

OPERATIONS GUIDE FOR THE NASA EQUIPMENT MANAGEMENT SYSTEM (NEMS)

Release 4.3

NEMS-OG-13

PrISMS Contract

April 1999



National Aeronautics and
Space Administration

George C. Marshall Space Flight Center
Huntsville, AL 35812

OPERATIONS GUIDE FOR NEMS
RELEASE 4.3

Submitted by

Neal Cantrell
Functional Area Lead

Date

Reviewed by

CSC

Hector Garcia
Agencywide IRM

Date

Jim Cofer
Configuration Management

Date

Richard Bishop
Data Base Administrator (DBA)

Date

Prepared by

Computer Sciences Corporation, Contract NAS8-60000

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
HUNTSVILLE, ALABAMA**

April 1999

OPERATIONS GUIDE FOR NEMS
RELEASE 4.3

Approved by

Sheila Fogle **Date**
Consolidation Center
Project Manager

Nikita Zurkin **Date**
Program Functional Manager

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
HUNTSVILLE, ALABAMA

April 1999

1. GENERAL FRAMEWORK	1
1.1 PURPOSE	1
1.2 FEATURES OF THE SYSTEM AND APPROACH TO THE SYSTEM.....	1
1.3 DATA BASE AND PROGRAMS	2
1.4 NEMS FILE ORGANIZATION.....	3
1.4.1 The NEMS Database	3
1.4.2 The Equipment File (NEMS-EQUIPMENT).....	4
1.4.3 The History File (NEMS-HISTORY).....	4
1.4.4 The Table File (NEMS-TABLE).....	5
1.4.5 The Daily Transaction File (NEMS-DAILY-TRANS)	5
1.4.6 The Monthly Transaction File (NEMS-MONTH-TRANS)	6
1.4.7 The Report Request File (NEMS-REPORTS).....	7
1.4.8 The Global Transaction File (NEMS-GLOBAL-TRANS).....	7
1.4.9 The Control File (NEMS-Control).....	8
1.4.10 The Transfer File (NEMS-Transfer)	9
1.4.11 The Inventory File (NEMS-INVENTORY, NEMS-INV-STATUS and NEMS-BAR-CODE).....	9
1.4.12 The Work File 1 (Internal Reader).....	10
1.4.13 The Work File 2 (Non-Database Disk File).....	10
1.4.14 The Work File 3 (Non-Database Disk File).....	11
1.4.15 The Work File 4 (Non-Database Tape File).....	11
1.4.16 The Work File 5 (Non-Database Tape File).....	11
1.4.17 The Work File 6 (Non-Database File).....	12
1.4.18 The Work File 7 (Non-Database Disk file)	12
1.4.19 The Work File 8 (Non-Database Tape File).....	12
1.4.20 The Work File 9 (Non-Database Disk File).....	13
1.4.21 The Work File 10 (Non-Database Disk File).....	13
1.4.22 The Work File 12 (Non-Database Disk File).....	13
1.4.23 The Work File 13 (Non-Database Disk File).....	14
1.5 LIFE CYCLE OF EQUIPMENT RECORDS	15
1.6 GENERAL FUNCTION OF SUBSYSTEMS.....	15
1.6.1 NEMS Subsystems	17
1.6.2 General Function Of Subsystems	18
1.7 GENERAL PROCEDURE OF NEMS PROCESSING	23
1.8 NAVIGATION.....	23
2. ADHOC INQUIRIES SUBSYSTEM	25
2.1 GENERAL DESCRIPTION	25
2.2 INQUIRIES ON THE DAILY TRANSACTION FILE	25
2.3 INQUIRIES ON THE EQUIPMENT FILE	28
2.4 INQUIRIES ON THE HISTORY FILE	29
2.5 INQUIRIES ON THE MONTHLY TRANSACTION FILE	30
2.6 INQUIRIES ON THE TABLE FILE	31
2.7 INQUIRIES ON THE TRANSFER FILE	32

3. EQUIPMENT FILE UPDATE SUBSYSTEM	33
3.1 EQUIPMENT FILE UPDATE TRANSACTIONS	33
3.2 EQUIPMENT FILE ADD TRANSACTION	34
3.3 EQUIPMENT FILE CHANGE TRANSACTIONS.....	45
3.4 EQUIPMENT FILE DELETE TRANSACTIONS	52
4. REPORT SELECTION SUBSYSTEM.....	56
4.1 REPORT SELECTION OPTIONS	56
4.2 REPORT GENERATION PROCESS.....	64
5. TABLE FILE UPDATE SUBSYSTEM.....	70
5.1 NEMS TABLE FILE ORGANIZATION	70
5.2 TABLE UPDATE PROCESSING	71
6. SYSTEM MAINTENANCE SUBSYSTEM.....	73
6.1 SYSTEM MAINTENANCE FUNCTIONS	73
6.2 DESCRIPTION OF MAINTENANCE FUNCTIONS	74
6.2.1 General Description.....	74
6.2.2 Update NEMS USERID Table (MNTUIDP1).....	74
6.2.3 List Cyclical Maintenance By Frequency (MNTLSTP1).....	75
6.2.4 Select On-Request Maintenance (MNTSELP1).....	76
6.2.5 Alter Currently Scheduled Maintenance (MNTSUBP1)	76
6.2.6 Change Cyclical Maintenance (MNTCHGP1).....	77
6.2.7 Update JCL File (MNTJCLP1)	77
6.2.8 List JCL File (MNTJCLP2)	80
6.2.9 List Control Records (MNTJCLP3)	80
6.2.10 List Availability Status Code Records (MNTJCLP4).....	80
6.2.11 Update Maintenance Name Table (MNTTBLP1)	81
6.2.12 List Maintenance Name Table (MNTABHP1)	81
6.2.13 Update Inventory Userid Table (MNTIUIP1).....	81
6.3 MAINTENANCE BATCH JOBS	81
6.3.1 Batch Jobs For Maintenance	81
6.3.2 Selective Maintenance Jobs (Batch)	82
6.3.3 Routine Maintenance Jobs (Batch).....	84
6.3.4 Other Maintenance Related Programs (Batch and Online)	85
6.4 MAINTENANCE JOB GENERATION PROCESS.....	86
6.5 NEMS BATCH PROCESSING	88
6.5.1 Control for Batch Processing.....	88
6.5.2 JCL Structure For Batch Processing	91
7. STAND ALONE PROGRAMS	98

7.1 STAND ALONE PROGRAM FUNCTIONS	98
7.2 INDEX OF STAND ALONE PROGRAMS.....	98
7.3 DESCRIPTION OF PROGRAM FUNCTIONS.....	99
7.3.1 FORMS PRINT PROGRAMS	99
7.3.2 JCL AND JOURNAL UTILITY PROGRAMS	99
7.3.3 DATA COPY AND FORMS RECOVERY PROGRAMS	100
7.3.4 SOFTWARE RELEASE RELATED PROGRAMS.....	100
7.3.5 TRANSACTION EXTRACT PROGRAMS.....	100
8. MISCELLANEOUS PROCEDURES.....	102
8.1 GENERAL DESCRIPTION.....	102
8.2 ARCHIVING NEMS DATA.....	102
APPENDIX A - ACRONYMS	104
APPENDIX B - NEMS SYSTEM CHARTS	105
APPENDIX C - DATABASE FILE LAYOUT.....	123
APPENDIX D - NEMS BATCH JCL.....	147

1. GENERAL FRAMEWORK

1.1 PURPOSE

The purpose of the NASA Equipment Management System (NEMS) is to track information and activity pertaining to equipment NASA uses. In order to achieve this purpose, (1) The NEMS data base is created and maintained, and (2) The necessary information is obtained from the data base either through online adhoc inquiries or through formal reports produced by batch processing.

This booklet is prepared for both the users and Automated Data Processing (ADP) personnel. Information described in this booklet will give a general picture of the system, and will allow easier access to the NEMS system for the users or ADP personnel. Some specific information for System Maintenance Procedures will be helpful for ADP personnel who support NEMS processing for the users.

1.2 FEATURES OF THE SYSTEM AND APPROACH TO THE SYSTEM

The NEMS system is an extremely automated and interactive data processing system prepared for equipment management. The system is intended to have all capabilities necessary for equipment management. Accordingly, the system is multi-functional, comprehensive, and self-sufficient.

On the other hand, the system contains a substantial number of subsystems with relatively large sizes, and as a whole it becomes a large management system which has various components of arrangements for data processing.

However, one of the most conspicuous features of the system is that all the subsystems, various components of arrangements and procedures of processing are well organized, structured and integrated into one comprehensive management system.

Since all components of the system are closely interrelated between themselves, it is very difficult to find a definitely preferable entry point from where an approach to the system is to be attempted. The best way to grasp the system is considered to approach the system from several different angles, even though this method may result in repetitions in explanation.

Part I (General Framework) of this booklet is provided for describing a general picture of the system. In describing this portion of the booklet, the system is observed from different angles. The integrated system is described from the view point of (i) Data base and file organization, (ii) Life cycle of equipment

records, (iii) General function of subsystems and (iv) General procedures of processing.

After describing the overall picture in Part I, detailed descriptions of the systems are arranged by each subsystem in subsequent parts. Efforts will be made to explain relationships between subsystems to help create a comprehensive understanding of the NEMS system.

1.3 DATA BASE AND PROGRAMS

The NEMS data base is established and maintained under the ADABAS Data Base Management System (DBMS). The programs that comprise the NEMS automated system are written in NATURAL, the ADABAS online interactive processing language. Currently, about 500 programs are supporting this system.

Since the NEMS system is organized and processed under the ADABAS DBMS, ADABAS files are created and maintained for the system. The records on the ADABAS files are well indexed by the ADABAS software, and are directly accessed in a very quick and effective way.

Under the ADABAS-NATURAL system, a certain category of records, or records which are matched against certain qualifiers can be extracted directly from an ADABAS file, instead of extracting all records first and then testing records for certain qualifications. This capability of elective extraction of records from an ADABAS file reduces unnecessary processing substantially, and economizes overall processing dramatically.

The capability of 'qualifying-and-extracting' records from an ADABAS file, instead of 'extracting-and-qualifying' records on an ADABAS file, is provided by the ADABAS inverted indexing system. Under the inverted indexing system, contents of records are first checked, and if they are qualified, then locations of qualified records are sought and records are extracted. For this purpose, contents of certain key-like fields (descriptors) for each record (inverted list) are extracted when records are stored on an ADABAS file.

The inverted list (similar to a condensed file) of an ADABAS file is ready for use once a file is created or updated, and the list contains data (content) for descriptors (certain designated fields), frequency of occurrence of same data (content) and Internal System Numbers (ISN) unique record number in a file which can be assigned by the system or by users) for each record which has the same data. The ISN is indexed to the address converter which tells the block number of the file where the record with the ISN is located.

In this way, only necessary records are extracted selectively from an ADABAS file through the inverted indexing system (looking at contents first, then extracting appropriate records). In addition to this procedure, the highly effective NATURAL language provides very effective and convenient means of accessing and retrieving records from ADABAS files.

However, records on an ADABAS file are only accessed or retrieved through appropriate programs, because of the data base indexing system and the fact that most of the fields of each record are compressed when the record is stored on an ADABAS file. When records are retrieved from an ADABAS file, the compressed fields are regenerated to the original records. In addition to ADABAS files, ordinary sequential Work Files are also used.

1.4 NEMS FILE ORGANIZATION

1.4.1 The NEMS Database

The NEMS database is made up of 12 ADABAS files. They are:

(A) Equipment File	(NEMS-EQUIPMENT),
(B) History File	(NEMS-HISTORY),
(C) Table File	(NEMS-TABLE),
(D) Daily Transaction File	(NEMS-DAILY-TRANS),
(E) Monthly Transaction File	(NEMS-MONTH-TRANS),
(F) Report Request File	(NEMS-REPORTS),
(G) Global Transaction File	(NEMS-GLOBAL-TRANS),
(H) Control File	(NEMS-CONTROL),
(I) Transfer File	(NEMS-TRANSFER),
(J) Inventory File	(NEMS-INVENTORY),
(K) Inventory Status File	(NEMS-INV-STATUS),
(L) Inventory Bar Code File	(NEMS-BAR-CODE).

In addition to these ADABAS files, currently 9 Work Files are used for batch processing. The Work Files are ordinary sequential files.

Among the 12 ADABAS files, the Equipment File (Active Equipment File) and the History File (Inactive Equipment File) contain basic equipment data. Roughly speaking, all other files can be considered as supporting files.

1.4.2 The Equipment File (NEMS-EQUIPMENT)

The Equipment File is considered as the base file for the NEMS database. This file is the most important and the largest file in the database (See Attachment #2). Detailed information (a record contains 534 to 651 characters) for each item of controlled equipment (acquisition cost of \$100,000 or more, or sensitive (pilferable) equipment) NASA uses is entered as a record to this file when the equipment is acquired. There is one record for each item of equipment.

The records entered to this file can be updated according to the status changes of equipment, but remains on the file as long as the equipment is active and is under the control of an installation. This file may be considered as the Active Equipment File.

Records on this file are deleted when the matching equipment is removed from the control of an installation or becomes inactive. All records deleted from the Equipment File are written into the History File (NEMS-HISTORY).

