY-XDGNT
- V-DNCTX

The following information covers a brief description of the changes for RC verify messages and associated output response messages required for CWC. Refer to IM-6A001 and OM-6A001 for detailed descriptions of the messages and correct combinations of the keywords (flowcharts).

## 5.1 VF:DNSVY Input Message

The VF:DNSVY surveys the DN translations. Any DN that matches the input specifications is printed in an output response message.

The TR109 output message is printed in response to the LENDN keyword. The TR109 message prints the CWC satellite station indicator and the 7 or 10 digit DN in the output

messages CFBL and CFDA fields.

The TR43 output message is printed in response to the ACFV (activated call forwarding variable) keyword. The TR43 message prints the CWC DN indicator.

## **5.2 VF:CWC Input Message**

The VF:CWC input message surveys the CWC translator.

A TR140 output message is given in response to the CWCGN and (ALGOPT or FRL) keywords. The TR140 message prints:

- The CWC group number
- The FRL(s) in the group
- The screening LEN(s) used for individual chart column screening that is associated with the FRL(s)

A TR141 output message is given in response to the CWCGN and ALGOPT keywords or the CWCGN, LOCID, and (ALLOP, or SFGI, SFGO, NPA) keywords. The TR141 message prints:

- The CWC group number
- The location identifier
- The outgoing and incoming SFGs
- The NPA of the group

The TR142 output message is given in response to the CWSI keyword. The TR142 message prints the CWC satellite DNs by a thousands group or by single DNs.

## **5.3 VF:TAG Input Message**

The VF:TAG input message requests the PS (program store) address of a PTW for a given translator.

The CWC keyword requests the PS address and the PTW of the CWC translator and the LEN keyword requests the PS address and the PTW of the LEN translator. A VF04 output message is given, printing the PS address and PTW containing the address.

## **5.4 VFY-DN Input Message**

The VFY-DN input message requests the DN translations of a DN or group of DN's specified in the message.

A TR01 output message is given in response to the VFY-DN message containing the CFBL and/or CFDA 7 or 10 digit DN(s) and also the CWC satellite indicator for each DN.

## **5.5 VFY-CSTG Input Message**

### **5.5.1 VFY-CSTG-34**

The VFY-CSTG-34 input message requests MLHG common block information.

A TR15 message is given in response to the VFY-CSTG-34 message. The TR15 output message prints the CFBL/CFDA DNs and the CWC satellite station DN indicators.

### **5.5.2 VFY-CSTG-35**

The VFY-CSTG-35 input message requests a centrex group's common block information.

A TR46 output message is given in response to the VFY-CSTG-35 input message. The TR46 output message prints the ITIII, IOIII, location ID, and the CWC group number of the centrex group specified.

## **5.6 VFY-LEN Input Message**

The VFY-LEN input message surveys the LEN translation data for one or more specified lines. A TR03 message is printed in response to the VFY-LEN input message.

The TR03 output message is printed giving the DN, originating line class, features, and the type of digit receiver to be connected to the line.

## **5.7 VFY-XDGNT Input Message**

The VFY-XDGNT input message requests centrex digit interpreter table information about the centrex group specified in the message.

A TR02 output message is printed in response to the VFY-XDGNT message. The TR02 output message prints the CWC data located in the data type 8, subtypes 1, 2, and 3 entries in the centrex digit interpreter tables.

### 5.8 V-DNCTX Input Message

The V-DNCTX input message requests DN-to-CTX translator information for a specified DN including final data and the level of interpretation.

A TR48 output message is printed in response to the V-DNCTX message. The TR48 output message prints the DN, data type, and centrex group number.

## 6. RC MESSAGE FORMATS

The CWC feature affects the following existing RC messages:

RC:CFV	AT&T Practice 231-318-325
RC:LINE	AT&T Practice 231-318-325
RC:MLHG	AT&T Practice 231-318-325
RC:CCOL	AT&T Practice 231-318-336
RC:DNHT	AT&T Practice 231-318-336
RC:DNRNGE	AT&T Practice 231-318-325
RC:CTXCB	AT&T Practice 231-318-355
RC:CTXDI	AT&T Practice 231-318-355
RC:SIMFAC	AT&T Practice 231-318-325

A new message, RC:CWCTX, is required for the CWC feature. The RC:CWCTX message is also covered in AT&T Practice 231-318-355.

Refer to the above recent change AT&T Practices for message flowcharts, keyword definitions, and new CWC keyword placement in the flowcharts.

### 6.1 RC:CFV Message

The RC:CFV message is used to forward a base TN to a remote TN. The keywords required by CWC for the RC:CFV message are:

CTX x/x/x	Centrex Number: The centrex group number
BASE aaaaaaa	Base TN: The TN of the line having the CFV feature.
TO b/b/b/b/b/b/b/b/b/b	Remote TN: The TN or speed calling code calls are to be forwarded to.

When forwarding to a CWC DN, the DN specified by the TO keyword must be 10 digits and be in the same CWC group as the DN being called.

**6.2 RC:LINE Message**

The RC:LINE message is used to enter DN translations and LEN translations for a line. The new keywords required by CWC in the RC:LINE message are:

CFN <i>a/a</i> /bbbbbbb	Call Forwarding Number: The DN that calls are forwarded to if the called DN is busy and/or doesn't answer.
E6G	Call Forwarding Busy Line.
E9G	Call Forwarding Don't Answer.
CFBL1 <i>a/a</i> /bbbbbbb	Call Forwarding Busy Line DN: The DN that calls are forwarded to if the called DN is busy.
CFDA1 <i>a/a</i> /bbbbbbb	Call Forwarding Don't Answer DN: The DN that calls are forwarded to if the called DN does not answer.
CWSI YES/NO	CWC Satellite indicator: If CWSI is set the entry is a CWC satellite DN.

The 10-digit number (area code + DN) must be used for CWC interlocation forwarding and must be in the same CWC group as the DN being assigned/changed.

**6.3 RC:MLHG Message**

The RC:MLHG is used to add, change, or move a multiline group common block. The new keywords required by CWC in the RC:MLHG message are:

CFN <i>a/a</i> /bbbbbbb	Call Forwarding Number: The DN that calls are forwarded to if the called DN is busy and/or does not answer.
E6G	Call Forwarding Busy Line.
E9G	Call Forwarding Don't Answer.
CFBL1 <i>a/a</i> /bbbbbbb	Call Forwarding Busy Line DN: The DN that calls are forwarded to if the called DN is busy.
CFDA1 <i>a/a</i> /bbbbbbb	Call Forwarding Don't Answer DN: The DN that calls are forwarded to if the called DN does not answer.

The 10-digit number (area code + DN) must be use for CWC interlocation forwarding and be in the same CWC group as the base DN of the MLHG.

**6.4 RC:CCOL Message**

The RC:CCOL message is used to add, replace, or delete an entry in a chart class column (the SCIW table). The new keywords required for CWC in the RC:CCOL message are:

CRACC YES/NO	Cancel Remote Access indicator: If CRACC is set, call processing cancels CWC access for calls using this screening code.
--------------	--

**PADNPA YES/NO** Pad Remote NPA: If PADNPA is set, the 7 digit DN called should have the NPA of the originating station added to it and the 3 digit translation redone.

