CENTREX DATA FACILITY POOLING

IMPLEMENTATION PROCEDURES

(1AE8A AND LATER GENERIC PROGRAMS)

1A *ESS*™ SWITCH

CONTENTS PAGE

CONTENTS PAGE

Figures

Tables

1. GENERAL

This practice provides procedures for implementing the CDFP (centrex data facility pooling) feature for the 1A ESS switch. Included are translator descriptions, RC (recent change) implementation procedures, and verify messages. Also included are procedures for trunk maintenance/diagnostics. Information in this practice covers the PFP (private facility pooling) configuration, with VMI (verify message improvement) capabilities, for the 1AE8A and later generic programs.

Refer to the feature document, AT&T Practice 231-390-185, for additional information concerning CDFP features and attributes. Familiarity with AT&T Practice 231-390-185 is assumed for understanding this practice.

Items and fields shown in translator layouts and keywords shown in RC and verify messages are not necessarily included in the list of abbreviations and acronyms. These items and keywords are defined in legends included in translator layout figures or tables associated with the RC and verify message.

Refer to AT&T Practice 231-318-316 for additional general information on RC message formats, interpretation of message flowcharts, and RC rollback and rollforward procedures.

Refer to the information accompanying the message flowcharts for definitions of keywords used in RC messages.

1.1 Additional References

Refer to AT&T Practice 231-318-334 for information on trunk related RC formats.

Refer to AT&T Practice 231-318-336 for information on rate and route RC formats.

Refer to AT&T Practice 231-318-355 for information on centrex related RC formats.

Refer to AT&T Practice 231-318-331 for information on miscellaneous RC formats.

Refer to AT&T Practice 231-318-325 for information on service order RC formats.

Refer to AT&T Practice 231-371-001 for traffic and plant measurements procedures.

Refer to AT&T Practice 231-318-317 for RC message program listings and system acknowledgments and for RC18 and RC16 output messages.

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

Refer to Translation Output Configuration PA-6A002 for information relating to the ESS switch translation memory (translators) and forms.

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

1.2 Flowchart Symbols

The following 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 change 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.

When using a change message flowchart, refer to the associated new message flowchart for valid combinations of keywords.

2. GLOSSARY OF ABBREVIATIONS AND ACRONYMS

Listed below are abbreviations and acronyms used in this practice:

ABBR	Abbreviated Class
AML	Automatic Maintenance Limit
APT	Automatic Progression Testing
ATP	All Tests Pass
aux	Auxiliary
bps	Bits per Second
CAT	Centrex Access Treatment
CDFP	Centrex Data Facility Pooling
CFV	Call Forwarding Variable
CMP	Centrex Modem Pooling
CO	Central Office
CO-CPDS	Central Office Computer Port Data Set
CO-IVDM	Central Office Integrated Voice/Data Multiplexer
CPI	Circuit Program Index
CP-IVDM	Customer Premises Integrated Voice/Data Multiplexer
CWC	City-Wide Centrex
CXRI	Centrex Route Index Increment
DDD	Direct Distance Dialing
DI	Digit Interpreter
DN	Directory Number
H&W	High and Wet
ICT	Incoming Trunk
IVDM	Integrated Voice/Data Multiplexer
LDDS	Limited Distance Data Set
LEN	Line Equipment Number
MODEM	Modulator/Demodulator
MSN	Master Scanner Number
MTTP	Manual Trunk Test Panel
NMP	Network Modem Pooling
OGT	Outgoing Trunk
PFP	Private Facility Pooling

RC	Recent Change
RI	Route Index
STTP	Supplementary Trunk Test Panel
TAC	Technical Assistance Center
TCC	Trunk Class Code
TG	Trunk Group
TGN	Trunk Group Number
TLN	Trunk Link Network
TLTP	Trunk and Line Test Panel
TML	Trunk Maintenance List
TNN	Trunk Network Number
TNN-PEN	Trunk Network Number to Peripheral Equipment Number
TPI	Trunk Program Index
TRC	Temporary Recent Change
VMI	Verify Message Improvement (CI Feature).

3. DESCRIPTION OF CDFP

The CDFP feature provides centrex customers with a low cost, flexible, full-duplex, voice and asynchronous data transmission capability. Customer premises IVDMs (integrated voice/data multiplexers) will interface with CO (central office) pools of IVDMs and modems over 2-wire loops. The CO units will provide a second voice line appearance for the user, thus allowing simultaneous and independent voice/data transmission.

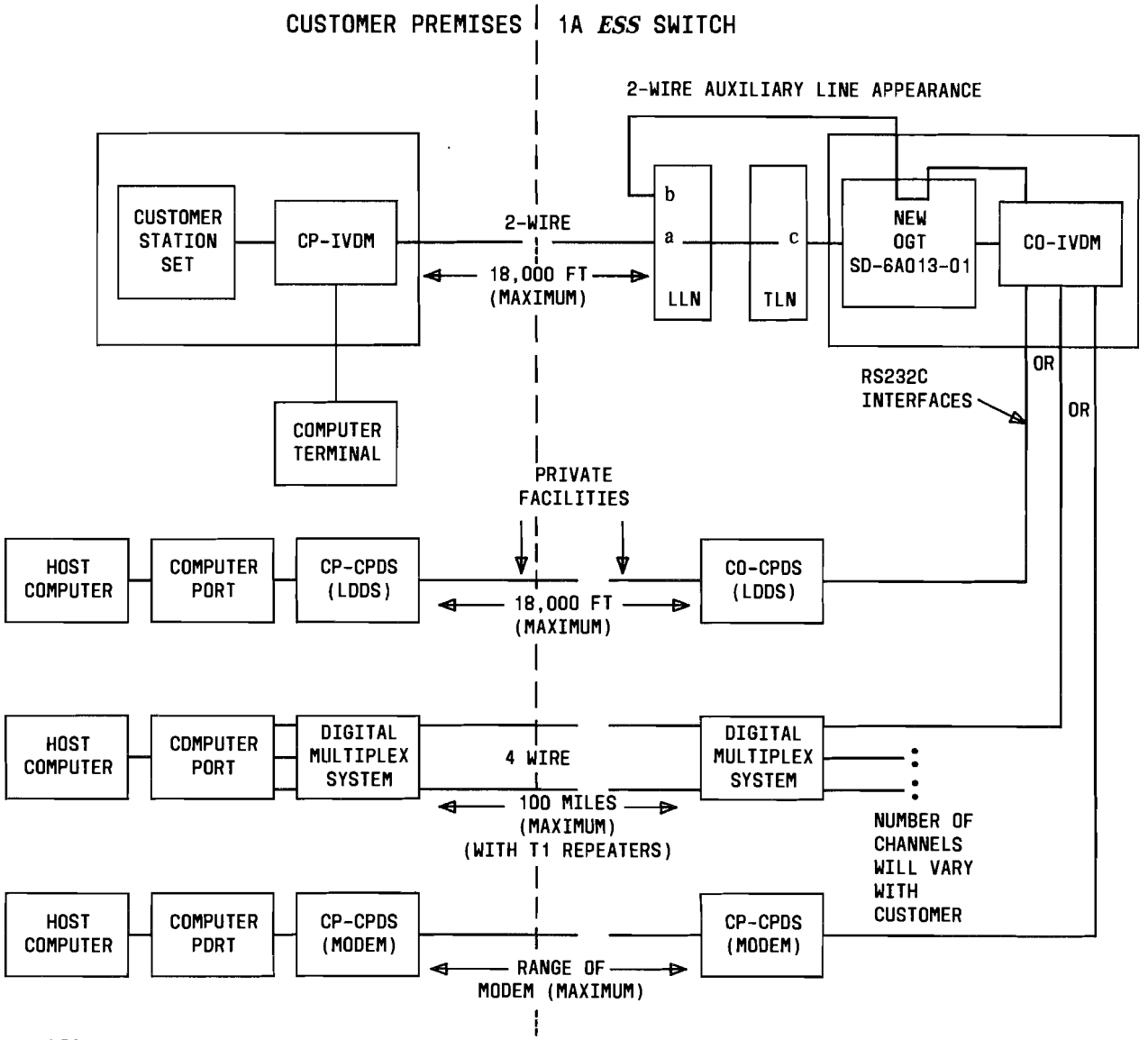
There are two basic hardware configurations for this feature: PFP (1AE8A and later generics) and NMP (network modem pooling)(1AE9 and later generics).

3.1 PFP Configuration

There are several possible implementations for the PFP configuration. An overall configuration is shown in Fig. 1. This configuration consists of a group of IVDMs in the CO that receive and transmit data over dedicated private facilities at a rate of up to 9600 bps (bits per second).

3.2 NMP Configuration

The NMP configuration will differ from the PFP configuration in that a DDD (direct distance dialing) network modem will be used for the CO-CPDS (CO computer port data set). This modem will be connected to an ICT (incoming trunk), similar to SD-1A166-05, which allows full network access at a rate of up to 4800 bps.



LEGEND:

a = INITIAL (CDFP) LINE APPEARANCE
b = AUXILIARY LINE APPEARANCE
c = CD-IVDM TRUNK APPEARANCE
LLN = LINE LINK NETWORK
TLN = TRUNK LINK NETWORK
CP-IVDM = CUSTOMER PREMISES INTEGRATED VOICE/DATA MULTIPLEXER
CO-IVDM = CENTRAL OFFICE INTEGRATED VOICE/DATA MULTIPLEXER
CP-CPDS = CUSTOMER PREMISES COMPUTER PORT DATA SET
CO-CPDS = CENTRAL OFFICE COMPUTER PORT DATA SET
LDDS = LIMITED DISTANCE DATA SET
RS232C = INTERFACE CABLE WITH 32 LEADS BETWEEN DATA EQUIPMENT
OGT = OUTGOING TRUNK

Fig. 1 — PFP Configuration

4. TRANSLATIONS DATA BASE OVERVIEW

The CDFP translations data base consists of changes to several existing translators. These translators are listed below, including associated data input RC and verify messages in parentheses.

> ***Note:*** The following list does not include all standard RC messages such as RC:SUBTRAN which are required to build head tables, subtranslators, and aux (auxiliary) blocks.

- TNN-PEN (trunk network number to peripheral equipment number) translator (RC:TRK and VF:TNNSVY).
- TCC (trunk class code) expansion table translator (RC:PSWD and VF:DATA).
- MSN (master scanner number) translator (RC:TRK).
- Centrex digit interpreter tables (RC:DITABS, RC:CTXDI and VFY-XDGNT)
- Terminating abbreviated class code expansion table (RC:PSWD and VF:DATA)
- LEN (line equipment number) auxiliary block (RC:LINE, RC:TWOPTY, VF:DNSVY, and VF:OESVY).

5. TRANSLATOR DESCRIPTIONS

5.1 TNN-PEN Translator

When the CDFP feature is activated, seizure of the new OGT (outgoing trunk) is required. Also, an auxiliary line appearance LEN must be identified for voice transmission. Each OGT must be wired to an auxiliary LEN; therefore, this translator is used to associate the OGT TNN with the CDFP auxiliary LEN.

The new circuit associated with the OGT is the CDFP access trunk circuit (SD-6A013-01 for PFP; or SD-6A019-01 for NMP). Each circuit pack contains two trunk circuits; both are used for CDFP, so the mate TNN is also associated within this translator.

> ***Note 1:*** The CPI (circuit program index) for the CDFP access trunk circuit (SD-6A013-01) is 223 for the PFP configuration and the trunk order code is 22300.

For the NMP configuration (1AE9 and later only), an ICT similar to SD-1A166-05 must be associated with a new OGT (SD-6A019-01).

> ***Note 2:*** The CPI for the NMP OGT (SD-6A019-01) is 227 and the trunk order code is 22700.