In order to process records effectively, a unique Equipment Control Number (ECN) is given to each item of equipment when a piece of equipment is acquired, and the equipment record is added to the Equipment File initially. The ECN is also physically attached to the equipment on a bar code label. The ECN constitutes the first field (7 character alpha-numeric field, normally the first character is alphabetic followed by 6 numeric characters) of the Equipment File record, and is used as the most important control key for data manipulation.

The Equipment File is updated (add, change or delete actions) through online processing during the day. All transactions for updating the file are recorded on the Daily Transaction File. If there are any delete transactions, deleted records from the Equipment File are written into the History File.

The Daily Transaction Report is written from the Daily Transaction File through the overnight batch processing that is performed nightly. Online update transactions performed during the prior day for the Equipment File are reviewed and verified using the daily transaction report the next day.

1.4.3 The History File (NEMS-HISTORY)

The History File contains all records deleted from the Equipment File. Records are written into this file when delete transactions for records on the Equipment File are performed as a part of Equipment File update transactions. Information contained in the history file can be used to identify prior activities.

A record on the History File is an exact duplicate of the record which was on the Equipment File. Due to the transfers of equipment between NASA installations, an item can be added to and deleted from an installation's Equipment File more than once. Therefore, there may be more than one record on the History File for a particular item of equipment (See Attachment #2).

The unique key for each record is NASA's ECN plus a computer-generated sequence number. This file may be considered as the Inactive Equipment File.

Records on the History File can be kept as long as an installation considers necessary. However, the NASA installations are expected to perform periodical purge processing for the History File to remove old data. The frequency of the purge processing is determined by the installations. Records deleted from the History File are kept on tape (Work File 8, History Purge Tape File).

1.4.4 The Table File (NEMS-TABLE)

The Table File contains information for editing and interpreting the codes used on the Equipment File. Various tables on the Table File are categorized first by the Table Number (Table-Id), and by each code (Table-Key) within the same table-number group of tables. There is one table for each code in the data, and the table constitutes a record of the Table File. In another words, each code has one record of data on the Table File (See Attachment #2).

A specific table for a code is retrieved by reading the Table File providing the Table-Id and the Table-Key (Table-Number and Code). On the Table File records, the Table-Id and the Table-Key are put together into one field, Table-Id-Key, as a descriptor (a key field, can be used as a searching and sorting criteria, also can be manipulated). But the Table-Id and the Table-Key are defined as sub-descriptors (similar to the descriptor, but can not be manipulated separately). Therefore, either Table-Id-Key, or Table-Id and Table-Key (separately) may be given as a key when retrieving a specific table for a code.

The tables are divided into central, installation and system maintenance tables. Currently the Table File contains 26 different table-number-group of tables (8 system maintenance table groups and 18 general purpose table groups).

These tables are referred to primarily for editing fields of Equipment File records when performing update transactions (add, change, or delete transactions) for the Equipment File. But almost all NEMS programs refer to the tables frequently for their processing. This file is updated through online processing during the day.

1.4.5 The Daily Transaction File (NEMS-DAILY-TRANS)

The Daily Transaction File is the daily transaction log. This file contains information on each online transaction (add, change, or delete transactions) processed for the Equipment File during the day. Each transaction automatically adds a record to the Daily Transaction File.

There is one record for each transaction. The unique key for each record is NASA's ECN plus a computer-generated entry reference number, which is comprised of the installation number, the Julian date, and a sequence number (See Attachment #2). Records on the Daily Transaction File are entered into the file when update transactions on the Equipment File are processed. Update programs for the Equipment File write records on the Daily Transaction File when the programs update the Equipment File.

The Daily Transaction File is used as an input file for writing the Daily Transaction Report (Report 010) produced through overnight batch processing which is performed daily. The Daily Transaction Report is used for verifying online update transactions for the Equipment File. In other words, Equipment File update transactions are performed through online processing during daytime, but the update results are reviewed the next day by using the daily transaction report produced the prior night through daily batch processing.

The Daily Transaction File keeps only 1 day's transaction records which were processed on the latest date. Old records (with the date last processed by the batch job) are merged to the Monthly Transaction File, and deleted from the Daily Transaction File. In this way, daily transaction records are added daily to the Monthly Transaction File, and the Daily Transaction File is reset daily.

1.4.6 The Monthly Transaction File (NEMS-MONTH-TRANS)

The Monthly Transaction File is the month-to-date transaction log. This file contains all records of online transactions (add, change, and delete transactions) performed for the Equipment File during the month (from beginning of a month to the current date). The records on the Daily Transaction File are merged with the records on the Monthly Transaction File every night when the daily overnight batch processing is performed (See Attachment #2).

Each month-end, records on the Monthly Transaction File are copied to the accumulated transactions tape (Work File 4). The monthly Transaction File is then purged so it will be ready for the next month's processing. The accumulated transactions file is a generation data group tape, and the generation data group maintains 12 generations. Various monthly activity

reports are written from the monthly Transaction File (see the Work File 4, and the Work File 7).

1.4.7 The Report Request File (NEMS-REPORTS)

The Report Request File is considered as the report request log. The file is also considered as the maintenance request log, because maintenance processing, as well as report requests, are recorded on the file. Thus, the users can schedule the necessary reports and maintenance performance on this file. The scheduling is for the daily overnight batch processing.

Report requests are made through the Report Selection Subsystem, and maintenance processing is requested through the System Maintenance Subsystem. But both subsystems use the same file for scheduling their reports or maintenance processes (See Attachment #2).

The Report Request File contains report request records and also maintenance request records. These records are entered into the Report Request File through online processing performed during daytime. As mentioned above, records on the file are added, changed, or deleted through online processing using the report selection subsystem or the system maintenance subsystem. Records on this file are deleted or reset (execution date for cyclical reports or maintenance jobs is reset for next running) after processing the overnight batch jobs. All requested jobs using the Report Request File are executed through the overnight batch processing (See Attachment #2).

The Report Request File is read by JCL generation programs (JCLGENP2 for report generation, and JCLGENP3 for maintenance requests), and JCL for each requested reporting job is generated using card images extracted from the Control File NEMS-control) which contains JCL card images as a part of its records. Only 1 JCL stream is generated for all maintenance requests. The JCL is arranged to include all maintenance requests.

The Report Request File also contains another type of record in addition to the report request records and the maintenance request records. The records are the standard distribution reference records (records with report-number of STD). This record is referred to when report writing programs generate printed reports providing information necessary for proper arrangements and distribution of reports.

1.4.8 The Global Transaction File (NEMS-GLOBAL-TRANS)

The Global Transaction File is an intermediate file which connects online processing and batch processing for global change transactions for the

Equipment File. This file holds records which contain change information for the global transactions (See Attachment #2).

Records on the Global Transaction File are entered through online processing during the day (programs TRN062P1, TRN062P2, TRN062P3, TRN062P4, TRN062P5, and TRN062P6 support the online processing), and the records are used by the batch processing programs (TRN062PA, TRN062PB, TRN062PC, and TRN062PD) for global change transactions for the Equipment File when overnight batch processing is performed. The 'global change transaction' means a transaction for change in certain field(s) for all records or records that fall in a certain range set by the user.

An update report, either Report-60 or Report-180, is written in connection with the global transaction for the Equipment File. For the update report, a report request record is entered into the Report Request File when the update transactions are performed through batch processing. As Work Files for the batch processing, the Work File 9 and the Work File 10 are used.

The records on the Global Transaction File are copied on a tape and deleted after completing global transactions for the Equipment File. The resetting of the Global Transaction File is performed as a part of the maintenance function for the daily batch processing.

1.4.9 The Control File (NEMS-Control)

The Control File is provided primarily for controlling batch job processing. For this purpose, this file contains 2 control records (one for production and the other for testing). Each of the records contains 12 control switches for overall control of batch processing. The control switches are:

- 1 DATABASE RESTORE
- 2 DATABASE BACKUP
- 3 NEMS BATCH EDIT/UPDATE
- 4 DATA TRANSMISSION
- 5 ARCHIVE
- 6 REPORTS
- 7 NOT USED
- 8 NOT USED
- 9 NOT USED
- 10 NOT USED
- 11 NEMS MAINTENANCE

12 FINAL BACKUP

Appropriate switches are set 'on' for the initiation of a certain subsystem for routine batch processing. Subsystems are initiated selectively and can be restarted using the switches. During the batch processing, JCL generation programs (JCLGENP1, JCLGENP2, and JCLGENP3) check switches, and extract appropriate JCL for jobs in proper sequence. The JCL generation programs also reset the control switches checking the result of job execution. The values for the control switches are:

- 0 JOB IS NOT SCHEDULED
- 1 JOB IS SCHEDULED
- 2 JOB HAS STARTED
- 8 JOB ENDED NORMALLY
- 9 JOB ENDED ABNORMALLY

The Control File also contains other types of records. The file contains and supplies JCL card-images which are extracted and used by the JCL generation programs. These JCL card-images are picked by the JCL generation programs according to report requests or maintenance requests on the Report Request File, and the status of control switches on the Control File.

In addition to the control records and JCL card-images, there is a third type of record on the Control File, the status code summary records. Each center has 4 status code summary records on the Control File by each availability status code (a, b, c, and d). These records contain a cumulative number of the equipment counted by each availability status code (See Attachment #2).

1.4.10 The Transfer File (NEMS-Transfer)

The Transfer File is used as a temporary storage file for data records that are transmitted to the center from the central data base via NASANET. These records are then used as input to transactions 04, 06 and 07. Once the add transaction has been processed, the record is deleted from the Transfer File. Records are transmitted from the central data base and then updated to the Transfer File on a daily basis.

1.4.11 The Inventory File (NEMS-INVENTORY, NEMS-INV-STATUS and NEMS-BAR-CODE)

Refer to the NEMS Inventory Operations Guide.

1.4.12 The Work File 1 (Internal Reader)

The Work File 1 is assigned to the internal reader to which JCL for batch processing is submitted. JCL generation programs (JCLGENP1, JCLGENP2 and JCLGENP3) read the Control File and the Report Request File, and according to job requests the programs extract JCL-Card-Images from the Control File. JCL for requested jobs are written to the Work File 1 (internal reader).

JCLGENP1 queries the control record on the Control File, and according to the indications of the control switches on the record the program either submits appropriate JCL for jobs other than report generating jobs or maintenance request jobs, or fetches (calls) JCLGENP2 or JCLGENP3. JCLGENP2 submits JCL for various report generating jobs, and JCLGENP3 is used for submitting JCL for a maintenance job which includes all necessary maintenance processing for the day's batch processing.

1.4.13 The Work File 2 (Non-Database Disk File)

The Work File 2 is used for NEMS Journal File, an internal 'process log' data set. During the execution of the batch processing for any report generating job or maintenance performing job, short progress messages are written on this file, and the messages are printed on completion of the day's batch processing.

The journal messages are used to track the activity of processing performed. They are especially useful in determining causes of abnormal ending of a job when a batch process was unsuccessful. The journal messages are also very useful when performing a series of tests for programs which are in development process.

The journal messages are written by each program when the program is in the process of execution. Each program contains instructions for writing the messages.

The record of this file contains 107 characters. Records on the Work File 2 are cleared after producing the NEMS Journal Report (JRNRP1), a hard copy listing of the messages. The writing of the report and the resetting of the Work File 2 (JRNCLRP1) are performed as parts of maintenance function. In order to continue adding journal messages throughout the batch processing, the 'disposition' of the file is defined as 'MOD' on the JCL. The 'disposition' is changed later to 'OLD' when this file is being cleared (see Work File 3).

1.4.14 The Work File 3 (Non-Database Disk File)

The Work File 3 is the same disk file (same cataloged Data set name) used as the Work File 2. While the Work File 2 was used to write journal messages on the file, the Work File 3 is defined in the job stream for batch processing in

Order to delete records on the Work File 2 (clear the Work File 2), after producing the NEMS Journal Report (JRNRP1), a hard copy listing of the journal messages, from the Work File 2.

The clearing of this file is performed at the end of batch processing as a part of the maintenance function (JRNCLRP1). Since the overnight batch processing is performed daily, the Journal File is written daily and also cleared daily.

In order to delete journal messages on the file, blank lines are written on the top of the message lines. The 'Disposition' of the Work File 3 is defined as 'OLD' on the JCL to clear the file from the beginning to the end.

1.4.15 The Work File 4 (Non-Database Tape File)

The Work File 4 is the accumulated transactions tape, a generation data group tape. The tape is used for saving data copied from the Monthly Transaction File.

At month's end, all records on the Monthly Transaction File are copied into this tape, and all records on the file are deleted so the Monthly Transaction File is ready for the Next month's processing. Processing for copying Monthly Transaction records to the tape and purging the Monthly Transaction File is performed by the MSM002P1, a monthly maintenance program.

The generation data group maintains 12 generations, Therefore, one year's transaction records for the Equipment File are saved. Each record on the Work File 4 contains 498 characters.

1.4.16 The Work File 5 (Non-Database Tape File)

The Work File 5 is a generation data group tape. This tape is used as an output file for 'financial reconciliation extraction programs' (MSF003PM, MSF003P1 and MSF003P2). Processing involved by one of these programs is not performed for all installations.

