nt northern telecom

NETWORK OPERATIONS SYSTEM

BUSINESS NETWORK MANAGEMENT

DNC*500: BNM RELATED DATAFILL FOR DMS*-100

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1. INTRODUCTION

1.01 This practice gives an overview of the datafill and commands that are required at a DMS -100 switch to:

- generate feature data that is relevant to BNM

- set up data streams for file transfer

- set up and activate an X.25 Network Operations Protocol (NOP) link from DMS to DNC-500

- respond to demand transfer requests from DNC-500

1.02 A summary is provided of DMS software tables that are to be datafilled, and the correct order in which they are to be filled.

Note: This Practice covers BCS26 to BCS29, which are the DMS software releases compatible with the NSR28 release of BNM.

Caution: This practice is not intended to be a complete guide to datafilling DMS-100 tables; the DMS document library is to be used for that purpose. If a particular value is required for BNM, or if a special consideration applies for BNM, the tables or commands are given in this document. In all other cases, the user is referred to the appropriate DMS-100 practice, and subsection if it is applicable. Chart 1-1 lists the DMS practices that are referenced in this practice.

1.03 A DMS-100 switch is datafilled in the following stages:

(1) Datafill for any customers that use more than one DNC-500. See Chapter 2.

(2) Datafill to generate the data for any of the following features that are equipped: ATT, KT, OM, and SMDR. See Chapter 2.

(3) Datafill to define disk space for data. See Chapter 3.

(4) Datafill for Network Administration, if option is equipped. See Chapter 4.

(5) Datafill to set up the data link from the DMS switch to the DNC-500. See Chapter 5.

(6) Use maintenance commands to start and monitor data transfer to the DNC-500. See Chapter 6.

Associated NTP References	**1.04** Chart 1-1 lists, in numerical order, the Northern Telecom Practices (NTPs) that are referred to in this practice. Practices that provide information concerning data tables include reference to the appropriate section of the practice. These practices are a useful supplement to this practice when data is being entered in a DMS switch for use with a BNM System.

Chart 1-1
REFERENCES

SUBJECT	NTP NUMBER	NTP SECTION
The MAP Terminal	297-1001-110	
Table Editor Commands	297-1001-310	
DIRP System Description	297-1001-312	
Complete Data Schema:	297-1001-451 and 297-2001-451	
Table ATTOPTNS	297-1001-451	043
Table ATTSCHED	297-1001-451	043
Table BNMCUST	297-1001-451	939
Table CRSFMT	297-1001-451	056
Table CRSMAP	297-1001-451	056
Table CUSTSMDR	297-1001-451	137
Table DDU	297-1001-451	008
Table DIRPHOLD	297-1001-451	054
Table DIRPPOOL	297-1001-451	054
Table DIRPSSYS	297-1001-451	054
Table GDLADEV	297-1001-451	096
Table IBNRTE	297-2001-451	149
Table KTACTIVE	297-1001-451	048
Table KTGROUP`	297-1001-451	048
Table KTPARMS	297-1001-451	048
Table MPC	297-1001-451	078
Table MPCLINK	297-1001-451	(tbd)

Chart Continued -------------------------------

Chart 1-1 Continued
REFERENCES

SUBJECT	NTP NUMBER	NTP SECTION
Table NCOS	297-2001-451	150
Table NOPADDR	297-1001-451	090
Table OMACC	297-1001-451	005
Table OMTAPE	297-1001-451	005
Table STREAM	297-1001-451	005
Table X25LINK	297-1001-451	078
Table TRKGRP	297-2001-451	621
Office Engineering Parameters	297-1001-455	
Table OFCENG (For SMDR)	297-1001-455	030
Table OFCENG (For OM)	297-1001-455	030
Table OFCENG (For MPC)	297-1001-455	030
Table OFCOPT	297-1001-455	016
Table OFCVAR	297-1001-455	037
MAP Terminal Logon	297-1001-500	(DP 6112)
Command/Directory Cross Reference	297-1001-509	
DMS General Maintenance Commands	297-1001-520	
DPAC System Description	297-1001-525	
DSKUT System Description	297-1001-526	

USING THE MAP TERMINAL

1.05 Data in DMS is stored in memory in the form of tables. Each table is identified by a name. A table contains a list of tuples, a tuple being a logical row of associated fields. (These may be physically displayed on several rows if there are too many for a single row.)

1.06 The contents of a table can be changed by logging in to a DMS Maintenance and Administrative Position (MAP) terminal and using table editor commands.

Logging In

1.07 To log in to a MAP terminal, perform the following steps:

    (1) Press *BREAK.*
        ==> If a question mark (?) is displayed, the terminal is available.

(2) Type "Login", then press ***RETURN.***
    ==> The prompt appears for a user name and a password.

(3) Type the user name and password, then press ***RETURN.***
    ==>The message "Logged in on (date) at (time)" is displayed.

Accessing Tables

1.08 Once you have logged in, you can access any table by entering the command:

 TABLE <table_name>

Editing Tables

1.09 Once you have accessed a table, you can use the following commands:

COUNT	counts the quantity of tuples in the table
LIST ALL	displays the entire table
POSITION <value_1>	positions the table editor at the tuple to be changed or deleted, and displays the tuple. <Value_1> is the entry in the left-most field of the tuple to be edited
CHANGE n	initiates the change to the nth field of the tuple, counting from the left
<new_value>	enters the <new_value> at the nth field (use only after CHANGE)
Y or N	confirms (Y) or cancels (N) the change (use only after <new_value>)
ADD	initiates the addition of a new tuple. System then prompts for each field in the tuple
DELETE	deletes the tuple (use the POSITION command first)
QUIT	exits from the table

Notational Conventions

1.10 Each table in this NTP lists the field names of the table. Associated with each field are the possible entries for the field, and a comment. In addition,

- default values, if any, are given in brackets

- UPPERCASE denotes characters or strings to be input as shown

- lowercase denotes some entry to be determined by the customer

2. SETTING UP BNM FEATURES

2.01 This part gives the steps for datafilling a DMS switch so that the switch will generate the following types of feature data by customer for a BNM system:

- BNM Customer using more than one DNC-500

- Automatic Trunk Test (ATT) [equivalent to TTRF in DMS]

- Killer Trunks (KT)

- Operational Measurements (OM)

- Station Message Detail Recording (SMDR)

BNM CUSTOMER

2.02 To set up the customer name and subgroup so that all of the subgroups can be uploaded at the same time.

2.03 The customer groups are first defined in Table CUSTENG, and then Table BNMCUST (Chart 2-1) is datafilled.

Table BNMCUST

2.04 Table BNMCUST has only a key field containing two subfields. The subfields define the customer and the associated customer groups.

Chart 2-1
TABLE BNMCUST

Reference: 297-1001-454 Section 939

SUBFIELD	ENTRY	COMMENTS
CUSTNAME	A-Z, 0-9	This is the customer name, consisting of up to 16 alphanumeric characters, that uniquely identifies the customer.
CUSTGROUP	A-Z, 0-9	This is the the name of the customer group that is owned by the customer listed under field CUSTNAME. It consists of up to 16 alphanumeric characters.

Note: Although a customer group can be associated with only one named customer, a named customer can be associated with more than one customer group.

| STATION MESSAGE DETAIL RECORDING (SMDR) | **2.05** To set up the SMDR feature, |

(1) Define an SMDR data stream in Table CRSFMT, (see Chart 2-2)

(2) Datafill Table CRSMAP (Chart 2-3) to ensure that the appropriate SMDR data stream is sent to SMDR files.

(3) Modify the required fields in Table OFCOPT (Chart 2-5) and Table OFCENG (Chart 2-6).

Table CRSFMT

2.06 Table CRSFMT (Call Record Stream Format) determines the number and format of call record output streams. The DMS node automatically produces call record data and divides it into the number and type of streams required. The switch requires two streams, NIL and AMA, for its internal Automatic Message Recording features.

2.07 To produce SMDR reports, a DNC-500 system needs to receive its own stream of SMDR data in SMDR format from each DMS node. Table CRSFMT must be datafilled at each DMS switch to define this stream.

2.08 Refer to Tables CRSMAP, DIRPPOOL, DIRPSSYS, DIRPHOLD and STREAM to define disk space and files on the DMS node for the new data stream.

Chart 2-2
TABLE CRSFMT

Reference: 297-1001-451, Section 056

FIELD	ENTRY	COMMENTS
KEY	SMDR, SMDX, SMDY, (or alphanumeric)	This is the name of the new data stream. The entry is normally SMDR, but can be different if the operating company has defined other SMDR data streams for its own purposes, or for multiple SMDR data streams for BNM. For multiple SMDR streams on a DMS node, each node must be identified in this field.
FORMAT	SMDRFMT	This is to put the SMDR data stream in the standard SMDR format (similar to NTFMT), so that it can be used by the DNC.
DATADUMP	Y	This is to dump the SMDR data to specific files in certain disk locations (specified in the DIRP Tables) so that they are accessible by the DNC system.

Chart Continued   -------------------------------

Chart 2-2 Continued
TABLE CRSFMT

FIELD	ENTRY	COMMENTS
CDRSRCH	NIL_FM	The DNC system does not use this Call Detail Recording Search option.
ALARMS	N	The DNC has no connection with the DMS audible alarm system.
DEFERRED (up to BCS27)	N	The DNC system does not require deferred BOC AMA formatting.
TIMERDMP	N	Timer Dump is not required for BNM operation.
TIMERVAL	0	Timer Interval. Time in even seconds between timer dumps. Enter 0 for BNM operation.

Table CRSMAP   **2.09** Table CRSMAP (Call Record Stream Mapping) assigns the data stream that is defined in the Table CRSFMT, to the call record stream within the DMS node (see Chart 2-3).

2.10 Refer to the descriptions of the datafill for Tables DIRPPOOL, DIRPSSYS, and DIRPHOLD concerning the definition of disk space and files on the DMS node for the new data stream.

Chart 2-3
TABLE CRSMAP

Reference: 297-1001-451, Section 056

FIELD	ENTRY	COMMENTS
KEY	SMDR, SMDX, SMDY (or alphanumeric)	This is the name of the new data stream. The entry is normally SMDR, but can be different if the operating company has defined other SMDR data streams for its own purposes, or for multiple stream operation in BNM. It must be the same as the KEY used for the appropriate SMDR stream in Table CRSFMT. For multiple SMDR streams, each stream must be identified in this field.
STREAM	SMDR, SMDX, SMDY (or alphanumeric)	This is the type of data stream that is being defined. The DNC system requires an SMDR data stream in order to collect SMDR records from this DMS node.

Table CUSTSMDR   **2.11** This table (see Chart 2-4) is required for a switching unit with North American translations and the Integrated Business Network (IBN) feature. It lists the SMDR options assigned to each of the customer groups. This table is required only if the table OFCOPT has the parameter SMDR_OFFICE set to Y.

Chart 2-4
TABLE CUSTSMDR

Reference: 297-2001-451, section 137

FIELD	ENTRY	COMMENTS
CUSTNAME	alphanumeric	Customer Group Name. Enter the 1 to 16 character name assigned to the customer group.
BUSNSID	0-9999999999, default 0	Business Identification Number. This field is only used with the MDRRAO option. Enter up to 10 digits to identify the business group.
OPTIONS	alphanumeric, + or $	Enter the list of options, and, where applicable, associated subfields, that are assigned to the customer group. Each option and its subfield must be separated by a blank space. Use as many records as required to complete the list of options and associated subfields. If an option is not provided, then no input is required. When the entry is other than the last for the customer group, enter +, otherwise last entry for the customer group, enter $.

OPTION	SUBFIELD	COMMENTS
AMACUST		Automatic Message Accounting Customer Group Identification. If Bellcore format AMA records which are generated by members of a designated IBN customer group are to contain an indication of that member's customer group from field GROUPID in table CUSTENG, enter this option.
ANSTIM	2-14 or 16-31, default 15	Answer Time Allowed. Enter the time allowed, in one second intervals, before a call on a no-answer trunk is considered answered.
DERVSMDR		Derived SMDR. Denotes that AMA records generated require RAO processing for SMDR purposes.

Chart Continued   -------------------------------

Chart 2-4 Continued
TABLE CUSTSMDR

FIELD	ENTRY	COMMENTS
OPTION	**SUBFIELD**	**COMMENTS**
MDRRAO		MDR Revenue Accounting Office. Prevents the customer group from generating any SMDR formatted records. When this optin is in effect, all options that relate only to SMDR formatted records (ANSTIM, RAO, RNA, SMDRCDT, DERVSMDR, POOL, NETWORK), are not used. If already present, they are deactivated and a warning message given. This option can only be added to customer groups using Bellcore format.
MSN		Meridian SuperNode. When assigned, Meridian SuperNode calls that generate SMDR records will also generate the MSN extension record.
NERVE		Network Surveillance. When this option is assigned, all incoming and outgoing tie trunk and FX line calls are recorded in the SMDR format.
NETWORK		Network Option. If this option is assigned, incoming ISUP IBN Trunk calls which generate SMDR records also will contain the Networked SMDR Extension Record.
RAO		Record Digits as Outpulsed. For calls creating an SMDR entry, the digits as outpulsed are recorded as an extension to the SMDR entry if they differ from the digits dialed.
RNA		Record No Answer. Records unanswered calls in SMDR format. Otherwise, only answered calls are recorded.
SMDRCDT	alphanumeric	SMDR Call Data Type. This option allows up to 10 customer groups to each have their own SMDR file on tape or disk. The data type is alphanumeric and must already be defined in tables CRSFMT and CRSMAP.
POOL	1-15	If SMDR records produced by the customer group are to be routed to a pool specified for transmission to a down stream processor, enter the POOL option and subfield.