All of the above information (the CDFP auxiliary LEN, the mate TNN, and the NMP ICT) will be stored in a new supplementary auxiliary block.

A new five word 'variable part' for CPI 223 and CPI 227 is required for the TNN-PEN auxiliary block (Fig. 2). The fifth word (word 8) contains the address of TNN-PEN supplementary auxiliary block (Fig. 3).

5.2 TCC Expansion Table Translator

This translator contains the CPI for the new OGT circuit. This value is stored in bits 7-0 of the fourth word. Other bits that are set to one and their meanings are listed below:

- Bit 1 of the first word - Two-way or make busy (PFP configuration only)
- Bit 3 of the first word - Supervision is reverse battery
- Bit 11 of the fourth word - Trunk guard timing is 'longer.'

TRUNK NETWORK NUMBER TO PERIPHERAL EQUIPMENT NUMBER AUXILIARY BLOCK

	23		17	14 13	0
WORD 0	0	WRDN=8	QUANT=0		CPDN=0
WORD 1	0	QUANT=2	MTDN		
WORD 2	0	QUANT=2	BLT=00	MSN	
WORD 3	0	QUANT=1	0 0	MSN	
	VARIABLE PART (SEE BELOW)				

TNN-PEN AUXILIARY BLOCK
VARIABLE PART WORDS FOR A CIRCUIT PROGRAM INDEX (CPI) OF 223 AND 227

	22	20																			0
WORD 4	0	VPI=0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 8	0	0	0	0	ADDRESS OF SUPPLEMENTARY AUX BLOCK																

LEGEND:

WORD 0 WRDN = NUMBER OF WORDS IN THE AUXILIARY BLOCK.
QUANT = QUANTITY OF CENTRAL PULSE DISTRIBUTOR POINTS FOR THE MISCELLANEOUS TRUNK ASSOCIATED WITH THE TRUNK NETWORK NUMBER.
CPDN = CENTRAL PULSE DISTRIBUTOR NUMBER.

WORD 1 QUANT = QUANTITY OF SIGNAL DISTRIBUTOR POINTS.
MTDN = SIGNAL DISTRIBUTOR FRAME NUMBER.

WORD 2 QUANT = QUANTITY OF SUPERVISORY MASTER SCANNER LEADS.
BLT = "11" IF THE AUXILIARY BLOCK IS FOR A BY-LINK TRUNK, "00" OTHERWISE.
MSN = MASTER SCANNER NUMBER.

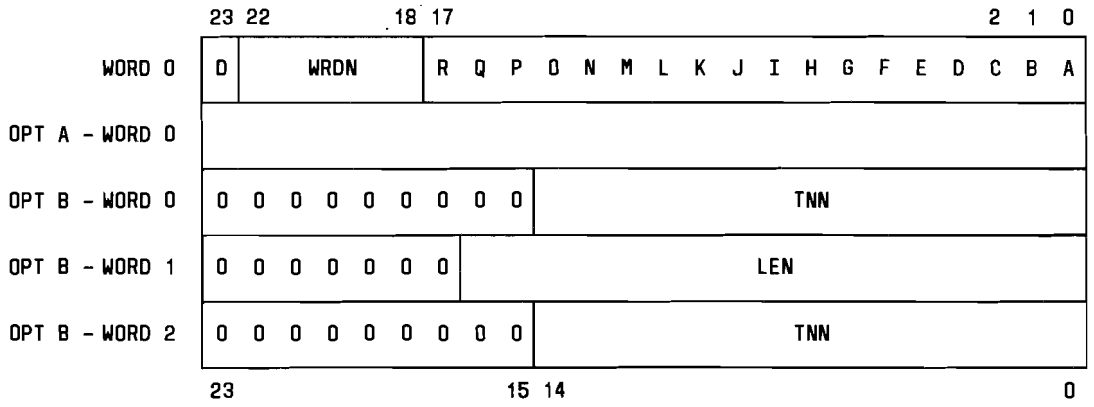
WORD 3 QUANT = QUANTITY OF DIRECTED MASTER SCANNER POINTS.
MSN = MASTER SCANNER NUMBER.

WORD 4 VPI = VARIABLE PART INDICATOR IS 000.

WORD 8 ADDRESS OF SUPPLEMENTARY AUX BLOCK = ADDRESS OF THE SUPPLEMENTARY AUXILIARY BLOCK WHICH CONTAINS MORE INFORMATIDN ABOUT THE TNN.

Fig. 2 — TNN-PEN Auxiliary Block

TNN-PEN SUPPLEMENTARY AUXILIARY BLOCK



LEGEND:

WORD 0 WRDN = NUMBER OF WORDS IN THE AUXILIARY BLOCK.

A,B,...R = OPTION BITS. AN OPTION BIT SET INDICATES THAT THE CORRESPONDING OPTION WORD(S) ARE BUILT IN THE AUX BLOCK. OPTION BIT B (BIT 1 = 1) INDICATES THAT THE CDFP OPTION WORDS ARE BUILT. OPTION BIT A IS BEING RESERVED FOR FUTURE USE. IN THE FUTURE, IF ADDITIONAL OPTION WORDS ARE NEEDED (MORE WORDS THAN OPTION BITS A-R CAN INDICATE), OPTION BIT A WILL INDICATE THAT AN OPTIONAL WORD CONTAINING ADDITIONAL OPTION BITS EXIST (OPT A - WORD 0).

OPT A - WORD 0 = OPTIONAL WORD CONTAINING ADDITIONAL OPTION BITS. THIS WORD WILL BE BUILT IF OPTIONS A-R ARE USED AND MORE OPTION BITS ARE NEEDED.

OPT B - WORD 0 TNN = TRUNK NETWORK NUMBER OF THE MATE TRUNK IN A CIRCUIT PACK.

OPT B - WORD 1 LEN = LINE EQUIPMENT NUMBER OF THE AUXILIARY LINE APPEARANCE.

OPT B - WORD 2 TNN = TRUNK NETWORK NUMBER OF THE INCOMING TRUNK. (FOR THE NMP CONFIGURATION; OTHERWISE SET TO 0).

Fig. 3 — TNN-PEN Supplementary Auxiliary Block

All other bits are set to zero. Fig. 4 shows the complete layout of the TCC expansion table entry for CDFP.

ESS 1204(10)TG-1A

TRUNK CLASS CODE RECORD

SD-6A013-01/SD-6A019-01

TITLE: *CDFP ACCESS TRUNK CIRCUIT* TCC *007* (17 18 19)

ESS UNIT _____

KEY PUNCH CARD 1/23

TRUNK ORDER CODE

22300 OR 22700 (25 29)

FIRST WORD

BIT POSITION	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
INPUT	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*X*	*X*
KP COLUMN	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53

1=MULTI-PORT 0=NO

1=CONFERENCE RESTRICTED 0=NO

1=INTERTOLL AND OGT ODD 0=START DIAL SIGNAL

1=MAKE BUSY-DISTANT OFFICE 0=NO

START DIAL: 11=WINK 10=DELAY 01=NOT VALID 00=NO

1=FLASH EXPECTED 0=NO

1=BATTERY ON TIP 0=BATTERY ON RING

SEE NOTES FOR THIS BIT

COMPENSATING RESISTANCE CONTINUITY CHECK TONE LEVEL SEE NOTES FOR THESE BITS

1=TSP/S OR PP TO XBAR 0=NO

OUTPULSING: 001=MF OR TSP/S 010=DP 011=RP 100=PCI 101=TT 110=CCIS 000=NO

1=IDLE CIRCUIT TERMINATION 0=NO

SUPERVISION: 0001=REV BAT 0010=HIGH/LOW 0011=E&M OR F 0100=HIGH-LOW 0101=REV HIGH-LOW 1000=SLEEVE LEAD 1001=POLAR DOUBLE DUPLEX 1010=CCIS 1011=GROUND START

1=WORD 3 IS APPLICABLE 0=NO OR CPI CONTROLLED

XX=10=TWO WAY OR MAKE BUSY (PPP) -00=OUTGOING (NNP)

TRANSLATION WORD
BIT POSITIONS 22-0 ONLY

00	000	000	000	000	000	001	010	BINARY
21	421	421	421	421	421	421	421	BIT WEIGHT
0	0	0	0	0	0	1	2	OCTAL

BINARY TO OCTAL OR OCTAL TO BINARY CONVERSION (TRANSLATION WORD 1)

NOTE: THE SECOND AND THIRD WORDS ARE ALL ZEROS.

FOURTH WORD

BIT POSITION	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	—	—	—	—
INPUT	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*Z*	*Z*	*Z*	*Z*	*Z*	*Z*	*Z*	*Z*	*0*	*0*	*0*	*0*
KP COLUMN	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

1=FAST ANSWER 0=NO

NUMBER OF PORTS FOR MULTI-PORT TRUNKS

1=PRIVATE NETWORK 0=NO

1=OUTGOING TO ESS 0=NO

1=CITY OF ORIGIN 0=NO

1=EMERGENCY RINGBACK FLASH 0=NO

1=OGT TO AUTOMATIC INCPT 0=NO

1=FLASH REPEATING 0=NO

1=FLASH TIMING 0=NO

SEE NOTES FOR THIS BIT

11=SEE NOTES FOR THESE BITS 10=MESSAGE TRUNK 01=SEE NOTES FOR THESE BITS 00=NO

1=SEE NOTES FOR THIS BIT 0=SEE NOTES FOR THIS BIT

CIRCUIT PROGRAM INDEX: ZZZZZZZZZ=11011111 FOR CPI 223 =1111001 FOR CPI 227

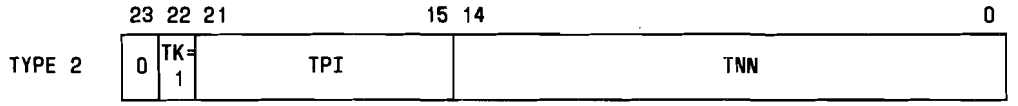
SEE DIVISION 3, SECTION 26 KEY PUNCH CARD FOR OPTIONAL DATA

Fig. 4 — Sample Form ESS 1204 Binary Conversion

5.3 MSN Translator

The TPI (trunk program index) for the new OGT circuit is stored in the MSN subtranslator (Type 2) (Fig. 5).

MASTER SCANNER NUMBER SUBTRANSLATOR
WORD TYPE 2



LEGEND:
TK = TRUNK IDENTIFIER: "1" IDENTIFIES THIS ENTRY AS A TRUNK TYPE ENTRY, OTHERWISE IT IS ZERO. THE VALUE IN THIS CASE (CDFP) IS "1".
TPI = TRUNK PROGRAM INDEX.
TNN = TRUNK NETWORK NUMBER.

Fig. 5 — MSN Subtranslator

The TPI values for the supervisory scan points are as follows. For CPI 223, master scanner point 0 is assigned TPI 31 and master scanner point 1 is assigned TPI 32. For CPI 227, master scanner point 0 is assigned TPI 31 and master scanner point 1 is assigned TPI 43. These assignments, as shown in Fig. 6, require modifications to the TPI table (PA-6A002, Section 7).