The record of the file contains 83 characters or 84 characters depending upon the processing necessary for an Installation. The tape is managed according to center procedures.

1.4.17 The Work File 6 (Non-Database File)

The Work File 6 is a generation data group tape. This tape is used to backup global transactions. This file is copied to tape at each end-of-month.

1.4.18 The Work File 7 (Non-Database Disk file)

The Work File 7 is a temporary Work File used for availability status code (A=active, B=inactive assigned, C=inactive unassigned, and D=excess) summary processing. The availability status code is entered in the field of the Equipment File record. This entry is updated (changed) according to status changes in the matching equipment.

The Work File 7 is used for 2 purposes. First, the file is used for updating status code summary records on the Control File. The Control File contains 4 status code summary records, one for each status codes, together with other types of records. Secondly, the Work File is also used for generating the Monthly Summary of Status Code Change Report.

In both processes, this file is used as a temporary extract file. For the update processing for the status code summary records on the control file, the extract program, MSM001P1, extracts monthly summary data of status code changes from the Monthly Transaction File to the Work File, and passes the summary data on the Work File 7 to the update program, MSM001P2, which updates the records on the Control File.

The report writing processing is performed similarly. The extract program, RPT700P1, extracts the data from the Monthly Transaction File to the Work File 7, and passes the file to the report generator, RPT700P2, which writes the report. The record of the Work File 7 contains 140 characters. As a temporary file, this Work File is created, and deleted during the batch processing.

1.4.19 The Work File 8 (Non-Database Tape File)

The Work File 8 is a generation data group tape. This tape is the history purge tape file, which is used for saving historical equipment records for a certain period.

This file contains records purged from the History File. Records are copied into this tape when purge processing for the History File is performed. The History File purge program, MSA002P1, purges the History File, and at the same time writes this tape.

The record of the Work File 8 contains 660 characters. The generation data group maintains 5 generations of tapes. The tapes are managed according to center procedures.

1.4.20 The Work File 9 (Non-Database Disk File)

The Work File 9 is a temporary disk file used for global change processing for the Equipment File, through overnight batch processing. Global change transactions are first processed through online processing, and are concluded through overnight batch processing.

Online processing for the global change transactions are performed up to the stage of creating the Global Transaction File. The Global Transaction File contains records which hold 'change information'. Further processing up to actually updating the records on the Equipment File is performed by overnight batch processing.

Online processing is supported by the global change online programs (TRN062P1, TRN062P2, TRN062P3, TRN062P4, TRN062P5, and TRN062P6), and batch processing is supported by the global change batch programs (TRN062PA, TRN062PB, TRN062PC, and TRN062PD).

The Global Transaction File is read by the global change information extract program (TRN062PA), appropriate 'change information' is extracted and passed by the program to the next program. The change information is passed directly, without using any file, when the TRN062PA fetches the next program (TRN062PB). The global change data extract program (TRN062PB) now reads the Equipment File, and extracts appropriate data from the Equipment File records qualified against the 'change information' received from the preceding program.

The extraction of data from the Equipment File by the TRN062PB is made on the Work File 9. The Work File 9 is passed to the next program (TRN062PC) for further processing. The record of this file contains 252 characters. The Work File 9 is deleted after processing.

1.4.21 The Work File 10 (Non-Database Disk File)

The Work File 10, as well as the Work File 9, is a temporary disk file used for global change transactions for the Equipment File, through overnight batch processing (see the Work file 9). The Work File 10 is written by the global change edit program (TRN062PC) using the Work File 9. The program passes the Work File 10 to the global change update program (TRN062PD).

The global change edit program (TRN062PC) reads the Work File 9 passed by the preceding program (TRN062PB), and edits the contents of the 'old-value' and the 'new-value' for a change field. The global change edit program (TRN062PC) further selects the Equipment File record to be updated according to the results of editing, and the ECN and the change field of the selected record are written on the Work File 10 by the program.

The Work File 10 and other information, such as the 'old-value' and the 'new-value' for a change field and related data, are passed to the global change update program (TRN062PD) by the edit program (TRN062PC). The update program (TRN062PD) updates Equipment File records using the Work File 10 and data passed by the preceding programs. The record of the Work File 10 contains 80 characters, and this temporary file is deleted after processing.

The Work File 12 and other information, such as the 'old-value' and the 'new-value' for a change field and related data, are passed to the global change update program (TRN062PD) by the edit program (TRN062PC). The update program (TRN062PD) updates Equipment File records using the Work File 10 and data passed by the preceding programs. The record of the Work File 10 contains 80 characters, and this temporary file is deleted after processing.

1.4.22 The Work File 12 (Non-Database Disk File)

The Work File 12 is a data set containing transfer information. The central data base will transmit data to a center when a 'transfer' occurs between two centers. The data from the sending center is transmitted to the receiving center (into the data set identified by Work File 12). A batch program (MSD008P8) accesses this data combining 80 character transmission records into 240 character transfer records. These records are then written to Work File 13. This process occurs during the 'maintenance' job of the NEMS overnight batch process.

1.4.23 The Work File 13 (Non-Database Disk File)

The Work File 13 is a temporary data set created by a batch program (MSD008P8) to hold transfer file records. Another batch program (MSD008P9) adds the transfer data to the NEMS-TRANSFER File. This data is then available for online processing. The add transactions that receive a transfer record (04, 06 and 07) will query the NEMS-TRANSFER File using the data to populate the add transaction input screen. A program (MSDCLRP1) is used to reset Work Files 12 and 13 after the data has been added to the NEMS-Transfer File.

1.5 LIFE CYCLE OF EQUIPMENT RECORDS

Once controlled equipment, equipment with an acquisition cost of \$1,000 or more, or equipment that is sensitive (pilferable), is received by an installation, a few items of information on the equipment are recorded on the Receiving and Inspection Report (R&I) by the receiving personnel. Several more items of information on the equipment are added on the R&I form by the catalog personnel.

The Equipment Manager of the installation further provides all other information on the equipment which is necessary in creating an Equipment File record. The Equipment Manager attaches a NEMS bar code tag to the item, and assigns the ECN which is unique for each item of equipment. The ECN comprises the first field of an Equipment File record, and is used as the key in overall record control and data processing. All items of information the Equipment Manager provides are again added to the R&I form, and the form is sent to the NEMS control personnel for the first data entry into the NEMS system.

The NEMS control personnel create an Equipment File record and add the record to the Equipment File using the data on the R&I form, through the add transaction for the Equipment File update processing. This transaction is performed through online processing.

After getting into the NEMS online system, the Equipment File update option on the NEMS Main Menu panel is selected first, and the add (transaction 01-24) option on the NEMS Equipment File update menu screen (the second screen) is taken. The next screen prompts for the ECN and the transaction number which specifies the type of transaction; there are 21 different types of add transactions (transaction number 01 to 21).

When the ECN and transaction number are typed in, there appears the detailed template provided to enter each field of the Equipment File record. When the necessary data including information for mandatory fields on the template is entered, a record on the Equipment File is created.

Once record is entered (created) into the Equipment File, the record remains on the file as long as the equipment is under the control of the installation and is considered active, though the equipment is tracked continuously and the record is subject to various change transactions (transaction 25-64) which reflect status changes of the equipment. A record on the Equipment File is deleted when the equipment become inactive and disposed by the installation, or the equipment is removed from the control of the installation.

There are many different types of delete transactions (transaction 65-99) including transactions for transfer of equipment to other organizations, for

returning leased or loaned equipment to owners, or for other various decontrol or disposal of equipment. When a record on the Equipment File is deleted, the record is removed to the History File.

The History File may be considered as the inactive Equipment File, and the file contains all records deleted from the Equipment File. A record, moved from the Equipment File into the history file, may go back to the Equipment File as reactivated, but in most cases it remains on the history file as long as the installation intends to keep the record.

Old records on the History File, however, are removed from the file through periodical purge processing. The frequency of the purge processing is determined by the installations. Records removed from the History File are written into the history purge tape file (the Work File 8) in order to keep the records in the NEMS system for a certain period. The history purge tape file (the Work File 8) is a generation data group tape. The generation data group maintains 5 generations of tapes. If the purge processing is performed periodically at each year's end, records on the history purge tape file are kept 5 years on the tape.

The life cycle of equipment records is summarized briefly as follows. The records are first entered into the Equipment File when the matching equipment is received by a installation. The records remain on the Equipment File as long as the matching equipment is active and under the control of the installation. The record is updated (changed) frequently according to the status changes of the equipment, but still remains on the Equipment File until a delete transaction is performed.

The record is deleted from the Equipment File and transferred to the History File, when the equipment becomes inactive or the equipment is removed from the control of the installation. Some of the equipment records on the History File may go back to the Equipment File, but most of the records on the History File remain on the file as historical records. Old records on the History File are removed to the history purge tape, and the records are kept in the NEMS system for an extended period. The equipment records will be completely purged (except microfilms created during various processing) from the NEMS automated system when the tape is uncataloged and scratched.

In view of physical processing of equipment records, the Equipment File Update Subsystem is mainly used. Using the subsystem, records are added to the Equipment File (add transaction), the records on the Equipment File are changed (change transaction) when necessary and the records are deleted from the Equipment File and at the same time written into the History File (delete transaction).

All the transactions for the Equipment File are performed through daytime online processing except global transactions. However, the update transactions are tracked and verified through overnight batch processing. For this purpose all update transactions are logged on the Daily Transaction File when actual update transactions are performed.

Actually, the update transactions (add, change, and delete) for the Equipment File using the Equipment File update subsystem are considered as the basic and primary processing for the overall NEMS system, because NEMS major data base is created and maintained through the transactions. Together with the data base creating functions, the reporting functions and various supporting functions (i.e. adhoc inquiries function and maintenance functions) are performed during the whole process of the life cycle of equipment records.

1.6 GENERAL FUNCTION OF SUBSYSTEMS

1.6.1 NEMS Subsystems

The NEMS System is comprised of 5 subsystems. A user may have access to all or part of a subsystem, or they may not have access to a particular subsystem at all. The USERID, assigned by the NEMS database administrator (DBA) or NEMS programmer for access to NEMS, controls the user's subsystem authority levels (see attachment #1). The 5 NEMS subsystems are:

1. ADHOC INQUIRIES SUBSYSTEM
2. EQUIPMENT FILE UPDATE SUBSYSTEM
3. REPORT SELECTION SUBSYSTEM
4. TABLE FILE UPDATE SUBSYSTEM
5. SYSTEM MAINTENANCE SUBSYSTEM

The subsystems supplement each other, and the 5 subsystems constitute one integrated and self-sufficient system, that is designed to build and maintain the NEMS database (files containing equipment records) and also to track activities (changes in equipment status) resulted on equipment. These subsystems are designed to process through online processing as far as possible. But some subsystems are partially processed through online processing and partially supported (extended) by batch processing.

1.6.2 General Function Of Subsystems

1.6.2.1 The Adhoc Inquiries Subsystem

The purpose of the Adhoc Inquiries Subsystem is to look into files. This subsystem allows the user to view information stored in the NEMS database via preprogrammed or dynamic adhoc requests. This subsystem is provided to look into certain file records. The subsystem does not process (add, change, or delete) any records, but provides the information the user requested by retrieving records or parts of records to be displayed on the terminal screen.

The Adhoc Inquiries Subsystem looks into 6 NEMS ADABAS files. They are the Daily Transaction File (NEMS-DAILY-TRANS), the Equipment File (NEMS-EQUIPMENT), the History File (NEMS-HISTORY), the Monthly Transaction File (NEMS-MONTH-TRANS), the Transfer File (NEMS-TRANSFER) and the Table File (NEMS-TABLE). As we know, records on the ADABAS files are only accessed through programs. Supporting programs for this subsystem search appropriate files and retrieve certain records according to user requests. The ADABAS/NATURAL system is arranged to perform selective retrieval of data easily. This online subsystem is self-sufficient, and no additional support by batch processing is necessary.

1.6.2.2 The Equipment File Update Subsystem

The purpose of the Equipment File Update Subsystem is to update the Equipment File. This subsystem allows the user to update the Equipment File records. Each transaction is edited and applied online.

This subsystem is considered as the primary subsystem in the NEMS system and is also considered the most important subsystem in the system, since the subsystem actually updates (add, change, or delete) the Equipment File. The Equipment File is considered as the base file for the NEMS database.

All transactions are performed through online processing. The online processing is self-sufficient. Records on the Equipment File are newly added, changed, or deleted instantly through the online processing, but the update activities are recorded on the Daily Transaction File (NEMS-DAILY-TRANS), and verified later by the hardcopy report (the daily transaction report), which is produced through daily batch processing.

The update functions for the Equipment File are performed by this subsystem through online processing sufficiently, but batch processing supports the Equipment File update subsystem in verifying the update activities, since the activities are considered very important. Various transactions are supported by particular transaction programs.

1.6.2.3 The Report Selection Subsystem

The purpose of the Report Selection Subsystem is to request report generation. This subsystem allows the user to submit pre-programmed reports for overnight batch processing. The reports are produced on hardcopy paper. Reports can be submitted on-request for a one-time-only run. Reports can also be scheduled to be run cyclically (i.e., daily, monthly, annually etc.) without user intervention.