Table OFCOPT

2.12 Table OFCOPT (Office Options) defines the many DMS-100 office option parameters. Although this table is usually reserved for use by Northern Telecom (NT) personnel, the operating company can change parameters in this table by using the table editing facility.

2.13 Chart 2-5 gives the OFCOPT parameters associated with SMDR data generation.

Chart 2-5
TABLE OFCOPT

Reference: 297-1001-455, Section 016

PARMNAME	PARMVAL	COMMENTS
AMA_ EBCDIC_ CONVERT_ ENABLE	Y or N	If the field is set N (default), the parameter AMA_EBCDIC_CONVERT does not appear in Table OFCENG. If set to Y, refer to Chart 2-5 for instructions. *Activation: Reload.*
SMDR_OFFICE	Y or N	This option is required in a switching unit with North American translations and the IBN feature. It specifies whether or not the unit has the SMDR feature. Enter Y if the SMDR feature is present, N if not. When adding the feature to an exisitng switch, leave the value at N (default), setting to Y when it is time to activate the feature. *Activation: Immediate.*

Table OFCENG

2.14 Table OFCENG (Office Engineering) defines engineering parameters for a DMS-100 switch, including those that relate to SMDR. The operating company that owns a DMS node can change parameters in this table using the table editing facility.

2.15 Chart 2-6 gives the OFCENG parameters that apply to SMDR record generation.

Chart 2-6
TABLE OFCENG (FOR SMDR)

Reference: 297-1001-455, Section 030

Note: Before changing an existing setting of Y for this parameter to N, check with operating company and Northern Telecom personnel to ensure that this will not have any adverse affect on other AMA-related data generated by the DMS node.

PARMNAME	PARMVAL	COMMENTS
AMA_EBCDIC_ CONVERT	N	Automatic Message Accounting (AMA) Extended Binary Coded Decimal Interchange Code (EBCDIC) Convert. Entering Y for this parameter causes all AMA (including SMDR) data to be generated in EBCDIC format. Because a connected DNC system must receive SMDR data in Binary Coded Decimal (BCD) format, this parameter must be set to N, the default setting. *Activation: Warm Restart.*
NUM_CALLREC_STREAMS	1-16	Number of Call Record Streams that can be datafilled into the table STREAM. *Activation: Immediate.*

AUTOMATIC TRUNK TEST (ATT)

2.16 The ATT feature is set up by datafilling Table ATTOPTNS and Table ATTSCHED (Charts 2-6 and 2-7).

Table ATTOPTNS

2.17 Table ATTOPTNS (Automatic Trunk Test Options) specifies the parameters for Automatic Trunk Tests (ATT) that are carried out by the DMS-100 node. This table must be datafilled at each DMS node so that the ATT data is generated by the switch, in readiness for collection and reporting by the attached DNC.

2.18 Refer to the descriptions of the datafill for Tables ATTSCHED, DIRPPOOL, DIRPSSYS, and DIRPHOLD. These tables are used to schedule ATTs, and to define disk space and files in the DMS node for the ATT data that is accessed by the DNC system.

2.19 Chart 2-7 lists and describes in general terms the fields in Table ATTOPTNS. Unless otherwise stated, any of the entries listed are acceptable for an attached DNC system. The operating company selects the appropriate entries for this table, in consultation with maintenance personnel.

Chart 2-7
TABLE ATTOPTNS

Reference: 297-1001-451, Section 043

FIELD	ENTRY	COMMENTS
TSTCLASS	NSTD; PERD; PERD1; ATME; ATME1; MAN; MAN1; MAN2; MAN3; MAN4; QUAR; SYR	Test class name. Describes the general frequency of the ATTs to be run.
TRNSMOUT	ALLTR; ALTRFL; Q1T; Q2T	Test log outputs. Determines whether the test results are to be logged from all trunks (ALLTR), only those that fail (ALTRFL), or only those that exceed certain performance limits (Q1T; Q2T).
OPEROUT	ALLOP; FAILOP	Operational test output. Determines whether all trunks (ALLOP) or only failures (FAILOP) are to be logged for operational tests.
Q1LIMIT	0-99	Transmission maintenance test limit (expressed in tenths of a decibel).

Chart Continued -------------------------------

Chart 2-7 Continued
TABLE ATTOPTNS

FIELD	ENTRY	COMMENTS
Q2LIMIT	0-99	Transmission immediate action test limit (expressed in tenths of a decibel).
Q1L404	0-99	404 Hz transmission maintenance test limit (expressed in tenths of a decibel).
Q2L404	0-99	404 Hz transmission immediate action test limit (expressed in tenths of a decibel).
Q1L1004	0-99	1004 Hz transmission maintenance test limit (expressed in tenths of a decibel).
Q2L1004	0-99	1004 Hz transmission immediate action test limit (expressed in tenths of a decibel).
Q1L2804	0-99	2804 Hz transmission maintenance test limit (expressed in tenths of a decibel).
Q2L2804	0-99	2804 Hz transmission immediate action test limit (expressed in tenths of a decibel).
NMLTA	0-99	Noise Maintenance Limit and immediate action limit correction (expressed in tenths of a decibel).
WAITTIME	0-7	Number of minutes the system is to wait until one of a group of busy trunks becomes available for testing.
RETSTSET	TSTPASS; SIG_FAIL; BSY_FLASH_FAIL; MEAS_Q1_FAIL; MEAS_Q2_FAIL; BSY_NE; BSY_FE; INST_INTER; MISC_FAIL; ALL; NONE	Retest Set. Set of conditions under which a node is to retest a trunk that has failed an ATME test, where: TSTPASS- the test passed SIG_FAIL- the signalling test failed BSY_FLASH_FAIL- the busy flash test failed MEAS_Q1_FAIL- a set performance test failed MEAS_Q2_FAIL- a set performance test failed BSY_NE- the near end of the trunk is busied BSY_FE- the far end of the trunk is busied INST_INTER- MISC_FAIL- a miscellaneous test failed ALL- retest all trunks NONE- do not retest any trunks
RETEST	Y or N	Retest on failure. Determines whether the system is to retest a failed trunk (Y) or not (N).

Chart Continued -------------------------------

Chart 2-7 Continued
TABLE ATTOPTNS

FIELD	ENTRY	COMMENTS
REMOVE	Y or N	Remove from service. Determines whether the node is to remove from service a trunk that has failed a test (Y) or to leave it in service (N).
RMV25PC	Y or N	Remove from service check. Limits the quantity of faulty trunks that can be removed from service to 25% of the trunks that were tested by this node (Y) or allows more than 25% to be removed from service (N).
MQIDX	0-99	Index to table MQLIMITS for the BERTL Q limits. Default is 1.

Table ATTSCHED

2.20 Table ATTSCHED (Automatic Trunk Test Group Schedule) schedules all automatic trunk tests (ATTs) that are carried out by the DMS-100 node. The table lists the trunks in the switch that are to be tested, as well as the type and schedule of the tests.

2.21 An attached DNC-500 does not require any special entries in this table. However, each DMS node in the Meridian Digital Centrex (MDC) network must be datafilled to cause the ATT data to be generated, so that it can be collected by the DNC system for its reports.

2.22 Chart 2-8 lists and describes the fields in the Table ATTSCHED only in general terms. Unless otherwise stated, any of the entries listed are acceptable for an attached DNC system. The operating company determines the entries for this table in consultation with maintenance personnel.

2.23 Refer to Tables ATTOPTNS, DIRPPOOL, DIRPSSYS, and DIRPHOLD, concerning ATT controls and the definition of disk space and files in the DMS node for ATT data.

Chart 2-8
TABLE ATTSCHED

Reference: 297-1001-451, Section 043

FIELD	ENTRY	COMMENTS
ATTKEY	(CLLI and Test Name)	Automatic Trunk Test Key is used to identifiy the trunk to be tested and the type of test to be run.
ABORTGRP	Y or N	Abort Group. A Y entry removes the trunk that is listed from the ATT group to be tested, without removing the complete entry for the trunk from the table, while an N entry retains the trunk in the test group.
TSTSCHED	(Frequency and Time)	Test Schedule is used to specify the frequency with which each listed trunk is to be tested, and the time of the test.
MAXTEST	0-999	Maximum Test time specifies the maximum consecutive number of ten minute intervals that each trunk's test is to run.
TESTDLY	S, M, L, or E	Test Delay. The delay allowed before the remote end drops in a trunk test. (Short = 1 second, Medium = 6 seconds, Long = 9 seconds, and Extra-long = 15 seconds.)

Chart Continued -------------------------------

Chart 2-8 Continued
TABLE ATTSCHED

FIELD	ENTRY	COMMENTS
TSTSEQ	NSTD; PERD; PERD1; ATME; ATME1; MAN; MAN1; MAN2; MAN3; MAN4; QUAR; SYR	Test Sequence is the general frequency that the ATTs are to be run. This field is equivalent to the TSTCLASS field and links the Table ATTSCHED with Table ATTOPTNS. The candidate values are: NSTD- non-standard PERD- periodic PERD1-periodic ATME- automatic ATME1- automatic MAN1, MAN2, MAN3, MAN4- manual QUAR- quarterly SYR- semi-yearly

Table MQLIMITS

2.24 The maintenance Q limit table (table MQLIMITS) stores the maintenance Q limits for the BERTL and its test time. The data provided is the following:

- BERQ, the bit error rate Q limit

- ERSQ, the errored seconds Q limit

- SLIPSQ, the number of slips Q limit

- TLTIME, the test time in minutes

2.25 This table (Chart 2-9) provides ten sets of values that can be preset by the telco. It is changed using standard table control methods.

Chart 2-9
TABLE MQLIMITS

Reference: 297-1001-451,

FIELD	ENTRY	COMMENTS
MQIDX	0-9	Index for the MQLIMITS table.
TLTIME	0-15300	BERTL test time in minutes. Default is 15.
BERQ	0-15	Bit error rate Q limit. The BER is indicated as 1.0 x 10E -n. The absolute exponent (n) is the number that is specified. The default is 3.
SLIPSQ	0-15	Slips Q limit, it is the maximum number of slips allowed. The default is 3.
ERSQ	0-999	Percentage of errored seconds Q limit, it is the maximum percentage of errored seconds allowed, and expressed in decimal units. The default is 8.

Table TSTLCONT   **2.26** The table TSTLCONT (Chart 2-10) adds the BERT test code to the appropriate test line. This table contains the number of the test line that will use the test code.

Chart 2-10
TABLE TSTLCONT
_____

Reference: 297-1001-451,

FIELD	ENTRY	COMMENTS
TB08	test line number	Add to the appropriate sub table for DIALED LOOPBACK ON TRUNKS terminating test line. This test line is for a BERT test speed of 56kBPS.
TB18	test line number	Add to the appropriate sub table for DIALED LOOPBACK ON TRUNKS terminating test line. This test line is for a BERT test speed of 64kBPS.

Note: The BERT test type that is used depends on the required test speed which is based on the transmission speed used by the trunk under test.

KILLER TRUNKS (KT)   **2.27** To set up the KT feature,the table KTPARMS (see Chart 2-11) must be datafilled by the operating company. However, from the perspective of the DNC and more specifically BNM, the ENABLE field must be set to ON for this feature to work.

Table KTPARMS   **2.28** Table KTPARMS (Killer Trunk Parameter) controls the feature that tests and identifies Killer Trunks (KTs) at each DMS node in a centrex network. A DMS-100 can identify KTs in its group by their unusually short or long holding times.

2.29 A DNC system produces KT reports to indicate to its customers which of their trunks may need maintenance or repair. Therefore, each DMS node thta is connected in a centrex network must have its KT feature enabled and properly configured by this table.

2.30 Refer to the descriptions of the datafill for Tables KTGROUP, DIRPPOOL, DIRPSSYS, and DIRPHOLD. These tables list groups of trunks that are to be tested for KT indicators, and to define disk space and files in the DMS node for the KT data that the DNC system is to use.

2.31 While Chart 2-11 suggests input for certain fields, the operating company determines the appropriate parameters for the KT feature in consultation with their maintenance personnel.

Chart 2-11
TABLE KTPARMS

Reference: 297-1001-451, Section 048

FIELD	ENTRY	COMMENTS
KEY	KTPARMS	Identifies the tuple for this table.
ENABLE	ON	In order to collect KT information, the DNC system requires the KT feature to be enabled at each DMS node in the centrex network to which the system is connected by entering ON at this field.
SCANRATE	FAST or SLOW	The time interval in seconds between successive unk tests. A FAST scan is one test every 10 seconds and a SLOW scan is one test every 100 seconds.
START	0-23 and 0-59	Hour and minute of each day that killer trunk testing is to Start.
STOP	0-23 and 0-59	Hour and minute of each day that killer trunk testing is to Stop.