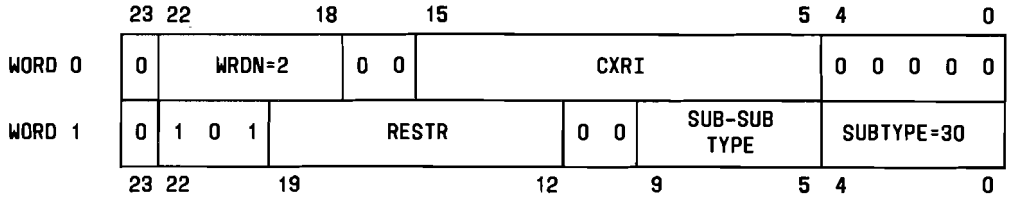
CIRCUIT TITLE	CPI	MASTER SCANNER POINT	TPI	SD	REMARKS
ACCESS TRUNK CIRCUIT FOR CDFP (PFP)	223	00	31	6A013-01	OUTGOING REVERSE MAKE-BUSY
		01	32		
ACCESS TRUNK CIRCUIT FOR CDFP (NMP)	227	00	31	6A019-01	OUTGOING
		01	43		

Fig. 6 — TPI Table Modifications

5.4 Centrex Digit Interpreter Tables

Access codes will be used to activate CDFP. Therefore, a new centrex DI (digit interpreter) auxiliary block (Fig. 7) is required. Access codes are needed to return the RI (route index) associated with the various data facility pooling configurations. The difference between this RI and the centrex group RI will be specified in the CXRI field of word 0.

DIGIT INTERPRETER AUXILIARY BLOCK
CENTREX DATA FACILITY POOLING
FOR DATA TYPE 5, SUBTYPE 30, SUB-SUBTYPE IS VARIABLE



LEGEND:
WRDN = NUMBER OF WORDS IN AUXILIARY BLOCK.
CXRI = CENTREX ROUTE INDEX INCREMENT. THE DIFFERENCE BETWEEN THE ROUTE INDEX SPECIFIED AND THE BASE ROUTE INDEX FOR THAT CTX GROUP IS THE CXRI.
RESTR = RESTRICTIONS FOR CAT CODES.
SUB-SUBTYPE = SUB-SUBTYPE:
D FOR PRIVATE FACILITY PODLING (PFP)
1 FOR NETWORK MODEM POOLING (NMP).
SUBTYPE = SUBTYPE EQUALS 30.

Fig. 7 — Digit Interpreter Auxiliary Block for CDFP

CAT (centrex access treatment) codes will be used to allow or deny a customer the use of certain services. Restrictions for these codes will be identified in the RESTR field of word 1 of the auxiliary block.

Activation of CDFP will be data type 05, subtype 30, and a variable sub-subtype field. The variables possible for the sub-subtype field are: 0 for PFP (1AE8A and later), 1 for NMP (1AE9 and later).

5.5 Terminating Abbreviated Class Code Expansion Table

The terminating abbreviated class code expansion table (Fig. 8) has been modified to reflect changes to DN (directory number) TRC (temporary RC) registers. That is, expanding ABBR (abbreviated class) codes will no longer be used for TRC registers. Instead, a transfer using ABBR codes is done. Therefore, ABBR codes and their corresponding major classes will no longer be assigned to DN TRCs. The associated major class codes can now be used for other applications.

TERMINATING ABBREVIATED CLASS CODE EXPANSION TABLE: FIXED ENTRIES

	23 ... 0
WORD 0	ALL ZEROS
THRU	
WORD 83	ALL ZEROS

NOTE: ALL OF THE ABOVE WORDS ARE ALL ZERO WORDS WITH THE FOLLOWING EXCEPTIONS:

	23																					0
WORD 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
WORD 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1
WORD 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
WORD 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1

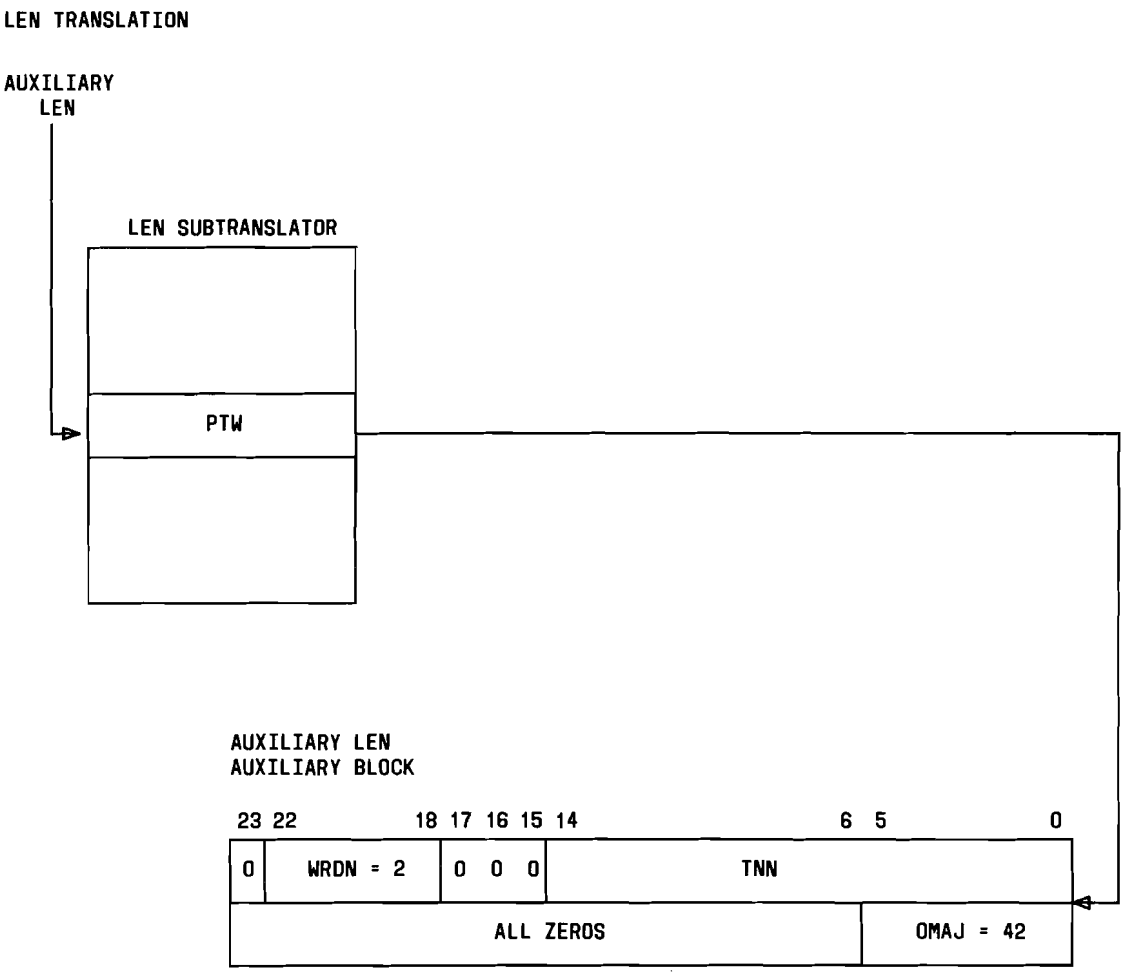
THESE FIXED ASSIGNMENTS HAVE TERMINATING MAJOR CLASS (TMAJ) DEFINED AS FOLLOWS:

WORD 40 ROUTE INDEX (TRUNK GROUP).
WORD 60 CARRIER INTERCONNECT (CI).
WORD 64 INTERCEPT.
WORD 76 CENTREX INDIVIDUAL INTERCEPT.

Fig. 8 — Terminating Abbreviated Class Code Expansion Table Words

5.6 LEN Auxiliary Block

The auxiliary LEN must be assigned an originating major class of 42. This means that when a data call is active and a voice call is originated, the origination will be detected at the auxiliary line appearance. During the LEN translation, the initial line appearance features will be transferred to the auxiliary line appearance. Therefore, the TNN, from which the initial LEN can be retrieved, will also be stored in the auxiliary block for the auxiliary LEN (Fig. 9).



LEGEND:
WRDN = NUMBER DF WORDS IN THE AUXILIARY BLOCK. WRDN = 2.
TNN = THE TRUNK NETWORK NUMBER HARD-WIRED TO THIS LEN FOR CDFP.
OMAJ = THE ORIGINATING MAJOR CLASS ASSOCIATED WITH THIS LEN. THE VALUE FOR OMAJ IS 42 (DECIMAL).

Fig. 9 — LEN Auxiliary Block for CDFP

6. CDFP RELATED VERIFY MESSAGES

Changes are necessary for several existing verify messages. The following messages, and/or their outputs as indicated in parentheses, are affected.

- VF:TNNSVY (TR14 output message)
- VFY-XDGNT (new TR02 output message)
- VF:DNSVY (VF03 output message).

The information presented in this part covers only a brief description of changes for verify messages and associated output response messages required for CDFP. Refer to IM-6A001 and OM-6A001 for details.

6.1 VF:TNNSVY Input Message

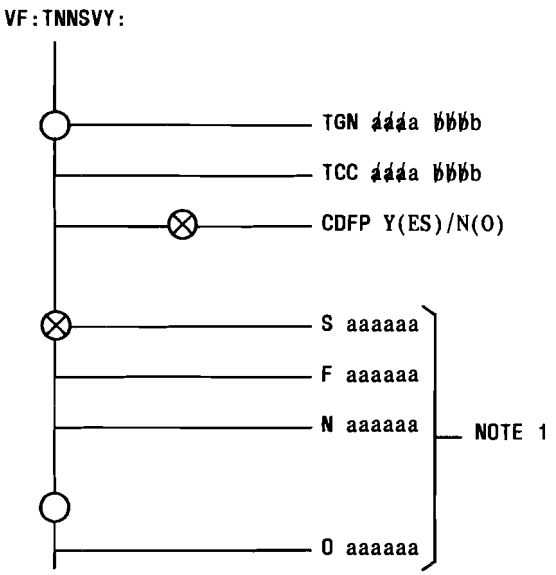
A new keyword, CDFP, has been added to the VF:TNNSVY message to verify TNN-PEN translation data.

The VF:TNNSVY keywords associated with the CDFP feature are listed below:

- TGN aaaa bbbb - Restricts survey of TNNs to TGNs (trunk group numbers) specified by a,b where 0<=a<=b<=999
- TCC aaaa bbbb - Restricts survey of TNNs to TCCs specified by a, b where 0<=a<=b<=999
- CDFP Y(ES)/N(O) - Restricts survey of TNNs to those with CDFP
- S aaaaaa - Surveys the single TNN specified by aaaaaa
- F aaaaaa - Surveys TNNs on a frame starting with TNN aaaaaa through the last TNN on that frame
- N aaaaaa - Surveys TNNs on a network starting with TNN aaaaaa through the last TNN on that network
- 0 aaaaaa - Surveys TNNs in an office starting with TNN aaaaaa through the last TNN in that office.

Valid keyword combinations for the CDFP feature are shown in Fig. 10. (Refer to IM-6A001 for further details of this message.)

In response to the VF:TNNSVY input message, the TR14 output message (Fig. 11) will contain the auxiliary LEN if CDFP is active. If the auxiliary LEN is present, the mate TNN and the TNN of the ICT for NMP (1AE9 and later) will follow if match is found. If CDFP N(O) is specified, regular TNN data will follow. (Refer to OM-6A001 for further explanation.)



NOTE
1. If no specific TNN(s) are specified, the system will default to TNNs in the office (O aaaaaa).