This subsystem is provided primarily for report requesting, either on-request or on a regularly scheduled basis. The report selection subsystem may submit a new job for an on-request report, or reschedule or a cyclical report, or change currently scheduled jobs, either on-request or cyclical reports, which are expected to run that night through batch processing.

Information for report requests is entered into the Report Request File (NEMS-REPORTS) as records of the file through online processing. The Report Request File can be displayed, or adjusted when there are changes in one-time report requests, or rescheduling is necessary for cyclical reports, as mentioned above. Online processing for this subsystem is performed up to this point. Further processing for report generation is performed through batch processing.

In the process of batch processing, a JCL generation program (JCLGENP2) reads the Report Request File, and extracts necessary JCL for jobs requested. JCL card-images are extracted from the Control File (NEMS-Control) which contains JCL card-images as a part of its records. The report selection subsystem starts processing through online processing, but concludes processing for report generation through batch processing. Online processing is supported (extended) by batch processing for this subsystem.

1.6.2.4 The Table Update Subsystem

The purpose of the Table Update Subsystem is to update the Table File. This subsystem allows the user to update the installation tables on the Table File. The updates are edited and applied online.

As the Table File is an ADABAS file, the file is accessed or updated (add, change or delete records) only through appropriate programs. Currently the Table File contains 25 different tables (7 system maintenance tables and 18 general purpose tables). Since each table is updated using a specific table update program, 25 update programs support this subsystem.

The Table Menu Program (TBL000P1) fetches appropriate programs according to user requests, and the table update program fetched updates using data the user supplied through online input. A specific table is accessed by providing a 3 character table-id (or Table Number), a specific record in the table is accessed or retrieved by giving the table-key (1 to 8 characters). On the Table File record the table-id-key (11 characters) field is defined.

Table update transactions are performed entirely through online processing. No batch processing is involved. Contents of table records are viewed through the Adhoc Inquiries Subsystem, and table records are updated by the Table Update Subsystem. The Adhoc Inquiries Subsystem uses table list programs provided for each table.

1.6.2.5 The System Maintenance Subsystem

The purpose of the System Maintenance Subsystem is to support other NEMS subsystems as well as the database NEMS in order to ensure that the NEMS system works as an integrated and comprehensive equipment management system. This subsystem performs database maintenance functions and various house-keeping processing for the NEMS System as well as supporting other subsystems by controlling overall daily batch processing using the Control File. This subsystem is utilized mainly by the DBA or NEMS programmers.

Processing for this subsystem is performed through online setting-up for the daily batch processing and execution of the batch jobs. The NEMS system is designed basically to function as an integrated system by combining daytime online processing and overnight batch processing. Therefore, the overnight batch processing is an important part of the overall NEMS processing, and the batch processing is scheduled to process at night on a daily basis.

The functions for the online processing portion of this subsystem may be categorized as

1. CONTROL FILE LISTING AND UPDATING,
2. MAINTENANCE JOB SCHEDULING AND

3. SYSTEM TABLE UPDATING.

Most of these functions are for controlling or setting-up for the daily batch processing, or closely related to the batch processing. On the other hand, batch processing is performed according to the requests set up by online processing for this subsystem, and also by the Report Selection Subsystem.

Batch processing is first controlled or set up by the control record of the control file. Secondly, Report Request File records initiate jobs for reports and maintenance performance. Control, set up by the control record, is absolute, and supersedes any job request entered on the Report Request File (report generation or maintenance performance). In order to run any report generating job, the report process switch (switch #6) on the control record should be set to 'on' (set to '1') and the report request record for a specific report should be entered on the Report Request File. If the report process switch is set to 'off' (set to '0'), no reporting job is generated, even if the Report Request File contains report request records. JCL generation programs look up the control file first, then check the Report Request File.

The System Maintenance Subsystem has the option for listing and updating records of the control file. The control file contains 2 control records (one for production and one for test), multiple JCL records necessary for the batch processing and 4 availability status code summary records. The control records can be listed on the screen, and also can be updated. Each of 12 control switches on the control record can be set to 'on' ('1') or 'off' ('0'). The batch processing is controlled initially by using control switches on the control record.

Control Switches are as follows:

1. DATABASE RESTORE (COLUMN 15)
2. DATABASE BACKUP (COLUMN 16)
3. NEMS BATCH EDIT/UPDATE (COLUMN 17)
4. DATA TRANSMISSION (COLUMN 18)
5. ARCHIVE (COLUMN 19)
6. REPORTS (COLUMN 20)
7. NOT USED (COLUMN 21)
8. NOT USED (COLUMN 22)
9. NOT USED (COLUMN 23)
10. NOT USED (COLUMN 24)

11. NEMS MAINTENANCE (COLUMN 25)

12. FINAL BACKUP (COLUMN 26)

Currently, switches for NEMS Batch Edit/Update Option (switch #3, column 17), Reports Generation Option (switch #6, column 20) and NEMS Maintenance Option (switch #11 column 25) are set to 'on' (set to '1'), and processed daily. While processing for report generation or maintenance performance is performed according to user's requests entered on the Report Request File through online input, NEMS batch edit/update processing (for example, global change transactions for the Equipment File) is performed without referring to the Report Request File. JCL for the NEMS batch edit/update processing is always ready when the control switch for processing on the control record is set to 'on' (set to '1'). The JCL generation program (JCLGENP1) extracts the necessary JCL for the processing.

The System Maintenance Subsystem also allows NEMS DBA or programmers to list or update JCL records on the control file. The availability status code summary records also can be listed on the screen. JCL records are stored on the control file, and extracted by JCL generation programs (JCLGENP1, JCLGENP2, and JCLGENP3) for batch processing.

Maintenance jobs are requested through this subsystem. Requests for maintenance jobs are entered on the Report Request File as records of the file. This is similar to the instance of requests for report generation. Maintenance jobs may be cyclical processing or on-request type processing. Maintenance request entries for on-request type processing are deleted after execution of jobs. Cyclical maintenance requests (schedules) always stay on the Report Request File with rescheduling of the dates for the next execution of the jobs.

Maintenance jobs are generally housekeeping type processing. Switch reset on the control record, file resetting or clearing for next batch processing, file backup and purging and journal message listing etc., are performed as parts of maintenance jobs. Detailed contents of the maintenance jobs will be described later.

The System Maintenance Subsystem also updates system tables such as 'S03' table (USERID Table), 'S07' table (journal message table), 'S08' table (Maintenance Name Table), and 'S11' (Inventory USERID Table). The USERID table ('S03' table) is updated by the NEMS DBA or programmers using this subsystem, because the table defines the user's subsystem authority levels. Users are generally not allowed to access the System Maintenance Subsystem.

1.7 GENERAL PROCEDURE OF NEMS PROCESSING

In structural points of view, the NEMS system is comprised of 5 subsystems which are well integrated and structured in the top down approach. The integrated NEMS System is accessed from the top (Main Menu) to the bottom (final processing) through menu driven procedures.

In view of the types of processing, NEMS processing is fulfilled through the combined processing of the online processing and the batch processing. These 2 types of processing are integrated for overall NEMS processing, and supplement each other. The NEMS System is designed to be processed through online processing as far as possible, but the online processing is supplemented by the batch processing.

NEMS processing is arranged basically to consist of processing on a daily basis. The daily basic processing is extended to monthly, quarterly, semi-annually and annual processing. The daily processing is concluded through daytime online processing and night-time batch processing. Generally daytime online processing is extended to overnight batch processing.

The daily batch processing is also performed for NEMS system maintenance rather independently than extending processing made by daytime online processing, though the daily maintenance batch processing is also set up through daytime online processing. Since the NEMS system maintenance includes indispensable daily house-keeping functions necessary for the entire NEMS system, and in many cases the overnight batch running concludes daytime online processing, the batch processing should be performed daily.

Procedures for running batch jobs are well automated. Arrangements for the overnight batch processing are set through online requests during the day. JCL generation programs supply JCL for the batch processing. The batch processing is initiated by running the first JCL generation program (JCLGENP1). The program fetches necessary JCL generation programs.

1.8 NAVIGATION

Navigation in the Inventory Module can be accomplished by moving up and down the menu 'trees' or by entering a direct command. The syntax for the direct command is '=A.BBB.CCC' where the equal sign '=' designates the value as a direct command. The first 'tree' level is identified by the 'A'. A delimiter '.' followed by the second level and third levels (where applicable) follow. The values for levels correspond to the values on that level of menu. The first level corresponds to the Main Menu options. The second level corresponds to the specific options available to the menu designated by the first level. The same

applies for the third level. This amounts to stacking menu directing commands to arrive at a predetermined location. The direct command is available wherever a menu option (or cancel command) exist. The final destination can be any screen unless a data value was required to get there (e.g. entering the transaction number and ECN on the Add Transaction Menu).

There are a few special direct commands available:

COMMAND RESULT

- = Q This command will take you out of NEMS. The result is the same as entering an 'X' on the Main Menu. You would either exit NATURAL or receive the 'NEXT' prompt in NATURAL. This depends on how your NEMS is set up.
- = 0 This command will take you to the Main Menu.
- = x This command will take you to the Main Menu and put the 'x' in the input field. If you press ENTER again the 'x' will be executed.
- = This command will take you to the Main Menu.

These commands can be used as a quick return to the Main Menu or out of the system. The direct commands are intended to enhance navigation, not to replace the existing method of climbing up and down the menu 'trees'.

2. ADHOC INQUIRIES SUBSYSTEM

2.1 GENERAL DESCRIPTION

As described in Section 1.6.2.1, the Adhoc Inquiries Subsystem is provided for looking into the ADABAS files. In fact, programs look into the inverted lists (similar to condensed files) of ADABAS files and, obtaining addresses of appropriate records, retrieve requested records from the ADABAS file, and

display on the terminal screen, instead of looking into the files first.

Since we can not access records on the ADABAS files directly, programs are used in retrieving or updating records on the ADABAS files. Currently, 5 major ADABAS files (Daily Transaction File, Equipment File, History File, Monthly Transaction File, Table File and the Transfer File) are accessed through the Adhoc Inquiries Subsystem.

Records on the ADABAS files, except the Table File, are accessed in 2 ways. Records are retrieved either by giving ECN's of records to be extracted, or by giving a certain Range Of Field Value's. On retrieving records from a certain ranges of field values, records whose field values fall in the range given are extracted and accessed. The Table File records are accessed by giving appropriate Table Numbers (Table Id).

Retrieving records according to the contents of certain fields (descriptors) is performed commonly under the ADABAS/NATURAL environment. This record retrieving procedure is applied for the adhoc inquires subsystem. Criteria for records to be retrieved are set first, and only qualified records against the criteria are extracted, Instead of records being retrieved first and the contents of the records being checked for qualification. This inverted method can be used because the ADABAS DBMS provides the inverted lists for the ADABAS files.

In order to look at a record on the ADABAS file using the Adhoc Inquiries Subsystem, however, we should supply certain criteria for the record to be retrieved. If the ECN of the record to be extracted is not known, the specific record can not be retrieved. But records that have ECN's which fall in certain range can be extracted by giving the range of ECN's. The other descriptor fields are also used in the same manner in retrieving records.

2.2 INQUIRIES ON THE DAILY TRANSACTION FILE

The Daily Transaction File records are accessed, as with several other files, in two ways through the Adhoc Inquiries Subsystem. The first method is to retrieve

any specific record giving an ECN which belongs to the record. The other way is to retrieve records giving certain field values (values of descriptor fields of records).

For example, all records having Item-Name (a descriptor field of the Daily Transaction File), 'personal computer', may be retrieved. Certain range of field value(s) can be given in order to retrieve records whose field values fall in the range. For another example, a range of field values may be given in such a way as 'Transaction-Number GT '01' and 'Transaction-Number LT '80'. All records whose transaction numbers fall between '02' and '79' inclusively will be retrieved and displayed.

The process of step-by-step approach to the records on the Daily Transaction File using the Adhoc Inquiries Subsystem is self-explanatory on the whole. The procedure for retrieving records by giving ECN's will be explained first, followed by the explanation for the procedure for retrieving records by giving field values. For retrieving records from the Daily Transaction File by giving ECN's, 6 screens including NEMS Main Menu screen are displayed. The NEMS Main Menu screen is displayed as the first screen for the NEMS system when we get into the system. If Option '1' (Adhoc Inquiries) is selected and the 'ENTER' key is hit, then the NEMS Adhoc Inquiries Menu screen is displayed. Now, the Adhoc Inquiries Subsystem is invoked.

If we again select Option '1' (Daily Transaction File by ECN), then the subsystem displays the ECN Selection screen, and prompts us to enter the ECN of the record to be retrieved. If a correct ECN is entered, then the Record Index screen is displayed. This screen displays fields (ECN, Sequence No, Trans No, Date, Time and Entry Ref No) of the records which have the same ECN that was supplied by the user. This screen is necessary because the Daily Transaction File may have multiple records with the same ECN. The subsystem prompts us to select one record to be retrieved and displayed.

If we select one record by giving a sequence number, then the requested record is retrieved and displayed using two screens. Steps have to be followed in reverse order in order to get back to the NEMS Main Menu screen. This procedure can not be used if the ECN is not known. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1), and the Daily Transaction File by ECN program (ADH900P1) support this portion of the subsystem.