Chart Continued   -------------------------------

Chart 2-11 Continued
TABLE KTPARMS

FIELD	ENTRY	COMMENTS
REPORT	0-23 and 0-59	The hour and minute interval(s), between the START time and the STOP time when the node is to examine the test data that was collected for killer trunk indicators. After each interval the node compiles a report and starts collecting new data. The interval that is selected for nodes with heavily used trunks should be proportinally shorter than the intervals for lightly used trunks. Ther interval cannot be greater than the difference between the START and STOP times and must be at least 15 minutes in length.
KTPEGMIN	1-32767	Killer Trunk Peg Minimum. The minimum number of calls monitored during the test period that the node requires to identify whether it is a killer trunk. This number should be at least 20.
KTHTMAX	1-32767	Killer Trunk Holding Time Maximum. The average number of seconds that a trunk holds a call during the measurement period. When the holding time is less than the set value, the node identifies the trunk as a killer trunk. This average is usually only a few seconds.
SRHTMIN	1-32767	Slow Release Holding Time Minimum. The average number of seconds a trunk holds a call during the test period, above which the node identifies the trunk as a slow release killer trunk. This average is often set at 1800 seconds.
REPTYPE	EXCEPTION	Report Type. Determines whether the node reports the test results for all trunks (ALLTRKS) or only for those trunks that seem to indicate a KT problem (EXCEPTION). For BNM enter EXCEPTION.
NTRUNKS	0-2047	The maximum Number of Trunks the node is to test for killer trunk indicators at one time.
MODE	AUTO, MANUAL, or SEMIAUTO	The Mode of killer trunk testing. Determines whether the node is to automatically test as many trunks as possible during each interval (AUTO), or to test only those trunks that are listed in the KTGROUP Table (MANUAL), or to test as many trunks in this set as possible (SEMIAUTO).

Chart Continued -------------------------------

Chart 2-11 Continued
TABLE KTPARMS

FIELD	ENTRY	COMMENTS
GENKTLOG	OFF or ON	If this field is set to ON, a log is created after each report interval that contains possible killer trunks. This log contains information relating to the killer trunks detected.

Table KTGROUP

2.32 The Killer Trunk Group (KTGROUP) table (Chart 2-12) lists the trunk groups that the DMS is to test, or is testing, for killer trunk (KT) properties. It specifies a subgroup of trunks that are tested when the MODE field in Table KTPARMS is set to MANUAL or SEMIAUTO.

2.33 A DNC system produces KT reports to indicate to its customers which of their trunks may need maintenance or repair. Each DMS node in the MDC network concerned must have its KT feature enabled and configured through Table KTPARMS to produce KT data. However, if the network does not include all trunks handled by each node, not all trunks at each node need to be tested.

Chart 2-12
TABLE KTGROUP

Reference: NTP 297-1001-451, Section 048

FIELD	ENTRY	COMMENTS
KTKEY	alphanumeric	Identifies the key for the tuple (that is, complete entry) for the table. It must be datafilled in the DMS table TRKGRP.

Table KTMINMAX

2.34 The table KTMINMAX (Chart 2-13) provides threshold information for the testing of potential killer trunks within a particular trunk group. Thresholds are set for number of trunk seizures (that is, peg count) and average holding time on a per trunk group basis.

Chart 2-13
TABLE KTMINMAX

Reference: NTP 297-1001-451, Section 048

FIELD	ENTRY	COMMENTS
GROUP	alphanumeric	Identifies the trunk group to be tested for KT properties. It must be datafilled in the DMS table TRKGRP.
KTPEGMIN	1-32767	Killer Trunk Peg Minimum. The minimum number of monitored calls (that is, trunk seizures) onn a trunk the node requires to identify whether it is a killer trunk. For accuracy, this number should be at least 20.
KTHTMAX	1-32767	Killer Trunk Holding Time Maximum. The average number of seconds a trunk holds a call, under which the node identifies the trunk as a killer trunk. This average is usually only a few seconds.
SRHTMIN	1-32767	Slow Release Holding Time Minimum.The average number of seconds a trunk holds a call, above which the node identifies the trunk as a slow release trunk. This average is often set at 1800 seconds.

**OPERATIONAL
MEASUREMENTS (OM)**

2.35 To set up the OM feature,

(1) From the CI command level, define a new OM class by entering

OMCLASS <classname> SINGLE

where "classname" is the valid name for the new class. The class may be defined with DOUBLE (rather than SINGLE) registers.

(2) To add the required fields to all groups in the new class enter

OMACCFLD classname ADD ALL FIELDS

(Reference 297-1001-451, Section 005)

(3) Add OM groups to the new class, or to an existing class by using the command

OMACCGRP classname ADD GROUP groupname

for each "groupname" that is required (for example, TRK, or MDCSG). The class name that is used most often is TAPE. Consult with DMS maintenance personnel to determine OM groups required.

(4) Activate the new OM groups in Table OMTAPE (Chart 2-14) and, if necessary, the new OM class in Table OMACC (Chart 2-15), to ensure that the DMS generates the appropriate OM data.

(5) Set the OM parameters in Table OFCENG (Chart 2-16).

Table OMTAPE	**2.36** Table OMTAPE (Chart 2-14) activates and schedules the regular transfer of accumulated OM data to an output device (disk or tape) within a DMS node. The table lists the classes of OM data that are defined on the node. It also lists scheduling parameters, and whether the class is active. If an existing OM class is used, an attached DNC-500 may not require any special entries in OMTAPE. However, the class used must be active in this table. This enables the DMS node to generate the OM data for the DNC system's reports.	

2.37 Refer to the descriptions of the datafill for Tables OMACC, DIRPPOOL, DIRPSSYS, and DIRPHOLD. These tables concern the activation of a new OM class, and the definition of disk space and files in the DMS node for ATT data that is accessed by the DNC system.

> *Note:* If changes in scheduling are required for an existing class, the operating company should determine the appropriate entries for this table in consultation with local DMS personnel.

Chart 2-14
TABLE OMTAPE

Reference: 297-1001-451, Section 005

FIELD	ENTRY	COMMENTS
NUMBER	0-31	This OM class number is assigned automatically by the system to this class of OM output records. A maximum of 32 different classes are permitted on each DMS system.
ACTIVE	Y	The OM output class used must be made active by entering Y, in order to transfer data to the appropriate files for access by a connected DNC.
CLASS	(alphabetic, display only)	This is the name of the class that is defined for OM output. The existing class most commonly used for records that are accessible by a DNC system is TAPE. A new class can only be entered on this table with the OMCLASS command from the CI: level.
WHEN	AUTO	This field determines when the OM records are to be output to the recording device. The entry AUTO specifies that this is to occur at the end of each accumulation period that is defined in Table OMACC for this class, or every time the holding registers are updated. Other entries in this field for an existing class should not be changed without the advice of local DMS personnel.

Table OMACC

2.38 Table OMACC (Chart 2-15) activates and schedules the regular transfer of a class of OM data from holding to accumulation files within a DMS-100 node. The table lists the general classes of OM data that are defined on the node, shows if the class is enabled, and provides the scheduling parameters of the class.

2.39 If an existing OM class is used, an attached DNC-500 does not require any special entries in OMACC. However, if a new class is created, the class must be enabled and scheduled in this table. This enables the DMS node to generate the OM data for the DNC reports.

2.40 Also refer to the descriptions of the datafill for Tables OMTAPE, DIRPPOOL, DIRPSSYS, and DIRPHOLD. These tables concern the activation of and scheduling of OM data to an output device for a new or existing OM class, and the definition of disk space and files in the DMS node for OM data that is accessed by the DNC system.

2.41 Chart 2-15 lists and describes the fields in Table OMACC in general terms. If changes in scheduling are required for a new or existing class, the operating company determines the appropriate entries for this table in consultation with local DMS personnel.

Chart 2-15
TABLE OMACC

Reference: 297-1001-451, Section 005

FIELD	ENTRY	COMMENTS
CLASS	(alphabetic, display only)	The name of the new accumulating class defined for OM records that are to be accessed by a DNC system. A new class can only be entered on this table with the OMCLASS command from the CI: level. A maximum of 32 different classes are permitted on each DMS system.
ENABLED	Y	The new OM class used must be enabled (enter Y) in order to hold and accumulate data for a connected DNC system.
WHEN	AUTO	This field determines the accumulation period of OM records in this holding class. The entry AUTO specifies that the transfer of OM data from holding to accumulation files is to occur at a period predetermined by the system (usually every 15 minutes: refer to the OMXFR parameter in Table OFCENG). Any entries in this field for an existing class should not be changed without the advice of local DMS personnel.

Table OFCENG **2.42** Table OFCENG (Chart 2-16) defines engineering parameters for a DMS-100, including parameters that relate to Operational Measurements. The operating company can change the parameters of a DMS node in this table by using the table editing facility.

Chart 2-16
TABLE OFCENG (FOR OM)

Reference: NTP 297-1001-455, Section 030

FIELD	ENTRY	COMMENTS
OMTAPESUPPRE-SSION	Y or N	Specifies whether all "zero" values in OM data are to be suppressed when the DMS node writes that data to tape or disk. An entry of "Y" is recommended to greatly reduce the size of the OM files stored on the DMS and transmitted to an attached DNC system. However, the parameter may remain set to "N" because of existing processing requirements of the DMS operating company.
OMXFR	X15 or X30	Specifies the minimum accumulation time for OM data on the DMS node. This parameter affects the OM data collection settings in Table OMACC. The current setting should only be changed with the approval of local DMS personnel. *Note:* A cold restart is required to activate a change to this parameter in Table OFCENG.
TAPEXLATE	EBCDIC, ASCII, EBCDIC_BINARY, or ASCII_BINARY	Applies to OMs only. Determines the format in which the DMS node will produce OM data. Although OM data in any format other than ASCII must be translated, a DNC system can accept OM data in any of the four formats that are available. *Caution:* The chosen format must be consistent in all DMS nodes that are connected to the BNM/DNC system.

3. DEFINING DISK SPACE FOR DATA

3.01 Any data that is produced by DMS is temporarily stored on disk. The disk space must be allocated and set up AFTER the data generation parameters are set up but BEFORE any data is generated.

(1) Datafill Table DIRPPOOL to define the disk volumes on DMS. The volumes will hold the data streams destined for DNC-500. This step may require re-allocation of existing disk volumes.

(2) Datafill Table DIRPSSYS to ensure that substreams (files) are defined for the data streams, and that these streams are recorded on disk.

(3) Datafill Table STREAM to define the data streams that are used for file transfer to DNC-500. Entries in this table must match those of the corresponding Feature Data Table in the DNC-500.

(4) Define the data streams with protocol ID's in the XFER MAP level:

  (a) Access the XFER MAP level from the CI level by entering:

  MAPCI; MTC; IOD; XFER

  (b) Enter the commands
    DEFINE SMDR 1 F
    DEFINE SMDX 5 F
    DEFINE SMDY 6 F
    DEFINE OM n VB
    DEFINE KT n VB
    DEFINE TTRF n VB

  where F is fixed blocking, VB is variable blocking, and n is the number assigned to that data stream in the INDEX field of Table STREAM (Ref. 297-1001-509 Supplement).

(5) In the case of ATT (equivalent to TTRF in DMS) and KT data, datafill table OFCVAR to transfer data to the appropriate DIRP file.

(6) Datafill Table DDU to define any new disk drives for storing feature data.

(7) Enter the command:

  RESTART WARM

  to cause a warm restart of the DMS. This activates the changes to table OFCVAR (ref. 297-1001-520).

Table DIRPPOOL

3.02 The Device Independent Recording Package (DIRP) manages the recording of certain types of data within a DMS node. Data collected by DIRP can be stored in separate files on tape or disk.

3.03 In order to be accessible to the DNC system, the data at each node must be assigned to separate files on disk by DIRP. The tables that define DIRP are DIRPSSYS and DIRPPOOL. Table DIRPSSYS defines the recording device to be used to store the data created.

3.04 Table DIRPPOOL (Chart 3-1) defines the segments (or volumes) of the DMS node's recording devices that are to hold the various types of data files generated by that node. When a DNC system is connected, this table must be used at each centrex node to assign the data required by the DNC system to accessible disk volumes on that node.

3.05 In a multiple DNC environment, each stream must be identified by giving them separate tuples.

3.06 When a new data stream is added to the Table DIRPPOOL, a "warm restart" must be initiated to bind it in with existing DIRP software. Table DIRPSSYS should also be datafilled before the restart.

Chart 3-1
TABLE DIRPPOOL

References: NTP 297-1001-451, Section 054

FIELD	ENTRY	COMMENTS
POOLNO	0-31	Pool number.
POOLNAME	A-Z, 0-9	The names that identify the groups of files containing the required data,and connect with Table DIRPSSYS. An attached DNC-500 system requires SMDR, and (for multiple SMDR streams per DNC) SMDX, SMDY, or other stream designation(s). Tuples are required for any of the following that may be collected: ATT (equivalent to TTRF in DMS), OM, and KT data from each node. Enter each POOLNAME with its own POOLNO and set of completed fields.
DEVTYPE	DISK	Device Type of each pool. All files to be accessed by a DNC system must be on disk.
VOLUME0- VOLUME23	$ or <volume_name>	A $ entry allows the DMS to create its own disk volumes as required. For BNM, it is preferable to enter a volume_name.

Table DIRPSSYS

3.07 The Device Independent Recording Package (DIRP) manages the recording of certain types of data within a DMS node. Data collected by DIRP can be stored in separate files on tape or disk.

3.08 In order to be accessible to the DNC system, the data at each node must be assigned to separate files on disk by DIRP.

3.09 The Device Independent Recording Package SubSystem (DIRPSSYS) control table (Chart 3-2) assigns each different stream of data generated within a DMS node to its own set (subsystem) of files. A DNC system requires that each type of data it retrieves from an DMS node be accessible within its own subsystem of disk files.

3.10 When a new data stream is added to Table DIRPSSYS, a "warm restart" must be initiated to bind it in with existing DIRP software. Table DIRPPOOL should also be datafilled before the restart.