Fig. 10 — VF:TNNSVY Input Message for CDFP

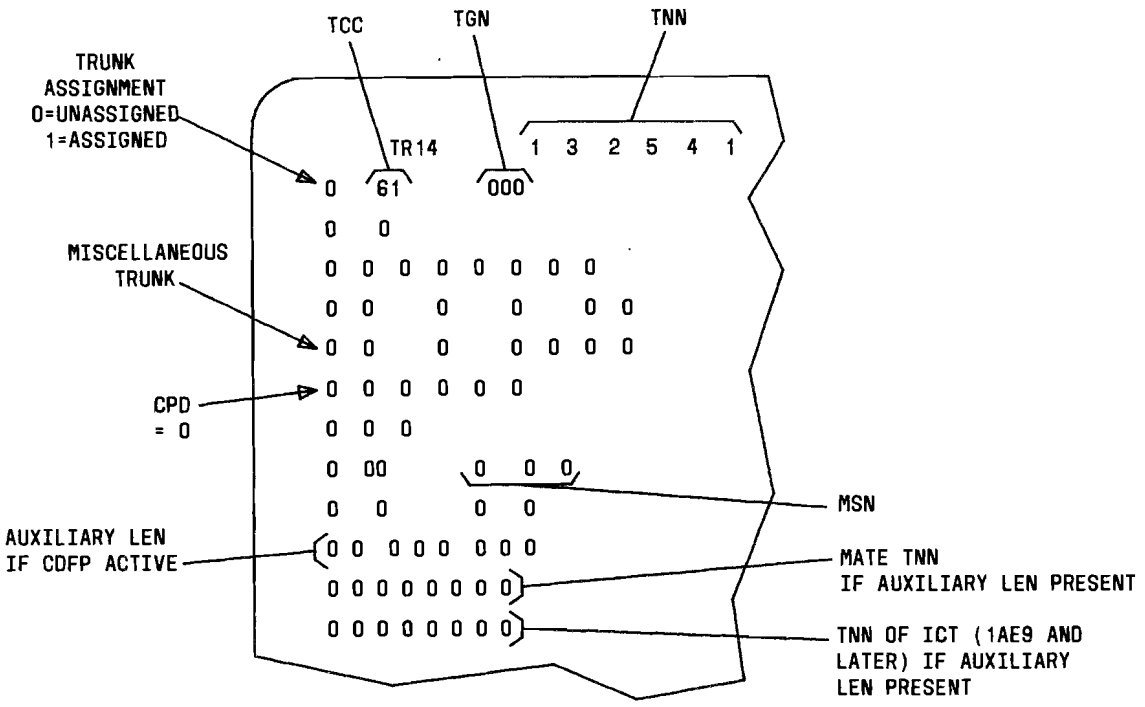


Fig. 11 — Example of TR14 Message -1-Port Miscellaneous Trunk

6.2 VFY:XDGNT Input Message

The VFY-XDGNT message is used to verify centrex digit interpreter table entries for any CDFP CO-IVDM pool. The existing format is unchanged:

VFY-XDGNT-43 0 c ddddd eeee.

c =	Number of following leftmost digits to be interpreted.
ddddd =	Digits to be interpreted (type 0 for unused digits in rightmost positions).
eeee =	Centrex number (Form ESS 1109A, columns 25-28).

System response is a PF TACK followed by the *new* TR02 output message (Fig. 12) containing the CDFP digit interpreter auxiliary block information.

```
TRO2 OATATYPE 5  SUBTYPE 30
     NUT aaaa NDIG b CTX nnnn
     cccc dddddd cccc dddddd cccc dddddd
      •    •    •    •    •    •
      •    •    •    •    •    •
      •    •    •    •    •    •

aaaaa = INPUT NUMBER TRANSLATED
    b = NUMBER OF DIGITS INTERPRETED
 nnnn = CENTREX NUMBER
cccc =  ACT - ACTIVATION OF FEATURE
     = COLL - NUMBER OF DIGITS TO COLLECT
     = CXRI - CENTREX ROUTE INDEX INCREMENT
     = DEAC - DEACTIVATION OF THE FEATURE
     =  DEL - NUMBER OF DIGITS TO DELETE
     =  EXT - 4-DIGIT EXTENSION
     =  NPA - NUMBERING PLAN AREA
     =  NXX - OFFICE CODE
     = PRF1 - THE VALUE OF THOUSANDS DIGIT IF
              NUMBER OF EXTENSIONS IS 2, ELSE 0
     = PRF2 - THE VALUE OF THOUSANDS DIGIT IF
              NUMBER OF EXTENSION DIGITS IS 3, OR
              NUMBER OF HUNDREDS DIGIT IF NUMBER
              OF EXTENSIONS IS 2, ELSE 0.
     =  RAT - ROUTE AS A TEN DIGIT DN
     = RSTR - TREATMENT CODE
     = SSUB - SUB-SUBTYPE
dddddd = DATA FIELD ASSOCIATED WITH 'cccc'. IF
         cccc = SSUB, ddddd = 0 (PFP), 1 (NMP).
```

Fig. 12 — Example of TRO2 Message

6.3 VF:DNSVY Input Message

A new keyword, CDFP, has been added to the VF:DNSVY message to verify new TRC registers associated with CDFP.

The VF:DNSVY keywords associated with the CDFP feature are listed below:

- CDFP - Initiates a search for all DNs with CDFP
- DN (aaaaaaa,b) - Surveys all DNs beginning with DN aaaaaaa and ending with the last DN specified by 'b': if b = N, survey ends with last DN in the same number group; if b = O, survey ends with last DN in the office; if b = c, survey ends 'c' DNs later, where 1<=c<=2,097,152

- CTXN aaaa - The centrex number where the input extension can be found
- EXT [aaaaa(,bbbbb)] - Extension or range of extensions within the centrex group number
- CCTX (aaaa bbbb) - Request all centrex groups or a single centrex group number rather than extensions in a group
- LIST Y(ES)/N(O) - If Y(ES), each successful match will generate an output and the final count totals. If N(O), only a total count of all successful matches will be generated.

Valid keyword combinations for the CDFP feature are shown in Fig. 13. (Refer to IM-6A001 for further details of this message.)

In response to the VF:DNSVY input message for CDFP, the VF03 message (Fig. 14) will only print those DNs with TRCs currently active (i.e., a CDFP data call is in progress). If the call is not in progress, a VF02 End-of- Job message will print instead.

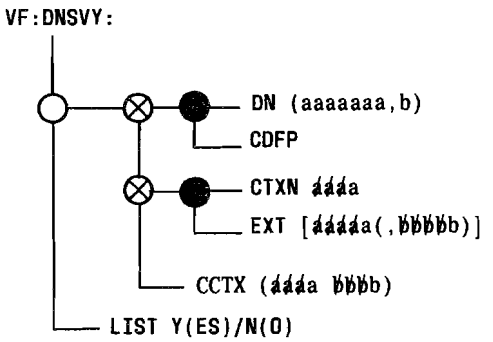


Fig. 13 — VF:DNSVY Input Message for CDFP

```
VF03 nn SURVEY INFORMATION   aaaa bbbb cccc dddd
     fffffff ggg hhhh iii=jjjjjjjj kkkkkkkkkkkkkkkkkkkkkkkkkkkk
```

```
     nn = DN - IF INPUT MESSAGE WAS VF:DNSVY
   aaaa = SEQUENTIAL MESSAGE NUMBER (1,2,3...)
   bbbb = BUFFER NUMBER
   cccc = MESSAGE INDEX
   dddd = MESSAGE IDENTIFIER
fffffff = DN - CDFP (ASCII DESCRIPTION OF DN SURVEYED)
ggg hhhh = CDFP DN WITH DATA CALL ACTIVE
    iii = LEN - INDICATES THAT 'jjjjjjjj' IS THE LEN
jjjjjjjj = AUXILIARY LEN
 kkkk... = TNN pppppp, WHERE 'pppppp' IS THE TNN
           ASSOCIATED WITH THE AUXILIARY LEN
```

Fig. 14 — Example of VF03 Message

7. CDFP FEATURE IMPLEMENTATION

The CDFP feature implementation (Fig. 15) involves six major areas: trunk translations, routing translations, centrex translations, line-related translations, miscellaneous translations, and traffic/plant measurement translations.

7.1 Establish New Outgoing Trunk Group for SD-6A013-01 or SD-6A019-01

7.1.1 Verify Trunk Group

See Fig. 16. Verify that TG (trunk group) is not established by typing

VFY-TKGN-14 aaa.

aaa = TG number (Form ESS 1229A2, columns 35-37).

Observe the TR10 output message (Fig. 17) indicating that TG is not established.

7.1.2 Verify TNN Correctly Equipped

Verify that each TNN is correctly equipped by using the VF:TNNSVY input message. Refer to 6.1 for details.

Verify 1-port miscellaneous equipment as follows.

(1) Compare Form ESS 1229/1230 with TR14 output message data. If TR14 data is incorrect, TNN(s) is not correctly equipped.

(2) If a TR12 output message (Fig. 18) did not also print, go to Step (3). If the TR12 message was also printed out, determine whether the TR12 data is correct. If not, TNN(s) is not correctly equipped.

(3) For each supervisory scan point found in the TR14 output message, type

VFY-MSN-13 aa bb cc.

aa = Master scanner frame (00 through 63)
bb = Master scanner row (00 through 63)
cc = Master scanner column (00 through 15).

(4) Determine whether TR12 output message data (Fig. 18) is correct. If not, TNN(s) is not correctly equipped.