For retrieving records from the Daily Transaction File by giving a range of field values, nine screens including the NEMS Main Menu screen are displayed. They are the NEMS Main Menu, the Adhoc Inquiries Menu, the Find Selection screen, the Where Selection screen, the Sort Field Selection screen, the Display Selection screen (I), the Display Selection (II) and the Output Display screens. Procedures for selecting options from the NEMS Main Menu screen and from the

Adhoc Inquiries Menu screen are self-explanatory. Explanations for the rest of the screens are added here briefly.

This record retrieving and displaying procedure takes the following steps.

1. Set Up Search Criteria For The Find Statement (give field values).
2. Set Up Search Criteria For The Where Statement (give field values).
3. Provide Sort Fields For Sorting The Records selected. This sorting is to give displaying order to the records (give sort fields).
4. Select Fields Of The Records To Be Displayed. Selected fields of a record are displayed in one line. Sequence of lines (records) are determined by the sorting criteria (give fields).
5. Requested Fields Are Displayed As Indicated Above (the subsystem displays).

The third screen is for setting up the find statement search criteria. All descriptor fields of the Daily Transaction File records are displayed in the lower part of the screen in order to be selected as search criteria. Descriptor fields are similar to key fields, and used as search criteria or sort fields. This screen allows us to select up to three search values for record selection. The screen prompts us to enter Descriptor Number, Operators (such as EQ, GT, LT, NE, GE, LE) and Search Values. Procedures for entering these items are self-explanatory. If all records on the Daily Transaction File are to be retrieved, entries will be 01 GE (space). If all records which carry ECN's between '111111' and '222222' inclusively are to be retrieved, entries will be 01 GE 111111 and 01 LE 222222 (using 2 lines).

The next screen is for setting up search criteria for the where statement. The same procedure is used here as with the find statement. All fields on the file are available for selection on the where statement and are displayed on two screens.

The next screen allows the user to select up to 3 sort fields. All descriptor fields of the records on the Daily Transaction File are also displayed in the lower part of the screen. Records selected according to the search criteria (see above) are to be sorted by the sort fields entered on this screen. Contents of records will be displayed later in the sorted order. All you have to do for this screen is to enter numbers which stand for descriptor fields to be used as sort fields.

The next 2 screens are for selecting the fields of the records selected to be displayed on the following screen. A maximum number of 10 fields for each record may be selected and displayed. All 73 fields of the record on the Daily

Transaction File are displayed in the lower part of the two screens. Among the 73 fields, up to 10 fields can be displayed. If the data is to be downloaded to the personal computer instead of displayed on the screen, the additional entry 'D' should be made in the place provided for this purpose. If the data is to be run as an overnight batch report, the entry 'B' should be made in the place provided for this purpose.

The last screen is for displaying contents of records selected. Up to now requested records are selected, the selected records are sorted and fields to be displayed are requested. All selected fields for all records are displayed on one line for each record. Records are displayed in sorted order. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1), the Daily Transaction File selection programs (ADH910P1, ADH910P2, ADH910P3 and ADH910P4), the Dynamic Adhoc programs (ADH99XPX), and the Dynamic Adhoc to batch program (ADH999P1) support this portion of the subsystem (See NEMS Attachment #1).

2.3 INQUIRIES ON THE EQUIPMENT FILE

There are 2 ways to retrieve and display records on the Equipment File. The first method is to retrieve any specific record giving an ECN which belongs to the record. In this case only one record is retrieved and displayed on the screen. But the entire record (73 fields) is categorized into 3 groups and displayed on 3 consecutive screens.

The process to display a specific record on the Equipment File by giving the ECN is very simple. All you have to do is take Option '1' (Adhoc Inquiries) on the NEMS Main Menu screen, then to take Option '3' (Equipment File by ECN) on the Adhoc Inquiries Menu screen and then provide the ECN of the record to be retrieved on the ECN Request screen. If Option '1' (Adhoc Inquiries) is taken on the Main Menu screen, the system will bring up the requested screen (Adhoc Inquiries Menu screen) automatically. In the same way, the ECN Request screen is brought up automatically when Option '3' (Equipment File by ECN) is taken on the Adhoc Inquiries Menu screen.

The next 3 screens are for displaying all fields of the record requested. Fields are categorized in 3 groups and displayed on each separate screen. No selection of records, sorting records or selecting fields to be displayed are necessary, because the Equipment File has only 1 record for each ECN and all fields are displayed in this procedure. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1), and the Equipment File by ECN program (ADH920P1) support this portion of the subsystem.

The second method of accessing records on the Equipment File is to retrieve multiple records by giving some field values (descriptor field values) as search (select) criteria. The Equipment File is searched and records are selected based on the search criteria. Selected records are sorted for the sequence of display, fields (up to 10 fields) to be displayed for each record are selected, and each record is displayed (selected fields for display only) in one line for each record.

This procedure is the same as the procedure used for the Daily Transaction File after selecting Option '4' (Equip-File by field) on the Adhoc Inquiries Menu.

The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1), the Equipment File selection programs (ADH930P1, ADH930P2, ADH030P3, ADH930P4), the Dynamic Adhoc programs (ADH99XPX), and the Dynamic Adhoc To Batch program (ADH999P1) support this portion of the subsystem (See Attachment #1)

2.4 INQUIRIES ON THE HISTORY FILE

The records on the History File may be retrieved and displayed either by giving ECN's or by giving field values. Option '5' (History File by ECN) on the Adhoc Inquiries Menu screen allows the user to retrieve a specific record on the History File by giving an ECN.

Selection of Option '5' (History File by ECN) on the Adhoc Inquiries Menu screen brings up the ECN Request screen. If a correct ECN is entered, then the record index screen is displayed. This screen is for selecting one record out of several records having the same ECN. This screen is necessary because the History File may have a multiple number of records with the same ECN.

If a record is selected from the record index screen, then the subsystem retrieves and displays the record requested. All fields of the record are displayed categorized into 3 groups on consecutive screens. The record on the History File is identical to the record on the Equipment File with the exception of 2 additional fields. They are the History Key field and the Delete Date field. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1) and the History File by ECN program (ADH940P1) support this portion of the subsystem.

Option '6' (History File by Field) on the Adhoc Inquiries Menu screen allows the user to retrieve records on the History File by giving field values. The field values may be a specific value or a range of values. All records whose corresponding field values fall in the range will be retrieved and displayed. A multiple number of records are retrieved, but only selected fields of each record are displayed.

Again, this procedure is the same as the procedure used for both the Daily Transaction File and the Equipment File. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1), the History File selection programs (ADH950P1, ADH950P2, ADH950P3, ADH050P4), the Dynamic Adhoc programs (ADH99XPX), and the Adhoc To Batch program (ADH999P1) support this portion of the subsystem (See Attachment #1).

2.5 INQUIRIES ON THE MONTHLY TRANSACTION FILE

The procedures for retrieving and displaying records on the Monthly Transaction File are virtually the same as the procedures used for retrieving and displaying records on the other ADABAS files. There are two methods to retrieve and display records on the Monthly Transaction File.

A specific record can be searched and retrieved by giving an ECN. In this case, only 1 record bearing the given ECN is retrieved, but all fields of the record are displayed. Another way of retrieving records on the Monthly Transaction File is to search and retrieve a multiple number of records by giving field values (search criteria). In this case, a multiple number of records which have given field values are extracted, but only selected fields (up to 10 fields) for each record are displayed.

In order to retrieve a specific record from the Monthly Transaction File by giving an ECN, the Option '7' (Monthly Transaction File by ECN) on the Adhoc Inquiries Menu screen should be taken. The selection of Option '7' will bring up the next screen for ECN Requesting. When an ECN is supplied and the 'ENTER' key is hit, then the record selection screen appears. This screen is necessary because the Monthly Transaction File may have 2 or more records while this method of retrieving a record is arranged to extract only 1 record. Only 1 record should be selected out of a multiple number of records.

When a record is selected by entering a sequence number in the place provided on the record selection screen, all input procedures are through and output screens are displayed. All fields of the record requested are categorized in 2 groups and displayed using the next 2 screens. These screens are identical to the display screens for the Daily Transaction File. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1) and the monthly transaction by ECN program (ADH960P1) support this portion of the sub-system (See Attachment #1).

Procedures for retrieving and displaying records on the Monthly Transaction File by giving field values are applied by selecting the Option '8' (Monthly Transaction File by field) on the Adhoc Menu screen. The same procedure is used here as with the Daily Transaction File, the Equipment File, and the History

File. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1), the Monthly Transaction File Selection programs (ADH970P1, ADH970P2, ADH970P3, ADH970P4), the Dynamic Adhoc programs (ADH99XPX), and the Adhoc To Batch program (ADH999P1) support this portion of this function (See Attachment #1).

2.6 INQUIRIES ON THE TABLE FILE

The records on the Table File are retrieved and displayed on the screen using the Adhoc Inquiries Subsystem. In order to retrieve a specific record (table) on the Table File, the last Option (Option '9') on the Adhoc Menu screen should be taken.

If the Option '9' (Table File by Table Number) is selected and the 'ENTER' key is hit, then the subsystem brings up the Table Selection screen. This screen displays all Table Names with Table Numbers, and the listing continues to the next screen. Using this screen a specific table to be displayed is selected.

When the specific table is selected and the 'ENTER' key is hit, then the subsystem brings up either the output screen (display screen) directly or brings up a Display Selection screen depending on the table selected. If one of the following: Table 040 (Manufacturer's Code Table), Table 050 (Federal Supply Group Table), Table 078 (Custodian Account Number Table), Table 090 (User Number Table) or Table 102 (Building Number Table) is selected, then the Display Selection screen is brought up. Selection of any other table using the Table Selection screen concludes the input procedures, and the contents of the table selected are displayed as the output.

The Display Selection screen is provided for selecting and displaying a certain range of entries of a table, instead of displaying all entries of the table selected. By giving a beginning value and an ending value for certain fields (descriptor or sub-descriptor fields), entries whose corresponding field values fall between the given values are selected and displayed. This procedure is applied because the tables displayed by using the Display Selection screen contain a large number of entries.

There are 3 options to be requested in using the Display Selection screen. They are Option '1' or Option '2', or entering 'X' to exit from the screen. Option '1' or Option '2' can be selected either giving new values for beginning and ending values for the descriptor field of the records or using the default values.

The last screen is for displaying table entries. Each entry is listed in one line with default column headings. Table keys (1 to 8 characters, displayed in the first column) associated with entries and other table contents are displayed. Several screens are used for displaying records if necessary. The Main Menu

program (MNU001P1), the Adhoc Menu program (ADH000P1), the Table File by Table Number program (ADHTBLP1) and 27 Table List programs (1 or 2 for each of the 23 tables) support this portion of the Adhoc Inquiries Subsystem (See Attachment #1).

2.7 INQUIRIES ON THE TRANSFER FILE

The procedures for retrieving and displaying records on the Transfer File are virtually the same as the procedures used for retrieving and displaying records on the other ADABAS files. There are two methods to retrieve and display records on the Transfer File.

A specific record can be searched and retrieved by giving an ECN. In this case, only 1 record bearing the given ECN is retrieved, but all fields of the record are displayed. Another way of retrieving records on the Transfer File is to search and retrieve a multiple number of records by giving field values (search criteria). In this case, a multiple number of records which have given field values are extracted, but only selected fields (up to 10 fields) for each record are displayed.

In order to retrieve a specific record from the Transfer File by giving an ECN, the Option '10' (Transfer File by ECN) on the Adhoc Inquiries Menu screen should be taken. The selection of Option '10' will bring up the next screen for ECN requesting. When an ECN is supplied and the 'ENTER' key is hit, then the Record Selection screen appears. This screen is necessary because the Transfer File may have 2 or more records while this method of retrieving a record is arranged to extract only 1 record. Only 1 record should be selected out of a multiple number of records.

When a record is selected by entering a sequence number in the place provided on the Record Selection screen, all input procedures are through and output screens are displayed. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1) and the transfer file by ECN program (ADH980P1) support this portion of the sub-system (See Attachment #1).

Procedures for retrieving and displaying records on the Transfer File by giving field values are applied by selecting the Option '11' (Transfer File by field) on the Adhoc Menu screen. The same procedure is used here as with the Daily Transaction File, the Monthly Transaction File, the Equipment File and the History File. The Main Menu program (MNU001P1), the Adhoc Menu program (ADH000P1), the Transfer File programs (ADH981P1, ADH981P2, ADH981P3, ADH981P4), the Dynamic Adhoc programs (ADH99XPX), and the Adhoc To Batch program (ADH999P1) support this portion of this function (See Attachment #1).

3. EQUIPMENT FILE UPDATE SUBSYSTEM

3.1 EQUIPMENT FILE UPDATE TRANSACTIONS

The NEMS Equipment File update subsystem is designed to allow the user to make additions, changes and deletions to the NEMS Equipment File in an online environment. This is accomplished through the use of specific update activities called transactions.

Currently about 68 different transactions (21 for Add Transactions, 27 for Change Transactions and 20 for Delete Transactions) are specified, and they are used to process various update activities. Each transaction has a formatted screen to collect and edit the information needed to fulfill the specific purpose of the transactions.