Chart 3-2
TABLE DIRPSSYS

Reference: 297-1001-451, Section 054

FIELD	ENTRY	COMMENTS
SSYSNAME	SMDR; SMDX; SMDY; KT;OM;TTRF	Subsystem name. One or more of these are the allowable entries for files to be accessed by a DNC system. Each name has up to 4 characters and should match the corresponding entry for "string" in table STREAM.
READRITE	Y	All files to be accessed by a DNC system should be written to a disk in a Read after Write format to ensure the accuracy of the data.
NUMFILES	1-2	Number (quantity) of Files to open at a time. If recording to disk, it is recommended that no more than 2 files should be open at any one time, therefore enter 1 or 2.
		If the value is greater than 1, one of the files serves as the active file, while the other is the standby file. At least one standby file should be open for emergencies in addition to the one active file for each data stream.

Chart Continued -------------------------------

Chart 3-2 Continued
TABLE DIRPSSYS

FIELD	ENTRY	COMMENTS
MINFILES	1	Minimum number of files that must be open at all times. MINFILES must be set to 1 or more, but at least 1 less than NUMFILES. The system prevents the user from manually closing down the files of a contributing subsystem unless the number of files available for recording data is at least the value entered here.
POOLNAME	(alphabetic)	The poolnames of the files to be accessed by a DNC system, as specified in Table DIRPPOOL. (This field provides the connection to Table DIRPPOOL.)
FILENAME	$	A "$" entry allows the system to generate its own file names as required.
ALARM0-ALARM3	CR, MJ, MN, or NA	Alarms for the active and standby files. A DNC system does not have any connection with audible alarms at its connected DMS nodes.
RETPD	0-499	The minimum Retention Period, expressed in days, of the original files that are created by the data streams. Should be some reasonable value to assure the security of the data.
CRETPD	0-499	The minimum Retention Period, expressed in days, of the files on disk to which the original files were copied. The default value is the same as that is entered for RETPD.
PARDTYPE	DISK or TAPE	Parallel Device Type. All data to be accessed by a DNC system must be recorded to a disk or tape file.
PARVOL	$	Parallel Volume. A $ entry allows the DMS system to create its own disk volumes for data files as required.
PARCONC (BCS29)	Y, (N)	Parallel Concurrent Recording. Once a subsystem is datafilled, change this field to Y if activation of concurrent parallel writes is to be activated. This feature can be used if parallel and active files have been engineered to be active on two separate disk drives on different IOCs.
FILEDATE	FIRSTACT	The DMS node should record on all files to be accessed by a DNC system the date that the file first became active.

Chart Continued ------------------------------

Chart 3-2 Continued
TABLE DIRPSSYS

FIELD	ENTRY	COMMENTS
SHEDDAYS	(seven entries of Y or N)	Scheduled rotation Days. Determines the days of the week (in the set Monday through Sunday: indicated by a Y) that the DMS is to rotate the files.
SHEDBASE	0-23	Scheduled rotation Base. Hour of day at which the first file rotation occurs. Files to be accessed by a DNC system should be rotated at midnight, if possible.
SHEDINCR	X24	Scheduled rotation Increments. X24 specifies that the files concerned are to be rotated once every 24 hours. Files to be accessed by a DNC system must not be rotated more than once a day.
ROTACLOS	BOTH	Rotate Close. Files to be accessed by a DNC system should be closed after both manual and scheduled rotations.
AUTOXFER	PARTIAL	Automatic Transfer. Setting this field to PARTIAL prevents a connected DNC system from rotating files at its DMS nodes.
SPACROTE (BCS29)	Y, (N)	Space Rotate. A space rotate, under normal conditions, is a file rotation that preserves unexpired, processed files from erasure before their file retention period expires. Enter Y if space rotation is to be done when the active volume runs out of space, and/or the active file size reaches the definition for MAXDFSIZ. Space rotate is not activated if SPACROTE = N and MAXDFSIZ = 64.
MAXDFSIZ (BCS29)	5-(64)	Maximum Disk File Size. Enter the maximum size (in megabytes) that any disk file may attain before a scheduled rotation takes place. If SPACROTE = Y, there will be a space rotation. If SPACROTE = N, unexpired, processed files may be subject to erasure.

Table STREAM

3.11 Table STREAM (Chart 3-3) defines the protocol IDs of the types of data to be transferred to the attached DNC-500. The definition entered in this table must match the information in Table Feature Data of the BNM DNC-500 system. This information enables the DMS node to create the appropriate data transfer streams for the BNM system.

3.12 Refer to the descriptions of the datafill for Tables DIRPPOOL, DIRPSSYS, and DIRPHOLD. These tables concern the creation and management of the appropriate data files on the DMS to serve the various data streams.

Chart 3-3
TABLE STREAM

References:
 297-1001-451, Section 005
 450-1021-311, "Feature Data Table"

FIELD	ENTRY	COMMENTS
INDEX	1;2;3;4;5;6	The index numbers (protocol ID) of the data streams that are required for the attached BNM system. For BNM, an index of 1, 5, or 6 may be used for SMDR data collection. An index of 2 must be used for OM. An index of 3 must be used for KT. An index of 4 must be used for TTRF (known as ATT in BNM).
STRING	SMDR; SMDX; SMDY; OM; KT; TTRF	The entry is to correspond to the SSYSNAME given in table DIRPSSYS. These names are arbitrary, with SMDR, SMDX, and SMDY representing 3 different SMDR streams which would be collected by 3 different BNM systems.

Table OFCVAR

3.13 Table OFCVAR (Variable Office Parameter) lists parameters that the operating company owner of the DMS-100 node can change using the table editing facility. Table OFCVAR is shown in Chart 3-4.

Chart 3-4
TABLE OFCVAR

Reference: NTP 297-1001-455, Section 037

Activation: Warm Restart.

PARMNAME	PARMVAL	COMMENTS
KT_SELECTION_OPTION	ALL_DATA	Transfers all killer trunk (KT) data (versus NO_DATA or only CUSTOMER_DATA or TELCO_DATA) generated by the DMS node to the node's DIRP files, allowing an attached DNC-500 to access that data.
TTR_SELECTION_OPTION	ALL_DATA	Transfers all Automatic Trunk Test (ATT or TTRF) data (versus NO_DATA or only CUSTOMER_DATA or TELCO_DATA) generated by the DMS node to the node's DIRP files, allowing an attached DNC-500 to access that data.
SO_PROMPT_FOR_CABLE_PAIR	Y or N	Determines whether the DMS node is to prompt the DNC for cable and pair identification numbers when accepting service orders (SOs). If "Y" is entered for this parameter, the DNC will return cable and pair numbers of zero for all such requests.

Table DDU

3.14 Disk Drive Units (DDUs) are used by the DIRP subsystem to record data for the different data types. Disks are divided into many circular tracks, which are further divided into sectors. Each sector of each track represents 1K (1024 bytes) of data storage. Two 1K blocks of disk space is about equivalent to one DIRP block. DDUs are formatted into volumes, which can be used and manipulated by the DIRP subsystem.

3.15 Table DDU (Chart 3-5) registers all the disk drives used by the DMS node. A working DMS will already have a completed Table DDU. When connecting a DNC system, it is only necessary to alter Table DDU if a new disk drive is installed to hold the data files required by the DNC system.

3.16 Refer to 297-1001-312 for a description of DIRP. Also refer to Tables CRSFMT, CRSMAP, ATTOPTNS, ATTSCHED, and KTPARMS concerning the generation of data on the node for an attached DNC system.

Chart 3-5
TABLE DDU

Reference: NTP 297-1001-451, Section 008

FIELD	ENTRY	COMMENTS
DDUNO	0-9	Disk Drive Unit Number.
IOCNO	0-12	Input/Output Controller Number. The number of the I/O controller the DMS is to use for this disk drive.
IOCCKTNO	0, 4, 8, 12, 16, 20, 24, 28, 32	Input Output Controller Circuit Number. The number of the circuit on which the IOC is installed.
EGPEC	1X55xx	Disk drive controller interface card code, where xx is the vintage number of the card.

CHECKING ACTIVE FILES

3.17 The final step in setting up feature data generation is to examine the active files.

(1) Logon the DMS at the MAP terminal (see 297-1001-110).

(2) Access the DIRP MAP level from CI: by entering:

MAPCI; MTC; IOD; DIRP;

(3) Examine the active files by entering:
QUERY AMA
QUERY TTRF
QUERY SMDR
QUERY OM
QUERY KT
(Ref. 297-1001-509)

(4) Examine Table CRSMAP to ensure that the SMDR data stream is active. (See the example in 297-1001-451 Section 056.)

(5) Examine Table KTACTIVE to ensure that the proper KT subsystem is active. The group of trunks that the DNC system is concerned with should be displayed in the table. Table KTACTIVE will usually include *all* trunks and trunk groups handled by the DMS node.

This list will only be restricted if Table KTPARMS defines the MODE of KT testing as MANUAL and Table KTGROUP lists only the trunks that are related to DNC.

(6) Examine Table DIRPHOLD (Chart 3-6) to ensure that the node is creating files for the various types of feature data.

Table DIRPHOLD

3.18 Users access Table DIRPHOLD (Chart 3-6) to examine the feature data files most recently created by the DMS. Table DIRPHOLD (Device Independent Recording Package Hold) acts as a directory to all data files currently on the disk and ready for transmission.

3.19 Under normal conditions, DIRP automatically fills DIRPHOLD with files that have just been closed. All unprocessed files (containing data that the DMS has not transmitted) are prefixed by U. All processed (transmitted) file names begin with P. When requesting untransmitted data, a DNC system connected to a DMS node only searches through U files in DIRPHOLD.

3.20 Files that are no longer on the DMS node disk must be manually added to Table DIRPHOLD in order to be transferred to another system (such as a DNC-500). The DMS node usually prefixes such files with R (Recovery), and they must be changed to begin with U when entered in Table DIRPHOLD for access by a DNC system.

Chart 3-6
TABLE DIRPHOLD

References:
 297-1001-451, Section 054
 297-1001-312, DIRP Description

FIELD	ENTRY	COMMENTS
HOLDNO	0-99	DIRPHOLD index Number. Enter an index number to identify the file being added. DMS begins at 99 and continues downward when automatically adding files to the table. A user can enter a file at index 0 or any available slot.
SSYSNAME	SMDR; SMDX; SMDY; KT; OM; TTRF	Subsystem Name. One or more of these are the allowable entries for files, one for each data stream, that are to be accessed by a DNC system. This field provides a connection with Table DIRPSSYS.
FILENAME	A-Z, 0-9	Enter up to 17 alphanumeric characters that identify a file to be added to DIRPHOLD. Files to be received by a DNC must be prefixed with U (that is , they are unprocessed).
VOLSER	A-Z, 0-9	Volume Serial Number. Enter 1-8 characters that identify the tape or disk volume of the file.
COUNT	(numeric characters, 0-9)	Enter the quantity of logical records in the file. This is used by the receiving DNC to check for missing records after the node has sent the file.

4. NETWORK ADMINISTRATION

4.01 Administration of the Meridian Digital Centrex (MDC) Network permits users at a DNC-100 or a DNC-500, to

(a) set the routing plans of calls on a DMS-100 MDC node by datafilling Table IBNRTE.

(b) set the parameters of IBN trunks to the DMS-100 MDC node by datafilling Table TRKGRP.

(c) set the usage controls of network elements by datafilling Table NCOS.

Table IBNRTE

4.02 Table IBNRTE (Chart 4-1) is used to set the routing of a call according to the digits that are dialed, or the conditions that are encountered during the processsing of the call. Each of these determinants is called a Route List and is identified by a Route Reference Index Number.

4.03 A Route List consists of a maximum of 8 linked routes that determine the way the call is handled. Each route in the list attempts to complete the call; if the attempt fails the next route is tried until the call is successful, or the failure to complete is reported. There is a maximum of 1024 routes among a maximum of 1024 Route Lists that can be set.

4.04 Users that are not part of the operating company must be authorized in Table CUSTPROT, and must own the IBN Route Index (RTE) as datafilled in Table DATAOWNER. It is recommended that these users be restricted to Read Only or Change Only rights.

4.05 The fields RTE, IBNRTSEL, TABID, and KEY must be datafilled in the table IBNRTE in order for routing plan changes in BNM to take effect.

4.06 The fields in Table IBNRTE are described in the following chart. The datafill for the fields in the table are discussed in order of their appearance in Form Code 2433.

Chart 4-1
TABLE IBNRTE

Reference:
297-1001-451, Section 149

FIELD	ENTRY	COMMENTS
Route Selector T		Route Selector T is required in order to provide the DNC with the appropriate data for BNM. This allows any changes in the routing plan at the DMS-100 node to be implemented.
RTE	0 to 1023 or blank	Route Reference Index. If the record is the first in the route list, enter the route reference number that is assigned to the route list. Otherwise, leave the entry blank.
RTELIST		Route List. Because this field consists of subfields IBNRTSEL and EXTRTEID the datafill is provided in these subfields.
IBNRTSEL	T	IBN Route Selector. Enter T.
EXTRTEID		External Route Identifier. Because this field consists of subfields TABID and KEY, the datafill is provided in these subfields.
TABID	IBNRTE	Table Identifier. Enter the name of the table containing the route list.
KEY	0 to 1023	Key. Enter the route reference index found in the table specified in field TABID.
CONTMARK	+ or $	Continuation Mark. Enter the symbol + if additional data for the Route List is specified on the next record. Otherwise, enter the symbol $ when the record is the last for the Route List.

Table TRKGRP

4.07 Table TRKGRP (Chart 4-2) is used to define the characteristics of incoming (type IBNTI), outgoing (type IBNTO), and two-way (type IBNT2) IBN trunk groups. The characteristics include:
-assignment to customer group
-selection sequence
-network class of service assignments from Table NCOS
-supervision type
-specification of SMDR
-terminating restrictions
-billing options
-military switch restrictions

4.08 The fields in Table TRKGRP are described in the following chart. The datafill for the fields in the table are discussed in order of their appearance in Form Code 2156V.