**6.5 RC:DNHT Message**

The RC:DNHT message is used to enter addresses in the DN head table. A new keyword is required for CWC in the RC:DNHT message.

**CWSI YES/NO** CWC Satellite DN indicator: If CWSI is set, this entire thousands group is CWC satellite DNs.

**6.6 RC:DNRNGE Message**

The RC:DNRNGE message is used to assign a range of DNs to a route index.

The new keyword for the RC:DNRNGE message is:

**CWSI YES/NO** CWC Satellite DN indicator: If CWSI is set, the entire range of DNs are CWC satellite DNs.

**6.7 RC:CTXCB Message**

The RC:CTXCB message is used to add, change, or delete a centrex common block. The new keywords required by CWC in the RC:CTXCB message are:

**CWCGN a/a/NO** CWC Group Number: Valid values are 1 to 255.

**LOCID b/b/NO** Location Identifier: The location ID associated with this offices CWC group. Valid values are 1 to 127.

**IOIII YES/NO** Inhibit Originating Interlocation Intercom indicator: If IOIII is set, all fully-restricted stations in this centrex group are prevented from originating or forwarding an interlocation intercom call.

**ITIII YES/NO** Inhibit Terminating Interlocation Intercom indicator: If ITIII is set, all fully-restricted stations in this centrex group are prevented from receiving an interlocation intercom call.

**6.8 RC:CTXDI Message**

The RC:CTXDI message is used to add or replace entries in the centrex digit interpreter tables. The new keywords required by CWC in the RC:CTXDI message are:

**NPA aaa** Area Code: The NPA is used with the EXT and OC3 keywords to form the interlocation DN. Valid values are 000 to 999.

EXT bbbb Four Digit Extension: The extension is used with the NPA and OC3 keywords to form an interlocation DN. Valid values are 0000 to 9999.

### 6.9 RC:CWCTX Message

The RC:CWCTX message is used to build, change, or delete the CWC options block. The keywords for the RC:CWCTX message are:

CWCGN ddd	CWC Group Number: Valid values are 1 to 255.
ICCS YES/NO	Individual CCOL Screening Block: The ICCS keyword adds or removes the screening block.
FRL d or NO	Facility Restriction Level: The FRL is used to index the individual CCOL screening block. Valid values are 0 to 7.
SLEN eeeeeeee or NO	Screening LEN: Enters screening LEN(s).
NLOCID ddd or NO	Number of LOCID Entries: Valid values are 1 to 127.
LOCID ddd	Location ID: The LOCID is used to index the LOCID information block. Valid values are 1 to 127.
DLOCID ddd	Delete Location ID: The DLOCID keyword is used to delete an entry in the LOCID information block. Valid values are 1 to 127.
SFGI dddd or NO	Incoming Simulated Facility Group
SFGO dddd or NO	Outgoing Simulated Facility Group
NPA ddd or NO	Numbering Plan Area: Valid values are 3 decimal digits. The first digit is equal to or greater than 2 and less than or equal 9. The second digit is a 0 or 1. The third digit is equal to or greater than 0 and less than or equal to 9.

### 6.10 RC:SIMFAC Message

The RC:SIMFAC message is used to build, change, or delete a simulated facilities group. The new APP code for the RC:SIMFAC message is:

APP CW For City-Wide Centrex - Type 0 SFG.

## 7. CWC IMPLEMENTATION PROCEDURES

Refer to COEES Information System Document Index 50 for details concerning software requirements.

When building CWC translations the HUCS area should be used unless a LUCS area is specifically specified. Translators confined by a 20-bit address spectrum are restricted to the LUCS area whereas a HUCS translator, because it has space for 21 bits, can use either the HUCS area or the LUCS area. The HUCS area should be used until all the HUCS area is exhausted so that the unduplicated CS area can be grown to maximum size. If HUCS

translators are exhausted, another CS must be added to provide more LUCS addresses.

**7.1 Building Interlocation Intercom Dialing Translations**

A flow diagram indicating the recommended sequence for implementing CWC interlocation intercom dialing translations is shown in Fig. 11. References shown in parentheses on the diagram are to steps/paragraphs in this practice. Each reference gives the detailed procedure or references to the appropriate data.

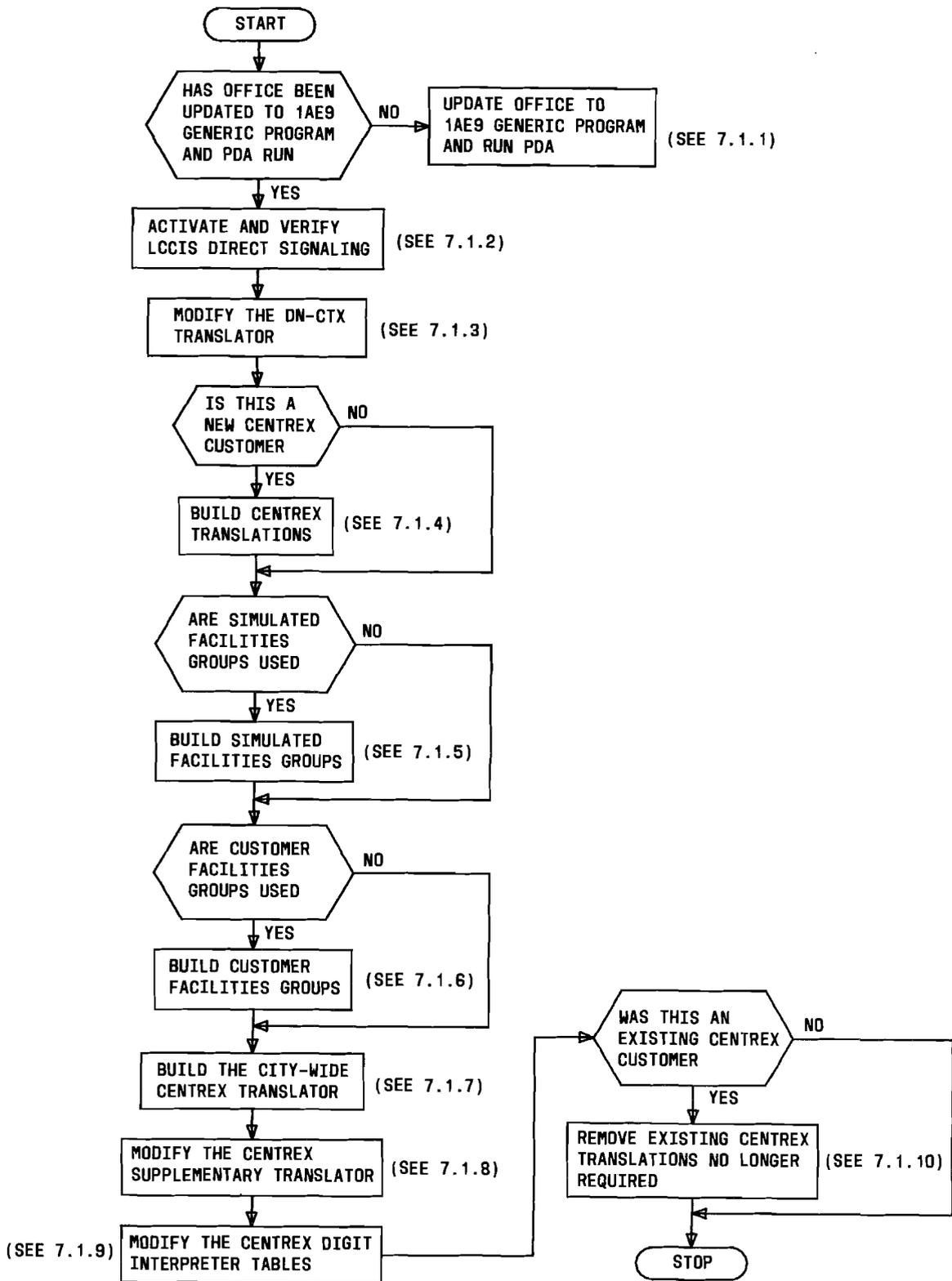


Fig. 11 — CWC Interlocation Intercom Dialing Implementation Sequence Flow Diagram