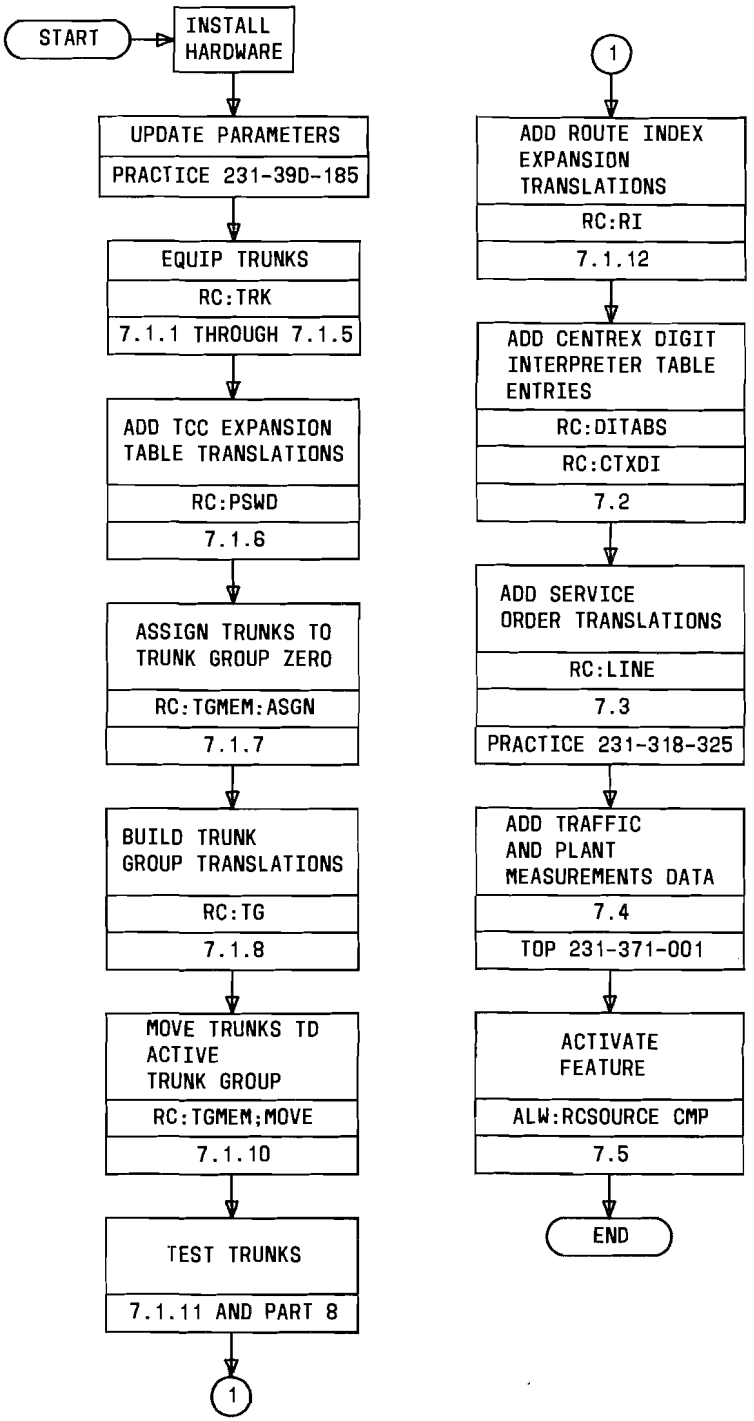


Fig. 15 — CDFP Feature Implementation

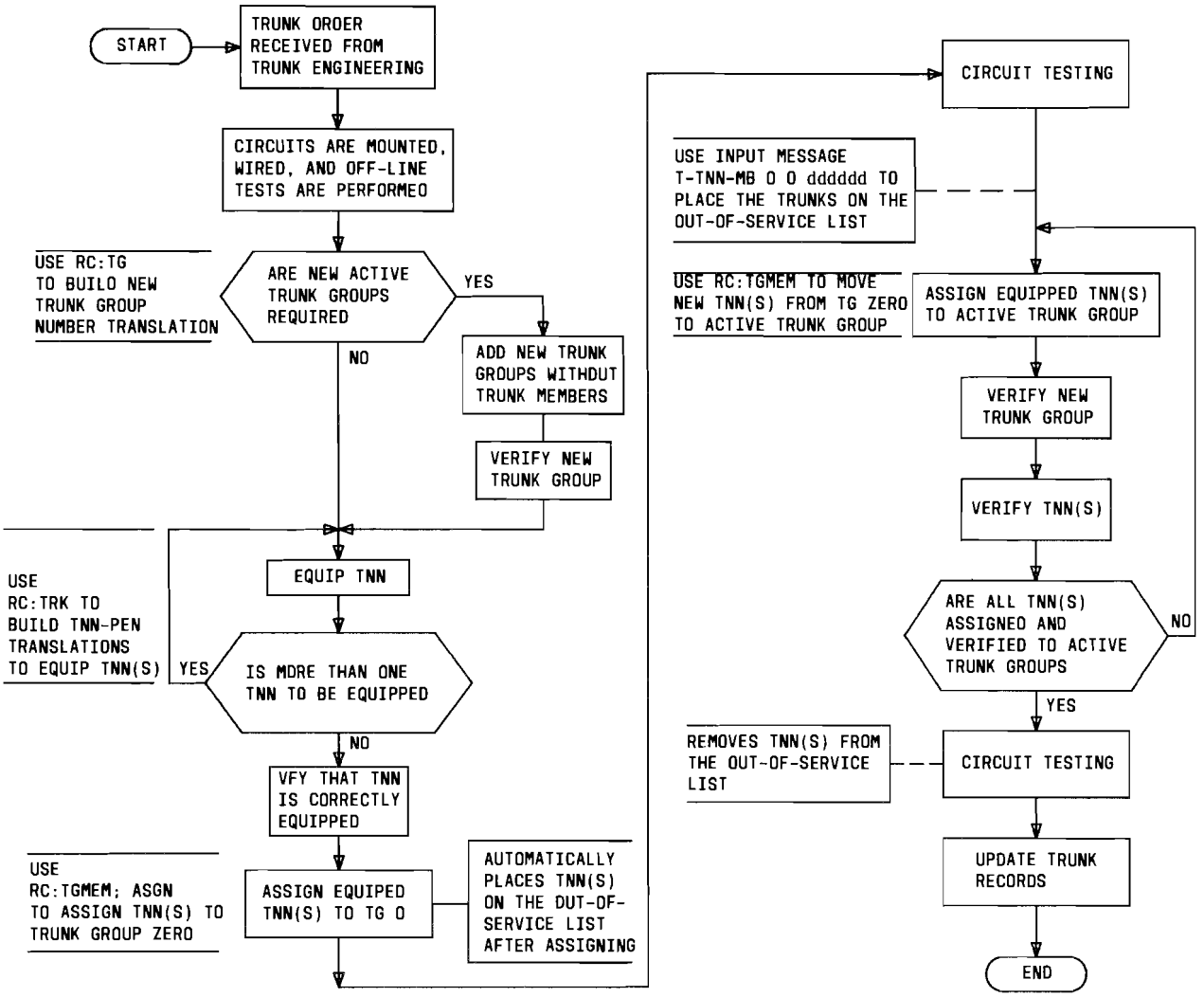


Fig. 16 — General Flowchart to Add a Trunk Circuit

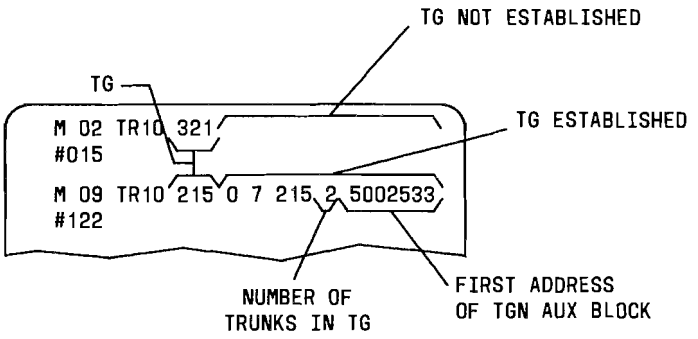


Fig. 17 — Example of TR10 Messages

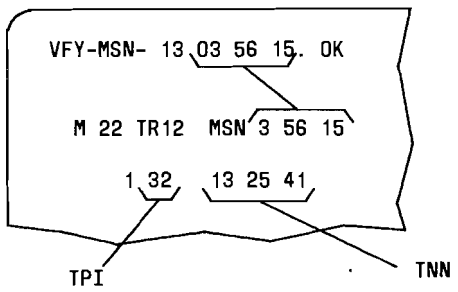


Fig. 18 — Example of TR12 Message

7.1.3 Verify TNN Assignment

Verify that each TNN is unassigned or assigned to TG 0. Proceed as follows.

(1) From TR14 output message (Fig. 11), determine if TNN assignment is correct. If not, refer problem to network administration personnel.

(2) Proceed only if TNN assignment is correct.

7.1.4 Busy TNNs

Make each TNN maintenance busy. If all trunks in the entire TG are to be made busy, perform Steps (1) and (3); if not, perform Steps (2) and (3) at MTCE terminal.

(1) To busy all trunks in the entire TG, type

TRK-GROUP-MB 00 aaaa.

aaaa = Trunk group.

Note: Trunks in TG zero should not be made busy with the TRK-GROUP-MB message.

(2) For each trunk to be made busy, type

T-TNN-MB 00 nnnnnn.

nnnnnn = TNN.

(3) If TRK-GROUP-MB message was input, observe TN15 and TN05 output messages for each TNN not put on the out-of-service list. If T-TNN-MB message was input, observe TN06 output message for each TNN made busy.

7.1.5 Equip TNNs

Properly equip each unequipped TNN as follows.

(1) Construct RC message per Table A and Fig. 19.

(2) At terminal, type RC message as constructed in Step (1) and observe RC18 5 0 ACPT response.

If necessary, properly equip each TNN that is incorrectly equipped. Proceed as follows.

(1) If TNN is to be changed, verify new TNN is unassigned by typing the following message and observe TR14 output message (Fig. 11).

VFY-TNN-11 bbbbbb.

bbbbbb = New TNN.

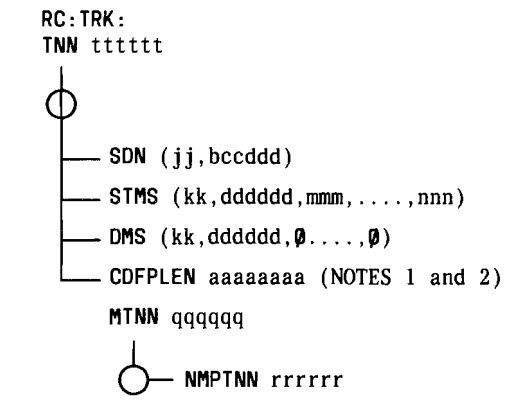
(2) Construct RC message per Table A and Fig. 20.

Note: The mate TNN can only be removed by an RC:TRK;OUT: message. Refer to Step (5).

TABLE A

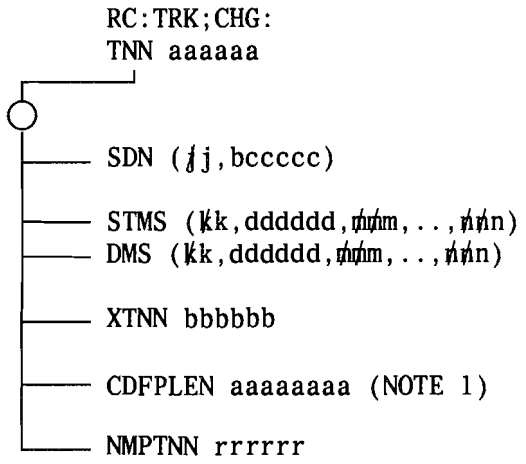
RC:TRK:–1-PORT TRUNK KEYWORDS

RC MESSAGE	FORM ESS	COLUMN	REMARKS	
RC:TRK:	—	—	Message heading	
TNN ttttt	1230	16-21	ttttt = trunk network number (TNN)	
	1229A2	29-34		
SDN (jj,Mccddd)	1229A1	28-29	jj = quantity of SD points: = 2 for PFP = 3 for NMP	Signal distributor (SD)
		25	M = SD type	
		26-27 and 30-32	ccddd = first SD point	
STMS (2,dddddd,m,n)	1229A1	35-36	2 = quantity of master scanner points	Supervisory scan point data
		33-34 and 37-40	dddddd = scan point number	
		—	m, n = TPIs for master scanner points 0 and 1 respectively: = 31,32 for CPI 223 = 31,43 for CPI 227	
DMS (1,dddddd,0)	1229A1	43-44	1 = quantity of master scanner points	Directed scan point data
		41-42 and 45-48	dddddd = scan point number	
			0 = TPI value for directed scan point	
CDFPLEN aaaaaaaa	1230	33-40	aaaaaaaa = CDFP auxiliary LEN	
MTNN qqqqqq	1230	41-46	qqqqqq = mate TNN of TNN keyword	
NMPTNN rrrrrr	1230		rrrrrr = NMP TNN (1AE9 and later only)	
XTNN bbbbbb	1229A2	29-34	bbbbbb = TNN to replace TNN ttttt (on change message only)	
	1230	16-21		



NOTES:
1. The CDFPLEN must be assigned and have an originating major class of 42.
2. The CDFPLEN will be assigned in the LEN translator if input in this message.

Fig. 19 — Equipping a 1-Port Miscellaneous Trunk



NOTE:
1. If CDFPLEN is input in this message, the old CDFPLEN will be unassigned and the new CDFPLEN will be assigned in the LEN translations.

Fig. 20 — Changing a 1-Port Miscellaneous Trunk

(3) At terminal, type RC message as constructed in Step (2) and observe RC18 5 0 ACPT output response.

(4) Verify that each TNN is now correctly equipped by using the VF:TNNSVY input message. Refer to 6.1 for details.

(5) If necessary, use the following RC message to unequip trunk(s).

```
RC:TRK;OUT:
TNN aaaaaa!
```

aaaaaa = TNN.

Note: As result of this message, the trunk(s) is unequipped and the CDFPLEN is unassigned.

7.1.6 Add TCC Data

If TCC (Form ESS 1204) is to be added for TG, perform the following steps.

(1) If new TCC is to be added, check length of TCC expansion table as follows:

(a) At terminal, type

```
DUMP:CSS,ADR 7720411;DEC!
```

(b) From DUMP:CSS output message, determine length of TCC expansion table.