Chart 4-2
TABLE TRKGRP

Reference:
297-1001-451, Section 621

FIELD	ENTRY	COMMENTS
GRPKEY		**Group Key.** Because this field consists of subfield CLLI, datafill is described at that field.
CLLI	alphanumeric	**Common Language Location Identifier.** Enter the code which is assigned to the trunk group in Table CLLI.
GRPTYP	<group type>	**Trunk Group Type.** Enter one of the trunk group types IBNTI, IBNTO, or IBNT2.
TRAFSNO	0 or 10 to 127	**Traffic Separation Number.** Enter the traffic separation number (between 10 and 127) that is assigned to the trunk group in Table TRAFINT. If traffic separation is not required enter 0.
PADGRP	alphabetic	**Pad Group.** Enter the name of the pad group that is assigned to the trunk group in Table PADDATA.

Chart Continued   -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
NCCLS		**Operational Measurements No Circuit Class.** Enter the operational measurements no circuit class to indicate which OM register is to be incremented when treatment GNCT occurs. Refer to 297-1001-114 for more details.
	NCRT	If trunk group is type IBNTI enter NCRT.
	no circuit class	If trunk group is type IBNTO or IBNT2 enter the no circuit class that is assigned to the trunk group.
GRPINFO		**Group Information.** Because this field consists of subfields CUSTNAME, SUBGRPNO, SELSEQ, NCOS, BILLDN, SUPV, DISCTSEL, INTRAGRP, DIGIT0, DIGIT1, DTI, TES, CDR, SMDR, TRC, ALTNCOS, TRKDSR, LSCFN, ALTLSCFN, LSCINTCPT, ALSCINCP, IGA, FDN, FDV, FLASH, DPX, PREEMPT, AIOD, PMODE, INCPREC, INCROUT, MTR, CALLCHR and OPTIONS, the datafill is described at those fields.
CUSTNAME	alphanumeric (1 to 16 characters)	**Customer Group Name.** Enter the name that is assigned to the customer group to which the trunk group belongs.
SUBGRPNO	0 to 7	**Subgroup Number.** Enter the subgroup number of the attendant consoles to which all attendant calls are routed.
CONTMARK	+ or $	**Continuation Mark.** Enter the symbol + if additional data for the trunk group is specified on the next record. Otherwise enter the symbol $ when the record is last for the trunk group.

Chart Continued -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
SELSEQ		**Select Sequence.** Enter the proper select sequence that is determined by the following criteria:
	Two Way Trunk Group:	
	LIDL	Far end is a link list switcher with least idle select sequence, or far end is not a link list switcher and sequential selection does not apply.
	ASEQ	Far end is not a link list switcher, the sequential selection is provided, and sequential selection is in ascending order of trunk member numbers in Table TRKMEM.
	DSEQ	Far end is not a link list switcher, the sequential selection is provided, and sequential selection is in descending order of trunk member numbers in Table TRKMEM.
	CWCTH	Far end is not a link list switcher, CTH applies, and clockwise circular trunk hunting is required from the most recently released trunk in the trunk group, based on the order of trunk members in Table TRKMEM.
	CCSCTH	Far end is not a link list switcher, CTH applies, and counter clockwise circular trunk hunting is required from the most recently released trunk in the trunk group, based on the order of trunk members in Table TRKMEM.
	For Outgoing Trunks:	
	ASEQ	Sequential selection is provided in ascending order of trunk member numbers in table TRKMEM.
	DSEQ	Sequential selection is provided in descending order of the trunk member numbers in Table TRKMEM.

Chart Continued -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
	MIDL	Sequential selection does not apply.
	\<blank\>	Incoming Trunk Group -leave blank.
NCOS	0 to 255	**Network Class of Service.** Enter the NCOS number that is assigned to an incoming trunk group or to a two-way trunk group.
	\<blank\>	Leave blank for an outgoing trunk group.
BILLDN		**Billing Directory Number.**
	numeric	Enter the directory number, the station number, or the attendant access code to which the translation is to be routed, if no incoming digits are to be received (seizure only) on incoming or two-way trunk groups.
	numeric	Enter the ten digit directory number to which the calls are to be billed, if incoming or two-way trunk group is arranged to receive incoming digits, and a LAMA recording is required for all calls which tandem through the switch.
	N	Enter N if the incoming or two-way trunk group is arranged to receive incoming digits and no billing is required.
	\<blank\>	Leave blank if the trunk group is outgoing.
SUPV		**Supervision.**
	ANSDISC	Answer disconnect supervision.
	DISCONLY	Disconnect only supervision.
	FAKEANS	Fake answer supervision.
	NODISC	No disconnect supervision.

Chart Continued   -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
DISCTSEL		**Disconnect Timing Selector.** Enter the disconnect timing for the trunk group where:
	0	200 milliseconds
	1	400 milliseconds
	2	600 milliseconds
	3	800 milliseconds
INTRAGRP	Y or N	**Intragroup.** Enter Y if the call is intragroup, or N if the call is not intragroup.
DIGIT0		**Digit 0.**
	numeric	When 1 or 2 digits are to be prefixed to the incoming digits, on an incoming or two-way trunk group, enter the first (least significant) digit to be prefixed.
	N	Digits as above not to be prefixed.
	<blank>	When the trunk group is outgoing, leave blank.
DIGIT1		**Digit 1.**
	numeric	When 2 digits are to be prefixed to the incoming digits, on an incoming or two-way trunk group, enter the second (most significant) digit to be prefixed.
	N	Digits not prefixed as above.
	<blank>	When the trunk group is outgoing, leave blank.
DTI		**Dial Tone Incoming.**
	Y	Enter Y if the trunk group is incoming or two-way, and the second dial tone is to be sent to the originator of an incoming call.
	N	Dial tone as above is not to be sent.

Chart Continued -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
	<blank>	Leave blank if the trunk group is outgoing.
TES		**Toll Essential Service.**
	Y	Enter Y when the incoming trunk, or the incoming side of a two-way trunk, is toll essential.
	N	Trunk as above is not toll essential.
	<blank>	Leave blank if the trunk group is outgoing.
CDR		**Call Detail Recording.**
	Y	Enter Y if the trunk group is incoming or two-way, and all incoming calls are to be recorded using the SMDR format.
	N	Incoming calls as above are not to be recorded.
	<blank>	Leave blank if the trunk group is outgoing.
SMDR		**Station Message Detail Recording.**
	Y	Enter Y if the trunk group is incoming or two-way, SMDR records are to generated for incoming calls, and the dialed code is flagged in Table IBNXLA as requiring a record.
	N	Trunk group is incoming or two-way, and SMDR records are not required.
	<blank>	
TRC		**Terminating Restriction Code.**
	0-7	Enter the terminating restriction code that is assigned to an incoming trunk group, or to the incoming side of a two-way trunk group.
	<blank>	Outgoing trunk group: leave blank.

Chart Continued   -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
ALTNCOS		**Alternating Network Class of Service.**
	0-255	Enter the alternate NCOS number, used when the attendant control of the trunk group access feature is activated, if the trunk group is incoming or two-way.
	\<blank\>	Outgoing trunk group: leave blank.
TRKDSR		**Trunk Distinctive Ringing.**
	Y	Enter Y if the trunk group is incoming, or is the incoming side of a two-way group, and distinctive ringing is to be provided.
	N	Distinctive ringing as above not provided.
	\<blank\>	Outgoing trunk group: leave blank.
CONTMARK	+	**Continuation Mark.** Enter the symbol +.
ALTLSCFN		**Alternate Line Screening Code Flag Number.**
	0-255	Enter the alternate line screening code flag number that is assigned to the outgoing or two-way trunk group.
	\<blank\>	Incoming trunk group: leave blank.
LSCINCPT		**Line Screening Code Flexible Intercept.**
	0-63	Outgoing or Two-Way Trunk Group: Enter the treatment number (in Table IBNTREAT) to which a station, an incoming trunk, or a two-way trunk is routed when a call is blocked by line screening.
	\<blank\>	Incoming trunk group: leave blank.

Chart Continued -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
ALSINCP		**Alternate Line Screening Code Flexible Intercept.**
	0-63	Outgoing or Two-Way Trunk Group: Enter the treatment number (in Table IBNTREAT) to which a station, an incoming trunk, or a two-way trunk is routed when the Attendant Control of the Trunk Group Access feature is activated and a call is blocked by alternate line screening.
	<blank>	Incoming Trunk Group: leave blank.
IGA		**Ignore Answer.**
	N	Outgoing or Two-Way Trunk Group.
	<blank>	Incoming trunk group.
FDN		**FX Toll Denied.** *Outgoing or Two-Way Trunk Group:*
	Y	A toll call is to be routed to toll denied treatment when a reversal is received from the far end.
	N	Toll call not to be routed as above.
	<blank>	Incoming Trunk Group.
FDV		**FX Toll Diverted.** *Outgoing or Two-Way Trunk Group:*
	Y	Enter Y if a toll call is to be routed to the intercept key and lamp on the attendant console when a reversal is received from the far end.
	N	Toll call not to be routed as above.
	<blank>	Incoming trunk group.

Chart Continued -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
FLASH		**Flash.** *Outgoing or Two-Way Trunk Group:*
	Y	Flash is expected.
	N	Flash is not expected.
	<blank>	Incoming Trunk Group.
DPX		**Datapath Loop Extension.** *Two-Way Trunk Group***:**
	Y	Enter Y if the trunk group is associated with the DPX line.
	N	Trunk group is not associated with the DPX line.
	<blank>	Incoming or One-Way Trunk Group.
PREEMPT		**Preemption Capability.** *Military Access Lines:*
	Y	Enter Y when preemption capability is required, and then datafill fields PMODE, INCPREC and INCROUT.
	N	Preemption capability is not required.
AIOD		**Automatic Identification of Outward Dialing.** *Incoming and Two-Way IBN Trunks:*
	Y	Enter Y if AIOD is required on an IBN trunk group. Then enter the CLLI of the datalink for that trunk group (as datafilled in Table AIODGRP) when a prompt is received for the information.
	N (default)	AIOD is not required.

Chart Continued --------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
PMODE		**Preemption Mode.** (Autovon Node) *After datafilling field PREEMPT:*
	A	(automatic) The node is equipped to handle standard preemption supervision.
	M	(manual) Node is not equipped to handle standard preemption supervision.
	N	No outgoing preemption permitted.
INCPREC		**Incoming Precedence Digits.** *After datafilling field PREEMPT:*
	Y	Enter Y if there is a precedence digit which prefixes the address digits.
	N	No precedence digit as above.
INCROUT		**Incoming Routing Digits.** *After datafilling field PREEMPT:*
	Y	-enter Y if there is a routing digit which prefixes the address digits.
	N	There is not a precedence digit which prefixes the address digits.
MTR		**Meter Reception.** *IBN Outgoing Trunk Group:*
	Y	Meter reception is required on outgoing trunks which have an entry MFESCP in field CARDCODE of Table TRKSGRP.
	N	Meter reception as above is not required.
	<blank>	If trunk group type is IBNTI or IBNT2.

Chart Continued   -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
CALLCHR		**Call Characteristic.** *Incoming Trunk Group:*
	SAT	Calls are by a satellite link.
	SIGDATA	Trunk group has digital trunk connections to the Electronic Tandem Network switching unit.
	<blank>	-Leave blank if no call characteristics are required. *Outgoing or Two-Way Trunk Group:* -See Field OPTIONS.
CONTMARK	$	**Continuation Mark.** *After datafilling field CALLCHR:* -enter the symbol $.
OPTIONS		**Options.** The options that are required are required for two-way and outgoing trunks, and for incoming trunk groups without access to the modem pool, are entered in this field as follows:
	CALLCHR DIGDATA	A two-Way trunk group that has the Digital Data option.
	CALLCHR SAT	A two-way trunk group with the satellite option.
	SPCLBLG CCSA	An outgoing or two-way trunk group with special billing and the CCSA option.
	SPCLBLG TDMTT	An outgoing or two-way trunk group with special billing and the Tandem Tie Trunk option.
	SPCLBLG FX	An outgoing or two-way trunk group with special billing and the Automatic Flexible Routing option.
	SPCLBLG ETS	An outgoing or two-way trunk group with special billing and the Electronic Tandem Switched Call option.

Chart Continued -------------------------------

Chart 4-2 Continued
TABLE TRKGRP

FIELD	ENTRY	COMMENTS
	NOACCMP	An incoming or two-way trunk group without access to the modem pool.
CONTMARK	+ or $	**Continuation Mark.** Enter the symbol + if additional option data is specified on the next record. Otherwise, enter the symbol $ when the record is the last for the option.

Table NCOS

4.09 Table NCOS (Chart 4-3) consists of NCOS numbers which are assigned to:
-attendant consoles
-IBN or residential stations
-incoming trunk groups
-the incoming side of two-way trunk groups
-authorization codes
-customer groups

4.10 Each NCOS number, without off-hook queuing, can be shared by one or more attendant consoles, IBN stations, incoming IBN trunk groups, or the incoming side of two-way trunk groups, that belong to the customer group.

4.11 A traffic separation number can be specified if traffic separation measurements are required for calls that originate from, or terminate in, a specific NCOS nunber within a specific customer group.