These transactions are grouped conceptually into 3 categories of transactions - Add Transactions, Change Transactions and Delete Transactions. The Equipment File Update Subsystem is arranged to process each of the 3 categories of transactions separately. If the 'Equipment File Update' option (Option '2') on the NEMS Main Menu screen is selected, then the subsystem brings up the NEMS Equipment File Update Menu screen which directs you to select one of the 3 categories of transactions (add, change or delete transaction). If an option is selected, then the processing branches to the selected area and proceeds within the selected category of transactions until the processing is concluded.

Each of the 68 transactions for the Equipment File update processing is numbered. Add Transactions are numbered between 01 to 24, Change Transactions are numbered between 25 to 64 and Delete Transactions are numbered between 65 to 99.

Each of the Add Transactions (transaction 01 to 24) is defined by the way in which the equipment is acquired, and it is used to add a record to the Equipment File. A multiple number of procedures (transactions) are provided in adding a record to the file, because processing for adding records to the file should be performed differently according to the way in which the equipment is acquired. In Add Transactions the Equipment Update Subsystem will not allow a record to be added with the same ECN as one already on the Equipment File.

Each of the Change Transactions (transaction 25 to 64) is defined according to the contents of status changes resulting to the equipment related, and it is used to update (change) existing Equipment File records. Currently 27 different transactions are used for changing the contents of the records on the Equipment File. This is because processing for each change activity should be handled

separately. In Change Transactions the Equipment Update Subsystem will not allow changes to records that do not exist.

Each of the Delete Transactions (transaction 65 to 99) is defined according to the reasons for deleting records, and it is used to remove equipment records from the Equipment File. When the record is removed from the Equipment File, it is retired to the History File. There are various reasons for removing records from the Equipment File, and each delete action resulting from a different reason is to be handled in a different way. This is the reason for providing many specific transactions to delete records from the Equipment File (See Attachment #1).

The Equipment File Update Subsystem also allows space for individual installations to insert elements for local use called local data. The last field of the Equipment File record is reserved for the local data. The field contains 70 characters. Each NASA installation must prepare supplementary instructions for local requirements beyond the scope of agencywide policies and procedures.

Most of the Equipment File update transactions produce a NEMS form. The NEMS is NASA Form 1602 and is a standard agency form that reflects equipment information contained in the Equipment File and controls all equipment transactions after initial entry into the Equipment File. This form serves as the property custodian's detailed record for each assigned equipment item.

Many transactions give the user the option of producing the NEMS form either through batch or the user's terminal while the batch option will produce a hardcopy of the form during a nightly production run.

Under the ADABAS - NATURAL environment, ADABAS files can be accessed and updated only by using update programs. A large number of programs support the Equipment File update subsystem. Currently about 93 programs, mostly one for each transaction, are supporting the subsystem (See Attachment #1).

3.2 EQUIPMENT FILE ADD TRANSACTION

Currently 21 different Add Transactions are processed for the Equipment File Update Subsystem. The transactions are numbered 01 through 21. As explained above, Add Transactions are defined by the way in which the equipment is acquired. Since the Equipment File is updated by using programs, each of the 20 transactions is supported by the specific update program. 23 programs and 2 utility programs (1 program for each transaction is provided except transactions 14 and 21 which are supported by 2 programs each. The utility programs are the Local Data Input program and the Add Transaction Daily Transaction Record Create program) support the Add Transactions.

Transaction number, transactions and supporting programs for Add Processing are as follows:

TRANS. NO	ADD TRANSACTIONS	PROGRAMS
01	Receipt By Purchase Funded - NASA	TRN001P1
02	Receipt By Purchase - Other Government Agency (OGA) Funded	TRN002P1
03	Receipt By Purchase - Reported By Contractor	TRN003P1
04	Receipt By Transfer - From NASA Installation	TRN004P1
05	Receipt By Transfer - From OGA	TRN005P1
06	Receipt By Transfer - From Contractor	TRN006P1
07	Receipt By Transfer - Reported by Contractor	TRN007P1
08	Receipt From Lease In	TRN008P1
09	Receipt From Loan In	TRN009P1
10	Receipt From Fabrication	TRN010P1
11	Receipt From Assembly/Disassembly	TRN011P1
12	Receipt From Found On Station	TRN012P1
13	Receipt From Excess	TRN013P1
14	Receipt From Retagging	TRN014P1/TRN014P2
15	Receipt From Return Of Record From Historical File	TRN015P1
16	Receipt From Transfer Of Real To Personal Property	TRN016P1
17	Receipt From Non-Government Source	TRN017P1
18	Receipt From Not Previously Meeting Criteria For Tagging	TRN018P1

19	Receipt From Reinstating Item Previously Surveyed	TRN019P1
20	Receipt From Borrow In	TRN020P1
21	Receipt - Lease To Purchase	TRN021P1/TRN021P2
*	Daily Transaction File Record Create Program	TRNADDP1
**	Local Data Input	TRNLOCP1

(* All Transactions Use This Program Except Transactions 14 And 21.)

(** All Transactions Use The Local Data Input Program, TRNLOCP1.)

When equipment is received and the new record that reflects the equipment is to be added to the Equipment File, a correct transaction should be selected after making careful analysis on the activities involved in acquiring the equipment. Once a specific transaction is selected to be applied for the add processing, the transaction is processed through online procedures.

There are 21 Add Transactions and online procedures because each of these transactions differ slightly, but only the procedures for the transaction 01 (Receipt By Purchase NASA Funded) will be presented here as an example. Though the transaction 01 does not stand for all add transactions, the explanations on the transaction 01 will help in applying procedures for add transactions in general.

Selection of the Equipment File update option (Option 2) on the NEMS Main Menu screen (the first screen) brings the NEMS Equipment File Update Menu screen (the second screen). The NEMS Equipment File Update Menu screen prompts to take 1 option out of the 3 options which are Add, Change and Delete transactions. If the add option ('A') is taken, then the Add Transaction Menu screen (the third screen) is displayed.

The Add Transaction Menu screen displays all Add Transactions (21 transactions) with corresponding transaction numbers. The screen (the third screen) requests to select one specific transaction to be applied out of the 21 transactions, and also prompts to supply an ECN, the previous ECN and the Zip Code.

The specific transaction to be applied is selected by giving the transaction number of the transaction. A new ECN should be supplied. The ECN should be unique, and the first character of the 6 character-ECN may be alpha-numeric,

but the other 5 characters should be numeric. Supplying the previous ECN is mandatory when the transaction 14 (Receipt From Retagging) is selected. In other cases this field (Previous ECN Field) is used to supply a reference ECN. Supplying a reference ECN for transactions other than 14 or 21 is optional. But the supplying of another existing ECN for reference gives convenience in providing other data.

If another ECN has been referenced, then the field values of the record with the referenced ECN are picked up and appear on the screen (with the exception of ECN, Serial Number and Contractor Tag Number). But the record referenced by giving the ECN should be the one which has been added previously to the Equipment File through the same transaction as the transaction which is being applied currently. As for the Zip Code, a default Zip Code is displayed. The code is to be changed if necessary.

The next screen (the fourth screen) is the Transaction Data Input screen. Twenty eight field names are displayed, and the subsystem prompts to enter field values. Fifteen fields are mandatory fields, and the rest of the fields are optional fields. The mandatory fields are signified by '*' on the screen, and the optional fields are signified by '-' On the screen.

The mandatory fields which must have data entered to complete the transaction successfully are as follows:

FIELD	DESCRIPTION	EDIT CRITERIA
(1) ACQ-DOC-CNTL-NO - Acquisition Document Control Number	A unique number assigned to an Acquisition Document, such as a Purchase Order or a Receiving Report. - *11 positions alphanumeric.	Must be entered Left Justified.
(2) DATE-INST-ACQ - Date Installation Acquired	The date the accountable installation, or a contractor at that installation, received or identified an item or equipment. *6 position numeric in 'YYMMDD' format.	Must be numeric and entered in 'YYMMDD' format, where: YY is numeric; MM must be between 1 and 12; DD-must be between 1 and 31 and consistent with the month entered.
(3) ITEM-NAME - Item Name	A description of an item of equipment, comprised of a standard noun name followed by adjective descriptor the standard to be used for assigning item name is contained in the Federal Cataloging	Must be entered left justified.

Handbooks, H-6 Series.

*30 position alphanumeric left justified.

(4) MFG-CODE - Manufacturer's Code A code assigned in the Federal Handbooks H-4 Series, to each manufacturer. Goddard Space Flight Center (GSFC) provides of Central Point of control for standardizing new codes. The following codes are also valid: 'XXXXX' = Manufacturer is known, but code needs to be assigned; 'ZZZZZ' = Manufacturer is unknown. Must be on Table 040

*5 position alphanumeric

(5) MFG-MODEL-NO - Manufacturer's Model Number A number provided by the manufacturer that identifies a single type of equipment produced by the manufacturer. If the model number is not known, the word 'none' should be entered. Must be entered and left justified

* 20 position alphanumeric, left justified.

(6) MFG-SERIAL NO - Manufacturer's Serial Number A unique number assigned by the manufacturer to each item of equipment. If the serial number is not known, The word 'none' should be entered. Must be entered and left justified

* 20 positions alphanumeric, left justified

(7) YEAR-MFG - Year Manufactured The year in which an item of equipment was manufactured. For an item acquired by purchase, the year purchased is used. For item acquired by means other than purchase, the actual or estimated year of manufacture is used. Must be numeric, and less than or equal to the current year

*2 position numeric.

(8) (NATIONAL-STOCK-NO) National Stock Number A standard equipment identification number. This 13-position number consists of the Federal Supply Class (4 positions) assigned in the Federal Cataloging Handbooks, H-2 Series, and the Nation Item Identification Number (NIIN, 9 (1) First 4 positions are mandatory.
(2) First 4 positions must be numeric

positions) assigned in the GSA Supply Catalog.

These numbers further breakdown as follows:

Federal Supply Class (4 positions):
Position 1-2: Federal Supply Group, which classifies similar items into groups.

Position 3-4: Federal Supply Sub-Class, which classifies similar items within groups into sub-classes

National Item Identification Number (NIIN,9 positions): Position 5-6: National Codification Bureau (NCB) Code, which indicates the country that assigned the NIIN (U.S. IS '00' AND '01')

Position 7-13: numeric characters, which identify item to the detail level.

*13 positions, with 1-4 numeric position 5-13 alphanumeric or space.

Example:

'80 10 00 2972114'

Group '80' - all types of points, brushes, and adhesives

Subclass '10'- all types of points

NCB code '00'- NIIN is assigned in the U.S.

Numeric '2972114' - one gallon of bright red enamel

(9) COST

The acquisition cost of the equipment.

* 11 positions numeric, right justified with leading zeros.

(3) Last 9 positions are optional

(4) First 2 positions must be on TABLE050.

(1) Mandatory

(2) Must be numeric

(3) Can be entered left or right justified (with leading zeroes)

(4) Can be entered with pennies (left or right justified).

a decimal point
'.' followed by
2 numbers will
denote
pennies (ex.
'5634.50').

(10) CUST-ACCT-NO - Custodian Account Number	<p>A number assigned to a custodian account, sometimes representing a division/branch or a geographic location. An account number pertains to only one custodian, although one custodian may have more than one account number.</p> <p>* 5 positions alphanumeric, left justified</p>	<p>(1) Mandatory (2) Left justified (3) Must be on table 078</p>
(11) EQUIP-ZIP-CODE - Equipment Location Zip Code	<p>A U.S. postal service zip code denoting the equipment's location. Goddard Space Flight Center (GSFC) provides a central point of control for standardizing alphabetic codes for foreign locations.</p> <p>* 5 positions alphanumeric</p>	<p>(1) Mandatory (2) No further edit</p>
(12) (EQUIP- BUILDING) Equipment Location - Building	<p>The number of the building or other generalized location where the equipment is located. The following value is also valid: 'NOC'= not on center</p> <p>* 10 positions alphanumeric, left justified</p>	<p>(1) Mandatory (2) Left justified (3) Must be on Table 102</p>
(13) CAP-SENS- CODE Capital/ Sensitive	<p>A code that indicates whether NASA equipment is Capital/Noncapital and Sensitive/Nonsensitive. The possible values are:</p> <p>'E' = Contractor Held Equipment- EVS Reportable 'M' = Capital Equipment 'N' = Noncapital Equipment - Sensitive 'P' = Capital Equipment-Sensitive 'Q' = Noncapital Controlled Equipment 'X' = Noncontrolled Equipment</p> <p>The Capital/Sensitive Class Code was formerly known as the</p>	<p>(1) Mandatory (2) Must be on Table 130</p>

	'Management Identification Code'.	
	* 1 position alphanumeric	
(14) AVAIL-STATUS-CODE - Availability Status Code	A code that indicates the relative availability of an item of NASA-owned equipment for redistribution (reassignment of the equipment with a transfer of accountability). The possible values are: 'A' = Active; item is considered unavailable in the normal conduct of business since it is in use. 'B' = Inactive assigned; item is in the loan pool, in storage, on lease or loan out, etc.; Item is considered sufficiently available to make screening worth while; the accountable installation must approve the transfer. 'C' = Inactive unassigned; item is available on demand an item with a condition code of 1, 2, 4, 5, or 6 is required to be held in this category for a minimum of 120 days to assure that adequate visibility has been achieved. 'D' = Excess; item is available for redistribution, but is considered NASA excess and is in the process of being disposed of.	(1) Mandatory (2) Must be on Table 410
(15) NEMS-1	* 1 Position Alphanumeric This field is provided for requesting NEMS-1 form, NASA Form 1602. Either a printed form or a screen display can be requested. * 1 Position, 'B' (Batch) or 'O' (Online)	(1) Mandatory (2) Must be 'B' or 'O'.