**7.1.1 Update to 1AE9 Generic Program and PDA**

Refer to System Recovery and System Operation - APS (attached processor system) AT&T Practice 231-368-011 or System Recovery and System Operations - FS (file store) AT&T Practice 231-368-001.

**7.1.2 Activate and Verify LCCIS Direct Signaling**

Refer to CCIS (Local/Toll) AT&T Practice 231-050-021 for procedures to activate and verify LCCIS direct signaling.

**7.1.3 Modify the DN-CTX Translator**

1. Enter the following to assign an extension and extension length to a DN.

RC:TNCTX:  
OC4 ccct  
TABL aX or abX  
CTX n/n/n  
EXT a/a/a/aaa (or) EXTL b  
DGS d/d  
DGE d/de

- d/d = Digits or Start of Digit Range to Interpret: 1 to 3 digits which represent D5, or D5 and D6, or D5, D6, and D7 of the directory number.
- d/de = End of Digit Range: 1 to 3 digits which differ only in the last digit from those with keyword DGS. The last digit for keyword DGE must be greater than digit for DGS, in the 0>9 ordering. (For example, DGS 125, DGE 120 is valid, as is DGS 02, DGE 08; but DGS 546, DGE 468 is not valid.)
- aX or abX = Digits that will be interpreted [the digit or digits before the X lead to the table; the X represents the 10 numbers (1,2,...,0) that will index into the table].
- n/n/n = Centrex Group Number
- a/a/a/aaa = Centrex Extension Number; Input for the case where the CTX extension does not match the DN (DTYP 6). The required auxiliary block is built and the number of digits in the extension are calculated and stored.
- b = Centrex Extension Length; Input when the CTX extension and associated DN match (DTYP 1). Defines the number of digits in the centrex extension. Valid values are 2-7.

**Note:** Two digit extensions can not be input on the EXT keyword, so the EXTL keyword with b = 2 must be used since a 2-digit extension corresponds to the last 2-digits of the associated DN.

2. Enter the following to verify the extension

V-DNCTX- a bbb bbbb.

a           = 1 - Requests an unconditional RC hunt.  
              0 - Requests no RC hunt.

bbb bbbb = Seven-digit DN.

Following PF is a TR48 response.

#### 7.1.4 Build Regular Centrex Translations

Build the translations needed for a regular centrex customer (AT&T Practice 231-318-355) if this CWC customer is a new centrex customer.

#### 7.1.5 Build SFGs (Simulated Facilities Group)

1. Enter the following to build screening LENS for the SFGs.

```
RC:LINE
ORD m/n/n/n/n/n
TN aaaaaaa
OE eeeeeeee
LCC ccc
CTX x/x/x
CAT k
```

m/n/n/n/n/n = Order Number. Order number of SO RC message.

aaaaaaa = Telephone Number.

eeeeeeee = Originating Equipment Number (Line Equipment Number).

ccc = Line Class Code.

x/x/x = Centrex Number.

k = Centrex Access Treatment Code.

2. Enter the following to verify the screening LENS.

VFY-LEN-31aaaaaaa.

aaaaaaa = Line Equipment Number.

Following PF is a TR03 response.

3. Enter the following to build a simulated facilities group.

```

RC:SIMFAC:
SFG aaaa
APP CW
SLEN dddddddd
CTX xxxx
GSZ ddc
NXT ddde
HSL f (Note 1)
TBL h/h (Note 2)
DDD
    
```

} Optional

aaaa = Simulated Facilities Group Number.  
 dddddddd = Screening LEN.  
~~gggg~~ = Centrex Group Number.  
~~ddc~~ = Group Size. ~~ddc~~ = 1 through 127.  
~~ddd~~e = Next SFG.  
 f = Hunt Sequence Length.  
 h/h = Trunk Busy Lamp Number.

**Note 1:** The HSL keyword must be input if the NXT keyword is input.

**Note 2:** Keyword TBL is not allowed for unlimited access SFGs or limited access SFGs with a trunk access code equal to 1.

4. Enter the following to verify the SFG.

```

V-SFGN-aaaa.
aaaa = Simulated Facilities Group Number (aaaa = 0001 through 2047).
    
```

Following PF is a TR35 response.

### 7.1.6 Build CFGs (Customer Facility Group)

1. Enter the following to build a customer facilities group.

```

RC:CFG:
CFG aaaa
TYP wb
GSZ ddc
CTX dddd
    
```

NXT *ddd*e ] Optional  
 TBL *ff* ]

*aaaa* = Customer Facilities Group number.

*b*b = Type. Used to identify the type of facility.

*b*b = 4 DID (Used for incoming interlocation intercom calls).

= 5 Dial 9 (Used for outgoing interlocation intercom calls).

*ddd*c = Group Size (*ddd*c = 1 through 2047).

*ddd*d = Centrex Group Number.

*ddd*e = Next CFG.

*ff* = Trunk Busy Lamp Number.

2. Enter the following to verify the CFG.

V-CFG-*aaaa*.

*aaaa* = CFG number (*aaaa* = 0001 through 8191).

Following PF is a TR63 response.

3. Enter the following to assign the CFGs to a centrex group.

RC:CTXCB:CHG;

CTX *aaa*

CFG (*w*/*w*/*w*,*x*/*x*/*x*,*y*/*y*/*y*,*z*/*z*/*z*)

*aaa* = Centrex Group Number: Values equal 1 to Parameter Limit.

*w*/*w*/*w*, ... *z*/*z*/*z* = Customer Facility Group Numbers.

*w*/*w*/*w* = DID or Incoming Facility.

*x*/*x*/*x* = Dial 9 or Outgoing Facility.

*y*/*y*/*y* = Intercom Facility.

*z*/*z*/*z* = 3-Port Facility.

4. Enter the following to verify the CFG in the centrex group.

VFY-CSTG-35 *aaaa*.

*aaaa* = Centrex group number.

Following PF are TR17 and TR46 responses.

7.1.7 Build the CWC translator

- 1. Enter the following to build the CWC head table.

```
RC:SUBTRAN:
DATA 0
LNG H257
OTHER!
```

Following PF is a RC18 INFO response.

Save the address given by the RC18 response to link the CWC head table to the MHT.

- 2. Enter the length of the CWC head table in the -1 word.

```
RC:PSWD:
ADD bbbbbb
OLDDAT 0
DAT 257
```

bbbbbb = Address obtained from the RC18 response in Step 1.