4.12 The following options can be assigned to each NCOS number:
-Authorization/Account Code Last (ACR)
-Attendant NCOS (ATT)
-Autovon Screening (AVP)
-Call Back Queuing (CBQ)
-Code Restriction Level (CRL)
-Default Logical Network (DFLTNET)
-Expensive Route Warning Tone (ERWT)
-Flash Translator (FLSHXLA)
-Octothorpe Translator (OCTXLA)
-Off-Hook Queuing (OHQ)
-Public Network Barring (PNB)
-Private Virtual Network (PVN)
-Translator and Digit Collection (XLAS)

4.13 Each of these options is entered under the field name OPTIONS on form Code 2204 on a separate line. The subfield data is entered on the line with the option, with a space separating each item of subfield data.

4.14 The fields in Table NCOS are described in the following chart. The datafill for the fields in the table are discussed in order of their appearance in Form Code 2204.

Note: In order for the NCOS feature to become operational in BNM, the following condition must be met: values in table NCOS on the DMS-100 must have a one-to-one correspondence with those values in the NCOS table on the DNC-500.

Chart 4-3
TABLE NCOS

Reference:
297-1001-451, Section 150

FIELD	ENTRY	COMMENTS
CUSTGRP	alphanumeric or blank	**Customer Group Name.** Enter the code (1 to 16 characters) that is assigned to the customer group, if this is the first record for the NCOS number. If it is not the first record for the NCOS number, leave the field blank.
NCOS	0 to 255 or blank	**Network Class Of Service Number.** Enter the NCOS number if this is the first record for the NCOS number. If it is not the first record leave the field blank.
NCOSNAME	A to Z, 0 to 9, -, $, or blank	**Network Class Of Service Name.** Enter the name (1 to 6 characters) that is assigned to the NCOS number for the key and lamp display, if this is the first record for the NCOS number. If it is not the first record for the NCOS number, leave the field blank.
LSC	0 to 31, or blank	**Line Screening Code.** Enter the line screening code that is assigned to the NCOS number, If this is the first record for the NCOS number. If it is not the first record for the NCOS number, leave the field blank.
TRAFSNO	0, 10 to 127, or blank	**Traffic Separation Number.** Enter the traffic separation number (between 10 and 127) that is assigned to the NCOS number in Table TFANINT, if this is the first record for the NCOS number. If it is not the first record for the NCOS number, leave the field blank. If traffic separation is not required, enter 0.
CONTMARK	+ or $	**Continuation Mark.** Enter the symbol + if this record is not the last for the NCOS number, and no options are assigned. If options are assigned, enter the symbol + in the last column of each record except the last record where the symbol $ is entered.

Chart Continued -------------------------------

Chart 4-3 Continued
TABLE NCOS

FIELD	ENTRY	COMMENTS
OPTIONS		**Options.** Enter the options as required, and datafill the associated subfields. Use one record for each option that is required, and leave a space to enter the data for the associated subfields. If an option is not required, no input is required for that option. Make sure that the appropriate continuation mark is entered at the end of each record.
	XLAS	**Translator and digit collection** . Enter XLAS and then datafill field PRELXMLA.
	OCTXLA	**Octothorpe Translator.** Enter OCTXLA and then datafill field OCTXLA.
	CRL	**Code Restriction Level.** Enter CRL and then datafill field CRL.
	ERWT	**Expensive Route Warning Tone.** Enter ERWT and then the appropriate continuation mark.
	ACR	**Authorization/Account Code Last.** Enter ACR and then datafill field ANNREQD.
	CBQ	**Call Back Queuing.** Enter CBQ and then datafill field CBQSP.
	OHQ	**Off-Hook Queuing.** Enter OHQ and then datafill field OHQPRIO.
	ATT	**Attendant NCOS.** Enter ATT and then datafill field ATTNCOS.
	AVP	**Autovon Screening.** Enter AVP and then datafill field SDCOS.

Chart Continued -------------------------------

Chart 4-3 Continued
TABLE NCOS

FIELD	ENTRY	COMMENTS
	FLSHXLA	**Flash Translator.** Enter FLSHXLA and then datafill field PRELMXLA.
	DFLTNET	**Default Logical Network.** Enter DFLTNET and then datafill field NETNAME.
	PNB	**Public Network Barring.** Enter PNB and then the appropriate continuation mark.
	PVN	**Private Virtual Network.** Enter PVN and then datafill field DIALOPT.
PRELMXLA	alphanumeric	**Preliminary Translator.** *After datafilling XLAS in field NCOSOPTN:* Enter the name of the preliminary translator (1 to 8 characters) that is assigned to the NCOS number, if that name is is not the same as the name that is assigned in the Table CUSTHEAD.
	NXLA	Preliminary translator name that is assigned to the NCOS number is the same as defined in Table CUSTHEAD. *After datafilling FLSHXLA in field NCOSOPTN:*
	alphanumeric	Enter the name of the preliminary translator (1 to 8 characters) that is assigned to the NCOS number, if a preliminary flash translator is assigned.
	NXLA	No preliminary translator is assigned to the NCOS number.
FEATXLA		**Feature Translator.** *After datafilling field PRELMXLA for XLAS:*
	alphanumeric	Enter the name of the feature translator (1 to 8 characters) that is assigned to the NCOS number, if that name is is not the same as the name that is assigned in the Table CUSTHEAD.

Chart Continued -------------------------------

Chart 4-3 Continued
TABLE NCOS

FIELD	ENTRY	COMMENTS
NXLA	alphanumeric	Feature translator name that is assigned to the NCOS number is the same as defined in Table CUSTHEAD.
		After datafilling field PRELMXLA for FLSHXLA:
	alphanumeric	Enter the name of the feature translator (1 to 8 characters) that is assigned to the NCOS number, if a preliminary flash translator is assigned.
	NXLA	No feature translator is assigned to the NCOS number.
DGCOLNM	alphanumeric or NDGT	**Digit Collection Name.**
		After datafilling field FEATXLA for XLAS:
	alphanumeric	Enter the name that is assigned to the block of data in Table DIGCOL (1 to 8 characters) for digit collection for IBN stations that are assigned to the NCOS number, if digit collection for IBN stations is not the same as defined in Table CUSTHEAD.
NDGT		Digit collection is the same as in table CUSTHEAD.
OCTXLA	alphanumeric or NXLA	**Octothorpe Translator.**
		After datafilling OCTXLA in field NCOSOPTN:
		Enter the name of the octothorpe translator (1 to 8 characters) that is assigned to the NCOS number.
CRL	1 to 15	**Code Restriction Level.**
		After datafilling CRL in field NCOSOPTN:
		Enter the code restriction level that is applicable to the NCOS number. Then datafill field CRLACT.

Chart Continued -------------------------------

Chart 4-3 Continued
TABLE NCOS

FIELD	ENTRY	COMMENTS
CRLACT		**Code Restriction Action.**
		*After datafilling field CRL***:**
	ALLOWED	All calls to codes in Table CODEBLK with the specified code restriction are allowed to complete.
	BLOCKED	Calls that are not allowed are blocked.
ANNREQD		**Announcement Required.**
		After datafilling field ACR:
	Y	An announcement is required to prompt for the authorization/account code last.
	N	An announcement is not required to prompt for the authorization/account code last.
CBQSP	0 to 3	**Call Back Queue Starting Priority Level.**
		After datafilling field CBQ:
		Enter the Call Back Queue Starting Level that is assigned to the NCOS number. Then datafill field CBQMP.
CBQMP	0 to 3	**Call Back Queue Maximum Priority Level.**
		After datafilling field CBQSP:
		Enter the Call Back Queue Maximum Level that is assigned to the NCOS number. Then datafill field CBQRA.

Chart Continued   -------------------------------

Chart 4-3 Continued
TABLE NCOS

FIELD	ENTRY	COMMENTS
CBQRA		**Call Back Queue Route Advance.**
		*After datafilling field CBQMP***:**
	Y	Station is allowed to route advance to the expensive route after the call back route advance timeout.
	N	Station is not allowed to route advance to the expensive route after the call back route advance timeout.
		-Then datafill field CBQOPTS.
CBQOPTS		**Call Back Queuing Option.**
		After datafilling field CBQRA:
	1	Before the CBQ feature is activated, only cheap routes are to be searched.
	2	Before the CBQ feature is activated, cheap and expensive routes are to be searched.
OHQPRIO		**Off-Hook Queue Priority.**
		After datafilling OHQ in field NCOSOPTN:
	0	NCOS is asigned to lines.
	1	NCOS is assigned to trunks.
		- then datafill field OHQNOTICE.
OHQNOTICE		**Off-Hook Queuing Notice.** *After datafilling field OHQPRIO:*
	TONEOHQ	OHQ tone is given to a caller when off-hook queuing is being offered.
	ANNCMENT	OHQ announcement given to a caller when off-hook queuing is being offered.

Chart Continued -------------------------------

Chart 4-3 Continued
TABLE NCOS

FIELD	ENTRY	COMMENTS
	SILENCE	No notice is given.
ATTNCOS	0 to 255	**Attendant Network Class Of Service.**
		After datafilling ATT in field NCOSOPTN:
		-Enter the Network Class Of Service number that is used when assistance is provided by an attendant.
SDCOS	0 to 255	**SCOPEDIAL Network Class Of Service.**
		After datafilling AVP in field NCOSOPTN:
		-Enter the SCOPEDIAL Network Class Of Service number which is used for outgoing AUTOVON screening.
NETNAME	alphanumeric	**Network Name.**
		After datafilling DFLTNET in field NCOSOPTN:
		- Enter the name (1 to 32 characters) that is assigned to the logical network. This name must have been previously datafilled in Table NETNAMES.
DIALOPT	UNIFORM	**Dial Plan.**
		After datafilling PVN in field NCOSOPTN:
		-Enter UNIFORM.

5. DATAFILL FOR CONNECTION TO DNC-500

5.01 This part lists the steps that are required to set up and activate communications links from a DMS to a DNC-500. These links enable a DMS node to transfer the appropriate feature data to the BNM system.

References:
297-1001-451: Data Schema
297-1001-455: Office Parameters Description
297-1001-500: MAP Terminal Logon
297-1001-525: DPAC System Description

DMS Node Data Tables   **5.02** To configure an MPC card on the DMS:

(**1**) Fill in Table MPC to identify to the DMS the NT1X89 Multi-Protocol Controller board that is to handle communications with the DNC-500 (See Chart 5-1).

(**2**) Fill in Tables OFCOPT and OFCENG to define the number of circuits that are required for communication with the DNC system (See Charts 5-2 and 5-3).

(**3**) Fill in Table GDLADEV to associate the MPC device with the data transfer application (See Chart 5-4).

(**4**) Fill in Table NOPADDR to register the address of the DNC-500 system that is to communicate with this DMS node (See Chart 5-5).

(**5**) Fill in Table MPCLINK (if applicable) to configure the X.25 links (Chart 5-6).

(**6**) Fill in Table X25LINK to register for the DMS Central Controller the characteristics of the communications link (See Chart 5-7 or 5-8).

**Activating The MPC
Card**

5.03 When the necessary datafill has been completed, the MPC board must be put into service. At the MAP terminal, exit the table editor and return to MAP command mode. Enter the following command sequences:

(1) MAPCI; MTC; IOD; IOC n1; CARD n2

where n1 stands for the IOC number and n2 is the number of the MPC board used (i.e., the circuit number).

(2) BSY

(3) RTS

5.04 The state of the MPC circuit at this point should be READY. Error conditions may include:

Back test failed - possibly a cabling problem

Profile test failed - card may have been incorrectly assigned

Not ready - possibly a transmission problem

MPC is MANREQ, RTS fails - IOC is not on line and must be restored; repeat Steps 1-3.

Table MPC   **5.05** An MPC consists of a NT1X89AA high-level data link controller board residing on an Input/Output Controller (IOC) shelf. The IOC, among its other DMS functions, handles communications through a data link with a DNC-500. This data link involves at least 5 logical channels, or modems if necessary, and the DNC's LAN Interface Unit (LIU). The NT1X89AA board is connected to a DNC system through either a dedicated link or a packet data network.

5.06 Table MPC (Chart 5-1) registers the configuration of each NT1X89 MPC board used by the DMS node. The MPC maintains levels 2 and 3 of the X.25 protocol in all communications with a DNC system. It maintains synchronization with the DNC-500 and handles the DNC system's logon requests to the DMS node.

Chart 5-1
TABLE MPC

Reference: 297-1001-451, Section 078

FIELD	ENTRY	COMMENTS
MPCNO	0-255	The number of the MPC board used by the DMS to handle communications with the DNC-500 system.
MPCIOC	0-19	The number of the shelf on the Input/Output Controller (IOC) of the DMS in which this MPC board is installed.
IOCCCT	0, 4, 8, 12, 16, 20, 24, 28, or 32	The number of the slot to which this MPC board is assigned on the IOC shelf.
EQ	1X89xx	The Product Engineering Code (PEC) of the specified MPC board, where xx is the vintage number of that board.
PROTOCOL (up to BCS28)	X25LINK	The X25 entry specifies that X.25 protocol, as configured in Table X25LINK, is to be used for all data handled by this MPC.
DLDFILE	(eight alphanumeric characters)	Download File. The name of the download file to be used for this MPC.
	MPCpbbbb	Beginning with BCS29, the format of the entry is: • first 3 characters must be MPC • 4th character p is: X for original X25 protocol (X25ORIG), or 0 for new X25 protocol (X2580) • last 4 characters bbbb consist of the BCS number and issue (e.g., 29IS for BCS29 IS).

Table OFCOPT   **5.07** Table OFCOPT (Chart 5-2) defines various office options. The entries for this table are generally set by NT, but in certain cases can be adjusted by the operating company using the table editor.