Optional fields (14 fields) whose values are expected to be supplied on the Transaction Data Input screen (the fourth screen) are as follows:

FIELD	DESCRIPTION	EDIT CRITERIA
(1) National Stock Number-National Identification Number (Last 9, position of National Stock Number)	The second part of National Stock Number, or last 9 position of 13-position National Stock Number (See description of the National	(1) Optional (2) No further edit

	Stock Numbers).	
	*9 Positions alphanumeric or space.	
(2) UNIQUE-EQUIP-NO - Unique Equipment Number	A unique number assigned to specialized NASA equipment that is unique to NASA and generally not commercially available.	(1) Optional (2) No further edit.
	* 8 positions alphanumeric left justified	
(3) EST-COST-CODE - Estimated Cost Code	A code that indicates the acquisition cost is an estimated rather than actual cost. The code is either 'ON' (Y) if the cost is estimated or 'OFF' (BLANK) if it is not.	(1) Optional (2) Must be 'Y' or Blank
	* 1 Positions alphanumeric	
(4) USER NO - User Number (Sensitive/Borrowed)	A unique identification number assigned to the person holding sensitive, borrowed, or loan pool equipment. This number may be the individual's NASA badge number.	(1) Optional (2) Must be left justified (3) Must be Table 090
	* 6 positions alphanumeric left justified	
(5) EQUIP ROOM - Equipment Location Room	The number of the room or other detailed location where the equipment is located.	(1) Optional (2) Must be left justified
	* 5 positions alphanumeric left justified	
(6) CONDITION-CODE - Condition Code	A code that indicates the physical condition and usability of an item of equipment. The condition code must be entered if the availability status code is 'B', 'C', or 'D'. The possible values are:	(1) Optional (2) Can be entered left or right justified (stored right justified with leading space) (3) Must be on Table 510
	'1' = UNUSED-GOOD	
	'2' = UNUSED-FAIR	
	'3' = UNUSED-POOR	
	'4' = UNUSED-GOOD	
	'5' = USED-FAIR	

- '6' = USED-POOR
- '7' = REPAIRS REQUIRED-GOOD
- '8' = REPAIRS REQUIRED-FAIR
- '9' = REPAIRS REQUIRED-POOR
- 'X' = SALVAGE
- 'S' = SCRAP
- 2 Positions alphanumeric right justified

(7) DATE-AVAILABLE - Date Available	The date an item of NASA-owned equipment will be available for redistribution (reassignment of the equipment with a transfer of accountability). * 6 positions numeric, in 'YYMMDD' format	(1) Optional (2) Must be numeric (3) Must be entered in 'YYMMDD' format (4) Must be greater than or equal to date inst. Acquired
(8) DATE-WRNTY-EXP-MATERIAL - Date Warranty (Material) Expires	The date an item's warranty for material expires. * 4 positions numeric, in 'YYYYMM' format.	(1) Optional (2) Must be numeric (3) Must be in 'YYYYMM' format (4) 'YY' must not be less than year manufactured.
(9) DATE-WRNTY-EXP-LABOR - Date Warranty (Labor) Expires	The date an item's warranty for labor expires. * 4 positions numeric in 'YYYYMM' format	(1) Optional (2) Must be Numeric (3) Must be in 'YYYYMM' format (4) 'YY' must not be less than year manufactured.
(10) HAZ-MATERIAL-CODE - Hazardous Material Code	A code that indicates whether NASA equipment is hazardous. Currently, the code is either 'ON' (Y) if the equipment is hazardous or 'OFF' (Blank) if it is not. * 1 Position Alphanumeric	(1) Optional (2) Must be on Table 180
(11)PREC-METAL-CODE -	A code that indicates	(1) Optional

Precious Metal Code	<p>whether NASA equipment contains precious metal. Currently, the code is either 'ON' (Y) if the equipment contains precious metal or 'OFF' (Blank) if it does not. * 1 Position Alphanumeric</p>	(2) Must be on Table 182
(12)DATE-LAST-CALIBRATED - Date Last Calibrated	<p>The date an item of equipment was last calibrated. * 6 Positions numeric, in 'YYMMDD' format</p>	<p>(1) Optional (2) Must be numeric (3) Must be in 'YYYYMM' format (4) Must be greater than or equal to date inst acquired. (5) Must not be greater than current date</p>
(13)DATE-CALIBRATION-DUE- Date Calibration Due	<p>The date an item of equipment is due to be calibrated * 6 positions numeric, in 'YYMMDD' format</p>	<p>(1) Optional (2) Must be numeric (3) Must be in 'YYYYMM' format (4) Must be greater than date last calibrated (5) Must be greater than equal to date inst acquired.</p>
(14)LOCAL-DATA - Local Data	<p>Space reserved for individual installations to insert data elements for local use. * 70 Positions alphanumeric</p>	<p>(1) Optional (2) Must be either 'Y' or spaces</p>
(15)LOCATION	<p>Where the equipment is physically located in the grid * 5 Positions alphanumeric</p>	<p>(1) Optional (2) Must be entered , Left justified</p>

The fifth screen (Manufacturer's Name Screen) appears only when the manufacturer's code field (mandatory field) on the fourth screen (Transaction Data Input Screen) was supplied with 'XXXXX'. The manufacturer's code

'XXXXX' is given when the manufacturer is known but his code is not yet assigned. If the manufacturer is unknown, 'ZZZZZ' is typed in for the manufacturer's code. The sixth screen (Local Data Screen) appears only when the local data field (optional field) on the fourth screen (Transaction Data Input Screen) was supplied with 'Y'. This 'Y' means there is data to put in the local data field which is reserved for individual installations. If the manufacturer's code field is supplied with 'XXXXX' and, at the same time, the local data field is supplied with 'Y', then the fifth screen (Manufacturer's Name Screen) comes first followed by the sixth screen (Local Data Screen).

If the manufacturer's code field was supplied with data other than 'XXXXX', and the local data field was not supplied with a 'Y', then input procedures for the Add Transaction are concluded. When data input for the fourth screen (Transaction Data Input Screen) was completed successfully. When the 'ENTER' key is hit, then a new record for the Equipment File will be added (created) immediately with the appropriate message. If there is any error in supplying data, the subsystem prompts for reentry of the data until all data entered clears edit criteria. When the fifth screen (Manufacturer's Name Screen) or the sixth screen (Local Data Screen) is used, the procedures for the Add Transaction will be concluded when the manufacturer's name or the local data is supplied. If the cancel character 'C' is entered on the sixth screen (Local Data Screen) local data will not added to the local data field on the Equipment File record, but the new record with the data entered using the fourth screen (Transaction Data Input Screen) will be added (created).

A Transaction Record is written to the Daily Transaction File after a record is added to the Equipment File. The Daily Transaction Report is written from the Daily Transaction File through the batch processing which is run at night. The report is used in verifying online transactions performed in daytime. The Table File is used extensively to validate data when the online processing is performed.

3.3 EQUIPMENT FILE CHANGE TRANSACTIONS

Currently 27 different change transactions are processed for the Equipment File Update Subsystem. The transactions are numbered 25 through 64. As explained above, change transactions are defined according to the fields which are to be changed. Since the Equipment File is an ADABAS file, the file is accessed and updated only by using programs.

In order to facilitate online processing, and because of the necessity of different processing for specific transactions, each transaction is supported by a specific program. Currently, 43 programs support the Change Transactions.

Transaction Numbers, contents of transactions and supporting programs for change transactions are as follows:

<u>Trans No</u>	<u>Change Transactions</u>	<u>Programs</u>
25	COST (CHANGE)	TRN025P1
26	CUSTODIAN ACCOUNT (CHANGE)	TRN026P1
27	DATE AVAILABLE (CHANGE)	TRN027P1
28	DATE DUE (CHANGE)	TRN028P1
29	EQUIPMENT LOCATION (CHANGE)	TRN029P1
30	STATUS CODE (CHANGE)	TRN030P1
31	USER NUMBER (CHANGE)	TRN031P1
38	BORROWED OUT	TRN038P1
39	BORROWED OUT - RETURNED	TRN039P1
40	LOAN/LEASE OUT	TRN040P1
41	LOAN/LEASE OUT RETURNED	TRN041P1
42	LOAN/POOL OUT	TRN042P1
43	LOAN/POOL OUT RETURNED	TRN043P1
44	STORAGE IN	TRN044P1
45	STORAGE IN - RETURNED	TRN045P1
46	CAP/SENS CODE AND NSN CHANGE	TRN046P1
50	FREEZE NUMBER ASSIGNMENT	TRN050P1
51	FREEZE NUMBER REMOVAL	TRN051P1
52	EXCESS EQUIPMENT TURN-IN BY CUSTODIAN	TRN052P1
53	EXCESS EQUIPMENT TURN IN BY	TRN053P1
56	REPAIR UPDATE	TRN056P1
57	OFF-SITE REPAIR	TRN057P1
60	NASA HELD EQUIPMENT RECORD DATA (CHANGE)	TRN060P1 TRN060P2 TRN060P3
61	CONTRACTOR HELD EQUIPMENT RECORD DATA (CHANGE)	TRN061P1
62	GLOBAL (CHANGE) ONLINE PART	TRN062P1 TRN062P2 TRN062P3 TRN062P4 TRN062P5 TRN062P6 TRN062P7 TRN062P8 TRN062PE

	- BATCH PART	TRN062PA TRN062PB TRN062PC TRN062PD TRN062PF TRN062PG
63	REVERSE ADD	TRN063P1
64	LOCAL DATA UPDATE (NON REPORTABLE)	TRN064P1

As shown above, most of change transaction, except the transaction 60 (NASA held equipment record data change), the Transaction 61 (contractor held equipment record data change) and the Transaction 62 (global change), are provided mainly for changing a single field of a record. The Transaction 60 and the Transaction 61 are used for changing multiple fields of a record. Transaction 62 is for changing single or multiple fields of a multiple number of records and for deleting records belonging to a contractor.

The single field change transactions (Transaction 25 to Transaction 57) are mostly for updating the records reflecting the status changes in equipment, while the multi-field change transactions are considered for correcting data entry errors. As an example of the single field change transactions, the Transaction 25 (cost change) will be described here briefly, and explanations for multi-field or multi-record change transactions will be added later.

Selection of the Equipment File update (Option 2) on the NEMS Main Menu (the first screen), brings the NEMS Equipment File update menu (functions) (the second screen). Selection of the change option (Option C) on the NEMS Equipment File update menu calls the Change Transaction Menu (the third screen). The Change Transaction menu screen displays all change transactions and prompts to enter an appropriate transaction number, ECN of the record to be changed and the custodian account number (or the accountable contractor and contractor tag number).

When all of this information is supplied correctly the subsystem gives the field change screen (the fourth and the last screen). This screen is mainly for changing the field which the specific transaction intended to update. Some related fields may be changed additionally. For our example, the field change screen is for changing cost field on the equipment file record.

The screen displays the current entry value of the cost field as well as other related information, and prompts entry of a cost adjustment value. Current cost value may be adjusted either upward or downward by giving the cost adjustment value. The adjustment value is added to or subtracted from the current value.

Accordingly the cost adjustment value may be positive or negative. When giving a negative value enter a '-' in the first position.

The cost adjustment field and the NEMS field are mandatory fields. The fields are signified by '*' in all unused positions of the field. Information for the mandatory fields must be supplied in order to complete the transaction successfully. In addition to the mandatory fields there are several optional fields signified by '_' in all unused positions of the field. Optional fields for the cost change screen are adjustment document reference field, estimated (Y) field and local data (Y) field.

The NEMS-1 report can be requested either to display on the screen (supplying 'O' in the field) or to print the report through the batch processing (supplying 'B' on the field). If the report is not requested 'N' should be entered in the NEMS field, because this field is mandatory. The local data can be updated by entering 'Y' on the local data field. In this case the local data update screen will be provided. The cancel field may be used for cancellation of the transaction or to break the current loop.

When all necessary information is supplied and the 'ENTER' key is hit, then the record will be updated reflecting the field change almost instantly. After the record is updated on the equipment file, a record is written to the Daily Transaction File.

The Transaction 60 (NASA held equipment record data change) and the Transaction 61 (contractor held equipment record data change) are provided for changing multiple number of fields. The Transaction 60 provides 3 separate field change screens with current entry values in order to display all the fields. The first screen displays 31 fields of general information for an Equipment File record. The fields are to be reviewed and corrected as necessary. Mandatory fields on the screen are acq document control no, item name, manufacturer's code, model no, manufacturer's serial no, location-zip code, location-building and nemsfield. Upon successful entry of information on this screen the second screen will be called.