- 3. Enter the following to verify the MHT + 142 address. This word should contain all zeroes.

```
VF:DATA:
FROM 7720216
NWDS 1
DUMP!
```

Following PF is a TR100 response.

- 4. Enter the following to link the CWC head table to the MHT.

```
RC:PSWD:
ADD 7720216
OLDDAT 0
DAT b/b/b/b/b/b/b
```

b/b/b/b/b/b/b = Address obtained from the RC18 response in Step 1 + 1.

Following PF is a RC18 ACPT response.

- 5. Enter the following to verify the CWC translator address in the MHT.

```
VF:DATA:
FROM 7720216
NWDS 1
DUMP!
```

Following PF is a TR100 response.

- 6. Enter the following to build the CWC options block.

```
RC:CWCTX:
CWCGN g/g
NLOCID n/n
```

RC:CWCTX:  
 CWCGN g/g/g  
 LOCID d/d/d  
 SFGI aaaa  
 SFGO bbbb

g/g/g = CWC group number.

n/n/n = Number of LOCID entries.

d/d/d = Location ID.

aaaa = Incoming Simulated Facility Group.

bbbb = Outgoing Simulated Facility Group.

7. Enter the following to verify the CWC options block.

VF:CWC:  
 CWCGN g/g/g  
 LOCID d/d/d  
 ALLOP

g/g/g = CWC group number.

d/d/d = Location identifier.

Following PF is a TR141 response.

#### 7.1.8 Modify the Centrex Supplementary translator

1. Enter the following to assign a CWC group number, location ID, and restrict originating or terminating intercom calls to this centrex group.

RC;CTXCB;CHG:  
 CTX a/a/a  
 CWCGN g/g/g/g  
 LOCID e/e/e  
 IOIII ] Optional  
 ITIII ]

a/a/a = Centrex Group Number: Values equal 1 to Parameter Limit.

g/g/g = City-Wide Centrex Group Number. Valid values are 1 through 255.

e/e/e = Location Identifier. Associated with this 1A ESS switch.  
 Valid values are 1 through 127.

2. Enter the following to verify centrex group.

VFY-CSTG-35 aaaa.

aaaa = Centrex group number.

Following PF is a TR17 and TR46 response if an auxiliary block exists.

7.1.9 Modify the Centrex Digit Interpreter Tables

1. Enter the following to assign a centrex extension.

**DTYP 8, STYP 1**

RC:CTXDI:  
CTX *a/a/a*  
DGS d...de  
EXTL n  
STYP 1  
NPA ccc  
OC3 ddd  
PFX *h/t*

*a/a/a* = Centrex Number.

d...de = Digits to be interpreted, or start of range of digits to be interpreted (maximum 7 digits consisting of 0 through 9,\*, and #).

n = Extension Length. Specifies number of digits (2 through 7) for intragroup extensions for a centrex customer: n = 2 through 7.

ccc = Area Code.

ddd = Office Code.

*h/t* = Prefix Digits.

t - thousands digit for 2- and 3-digit extensions.

h - hundreds digit for 2-digit extensions.

**Caution:** When 2-prefix digits (*h/t*) are specified, they are reversed. For example, for 678-1234, PFX 21 must be entered.

**DTYP 8, STYP 2**

RC:CTXDI:  
CTX *a/a/a*  
DGS d...de  
EXT bbbb  
STYP 2  
NPA ccc  
OC3 ddd

*a/a/a* = Centrex Number.

d...de = Digits to be interpreted, or start of range of digits to be interpreted (maximum 7 digits consisting of 0 through 9,\*, and #).

bbbb = Four Digit Extension. Used to form interlocation DN along with NPA and OC3 keywords. Values are 0000 through 9999.

ccc = Area Code.

ddd = Office Code.

2. Enter the following to verify the centrex extension.

VFY-XDGNT-43 0 c dddd eeee.

c = Number of following leftmost digits to be interpreted.

dddd = Digits to be interpreted (type 0 for unused digits in rightmost position).

Following PF is a TR18 response.

#### **7.1.10 Remove Existing Centrex Private Facilities Translations Not Needed**

***Caution: Be sure CWC installation is proven before performing this step.***

Remove the private facilities no longer needed by those centrex groups that were already in existence before CWC was implemented, such as SFGs, tie trunk access codes, trunks and trunk groups, etc. Refer to the appropriate AT&T Practice 231-318-XXX series documents for procedures for removing those translations no longer needed.

#### **7.2 Building CWC Access to Private Facilities Translations (Main location only)**

A flow diagram indicating the recommended sequence for implementing CWC access translations is shown in Fig. 12. References shown in parentheses on the diagram are to steps/paragraphs in this practice. Each reference gives the detailed procedure or references to the appropriate data.