(c) From Form ESS 1204A, determine highest number TCC.

(d) Multiply highest TCC by 4.

(e) Add 4 to the results of Substep (d) to determine required length of table to add new TCC data.

(f) Determine whether required table length is less than active table length [Substep (b)]. If so, active table length is sufficient. If not, active table length is insufficient to add new TCC data.

(g) If active table length is insufficient to add new TCC data, move TCC expansion table to increase table length. Refer to AT&T Practice 231-367-020 for procedure, then return to Step (2).

(2) Add TCC to TCC expansion table as follows:

(a) Obtain TCC from Form ESS 1204 (see sample, Fig. 4).

(b) Multiply TCC by 4 (results = iiii). Retain results iiii for use in Substep (e).

(c) From Form ESS 1204 (Fig. 4), identify translation words for which data is to be changed (Translation word 1, 2, 3, or 4).

(d) Determine new data by converting binary word in INPUT row to octal for each translation word being changed (results = ddddddddd). (See Fig. 4.) Save results for use in Substeps (h) and (i).

(e) Determine address and old data of translation words being added or changed by typing the following message:

DUMP:CSS,INDIR 1,ADR 7720011,INC iiii,L4!

iiii = Results obtained in Substep (b).

Note: If new TCC is being added, old data of translation words may be all zeros.

(f) From DUMP:CSS output message, determine address of TCC translation words (Fig. 21) (results = bbbbbbb). Retain results for use in Substeps (h) and (i).

(g) From DUMP:CSS output message, also determine old data (contents) contained in TCC translation words (Fig. 21) (results = cccccccc). Save results for use in Substeps (h) and (i).

(h) Construct RC message per Table B and Fig. 22. Check for accuracy.

Caution: Extreme caution must be exercised in using RC:PSWD message to avoid errors resulting in bad translations data.

(i) At terminal, type RC message as constructed in Substep (h) and observe RC18 1 0 ACPT response.

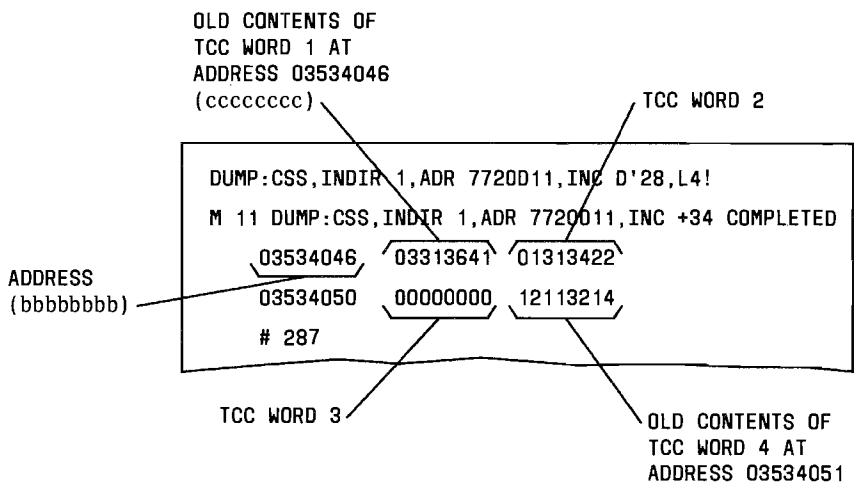


Fig. 21 — Example of DUMP of TCC Translation Words

TABLE B

RC:PSWD KEYWORDS

RC MESSAGE	REMARKS
RC:PSWD:	Message heading
ADD bbbbbbb	bbbbbbb = address of memory to be changed.
OLDDAT cccccccc	cccccccc = old data determined from DUMP:CSS output message
DAT ddddddddd %	ddddddddd = octal form of binary number found in form and converted to octal

% Repeatable segment. If more than one word is to be changed and addresses for each word are consecutive, all word changes can be entered in same message by repeating; otherwise, must be entered one word at a time.

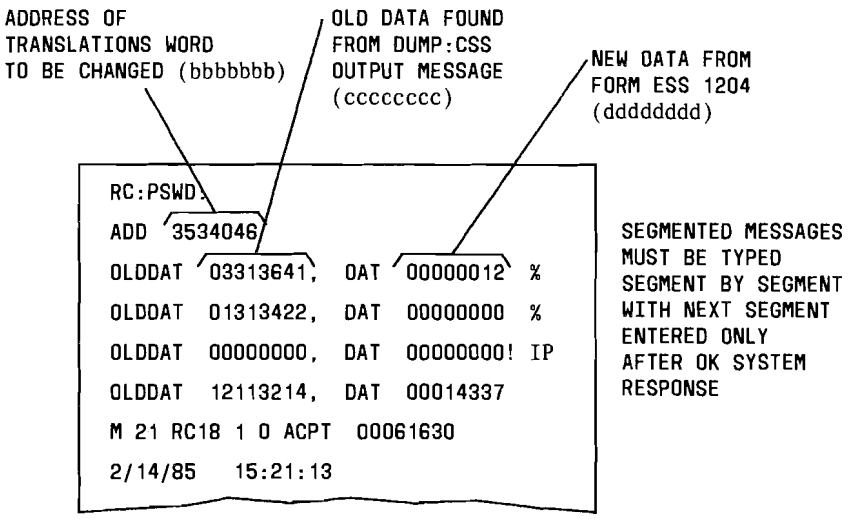


Fig. 22 — Example of RC:PSWD Message for Multiple Changes

(3) Verify TCC expansion table data as follows.

(a) At terminal, type

VF:DATA:
FROM 7720011
NWDS 1
DUMP!

(b) From TR100 output message, obtain starting address of TCC expansion table for use in Substep (c).

(c) Type

VF:DATA:
FROM aaaaaaa
NWDS 4
DUMP!

aaaaaaa = Starting address of TCC expansion table + (TCC x 4 converted to octal).

(d) Compare the four TCC translation words in the TR100 output message with each word on Form ESS 1204.

(e) For each TCC translation word in error, correct using procedures in Steps 2(h) and 2(i).

7.1.7 Assign Trunks to TG Zero

If some trunks are not assigned to TG 0, assign as follows.

(1) Construct RC message per Table C and Fig. 23 to assign TNNs to TG 0.

> ***Note:*** More than one segment of a segmented message may be typed with DATASPEED®40 teletypewriter in FORM ENTER mode and then entered, segment by segment, in regular mode.

(2) At terminal, type RC message as constructed in Step (1) and observe RC18 9 0 ACPT response.

(3) Verify that each TNN is assigned to TG 0 with correct TCC by using the VF:TNNSVY input message. Refer to 6.1 for details.

TABLE C

RC:TGMEM;ASGN KEYWORDS

RC MESSAGE	FORM ESS	COLUMN	REMARKS
RC:TGMEM;ASGN:	—	—	Message heading
TCC mmm %	1229A2	41-43	Trunk class code
MEM(0,tttttt) %	1230	16-21	tttttt = TNN. All TNNs assigned to TG 0 have member number = 0 regardless of Form ESS 1202
	1229A2	34-39	

% Repeatable segment. More than one can be entered in same message.

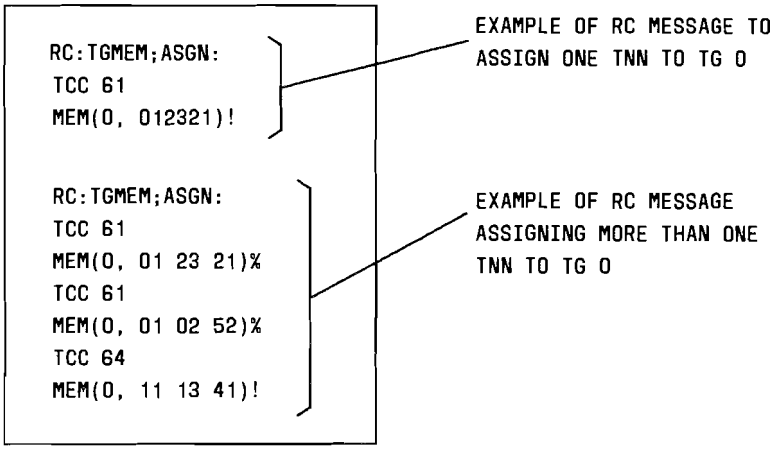


Fig. 23 — Example of Assigning Trunks to TG 0

7.1.8 Build Trunk Group

Establish TG as follows.

(1) Construct RC message per Table D and Fig. 24 for TG.

(2) At terminal, type RC message as constructed in Step (1) and observe RC18 2 0 ACPT response.

(3) Verify TG data in memory by typing

VFY-TKGN-14 aaa.

aaa = TG number.

Observe the TR10 output message (Fig. 17) indicating that TG is established.

(4) Compare TR10 output message from Step (3) with data obtained from forms in Table D.

(5) If incorrect data in memory, recheck RC message input data. If incorrect data resulted from RC message input, correct RC message and start over from Step (1).

(6) Compare verification data in the TR10 output message with the TR14 output message. Insure that the TCCs are the same. If not, check forms for accuracy.

(7) If TCC(s) are to be changed, unassign TNNs with incorrect TCC(s) per Step (8); then reassign TNN(s) with correct TCC(s) per Table C and Fig. 23 (refer to 7.1.7).

(8) Unassign TNN(s) per Table E. Then verify TNN(s) using VF:TNNSVY message (refer to 6.1 for details).

TABLE D

RC:TG KEYWORDS

RC MESSAGE	FORM ESS	COLUMN	REMARKS	
RC:TG:	—	—	Message heading	Columns on ESS forms associated with optional keywords will not contain data if option is omitted. Data in columns 69-80, Form ESS 1216, contain variable information depending on type number in column 65-66.
TG aaa	1229A2	35-37	Trunk group number	
TYP 2	—	—	Trunk group type	
SIZE ddd	1229A2	38-40	ddd = total number of trunks in TG (keyword used only for 2-way or TYP 7 trunks, or if busy verification of trunks or data link group keywords are specified.	
TCC bbb	1229A2	41-43	Trunk class code	
COL gggg	1208	51-54	Chart class column	
ATT hhh	1504	28-30	Automatic trunk test table. For service circuit TG, hhh = 4.	
RAMN aa	1216	69-70	Recorded announcement member number	
RRRI nnnn	1216	69-72	Reroute route index. Type 18 (Form ESS 1216, column 65-66).	
TTY aa	1216	31-32	TG maintenance channel. Channel 13 used as default.	
TTP cc	1216	28-30	Trunk test position (TG test panel member number)	
TXT a	1216	41-42	a = transmission type	
PRECUT	1216	40	Precut bridging during cutover	

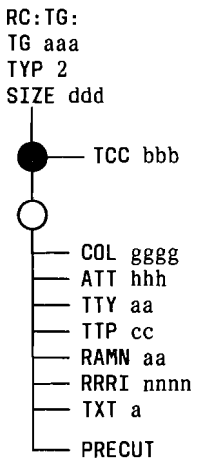


Fig. 24 — RC:TG Message Flowchart

TABLE E

RC:TGMEM;UNASSIGN KEYWORDS

RC MESSAGE	FORM ESS	COLUMN	REMARKS
RC:TGMEM;UNASGN:		—	Message heading
MEM(aaa,tttttt)%	1229A2	38-40	aaa = trunk member number*
	1230	16-21	tttttt = TNN
	1229A2	29-34	

% More than one member from same TG can be unassigned in one message
* aaa must equal zero if no data in columns 38-40. (No trunk member list exists in TG auxiliary block)

7.1.9 Verify Trunk Circuit at Frame

At equipment location, verify that trunk circuit with correct schematic drawing number is installed.