Chart 5-2
TABLE OFCOPT

Reference: NTP 297-1001-455, section 016   *Activation: Reload*

PARMNAME	PARMVAL	COMMENTS
ENHANCED_PASSWORD_CONTROL	Y, (N)	This DMS parameter affects the BNM parameter num_lines_per_cmap_login in init file :LOCAL:PRU:NOS:B:DI:DMSINIT:TEXT. ENHANCED_PASSWORD_CONTROL must be the same value in all DMS offices connected to the same DNC-500.

Table OFCENG   **5.08** Table OFCENG (Chart 5-3) defines various parameters for a DMS-100, among which are those relating to the MPC. The operating company can change this table using the table editing facility.

Chart 5-3
TABLE OFCENG

Reference: NTP 297-1001-455, Section 030   *Activation: Warm Restart.*

PARMNAME	PARMVAL	COMMENTS
MAX_CMAP_SESSIONS	at least 3	This value must be at least 3 so that two sessions can be used for CMAP activities while one is being used for uploading or service order processing.
NOS_ QUANTITY_ OF_ SVCS	5-15	The number of Switched Virtual Circuits (SVCs) that a connected DNC system requires. The initial set up for file transfer to a DNC system requires 5 sessions, one for each of the data types SMDR, KT, OM and ATT (equivalent to TTRF on DMS), plus one for transactions. As allowance must also be made for three sessions for at least three CMAP session to be active at the same time (parameter MAX_CMAP_SESSIONS), the minimum value in this field is 8.

Table GDLADEV   **5.09**   Table GDLADEV (Chart 5-4) defines the device used for each data transfer application. Each application must be associated with only one device.

Chart 5-4
TABLE GDLADEV

Reference: 297-1001-451, Section 096

FIELD	ENTRY	COMMENTS
APPLN	NOP	This field identifies the application to which data is to be transferred.
DEVICE	MPC	This field identifies the device that is to be used for data transfer.

Table NOPADDR

5.10 Table NOPADDR (Chart 5-5) registers the address of a connected DNC system. This address is used by the DMS node to validate incoming calls from the DNC-500.

5.11 Also refer to the description of the datafill for Tables MPC, GDLADEV, and X25LINK. These tables register the NT1X89 MPC circuit that is used, and configure the X.25 links that are handled by the circuit for DMS to DNC-500 communication.

Chart 5-5
TABLE NOPADDR

Reference: NTP 297-1001-451, Section 090

FIELD	ENTRY	COMMENTS
INDEX	0-15	Virtual channel index.
UNIT	0-255	MPC board device number. This number should be the same as that in the INDEX field of Table MPC. If there is more than one NT1X89 MPC device defined in Table MPC, ensure that this field refers to the correct device.
LINK	2 or 3	The number of the communications link that this MPC handles.
ADDRESS	(up to 8 digits)	The address of a connected DNC system. A DNC-500 sends its own address to a DMS node as part of each logon attempt. If the address sent by the DNC-500 does not correspond to this entry, the DMS refuses the DNC-500's logon attempt and clears the call from the line.
PROTOCOL	0 0 0 0	Four one-digit numbers that identify the exact protocol used by the DNC when transmitting its address, where n is a digit from 0 to 9. 0 0 0 0 is the recommended setting.

Table MPCLINK
(BCS29+)

5.12 Table MPCLINK configures the X.25 layered protocol links handled by each of the Multi-Protocol Controller (MPC) ports of the DMS node. The table also has a set of link parameters.

5.13 Also refer to the description of the datafill for Table MPC and Table NOPADDR. These tables register and configure the particular NT1X89 MPC circuit in the Input/Output Controller to be used to handle the DMS to DNC-500 communication links that are required.

5.14 Table MPCLINK (Chart 5-6) replaces table X25LINK as of BCS29. Table MPCLINK is a generic table which allows for protocols other than X25 to be datafilled into MPC links. In addition, while table X25LINK applied to the whole MPC card, table MPCLINK allows each port to have different settings.

Chart 5-6
TABLE MPCLINK

Reference: NTP 297-1001-451, section xxx

FIELD	ENTRY	COMMENTS
LINKKEY		A 2-part field consisting of fields MPCNO and LINKNO. When adding a tuple in prompt mode, these are prompted for as follows:
MPCNO	0-255, no default	MPC card number. This should be the same as in the MPCNO field of table NOSMPC.
LINKNO	0-3, no default	Number of the communications link (i.e., port) that this tuple applies to.
PROTOCOL		Protocol set to be used for this tuple. The subsequent prompts to be given depend on the protocol selected.
	X25ORIG	Original BX.25/X.25 Protocol. This is the protocol as implemented in table X25LINK. If this protocol is entered, the parameters and parameter values are as listed in table X25LINK (Chart 5-7 or 5-8).
	X2580	CCITT 1980 Protocol. If this protocol is selected, parameters as listed below are entered:

Parameters for X2580 Protocol:

LINKNABL	0-32765 (in 5-minute intervals, 0 indicates indefinite period)	Link Enable. The number of minutes allowed for the DNC to establish a communications link after contact by the DMS node. After this period, the DMS will give a busy signal.

Chart Continued -------------------------------

Chart 5-6 Continued
TABLE MPCLINK

FIELD	ENTRY	COMMENTS
CONVNABL	0-32675 (in 5-minute intervals, 0 indicates indefinite period)	Conversation Enable. Number of minutes for conversations allowed on the line while a communications link between the DNC-500 and the DMS node is established. After this period the DMS will busy the link.
PARMS80		A variable length list of link configuration parameters. When inputting a tuple in prompt mode, each is prompted for separately with PARMNAME, and a value can be entered under PARMVAL.

PARMNAME	PARMVAL	COMMENTS
BAUDRATE	B9600, default B2400	Enter the baud rate, in bits per second, for data transmission that is compatible for both ends of the circuit. BAUDRATE can only be datafilled if CLKSRCE is datafilled as field INTERNAL.
CLKSRCE	INTERNAL, EXTERNAL	Source for MPC clock. Enter INTERNAL for the MPC card or EXTERNAL for modem device.
ELECSPEC	V35, RS232	RS232 is the default electrical specification for links 2 and 3 on the MPC. V35 is currently not supported on MPC. User input of V35 will be rejected.
L2WINDOW	1-127	Frame Window Size. Maximum quantity of unacknowledged frames that are allowed to be out standing at level 2. The value entered at the DTE end should be the same as that entered at the DCE end. Recommended value is 7.
L2MODULO	MOD8, MOD128	This level 2 parameter specifies a numbering scheme for end-to-end messaging at level 2. Modulo 8 frame sequencing supports a maximum level 2 window size of 7.
NODETYPE	DCE, DTE (default)	Indicates to the MPC that it should use frame addressing as a Data Terminal Equipment (DTE) or a Data Circuit-termination Equipment (DCE).
N2	1-255, default 10	This counter tells level 2 how many times to retransmit a frame for which no acknowledgement is received within the time set by parameter T1.

Chart Continued -------------------------------

Chart 5-6 Continued
TABLE MPCLINK

FIELD	ENTRY	COMMENTS
T1_S	1-255	This counter tells level 2 how many times to retransmit a frame for which no acknowledgement is received within T1 time.
T1_10MS	5-255	Used in the same manner as T1_S, this timer is in units of 10 ms. Either T1_S or T1_10MS may be entered, but not both.
T2_S	0-255	The T2 timer is used as a guideline for sending acknowledgement for data received. The units are seconds. Its reqal value must be less than T1 (seconds/10ms units must be considered).
T2_10MS	0-255	Used in the same manner as T2_S, this timer is in units of 10 ms. Values from 1-4 inclusive are rejected. Either T2_S or T2_10MS may be entered, but not both.
T4_S	1-255	The inactive link timer is used to time the periodic transmission of a frame to check remote responsiveness when there is no higher level activity on the link. Units are seconds. The inactive link timer should always be less than the idle channel timer (see below), and greater than T1, taking into account the respective units of datafill.
T4_10MS	5-255	Used in the same manner as T4_S, this timer is in units of 10 ms. Either T4_S or T4_10MS may be entered, but not both.
T3_S	1-255	The idle channel timer is used to determine when the link should be considered logically disconnected after the idle channel state is detected. The idle channel state is entered when one end detacts that no I-frames or flags are incoming on a channel from the remote. The units are seconds.
T3_10MS	5-255	Used in the same manner as T3_S, this timer is in units of 10 ms. Either T3_S or T3_10MS may be entered, but not both.

Chart Continued -------------------------------

Chart 5-6 Continued
TABLE MPCLINK

FIELD	ENTRY	COMMENTS
NUMPVCS	0-255	Number of Permanent Virtual Circuits (PVCs) to be used on the link. NUMPVCS can be omitted only if one or more of the SVC configuration parameters (see following) is datafilled. In such a case, PVCs configured on the link are considered to be 0.
SVCS2WAY	0-255	Number of 2-way SVCs to be configured on the link. Up to 255 are possible, however, a combination of PVCs and SVCs cannot exceed 255 (i.e., NUMPVCS + SVCS2WAY + SVCSIN + SVCSOUT ≤ 255).
SVCSIN	0-255	Number of one-way incoming SVCs to be configured on the link. For each of SVCIN and SVCOUT, up to 255 are possible, however, a combination of PVCs and SVCs cannot exceed 255.
SVCSOUT	0-255	Number of one-way outgoing SVCs to be configured on the link.

Note: If the total number of SVCs on a link is non-zero, SCVDNA must be entered in the field EXTRAINF. SVCTYPE is not an extra information option with the X2580 protocol. If no SVCs are datafilled, a default of 0 of each type will be configured, provided that some number of PVCs is datafilled. If no PVCs or SVCs are datafilled, the tuple will be rejected.

FIELD	ENTRY	COMMENTS
L3WINDOW	1-127	Maximum number of unacknowledged frames allowed to be outstanding at level 3. The value entered at the DTE end should be the same as that entered at the DCE end. Recommended value is 2.
L3DATA	P256, default P128	Data packet size can be selected from those given. X25ORIG continues to support only a size of 256.
THRUPUT	T75, T150, T300, T600, T1200, T4800, T9600, T19200	Default throughput class for outgoing data across the link.
T20	1-255	This timer is used by protocol software to determine the sending of requests to restart level 3.
R20	1-255	Maximum number of expirations of T20 allowed. Each time T20 expires, the level 3 restart request is resent, up to R20 times. Timing stops if confirmation of the request is received.

Chart Continued -------------------------------

Chart 5-6 Continued
TABLE MPCLINK

FIELD	ENTRY	COMMENTS
T21	1-255	This timer is used to time the remote response to a call request packet. This activity is related to the establishment of an SVC.
T22	1-255	T22 is used by the protocol software to time the remote response to a request to reset a particular channel. The request is re-sent if R22 expires.
R22	1-255	This counter indicates the maximum allowed resets on T22 expirations.
T23	1-255	T23 times the remote response to a request to clear a virtual call. This activity is related to SVCs.
R23	1-255	This is the maximum number of times that T23 can expire resulting in a clear request being sent.
T25	0-255	This timer is used when awaiting acknowledgement from the remote that a level 3 packet has been received. Setting it to 0 imples an indefinite wait.
R25	0-255	Used to specify subsequent expirations of T25 allowed, this quantity must be set at 0. The protocol software will reset a channel on which data goes unacknowledged after T25.
T26	1-255	This timer is used to time the remote response when an interrupt packet is transmitted at level 3.
L3ACK	0-255, default 0	This level 3 timer is used in conjunction with T2. The units are increments of 10 ms only, and the datafilled value must be less than that of T2, unless both values are 0. It is suggested that L3ACK be datafilled at least 20ms less than T2. This recommendation is based on the current operating system timing functions used by 1X89 cards. 0 implies immediate acknowledgement. When L3DATA is non-zero, the timer is started for an incoming packet in anticipation of reciprocal outgoing data which can piggyback acknowledgement of the incoming data, thereby conserving packets.

Chart Continued -------------------------------

Chart 5-6 Continued
TABLE MPCLINK

FIELD	ENTRY	COMMENTS
		If there are none, incoming data is acknowledged when L3ACK expires. Datafill of L3ACK is not recommended unless apattern of outgoing data exists and is recognized; L3ACK can impede throughput from the remote node when used improperly.
PVCDBIT	DOFF, DON	This parameter allows enabling of the X.25 d-bit facility on PVC channels. The default setting is off. Over a network PVC, the network subscription must include D-BIT to use this parameter successfully. The MPC will send all user data with the d-bit set, and acknowledge all incoming d-bit data appropriately (applies only to PVCs on the link; use of d-bit for an SVC is determined at call set-up).
End of PARMS80 Parameters.		
EXINF80	$	EXINF80 is another vector, for which $ can be entered to indicate that there are no entries to be made.
	SVCDNA 0-15	Switched Virtual Circuit Data Network Address. A value is required in this field if values have been entered for the SVC-related parameters.

**Table X25LINK
(BCS27-28)**

5.15 Table X.25LINK (Chart 5-7) configures the X.25 layered protocol links handled by each of the Multi-Protocol Controller (MPC) of the DMS node. The table also has a set of link parameters, the default values of which can be specified for the links with a DNC system.

5.16 Also refer to the description of the datafill for Table MPC and Table NOPADDR. These tables register and configure the particular NT1X89 MPC circuit in the Input/Output Controller to be used to handle the DMS to DNC-500 communication links that are required.