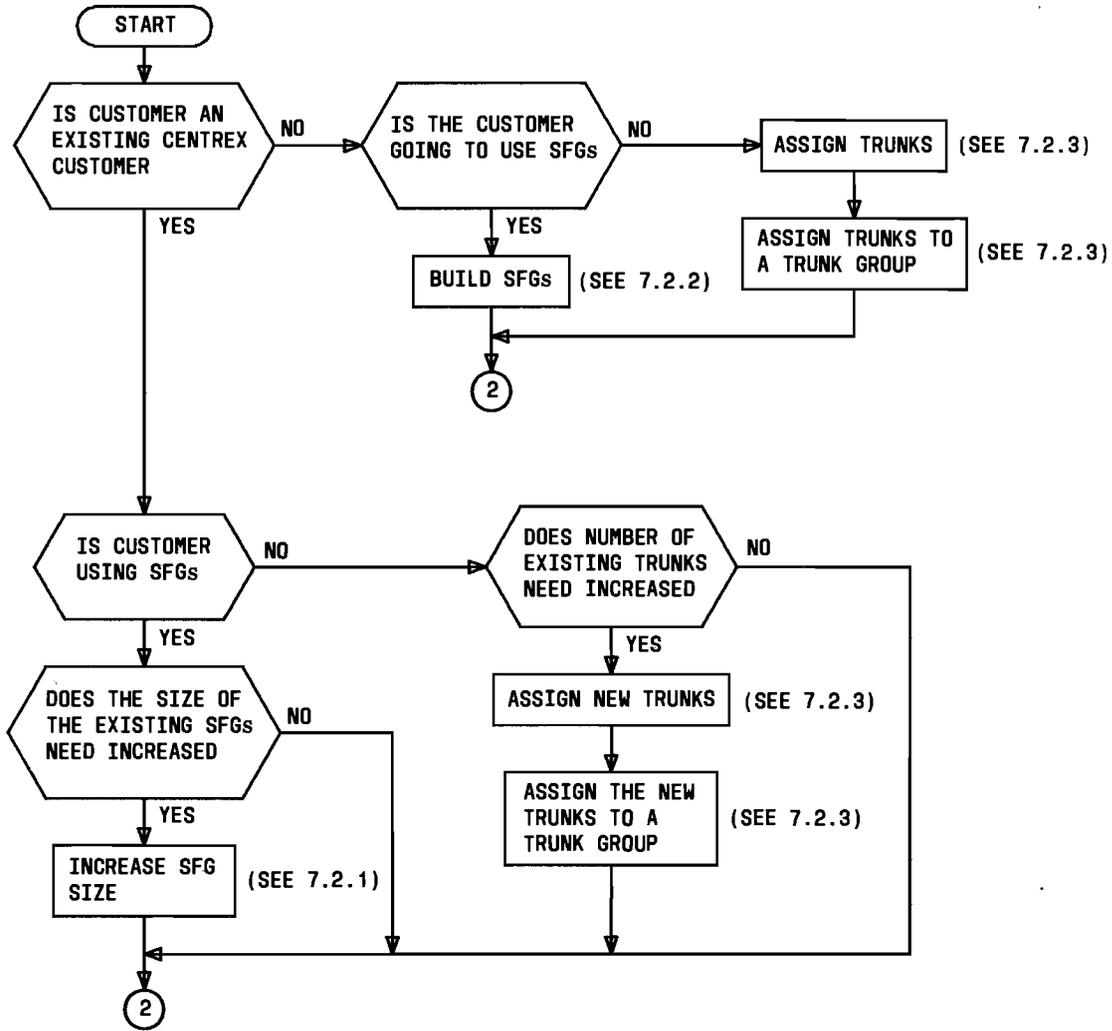


Fig. 12 — CWC Access to Private Facilities Implementation Sequence Flow Diagram (Main Location Only) (Sheet 1 of 3)

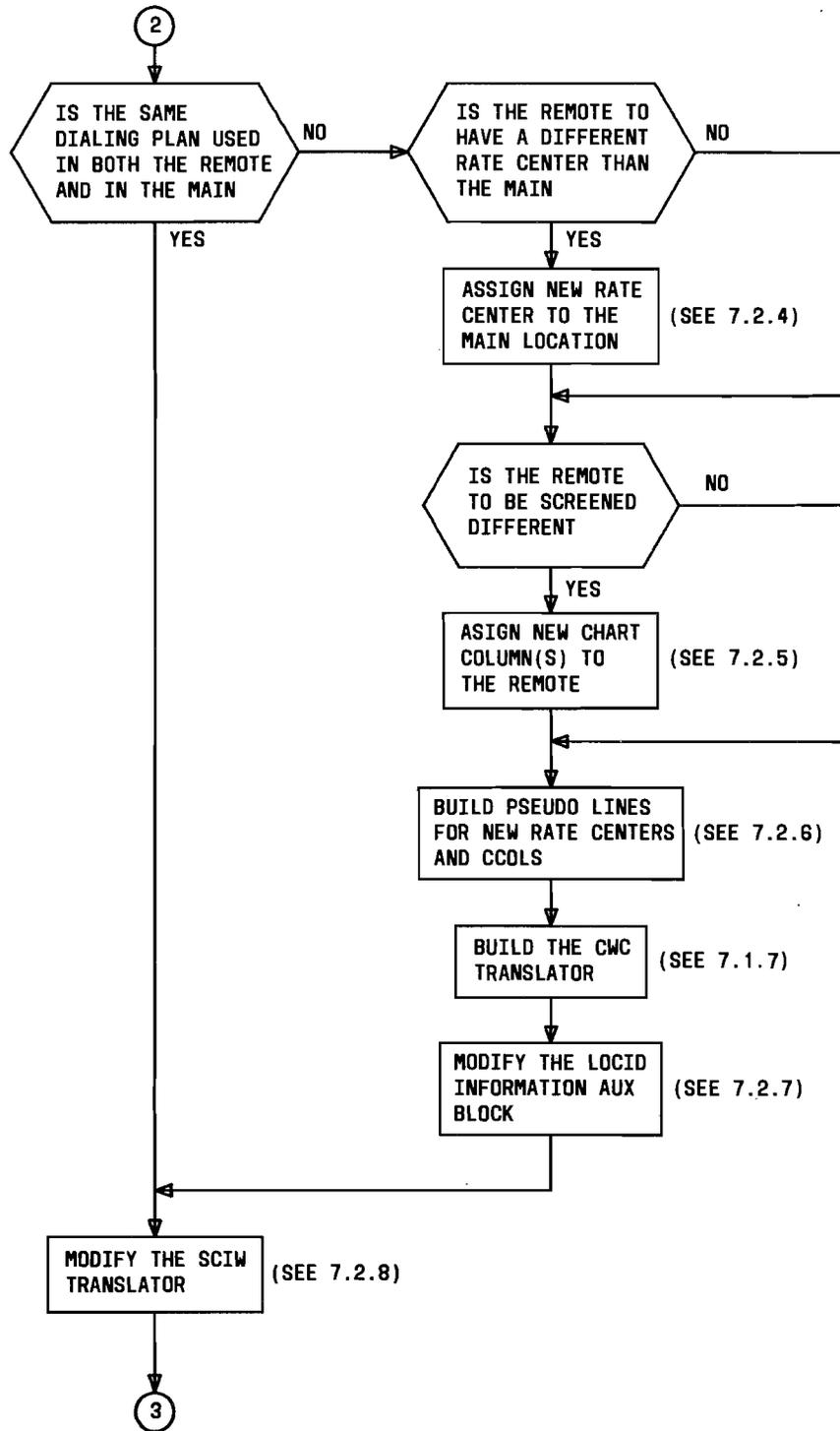


Fig. 12 — CWC Access to Private Facilities Implementation Sequence Flow Diagram (Main Location Only) (Sheet 2 of 3)

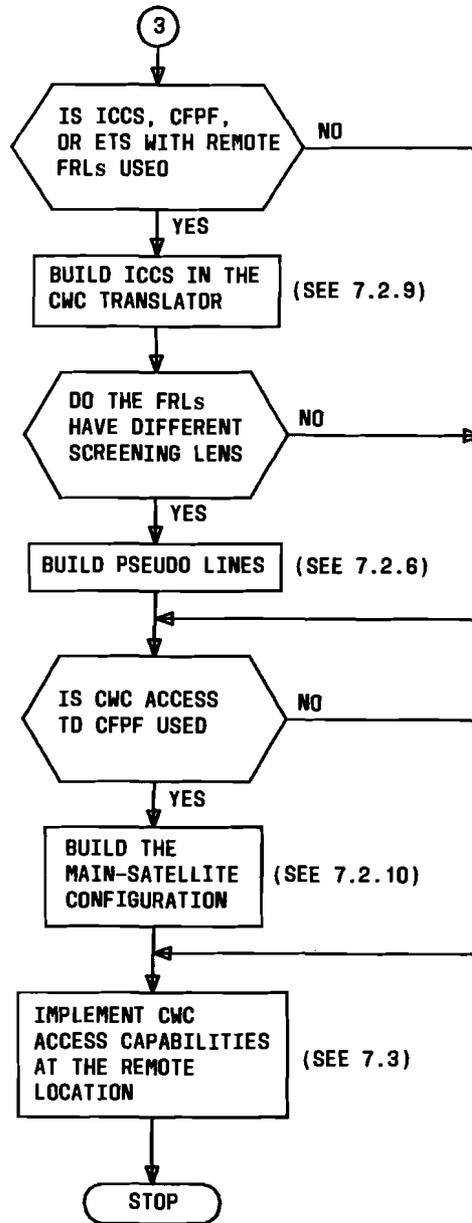


Fig. 12 — CWC Access to Private Facilities Implementation Sequence Flow Diagram (Main Location Only) (Sheet 3 of 3)

**7.2.1 Increase the Size of SFGs For Existing Private Facilities**

1. Enter the following to increase the size of existing SFGs.

RC:SIMFAC;CHG:  
SFG *ffff*  
GSZ *ddd*

*ffff* = Simulated Facilities Group Number (1 through 2047).