Connect trunk distributing frame jumpers for all TNNs.

7.1.10 Move Trunk Members to Active TG

Move TNN(s) from TG 0 to active TG as follows.

(1) Construct RC message per Table F.

(2) At terminal, type RC message as constructed in Step (1).

Verify each TNN moved to active TG as follows.

(1) Verify each TNN by using the VF:TNNSVY input message. Refer to 6.1 for details.

(2) Compare TR14 output message with data on Forms ESS 1230 and 1229. If TR14 data is wrong, correct RC:TGMEM;MOVE message, then retype.

(3) Verify TG data, type

VFY-TKGN-14 aaa.

aaa = TG number.

(4) Compare TR10 output message data (Fig. 17) with data obtained from forms.

(5) If TR10 output message contains an auxiliary block address, proceed as follows:

(a) At terminal, type

DUMP:CSS,ADR ccccccc,INC -1,L2;BIN!

ccccccc = Auxiliary block address.

(b) From DUMP:CSS output message, determine whether bits 22-18 of the first word of auxiliary block are all zeros. If so, convert bits 9-0 of word before auxiliary block to decimal; subtract 1 from decimal number to determine length of auxiliary block. If bits 22-18 are not all zeros, convert bits 22-18 to decimal to determine length of auxiliary block; if this number is greater than 3, continue on to next step.

TABLE F

RC:TGMEM;MOVE KEYWORDS

RC MESSAGE	FORM ESS		REMARKS
	NUMBER	COLUMN	
RC:TGMEM;MOVE:	—	—	Message heading
TOTG rrr	1229A2	35-37	rrr = TG number to which trunk members are being moved
MEM (0,tttttt)%	1229A2	38-40	0 = TG member number
	1230	16-21	tttttt = TNN
	1229A2	29-34	

(c) At terminal, type

DUMP:CSS,ADR ccccccc,L bbbb;BIN!

ccccccc = Auxiliary block address
bbbb = Length of auxiliary block.

(d) From DUMP:CSS output message, convert binary TNNs listed in auxiliary block to decimal.

Note: List of TNNs begins at word 3 (fourth word of DUMP:CSS output).

(e) Verify that the TNNs listed in auxiliary block agree with those moved to active TG (Form ESS 1229A2).

7.1.11 Test Trunk Members

Verify member list as follows.

(1) At MTCE terminal, type

TRK-GROUP-LT 00 nnnn.

nnnn = TG number.

(2) Verify that the TNNs listed in TN15 output message agree with those moved in TG.

Test all trunk members as follows. Perform trunk diagnostic tests per Part 8 and return.

7.1.12 Assign Route Index for CO-IVDM Pool

Assign RI for each CO-IVDM pool as follows.

(1) Construct RC message per Table G and Fig. 25.

(2) At terminal, type RC message as constructed in Step (1) and observe RC18 3 0 ACPT response.

TABLE G

RC:RI KEYWORDS

RC MESSAGE	FORM ESS 1303C COLUMNS	REMARKS
RC:RI:	—	Message heading
RI cccc	20-23	cccc = route index
TG bbb	25-27	bbb = trunk group number
NRI aaaa	45-48	aaaa = next route index. = 2047 when columns = STOP
TCC ggg	—	Trunk class code. Used only if trunk group contains no members. Form ESS 1229A2, columns 41-43
FIXED	20-23	Fixed route index. Required when RI is 199 or less
CST ff	39	ff = LO (Low tone, steady)/HI (high tone, steady)/DL (double burst, low tone)/DH (double burst, high tone) class of service
CRC h	40	h = coin return code
FRE	41	Free call when column marked
OPT ii	43-44	ii = options
TATO u	55	u = 0 (column = 1)/1 (column = 3)/ 2 (column = 5)/3 (column = 7) for tone and announcement time-out period. Do not use when column = 0
SFMUT	56	Single frequency mutilation flag when column marked

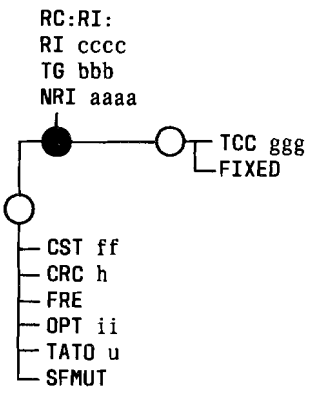


Fig. 25 — RC:RI Message Flowchart

(3) Idle all trunks by typing the following message for each TNN. At MTCE terminal, type

T-TNN-MI 00 tttttt.

tttttt = TNN.

Observe the TN06 CDFP 0 tttttt dddd ACT response (where tttttt = TNN and dddd = TG number).

(4) Update office records.

7.2 Establish Centrex DI Table Entries

7.2.1 Determine Required Digit Interpreter Tables

Determine if DI tables exist for required new access codes (data type 5). Proceed as follows.

(1) Using the new access code (Form ESS 1109A, columns 45-49 for items 0 through 49) as input to the VFY-XDGNT message, verify DI table entries. Refer to 6.2 for details.

(2) From TR02 output message, determine if the number of digits interpreted (field NDIG) is equal to the number of digits to be interpreted (variable 'c' in 6.2).

(a) If so, and all other data equal zeros, then no additional DI tables are required. Go to 7.2.3.

(b) If not, go to Step (3).

(3) If NDIG field is equal to 'n' ('n' being 1, 2, 3, or 4), note that 'n + 1' level DI table is required. If access code (Form ESS 1109A, columns 45-49) contains more digits than 'n + 1', subtract 'n + 1' from the number of digits in access code, this number plus 'n + 1' level DI table is required.

Note: If rightmost digit in access code contains a number sign (#), timing table is also required for second highest level DI table.

(4) Proceed to 7.2.2.

7.2.2 Add DI Tables to Centrex Common Block

Add required DI tables as follows.

(1) Construct RC message per Table H and Fig. 26.

(2) At terminal, type RC message as constructed in Step (1) and observe RC18 22 0 ACPT response.

Note: When seizing DI tables, DI levels must be seized in ascending order. All second levels must be seized before third levels, all third levels before fourth, etc. Refer to AT&T Practice 231-318-355 for further information.

TABLE H

RC:DITABS KEYWORDS

RC MESSAGE	FORM ESS 1109A COLUMNS	REMARKS
RC:DITABS:	—	Message heading
CTX cccc	25-28	CTX group number
DGS abcdX	45-54	abcdX = DI level to be seized dX = second level cdX = third level bcdX = fourth level abcdX = fifth level
TIME	46-49	Timing table required. Used when last digit in columns equals #. Determined prior to this step.

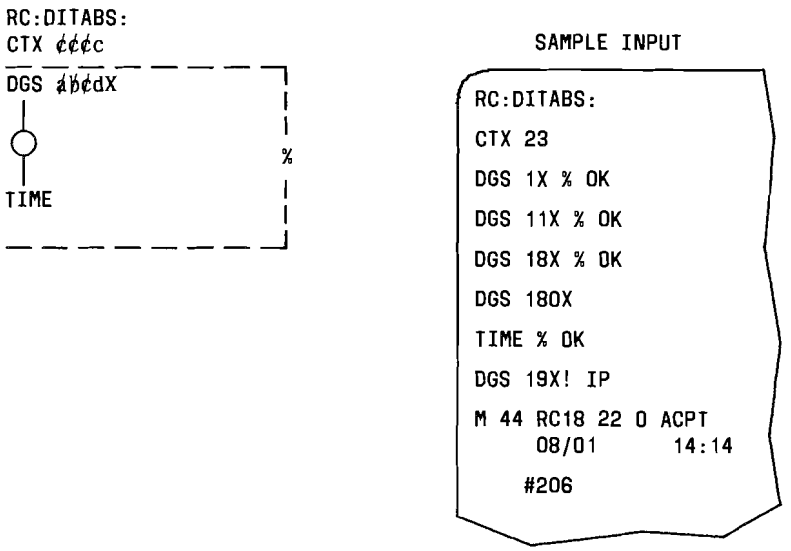


Fig. 26 — RC:DITABS Flowchart and Sample Input

7.2.3 Add Data Type 05 to DI Table

Add data type 05 to DI Table as follows.

(1) Construct RC message per Table I and Fig. 27.

(2) At terminal, type RC message as constructed in Step (1) and observe RC18 23 0 ACPT response.

7.2.4 Verify DI Table Entry for Data Type 05

Using the access code (Form ESS 1109A, columns 45-54) as input to the VFY-XDGNT message, verify DI table entries. Refer to 6.2 for details.

If TR02 output message data is incorrect, correct RC message or clear trouble with local TAC or equivalent.

TABLE I

RC:CTXDI KEYWORDS

RC MESSAGE	FORM ESS 1109A COLUMNS	REMARKS
RC:CTXDI:	—	Message heading
CTX ŕŕŕa	25-28	Centrex group number (located in Item 00 of Form ESS 1109A)
DGS dddde	45-49	Access code or start of digit range to be interpreted
DGE ddddf	50-54	End of digit range to be interpreted (if required). Only last digit may differ from digits in DGS.
STYP 30	62-63	Subtype number (for data type 05)
SSTYP ŕa	69-70	Sub-subtype number: aa = 0 for PFP, 1 for NMP
RI ŕŕŕr	58-61	Route index for STYP 30
DNYGPS (g,g,g,g,g,g,g)	36-43	CAT (centrex treatment) codes (0-7) to be denied access to feature. g = CAT code numbers that do not contain check in column for STYP 30.

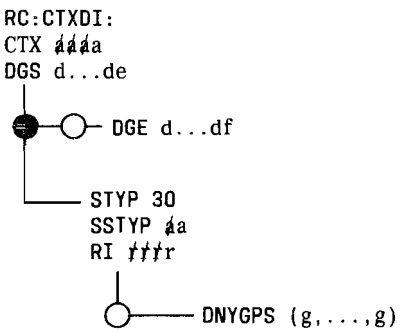


Fig. 27 — RC:CTXDI Message Flowchart

7.3 Add Service Order Translations

Add centrex line (non-MLG) translations for lines per AT&T Practice 231-318-325 and return.

> ***Note 1:*** The auxiliary LEN must be assigned an originating major class of 42.

> ***Note 2:*** For the CDFP feature, keywords E2H and EAB must be input in the RC:LINE message to allow flash recognition and call hold, respectively.

> ***Note 3:*** There can now be TRCs against a DN for CDFP or subscriber line busy peg count prior to RC:CFV messages.

Update office records.

7.4 Assign Traffic and Plant Measurements

Assign traffic and plant measurements and destination codes per AT&T Practice 231-371-001.

> ***Note:*** There can now be TRCs against a DN for CFV (call forwarding variable) or CDFP prior to RC:TRFSLB (subscriber line busy peg count) messages.

7.5 Activate CDFP Feature

At MTCE terminal, activate the CDFP feature by typing

ALW:RCSOURCE CMP!

CMP = Centrex Modem Pooling: RC source for CDFP.

Observe the REPT:RC SOURCE response.

8. TRUNK MAINTENANCE/DIAGNOSTICS

This part covers trunk maintenance/diagnostics for the CDFP OGT circuit(s).

8.1 Testing Objective

The objective of trunk testing is to aid maintenance personnel in maintaining performance standards of trunk circuits. This is accomplished by detecting trouble conditions and removing faulty trunks from service.

To insure that the CDFP OGT is functioning properly, the major components of the trunk circuits must be monitored. These components consist of 3 scan points and 2 relays which function as follows. (See Fig. 28.)