**Chart 5-7
TABLE X25LINK**

Reference: 297-1001-451, Section 078

FIELD	ENTRY	COMMENTS
INDEX	0-255	The number of the X.25 link (that is, the virtual channel.
MPCNO	0-255	MPC board Number. This number should be the same as that in the MPCNO field of Table NOSMPC.
LINKNO	2 or 3	Number of the communications link handled by this MPC.
LINKNABL	0 to 32765 (in 5 minute intervals; 0 indicates indefinite period)	Link Enable. The number of minutes allowed for the DNC-500 to establish (enable) a communications link after contact by the DMS node. After this period the DMS will busy the link. The recommended value is 0.
CONVNABL	0 to 32765 (in 5 minute intervals; 0 indicates indefinite period)	Conversation Enable. Number of minutes for conversations allowed on the line while a communications link between the DNC-500 and the DMS node is established. After this period the DMS will busy the link.
PARMSEL	alphanumeric, + or $	Parameter Selector. This is a vector field comprised of 45 parameter optins. Only those options involved with BNM are given here. To change a parameter value, enter the parameter and its new value. Parameters must be entered as a field name and value for each entry, one at a time, in any order. Use + to continue entry, $ to terminate entry and leave remaining fields unchanged.

Chart Continued --------------------------------

Chart 5-7 Continued
TABLE X25LINK

FIELD	ENTRY	COMMENTS
PARMTYPE	VALUE	COMMENTS
BAUDRATE	B9600, (B2400)	Enter the baud rate, in bits per second, for data transmission that is compatible for both ends of the circuit. BAUDRATE can only be datafilled if CLKSRCE is datafilled as field INTERNAL.
CLKSRCE	INTERNAL	Source for MPC clock. Enter INTERNAL for the MPC card or EXTERNAL for modem device.
L2WINDOW	1-(2)-7	Frame Window Size. Maximum quantity of unacknowledged frames that are allowed to be out standing at level 2. The value entered at the DTE end should be the same as that entered at the DCE end. Recommended value is 7.
NUMPVCS	(0)-(3)-255	Number of Permanent Virtual Circuits (PVCs) to be used on the X.25 link. Total of PVCs and SVCs cannot exceed 255. Default is 0 if NUMPVCS or NUMSVCS is 1 or more. Default is 3 if there is no datafill in NUMPVCS or NUMSVCS.
NUMSVCS	(0), 5-15	Number of Switched Virtual Circuits (SVCs). This is the quantity of logical channels that are used by the X.25 link. Total of PVCs and SVCs cannot exceed 255. If a non-zero value is entered here, SVCDNA and SVCTYPE must be entered in EXTRAINF.
STANDARD	CCITT80, DDNBASIC	Protocol Standard to be followed for communication on the link. SVC users should follow CCITT80 or DDNBASIC (Data Defense Network Basic). Recommended value is CCITT80.
TIDLE	1-(180)-255	Determines when the link should be considered logically disconnected after the idle channel state is detected.
TINACTIVE	1-(180)-255	Used to time the periodic transmission of a frame to check the remote responsiveness when there is no higher activity on the link. Value must be greater than, or equal to, the TIDLE value, and be greater than the T1 value.

Chart 5-7 Continued
TABLE X25LINK

FIELD	ENTRY	COMMENTS
T1	1-(3)-255	This is the timer at level 2 used to determine if the remote is responding correctly. If T1 responds the number of times set in N2 without proper acknowledgement from the remote of a frame that was sent, the link changes state and reinitializes.
T20	1-(45)-255	Used by protocol software for sending requests to restart level 3. Recommended value is 5.

End of PARMSEL parameters.

EXINFSEL	$	Extra Information Selector. This is a vector field composed of elements SVCTYPE (and its value) and SVCDNA (and its value). Entry in this field is required if non-zero values are entered in the option parameter NUMSVCS. If the fields are not needed, enter a dollar sign to terminate the field.

OPTION	VALUE	COMMENTS
SVCDNA	numeric	Switched Virtual Circuit Data Network Address. This is a numeric string of up to 15 digits. Length is 8 digits for DATAPAC circuits. Length can be up to 15 for DDN circuits. A value is required if a value has been datafilled in field NUMSVCS.
SVCTYPE	NTELPAC, DATAPAC	Switched Virtual Circuit Type. Type of messaging to be used on an MPC link. If a value has been datafilled in field NUMSVCS, DATAPAC* or NTELPAC can be specified.

End of EXINFSEL parameters.

*Datapac is a trademark of Bell Canada.

**Table X25LINK
(BCS26)**

5.17 Table X.25LINK (Chart 5-8) configures the X.25 layered protocol links handled by each of the Multi-Protocol Controller (MPC) of the DMS node. The table also has a set of link parameters, the default values of which can be specified for the links with a DNC system.

5.18 Also refer to the description of the datafill for Table MPC and Table NOPADDR. These tables register and configure the particular NT1X89 MPC circuit in the Input/Output Controller to be used to handle the DMS to DNC-500 communication links that are required.

**Chart 5-8
TABLE X25LINK**

Reference: 297-1001-451, Section 078

Note: At the end of the entries for the following set of fields, the DMS node prompts for PARMS (further parameter settings). Enter the symbol $ to activate the default values for all X25LINK parameters. These default settings are suitable for X.25 communication links with a DNC-500 system.

FIELD	ENTRY	COMMENTS
INDEX	0-15	The number of the X.25 link (that is, the virtual channel.
MPCNO	0-255	MPC board Number. This number should be the same as that in the UNIT field of Table NOPADDR. If there is more than one NT1X89 MPC device defined in Table NOPADDR, ensure that this field refers to the correct device.
LINKNO	2 or 3	Number of the communications link handled by this MPC.
LINKNABL	0 to 32765 (in 5 minute intervals; 0 indicates indefinite period)	Link Enable. The number of minutes allowed for the DNC-500 to establish (enable) a communications link after contact by the DMS node. After this period the DMS will busy the link. The recommended value is 0.
CONVNABL	0 to 32765 (in 5 minute intervals; 0 indicates indefinite period)	Conversation Enable. Number of minutes for conversations allowed on the line while a communications link between the DNC-500 and the DMS node is established. After this period the DMS will busy the link.
NUMPVCS	0	Number of Permanent Virtual Circuits (PVCs) to be used on the X.25 link.

Chart Continued --------------------------------

Chart 5-8 Continued
TABLE X25LINK

FIELD	ENTRY	COMMENTS
NUMSVCS	0 or 5-15	Number of Switched Virtual Circuits (SVCs). This is the quantity of logical channels that are used by the X.25 link. This quantity must be equal to the maximum quantity of SVCs to be supported by this MPC card port. The default value is 15.
SVCDNA	(8 digits)	Switched Virtual Circuit Data Network Address. The address of the DMS-100 as referenced by, or used by, the DNC.
SVCTYPE	DATAPAC	Switched Virtual Circuit Type. Datapac* format must be used to link a DNC-500 with a DMS node.
PKTDATA	256	Size (in bits) of the data packets that are used for communication on this X.25 link.
PARMS	T3 10 T4 120 FRMWINDO 7 PKTWINDO 2 N2 10 BAUDRATE 9600 or 19200 TS 5 STANDARD 1 $	Settings for the various parameters on this X.25 link. Each setting must be entered on a separate line. The symbol $ at the end of the line tells the DMS switch to use default values for all remaining X25LINK parameters.

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6. MANAGING FILE TRANSFER TO DNC-500

CONTINUOUS
TRANSFER

6.01 This part summarizes the commands for file transfer from a DMS to a DNC-500. The commands use the NOP command level of the DMS MAP terminal.

- References:
  297-1001-509: Command and Directory Cross-Reference
  297-1001-520: DMS General Maintenance Commands

Accessing the NOP
Command Level

6.02 The NOP command level is accessed by the following steps:

(**1**) Logon at the MAP terminal.
==> The "CI:>" prompt appears.

(**2**) Type the string MAPCI;MTC;IOD;NOP, and then press **RETURN.**

6.03 The available commands within the NOP MAP level are then displayed. This provides access to a status display and command set that enables the user to monitor and control file transfer to DNC-500.

Status Display

6.04 The status display shows the status of each active Switched Virtual Circuits (SVCs). The field Sessions shows all the SVCs in a line. Under this line, the field State shows the state of each SVC as follows:

- (a period) -indicating that the circuit is idle

- L - indicating that the circuit is logged-on

- A - indicating that the circuit is active

Command Set

6.05 Chart 6-1 lists the commands that are available at the NOP command level.

Chart 6-1
FILE TRANSFER COMMANDS

Seven commands are available in the NOP MAP level, summarized as follows, where the command QUERY is repeated for the various parameters that are applicable with it:

COMMAND	PURPOSE
QUIT	Recedes from the NOP level to the IOD level.

Note: The command QUIT ALL can be used to recede from any MAPCI level to the CI: level.

POST_ (session number)	For the SVC (that is, session) number entered, shows:

- Application (FT is File Transfer, TRAN is Transaction SVC)

- RO Type (for example, TS for Transfer Stream)

- Filename of file being transferred

- Number of last block sent

- Quantity of blocks that remain to be sent (for active files only)

- Status of last transmitted block (OK for no problems, SYS if problem is encountered)

Chart Continued --------------------------------

Chart 6-1 Continued
FILE TRANSFER COMMANDS

COMMAND	PURPOSE
QUERY_ (session number)	For the SVC (that is, session) number entered (default is for all SVC), shows: • State (Idle, Active, Logon) • Application (for example FT, or MAP) • File ID (for example, SMDR, or ATT) • Node (network address)
QUERY ACTIVE QUERY LOGON QUERY IDLE	Outputs the same QUERY information above for all the ACTIVE, LOGON, or IDLE SVCs.
QUERY SESSION n DETAIL	Gives detailed information for SVC (that is session) "n". In addition to information output by POST and QUERY, information concerning the following fields is also given: • Hold No. (position of file in DIRPHOLD) • Volume • Data ID (for example, 1 for SMDR, 2 for OM)
QUERY HISTORY	Outputs the 16 most recent ROs, and gives the following information: - the time at which each RO occurred, -the SVC that was used, -the RO type, -the Data ID, -the RO Result, -the fault number (if not OK).
NXTPAGE	Goes to next screen if output does not fit on one screen.
PRVPAGE	Goes back to previous display if the current display is page 2 or more.
RELEASE (session number)	Turns off a session. This is a useful command to exit the procedure if an operational problem was encountered during the session.
CLEAR	Clears out the history buffer and alarm display.

**DEMAND TRANSFER
(FROM DISK)**

6.06 A request for a demand transfer from a DNC-500 is indicated by a XMITnn alarm,where nn is the number of the alarm.

- For an Unprocessed (U) file, no manual intervention is required at the DMS.

- For a Recovery (R) file (sometimes referred to as an Exception file) manual transfer is required, as described below.

6.07 A Processed (P) file should be renamed to a U file and retrieved automatically, or renamed to an R file and transferred manually.

(1) Log on to a MAP terminal (see 297-1001-520).
    ==> The prompt "CI:>" appears.

(2) Type MAPCI;MTC;IOD;XFER, and then press ***RETURN.***
    ==>A list of commands available at the XFER level is displayed.

(3) Invoke the command QUERY to verify the alarm XMITnn, where nn is the number of the alarm.

(4) Invoke the command ABORTX if it is necessary to stop the file transfer process.

(5) Enter DSKUT, then invoke the command PROGDIR DISKUT LISTVOL to list the files that are on the disk.

(6) Invoke the command XMIT to begin file transfer.

(7) When the DNC-500 has received the file, a KEEP alarm is raised at the DMS.

(8) Invoke the command QUERY to verify the alarm.

(9) Invoke the command KEPT to clear the alarm. This command will also remove the file from DIRPHOLD.

**DEMAND TRANSFER
(FROM TAPE)**

6.08 A request for a demand transfer from a DNC-500 is indicated by an XMITnn alarm, where nn is the number of the alarm. Files stored on tape are Recovery (R) files (sometimes referred to as Exception files). They require manual intervention as follows:

(1) Log on to a MAP terminal (see 297-1001-520).
==> The "CI:>" prompt appears.

(2) Type MAPCI;MTC;IOD;XFER, and then press ***RETURN.***
==>A list of commands available within the MAPCI increment appears.

(3) Invoke the command QUERY to verify the alarm.

(4) Invoke the command ABORTX if it is necessary to stop the file transfer process.

(5) Invoke the command MOUNT to mount the tape. (See 297-1001-509)

(6) Invoke the command LIST to list the files on the tape. (See 297-1001-509)

(7) Invoke the command XMIT to begin the file transfer. When file transfer is finished, a DMNT alarm is raised.

(8) Invoke the command DMNT to clear the alarm.

(9) When the DNC-500 has received the file, a KEEP alarm is raised at the DMS.

(10) Invoke the command QUERY to verify the KEEP alarm raised at the DMS when the DNC-500 has received the file.

(11) Invoke the command KEPT to clear the KEEP alarm. This command also removes the file from DIRPHOLD.

(blank)

7. ABBREVIATIONS

AMA	Automatic Message Accounting
ATT	Automatic Trunk Test (TTRF in DMS)
BCD	Binary Coded Decimal
BNM	Business Network Management
CLLI	Common Language Location Identifier
DDU	Disk Drive Unit
DIRP	Device Independent Recording Package
DMS	Digital Multiplex System
DNC	Dynamic Network Controller
EBCDIC	Extended BCD Interchange Code
IBN	Integrated Business Network
IOC	Input-Output Controller
KT	Killer Trunk
LAN	Local Access Network
LIU	LAN Interface Unit
MAP	Maintenance and Administration Position
MDC	Meridian Digital Centrex
MPC	Multi-Protocol Converter
NCOS	Network Class Of Service
NOP	Network Operating Protocol
NT	Northern Telecom
NTP	Northern Telecom Practice
OM	Operational Measurement
PEC	Product Engineering Code
PVC	Permanent Virtual Circuit
SMDR	Station Message Detail Record
SVC	Switched Virtual Circuit

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