*ddd* = Group Size. *ddd* = 0 through 127.

2. Enter the following to verify SFGs.

V-SFGN-aaa.

aaaa - SFG number (0001 through 2047).

Following PF is a TR35 response.

**7.2.2 Build SFGs For New Private Facilities**

1. Enter the following to build new SFGs.

RC:SIMFAC:  
SFG aaaa  
APP jj  
SLEN dddddddd  
CTX *xxx*  
GSZ *ddd*  
NXT *eee* }  
HSL f (Note 1) } Optional  
TBL h/h (Note 2) }  
DDD }

aaaa = Simulated Facilities Group Number.

ddddddd = Screening LEN.

*xxx* = Centrex Group Number.

jj = Application.

= CC for CCSA Access from Centrex - type 2.

= CL for CCSA Off-Network: Network Trunk  
Queuing; 2-way Trunk Group - type 1.

= CN for CCSA NAL (from CCSA) - type 2.

= CW for City Wide Centrex -type 0.

= OW for OUTWATS - type 0.

*ddd* = Group Size. *ddd* = 1 through 127.

*dde* = Next SFG.  
f = Hunt Sequence Length.  
h/h = Trunk Busy Lamp Number.

**Note 1:** The HSL keyword must be input if the NXT keyword is input.

**Note 2:** Keyword TBL is not allowed for unlimited access SFGs or limited access SFGs with a trunk access code equal to 1.

2. Enter the following to verify the SFGs.

V-SFGN-aaaa.

aaaa = SFG number (0001 through 2047).

### 7.2.3 Build and Assign New Trunks

1. Assign new trunks using the RC:TRK: message flowchart in Fig. 13 and Table B keywords and definitions.
2. Enter the following to assign the new trunks to trunk group 0.

RC:TGMEM:  
TCC m/m/m  
MEM (0, ttttt)

m/m/m = Trunk Class Code.

ttttt = TNN.

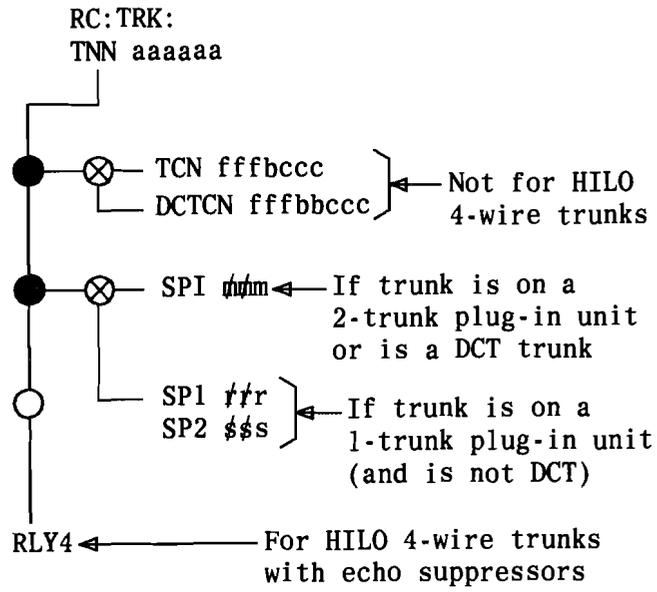
3. Enter the following to move the trunks from trunk group 0 to the desired trunk group number.

RC:TGMEM;MOVE:  
TOTG *vr*  
MEM (*aa*a, ttttt)

*vr* = Trunk Group Number. TG the trunk member is assigned.

*aa*a = Trunk Member Number.

ttttt = TNN.



NOTE:

1. Intraoffice trunks (SD-1A193-01/1A193-05) are the only universal 2-port trunks. For these trunks, the input TNN must be on even grid (0 or 2). It becomes Port 0 and Port 1 and is automatically assigned on the next higher grid (1 or 3).

Fig. 13 — Equipping a Universal Trunk (Note)

<b>TABLE B</b>	
<b>RC:TRK KEYWORD DEFINITIONS — UNIVERSAL TRUNKS</b>	
<b>KEYWORD</b>	<b>DEFINITION</b>
DCTCN fffbbecc	Digital Carrier Trunk Circuit Number: fff = Frame (000 through 126). bb = Channel bank (01 through 10). ccc = Channel unit position. (A01 through A24 or B01 through B24).
RLY4	Fourth Relay. Associated with a universal trunk (PKG:HL4W)
SP1 <i>vvr</i>	First Supervisory Program Index for a single plug-in unit/circuit. Used for the first (even) universal trunk circuit number for a 1-trunk plug-in unit/circuit. <i>vvr</i> = 0 through 127.
SP2 <i>sss</i>	Second Supervisory Program Index for a single plug-in unit/circuit. Used for the second (odd) universal trunk circuit number for a 1-trunk plug-in unit/circuit. <i>sss</i> = 0 through 127.
SPI <i>m/m/m</i>	Supervisory Program Index for a double plug-in unit/circuit. Used for a universal trunk on a 2-trunk plug-in unit/circuit. <i>m/m/m</i> = 0 through 127.
TCN fffbecc	Trunk Number: fff = Universal trunk frame number. b = Bay (0 or 2) ccc = Circuit number, 2-wire universal trunk. (For 4-wire universal trunk, refer to AT&T Practice 231-318-334)
TNN aaaaaa	Trunk Network Number.
XTNN bbbbbb	Exchange Trunk Network Number. An unequipped TNN which is to replace the equipped TNN specified in the message.

4. Enter the following to verify the trunk group numbers.

VFY-TNN-11 bbcdef.

bb = Trunk link network (00 through 15).

c = Trunk switch frame or trunk switch circuit (0 through 7).

d = Grid (0 through 3).

e = Switch (0 through 7).

f = Level (0 through 7).

Following PF is a TR10 response.

#### 7.2.4 Assign New Rate Centers

1. Enter the following to assign a new rate center to the remote location.

RC:NOGRAC;CHG:  
OC4 ccct (or) NOG  $\mathcal{e}\mathcal{e}$   
RAC  $\mathcal{a}$

ccct = Office Code and Thousands Digit:

ccc = Office Code.

t = Thousands Digit.

$\mathcal{e}\mathcal{e}$  = Number Group Number.

$\mathcal{a}$  = Rate Center Index.

2. Use the following procedure to verify a RAC.

- (a) Enter the following to obtain the starting address of the NOG-to-RAC table.

DUMP:CSS,ADR 7720035!

Following PF is a DUMP:CSS response containing the starting address of the NOG-to-RAC table.

- (b) Enter the following to obtain the length of the NOG-to-RAC table.

DUMP:CSS,ADR 7720435!

Following PF is a DUMP:CSS response containing the octal length of the NOG-to-RAC table.

- (c) Convert the octal length of the NOG-to-RAC table from step (b) to decimal.  
(d) Enter the following to obtain data in the NOG-to-RAC table.