- FS(0) - Line side supervision: This scan point provides line side supervision toward the CDFP line appearance and monitors data carrier detect RS232C signal. This signal indicates that carrier signal is present from the customer premises IVDM (CP-IVDM) to the host computer. This signal can be detected at the RS232C interface between the CO-IVDM and the CO-CPDS.
- FS(1) - Trunk side supervision: This maintenance/error scan point is used to verify carrier signal sent from the host computer to the CP-IVDM. If not present, the trunk is automatically taken out of service and placed on the H&W (high and wet) list. When carrier is returned, the trunk is automatically restored to service.
- FS(2) - This scan point is used to verify network continuity to the CDFP line appearance. It is also used to detect when a customer goes on hook after a successful data connection to the host computer. After such detection, cut-through is provided to the auxiliary line appearance for subsequent voice calls.
- A relay - The A relay (network continuity) provides for cut-through from the CO-IVDM to the TLN (trunk link network).
- B relay - The B relay (full path continuity) controls two functions: (1) When released, it feeds battery and ground through FS(2) to the CO-IVDM to monitor the CDFP line for on-hook after a data call has been originated. After a successful data connection and the CDFP line goes on hook, the B relay is operated. (2) When operated, it provides cut-through from the auxiliary line appearance to the CO-IVDM. The CDFP line is then supervised for origination at the auxiliary line appearance. And the auxiliary line appearance is checked for busy/idle state on call completion attempts to the CDFP line.

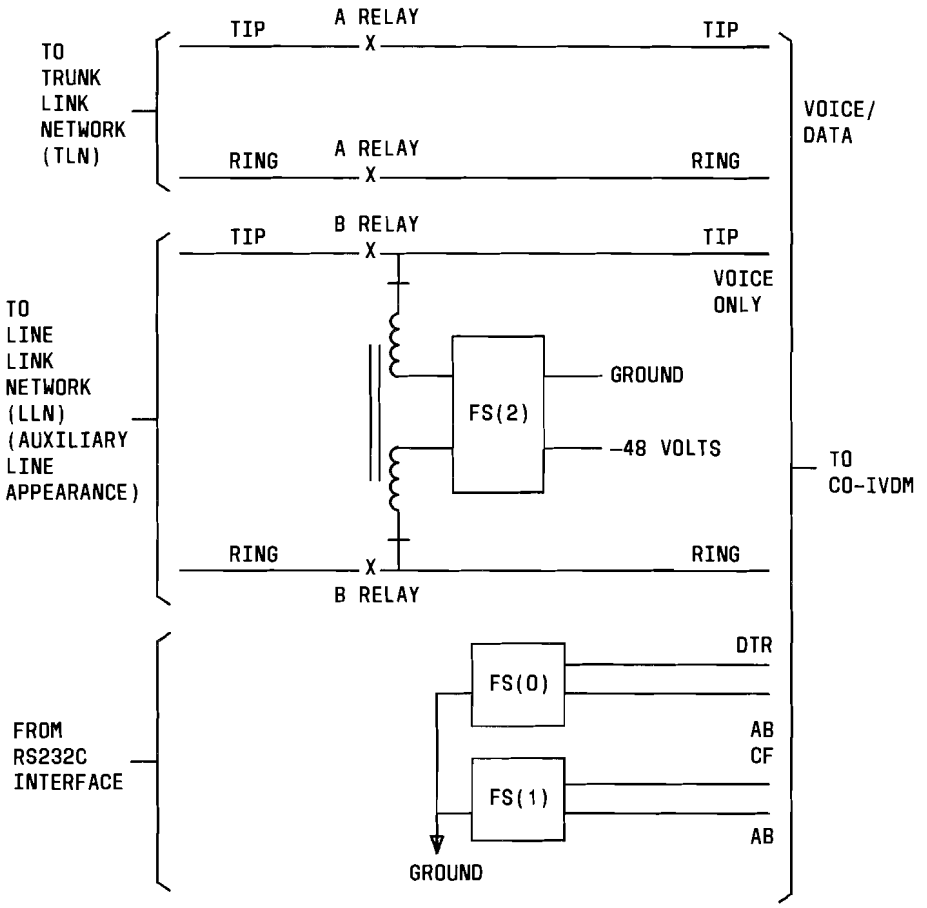
Trunk maintenance/diagnostics consist of the following functions:

(a) Removing and restoring the CDFP OGT from/to service.

(b) Running voice and simultaneous voice/data diagnostic tests on suspected faulty trunk circuits.

(c) Routine testing (voice only) of all trunk circuits via APT (automatic progression testing).

(d) Limited manual verification of trunk circuits from trunk test positions.



LEGEND:
- A RELAY = FOR NETWORK CONTINUITY
- B RELAY = FOR CUT-THROUGH TO AUX LINE APPEARANCE AND TAKING FS(0) OUT OF LOOP
- FS(0) = FERROD SCAN FOR DTR LEAD OF RS232C INTERFACE
- FS(1) = FERROD SCAN FOR CF LEAD OF RS232C INTERFACE
- FS(2) = FERRDD SCAN FOR VOICE SUPERVISION
- DTR = RS232C LEAD THAT SIGNIFIES CARRIER FROM CP-IVDM TO HOST COMPUTER
- CF = RS232C LEAD THAT SIGNIFIES CARRIER FRDM HOST COMPUTER TO CP-IVDM
- AB = RS232C LEAD FOR SIGNAL GRDUND FOR DTR AND CF LEADS
- CO-IVDM = CENTRAL OFFICE INTEGRATED VOICE/DATA MULTIPLEXER

Fig. 28 — Functional Block Diagram of CDFP OGT

8.2 Removing and Restoring OGT Circuits

8.2.1 Removing Trunks from Service

When physically removing a faulty trunk from a frame, both the specified TNN and its mate must be taken out of service before the trunk circuits are pulled from the frame for repair or replacement. This may be accomplished by performing Step (a) or Step (b).

(a) From the TLTP (trunk and line test panel), access either TNN, operate the TWIN BUSY key, and then release the TRUNK key. Refer to AT&T Practice 231-050-009 for detail procedures.

(b) At MTCE terminal, type the following message and observe TN06 CDFP 0 aaaaaa dddd LKDO output responses (where dddd = TG number).

T-TNN-TB 0 0 aaaaaa.

aaaaaa = TNN.

Use the MAKE BUSY key instead of the TWIN BUSY key, or use the T-TNN-LO or T-TNN-MB format of the above input message to remove just one trunk, of the pair, from service.

8.2.2 Restoring Trunks to Service

Trunks may be restored to service by performing Step (a) or Step (b).

(a) If testing at the TLTP, release all necessary test keys, operate the RMV BUSY/REMOVE BUSY key for each trunk. Refer to AT&T Practice 231-050-009 for detail procedures.

(b) If testing at MTCE terminal, type the following message for each TNN and observe TN06 CDFP 0 aaaaaa dddd ACT output response(s) (where dddd = TG number).

T-TNN-MA 0 0 aaaaaa.

aaaaaa = TNN.

8.3 Voice Diagnostics

The voice diagnostic test (Fig. 29) tests the relays of the CDFP OGT, verifies network continuity to the CDFP line appearance, and verifies the quality of voice as it passes through the CO-IVDM. This test may be requested by performing Step (1) or Step (2).

(1) If testing at the TLTP, dial 6-digit TNN, then dial *00 and #. Refer to AT&T Practice 231-050-009 for detail procedures.

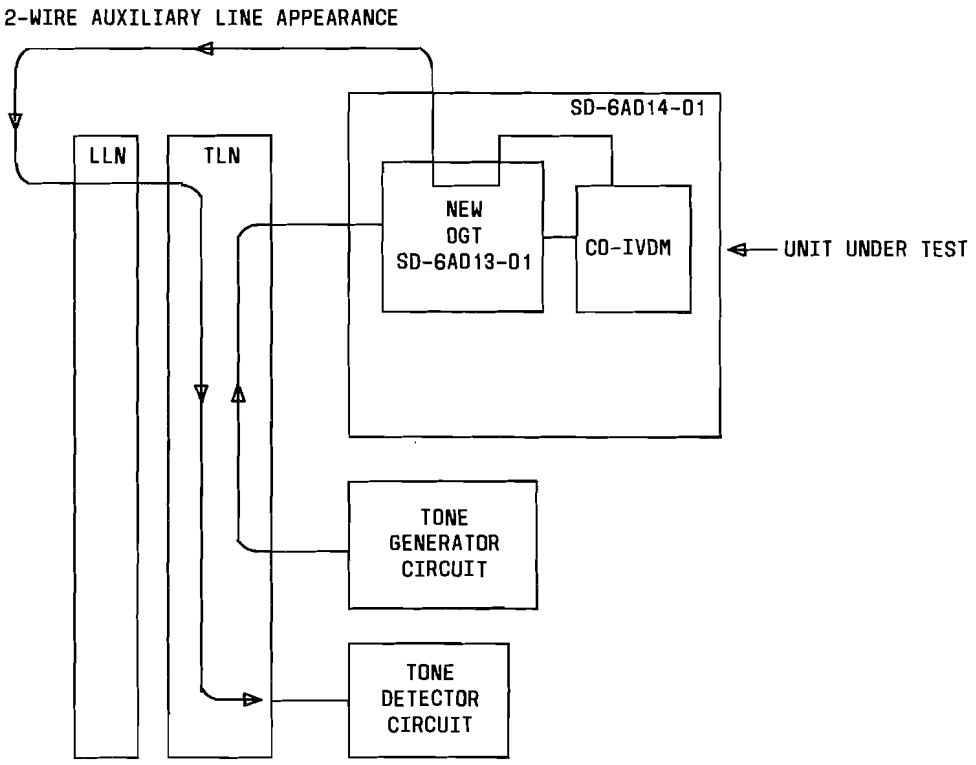
(2) IF testing at MTCE terminal, type one of the following:

(a) T-TNN-aa 0 0 tttttt.

(b) TRK-GROUP-aa 0 0 dddd.

(c) TRK-LIST-fff.

aa = DG - Diagnose trunk (without a raw data printout)
= DR - Diagnose trunk and print diagnostic raw data if a failure occurs (Not used in TRK-GROUP message). Refer to PK-1A045.
= RT - Diagnose trunk 32 times and print failures (ATPs are not printed).
tttttt = TNN
dddd = TG number
fff = DOS - Diagnose all trunks on the out-of-service list.



LEGEND:
LLN = LINE LINK NETWORK
TLN = TRUNK LINK NETWORK
CO-IVOM = CENTRAL OFFICE INTEGRATED VOICE/DATA MULTIPLEXER
OGT = OUTGOING TRUNK
RS232C = INTERFACE CABLE

Fig. 29 — Voice Diagnostic Configuration

In response to the above input, the system response should be TN01, TN05, or TN04 output message(s). Refer to OM-6A001 for interpretation of response.

If a trunk circuit fails (i.e., continuity check) during call setup or call disconnect, the trunk is placed on the TML (trunk maintenance list). Thus, the voice diagnostic is automatically requested.

Voice diagnostics can also be run at scheduled time intervals (APT). If a trunk circuit fails the diagnostic, the circuit is immediately retested. A second failure will result in the circuit being removed from service provided that the AML (automatic maintenance limit) for the TG is not exceeded. The AML for CDFP TGs is as follows: Not more than 1/4 of the first 16 trunks and 1/8 of the remaining trunks in a group can be removed from service.

8.4 Other Operational Trunk Tests

Other existing operational trunk test procedures can be used to test certain functions of the CDFP OGT from the trunk test panels (or via input messages). The functions that can be tested are listed below.

- 3-digit test codes - Display scan points
- 4-digit test codes - Operate and release relays.

For details on the above test procedures, refer to AT&T Practice 231-050-009 (TLTP), AT&T Practice 231-050-008 (STTP), or AT&T Practice 231-050-007 (MTTP).