DUMP:CSS,ADR aaaaaaa, Lw/w!

aaaaaaa = Octal starting address of the NOG-to-RAC table  
from step (a).

w/w = Decimal NOG-to-RAC table length from step (c).

### 7.2.5 Assign New Chart Column

Enter the following to assign a new chart column to the remote location.

```
RC:CCOL:  
COL a/a/a  
CHART b/b  
AMS c/c
```

a/a/a = Chart Column.  
b/b = Chart Number  
c/c = AMA Type of Entry Code.

### 7.2.6 Build Pseudo Lines

1. Enter the following to build Pseudo lines for the remote rate centers and chart columns assigned in 7.2.4 and 7.2.5 respectively.

```
RC:LINE  
ORD m/n/n/n/n/n  
TN aaaaaaa  
OE eeeeeeee  
LCC ccc  
CTX x/x/x  
CAT k  
FRL f | Optional
```

m/n/n/n/n/n = Order Number. Order number of SO RC message.  
aaaaaaa = Telephone Number.  
eeeeeeee = Originating Equipment Number (Line Equipment Number).  
ccc = Line Class Code.  
x/x/x = Centrex Number.  
k = Centrex Access Treatment Code.  
f = Facility Restriction Level.

2. Enter the following to verify the Pseudo lines.

```
VFY-LEN-31aaaaaaa.
```

aaaaaaa = Line Equipment Number.

Following PF is a TR03 response.

**7.2.7 Enter Remote Location NPAs (PADNPA cases only)**

**Note:** Step 1 is only performed if the CWC translator was not built when intercom dialing translations were built (7.1).

1. Build the CWC translator, refer to 7.1.7.
2. Enter the following to assign the NPA of each remote location in the location ID information block for PADNPA cases only.

```
RC:CWCTX:
CWCGN g/g/g
LOCID d/d/d
NPA ccc
```

g/g/g = CWC group number.

d/d/d = Location ID.

ccc = Area code.

3. Enter the following to verify the NPA or the remote location.

```
VF:CWC:
CWCGN aaa
LOCID aaa
NPA aaa
```

Following PF is a TR141 response.

**7.2.8 Modify the SCIW Translator**

Enter the following to identify PADNPA cases and to cancel remote access to central facilities.

```
RC:CCOL:
COL a/a/a
CHX b/b/b
CRACC   ] Optional
PADNPA  ]
```

a/a/a = Chart Column.

b/b/b = Charge Index.

### 7.2.9 Build the ICCS Block in the CWC Translator

**Note 1:** Step 1 is **not** performed if the CWC translator has previously been built.

**Note 2:** The ICCS block is required for CWC access to CFPF. If no static FRL exists, FRL 0 contains the default screening LEN to be used.

1. See 7.1.7 for building the CWC translator.
2. Enter the following to build the ICCS block in the CWC translator.

```
RC:CWCTX:  
CWCGN ddd  
ICCS  
FRL d  
SLEN eeeeeee
```

ddd = CWC Group Number.

d = Facility Restriction Level.

eeeeeee = Screening Line Equipment Number.

**Note:** The centrex number of the SLEN must have the same CWC group number as CWCGN.

3. Enter the following to verify the ICCS block.

```
VF:CWC:  
CWCGN a/a  
FRL b
```

a/a = CWC Group Number.

b = Facility Restriction Level.

Following PF is a TR140 response.

### 7.2.10 Build Main-Satellite Configuration

1. Enter the following to identify a thousand DNs as CWC satellite DNs.

```
RC:DNHT:  
OC4 ccct  
TGRI yyyi  
CWSI
```

ccct = Office Code and Thousands Digit.

ÿÿÿi = Trunk Group Route Index.

2. Enter the following to identify a range of DNs as CWC satellite DNs.

```
RC:DNRNGE:
ORD m/n/n/n/n/n
DNR aaaaaaa-bbbbbbb
RI c/c/c
CWSI
```

m/n/n/n/n/n = Order Number.

aaaaaaa = Beginning DN

bbbbbbb = Ending DN

c/c/c = Route Index.

3. Enter the following to verify a range of DNs.

```
VF:DNSVY:
LENDN
DN (aaaaaaa,b)
```

aaaaaaa = Beginning 7-digit DN.

b = Number of DNs to be surveyed.

Following PF is a TR109 response.

4. Enter the following to identify a single DN as a CWC satellite DN.

```
RC:LINE:
ORD m/n/n/n/n/n
TN aaaaaaa
CTX x/x/x
RTI ÿÿÿi
CWSI
```

m/n/n/n/n/n = Order Number. Order number of SO RC message.

aaaaaaa = Telephone Number.

x/x/x = Centrex Number.

ÿÿÿi = Route Index. Identifies the route index calls are to be forwarded to (ÿÿÿi must be greater than 199).

5. Enter the following to verify a single DN as a CWC DN.

```
VFY-DN-30aaaaaaa.
```

aaaaaaa = Directory Number.

Following PF is a TR01 response.

7.3 Build CWC Access to Private Facilities Translations (Remote location only)

A flow diagram indicating the recommended sequence for implementing CWC interlocation intercom dialing translations is shown in Fig. 14. References shown in parentheses on the diagram are to steps/paragraphs in this practice. Each reference gives the detailed procedure or references to the appropriate data.

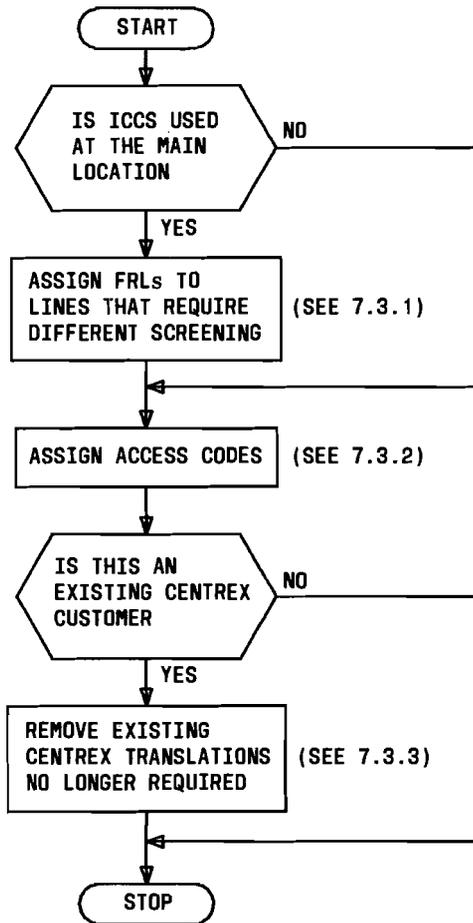


Fig. 14 — CWC Access to Private Facilities Implementation Sequence Flow Diagram (Remote Location Only)

7.3.1 Assign FRLs (Facility Restriction Levels)

1. Enter the following to assign FRLs to remote lines that are to have different screening.

```

RC:LINE:CHG;
ORD m' n' n' n' n' n' n' n'
TN aaaaaaa
CTX x' x' x'
FRL c
  
```

$m/n/n/n/n/n$  = Order Number. Order number of SO RC message.  
 aaaaaaa = Telephone Number.  
 $x/x/x$  = Centrex Number.  
 c = Facilities Restriction Level.

2. Enter the following to verify remote line FRLs.

VFY-LEN-31aaaaaaaa.

aaaaaaaa = Line Equipment Number.

Following PF is a TR03 response.

### 7.3.2 Assign Access Codes

1. Enter the following to assign access codes to each facility. (The DN used in this message is the same as was used in 7.2.4.)

```

RC:CTXDI
CTX  $x/x/x$ 
DGS d...de
EXT bbbb
STYP 3
NPA ccc
OC3 ddd
DNYGPS (g,...,g) ]] Optional
  
```

$x/x/x$  = Centrex Group Number.

d...de = Digits to be interpreted. A maximum of 7 digits consisting of 0 through 9, \*, and #.

bbbb = Four Digit Extension.

ccc = Area Code.

ddd = Office Code.

g,...,g = Deny access to specified cat restriction groups. Each g may have a value of 0 to 7 and 1 to 8 g's may be specified.

2. Enter the following to verify the access codes for each facility.

VFY-XDGNT-43 0 c dddd eeee.

c = number of the following leftmost digits to be interpreted.

dddd = Digits to be interpreted (type 0 for unused digits in rightmost position).

eeee = Centrex number.

Following PF is a TR02 response.

**7.3.3 Remove Existing Centrex Private Facilities Translations Not Needed**

**Caution:** *Be sure CWC installation is proven before performing this step.*

Remove the private facilities no longer needed by those centrex groups that were already in existence before CWC was implemented, such as SFGs, tie trunk access codes, trunks and trunk groups, etc. Refer to the appropriate AT&T Practice 231-318-XXX series documents for procedures for removing those translations no longer needed.

**8. TRANSLATION FORMS**

**1101 Form**

The 1101 information is used to assign an entire NGN or an individual satellite DN with an RI.

Columns	Remarks
25-30	RI number.
51-56	Entry associating the 1101 Form record with a 1107A Form record.

**1107A Form**

- (a) If the centrex line defined on the 1101 Form is a CWC DN and does not have the CFBL and/or CFDA features the 1107A Form contains the following additional information about the DN.

Columns	Remarks
40-41	Type is value of 00.
42-43	Entry is value of 01.
44-67	As required.
68	A value of 4 signifying a CWC satellite DN.

- (b) If the centrex line defined on the 1101 Form or 1115 Form is a CWC DN and has the CFBL and/or CFDA feature(s), the 1107A Form contains the following information.

**CFBL Feature**

<b>Columns</b>	<b>Remarks</b>
40-41	Type is a value of 51.
42-43	Entry is a value of 01.
44	Unrestricted Source - Enter a 1 if intragroup originated calls are to be forwarded in addition to incoming call.
46-48	If the remote DN is a 10-digit number, enter the NPA value.
49-55	Enter the remaining 7-digits of the remote DN.

**CFDA Feature**

<b>Column</b>	<b>Remarks</b>
40-41	Type is a value of 52.
42-43	Entry is a value of 01.
44	Unrestricted Source - Enter a 1 if intragroup originated calls are to be forwarded in addition to incoming calls.
45	Call Forward Don't Answer Timing - Enter a value of 0 to 7 for timing of 12-18 seconds, 6-12 seconds, 30-36 seconds, 42-48 seconds, 18-24 seconds, 24-30 seconds, 36-42 seconds, and 48-54 seconds, respectively.
46-48	If the remote DN is a 10-digit number, enter the NPA value.
49-55	Enter the remaining 7-digits of the remote DN.

- (c) If the centrex line defined on the 1101 Form or 1115 Form is a CWC DN and has the FRL option, the Type 00 record on the 1107A Form is accompanied by the following information.

<b>Columns</b>	<b>Remarks</b>
40-41	Type value is 36.
55	FRL number.

**1107B Form**

The 1107B information is used for establishing the Centrex Option D PTW in the Centrex Supplementary Translation Auxiliary Block.

Columns	Remarks
25-31	Directory Number
32-35	Centrex Group Number
40-41	Type is 89
45	If checked all fully restricted stations in this centrex are prevented from terminating an inter-location call.
47	If checked all fully restricted stations in this centrex are prevented from originating an inter-location intercom call.
49-51	Location Identifier associated with this 1A ESS switch for this CWC Group (1 through 127).
53-55	CWC Group Number to which this centrex is assigned (1 through 255).

**1109A/B Form**

The 1109A/B Form contains the data type field information, Data Type 8 for CWC.

**Interlocation Intercom Dialing**

**Item 0**

Columns	Remarks
25-28	Centrex Group Number.
29-35	Directory Number.

**Item 1 and Up.**

Columns	Remarks
29-35	Interlocation Intercom Number (7-digits).
44	Number of extension digits.
56-57	Enter a Data Type value of 08.
62-63	Enter a Sub-Type value of 01 signifying Interlocation Intercom Dialing.
75-77	Enter the NPA value of the interlocation DN.

**Interlocation Directory Number****Item 1 and Up.**

<b>Columns</b>	<b>Remarks</b>
29-35	Interlocation Directory Number.
56-57	Enter a Data Type value of 08.
62-63	Enter a Sub-Type value of 02 to signify Interlocation DN.
75-77	Enter the NPA value of the Interlocation DN.

**Remote Access to Centralized Facilities****Item 1 and Up.**

<b>Column</b>	<b>Remarks</b>
29-35	Interlocation DN for accessing centralized facilities.
36-43	Treatment Codes, as required.
56-57	Enter a Data Type value of 08.
62-63	Enter a Sub-Type value of 03 to signify Remote Access to Centralized Facilities.
75-77	Enter the NPA value of the Interlocation DN.

**1132 Form**

The 1132 Form provides input information for the CWC translator.

<b>Columns</b>	<b>Remarks</b>
14-15	Form Code is 1F.
16-18	CWC Group Number (1 through 255).
19	Option Type: Option B - Signifies that the CWC Group has the CWC access to Private Facilities Option and that required data is in the information field, the required data being CCOL screening LEN's.  Option C - Signifies that the CWC Group has the Interlocation Intercom Dialing Option and the Information field will contain associated data.
20-22	Entry Number 01 and Up. For each CWC Group and each Option Type record enter a value starting at 01 and up.

Option B: Values are 1 to 8 signifying FRL levels 0 through 7.

Option C: Values are 1 through 127 signifying the Location ID 1 through 127.

**26-40 Information Field.**

Option B:

Columns 26 through 33 contain CCOL Screening LENS. Up to 8 screening LEN entries may be submitted per CWC group.

Option C:

Columns 26 through 28 contain the NPA of the Interlocation DN.

Columns 30 through 33 contain the Incoming SFGN.

Columns 35 through 38 contain the Outgoing SFGN.

Up to 127 entries for Option C may be submitted per CWC group.

**1304 Form**

The 1304 Form has two new fields providing information associated with the RA to Centralized Facilities portion of CWC.

**Columns**

**Remarks**

- |    |  |
|----|--|
| 58 | A check mark indicates the 7-digit called DN should have the NPA code of the originating, remote location appended to it and the 3-digit translation redone. |
| 59 | A check mark indicates that call processing is to cancel CWC access for the particular call and to route it through the remote location.                     |