The second screen displays current entries of the year when the equipment was manufactured and various dates (11 dates) which are related to activities of the equipment. The date inst acquired and the year manufactured are mandatory fields on this screen. The other date elements are all optional fields. When entry of information for this screen is through the subsystem brings up the third screen which contains several dates which are related to maintenance activities of the equipment. They are date last serviced (YY MM DD), date wrnty exp material (YYYY MM), date wrnty exp labor (YYYY MM), date last calibrated (YY MM DD) and date calibration due (YY MM DD). These are all optional fields.

The successful completion of procedures for the three screens updates the record on the Equipment File.

During the processing of the Transaction 60, supporting programs generate several fields for the Equipment File record. The manufacturer's name field will be cleared if the manufacturer's code is not 'XXXXX' (the manufacturer is known, but the manufacturer's code is not assigned). The equipment type account is generated from the Table 50 unless acquisition transaction number is 08 or 09; the date status coded (current date) is also generated if the status changed; the transaction number and the entry reference number are generated as usual. After the record is updated on the Equipment File, a record is written to the daily Transaction File.

The Transaction 61 is used to change the Equipment File record for contractor-held equipment that has many fields to be changed. This transaction provides field change screen. Mandatory fields for this screen are acq document control no, date inst acquired, item name, manufacturer's code, model no, serial no, year manufactured, national stock no (first four positions), location-zip code availability status code, contractor (accountable) and contractor tag no. Optional fields on the screen are old tag no, national stock no (last 9 positions), cost estimated (Y). The supporting program generates the transaction number and the entry reference number fields during the processing of the transaction. The date status coded (current date) is updated if the status changes, and the manufacturer's name is spaced out if the manufacturer's code is not 'XXXXX'.

If a 'Y' is entered in the local data field, the local data screen will be supplied after all the other transaction entries are correct. If 'XXXXX' is entered in the manufacturer's code field, the manufacturer's name screen will appear after all the other transaction entries are through. When all required information is supplied, and the 'ENTER' key is hit, the Equipment File record is updated. A record for the Daily Transaction File is written after updating the Equipment File record.

The Transaction 62 is for global change; that is, the transaction changes one or more fields for multiple number of records. This transaction may change a certain field for all records on the equipment file, or may change a certain fields for records which fall in certain criteria.

The global change transaction (Transaction 62) is processed by online processing for the first part of the transaction. The second part of the transaction is processed through the batch processing. The online processing writes records for the Global Transaction File. The records contain information for the batch processing which actually changes or deletes records on the Equipment File. The Global Transaction File is read by the programs which support the batch processing.

As mentioned above, the global change transaction is designed to change a certain field of the Equipment File records for all records on the file or for records which fall in certain criteria. In order to change a certain field for all records, supplying the field to be changed and the contents of the change is necessary.

If the global change transaction is to be applied to certain category of records, then records to be changed should be selected. For the selection of records additional information should be supplied in this case. The additional information includes selection qualifiers (up to 3 descriptor fields of the equipment file record) and their values (starting value and ending value for each qualifier).

Now, online procedures, the first part of the global change transaction, will allow selection of the global change function to be used, they consist of: (D) explanation, (P) processing and (A) scheduling functions. Selection of the option '2' (Equipment File Update) will bring up the second screen. The second screen is the NEMS Equipment File Update Menu screen. Selecting the 'c' (change) option on the screen brings up the Change Transaction Menu screen (the third screen).

The Change Transaction Menu screen displays all change transactions for the Equipment File Update Subsystem. With the selection of the global change transaction (Transaction 62), a menu allows specific global transaction functions including several screens on how to use the global change transaction, rescheduling global transactions already entered, the entry of parameters for a global change transaction, and a global delete of contractor held records. On the parameter screens the first screen is the Record Qualifier Selection Screen. This screen is used to select up to three fields to limit the selection of records to be changed, or an option for selecting the entire Equipment File.

If the transaction is to be applied for a certain range of records, then record qualifiers should be selected. In this case up to three qualifier(s), should be selected. The Record Select Qualifier Selection Screen prompts to supply the qualifier(s), up to 3 fields. If the 'A' option (all records changed) is selected, the subsystem brings the change field screen (the third screen) skipping the qualifier value range screen (the second screen).

If qualifiers are selected using the first screen (Record Select Qualifier Selection Screen), then the next screen will be the second screen (Qualifier Value Range Screen). This screen is used to supply a value range (starting and ending values) for each record qualifier selected using the first screen. If the value ranges are supplied using the second screen, then record selection criteria is now provided.

For example, if 3 qualifiers are selected, the record selection criteria is something like the following; that is, records whose ECN (the first qualifier, is greater than or equal to 0111111 (starting value), and less than or equal to 0199999 (ending value), and whose Year Mfg (the second qualifier) is four characters numeric in the format 'YYYY' and whose date inst acq (the third qualifier) is six characters numeric in the format 'YYMMDD'. Supporting programs can select appropriate records using record selection criteria.

The third screen is the Change Field screen. Twenty-eight fields are displayed. Only one field out of the 28 fields can be selected. The selected field value will be changed for all records or for selected records on the Equipment File. Selection of one change field brings up either the fourth screen or the fifth screen. If the local data field (numbered 28) is selected as the change field, then the subsystem brings up the fifth screen. All other selections brings up the fourth screen. Both the fourth screen and the fifth screen are the Change Value screens. Two screens are used in supplying change values, because data corrections for the local data field is handled differently. The fourth change value screen will be explained briefly. There are 2 places for data entry. They are spaces for the 'old value' and for the 'new value'. Generally speaking, the old value is to be replaced by the new value. But there are 2 options. One is to replace the old value by the new value regardless of the current field value of the record. The other option is to replace the old value by the new value only when the current field value of the record matches the value to be supplied as the old value on the screen. If the current value of the record does not match to the value supplied as the old value on the screen, then the current field value will not be changed even if the record was selected for this transaction.

When the current field value of the record is to be replaced by the 'new value' regardless of the current value, an exclamation point (!) must be entered in every position of the 'old value' field on the screen. When the current field value of the record is to be replaced by the 'new value' only if the current value matches the value which will be supplied as the 'old value' on the screen, the specific value which should be replaced is entered in the 'old value' field on the screen. If the current field value of the record is blank and the blank is to be replaced by the 'new value', then the 'old value' field on the screen is filled with question marks (?). In brief, the 'old value' field should have either exclamation points (!), a specific field value which should be replaced or question marks (?).

For the 'new value' field on the screen, the new value which will replace the current value of the record is to be supplied. If the current value of the record is to be replaced by blank characters, then the 'new value' field should be filled by question marks(?).

The fifth screen is for changing the local data field. The local data is handled on a character by character basis. If the fourth position of the current local data is to

changed regardless of its value, then an exclamation point (!) is entered in that position of the 'old value' field on the screen. If the fourth position of the current local data is to be changed only when the position has 'R', for example, then 'R' is entered in the fourth position of the 'old value' field on the screen. If the fourth position of the current local data is blank and the blank should be replaced by a nonblank character, then the fourth position of the 'old value' field on the screen is filled by a question mark (?). A new value which will replace the corresponding current value will be supplied for the 'new value' field, in a similar manner. Any specific position of the local data can be blanked out by entering a question mark (?) in the corresponding position in the 'new value' field on the screen.

Both the sixth screen and the seventh screen are for confirmation of the transaction. If the global change transaction was intended to change a specific field for all records on the equipment file ('A' option was taken when the first screen was processed), then the sixth screen (confirmation screen for all record change) is used as the final confirmation screen. If the transaction was for changing a specific field for selected records (delimiters for record selection were entered on the first screen), the seventh screen (confirmation screen for selected record change) is used for final confirmation of the transaction. If the values displayed on the screen are confirmed by the user, then a record is written to the global file. The record contains such fields as record selection qualifiers (up to 3) and their starting and ending values, a change field (number), and old value and a new value.

The record on the Global Transaction File is read by the programs which support the batch processing portion of the transaction. Through the batch processing, records on the Equipment File are actually updated (changed). For the online portion of processing 8 programs (TRN062P1 to TRN062P7 and TRN062PE) support the subsystem, and 5 programs (TRN062PA to TRN062PD and TRN062PF) support the batch portion of the processing (See Attachment #1).

During the processing of Transaction 26, 31 and 52, if the record belongs to a custodian account number which is currently under going inventory, a message is displayed to warn the user that due to this change the inventory cycle may not be closed.

3.4 EQUIPMENT FILE DELETE TRANSACTIONS

Currently 20 Delete Transactions are processed for the Equipment File update subsystem. The transactions are numbered 65 through 99. As described above Delete Transactions are defined according to the reasons of deleting records from the equipment file. When the records are removed from the equipment file, they are written into the History File. Records will also be written to the Daily Transaction File when Delete Transactions are performed. Writing records to

the History File and the Daily Transaction File is performed by the supporting programs.

Transaction Number, contents of transactions and supporting programs for Delete Transactions are as follows:

<u>TRANS NO.</u>	<u>DELETE TRANSACTIONS</u>	<u>PROGRAMS</u>
65	TRANSFER TO ANOTHER NASA INSTALLATION	TRN065P1
66	TRANSFER TO OTHER GOVERNMENT AGENCY	TRN066P1
67	TRANSFER OF GFE TO A CONTRACTOR	TRN067P1
68	TRANSFER OF GFE BY A CONTRACTOR	TRN068P1
69	LEASE IN-RETURNED	TRN069P1
70	LOAN IN-RETURNED	TRN070P1
71	SURVEY (MISSING EQUIPMENT)	TRN071P1
72	DECONTROL (REMOVAL OF TAG)	TRN072P1
73	DELETES RESULTING FROM ASSEMBLY/ DISASSEMBLY	TRN073P1
74	DELETE FROM RETAG	TRN074P1
75	BORROW IN-RETURNED	TRN075P1
80	DISPOSAL OF NASA HELD EQUIPMENT (COND CODE MORE THAN 7 BY CUSTODIAN)	TRN080P1
81	DISPOSAL OF NASA HELD EQUIPMENT BY NEMS REUTILIZATION COORDINATOR	TRN081P1
82	DISPOSAL OF CONTRACTOR HELD EQUIPMENT (COND CODE MORE THAN 7 BY CONTRACTOR	TRN082P1
83	DISPOSAL OF CONTRACTOR HELD EQUIPMENT BY NEMS REUTILIZATION COORDINATOR	TRN083P1
84	REMOVAL OF EQUIPMENT FROM NEMS REPORTED BY CONTRACTOR	TRN084P1
85	DELETE RESULTING FROM TRADE-IN	TRN085P1
86	TRANSFER TO REAL PROPERTY	TRN086P1
87	DELETE - LEASE TO PURCHASE	TRN087P1
99	UPDATE LOCAL DATA ON HISTORY	TRN099P1

Delete Transactions are less complicated and more straight forward. Each transaction has only one screen for online processing, and data entry items are limited. Screens for Delete Transaction 65 (transfer to another NASA installation) are shown as an example of Delete Transactions. In addition to the example, input data to be entered on the screens for the Delete Transactions are summarized in the table below.

<u>TRANSACTION</u>	<u>MANDATORY ITEMS</u>	<u>OPTIONAL ITEMS</u>	<u>REMARKS</u>
--------------------	------------------------	-----------------------	----------------

65	DATE SHIPPED INSTALLATION (RECEIVER)	LOCAL DATA	*SEE EDIT CRITERIA BELOW
66	OTHER AGENCY NO.	LOCAL DATA	'
67	INSTALLATION (RECEIVER CONTRACTOR (RECEIVER)	LOCAL DATA	'
68	INSTALLATION (RECEIVER)	LOCAL DATA CONTRACTOR (RECEIVER)	'
69	NONE	LOCAL DATA	'
70	NONE	LOCAL DATA	*SEE EDIT CRITERIA BELOW
71	NONE	LOCAL DATA	'
72	NONE	LOCAL DATA	'
73	NONE	LOCAL DATA	'
74	NONE	NONE	GENERATED BY TRANSACTION 14 (RETAG), OR SELECT TRANSACTION 14
75	NONE	LOCAL DATA	*SEE EDIT CRITERIA BELOW
80	CONDITION CODE	LOCAL DATA	* SEE EDIT CRITERIA BELOW
81	CONDITION CODE	LOCAL DATA	CAP SENS CODE MUST BE 'M' OR 'P' * SEE EDIT CRITERIA
82	CONDITION CODE	LOCAL DATA	* SEE EDIT CITERIA
83	NONE	LOCAL DATA	CAP SENS CODE MUST BE 'E' * SEE EDIT CRITERIA
84	NONE	LOCAL DATA	* SEE EDIT CRITERIA

85	NONE	LOCAL DATA	* SEE EDIT CRITERIA
86	NONE	LOCAL DATA	* SEE EDIT CRITERIA
87	NONE	NONE	GENERATED BY TRANSACTION 21 OR SELECT TRANSACTION 21
99	LOCAL DATA	NONE	HISTORY FILE ONLY

*EDIT CRITERIA:

CONDITION CODE: Must be on Table 510 (Transaction 80). Must be on Table 510. Cannot be 'S' or 'X' (Transactions 81 and 83) must be greater than '7' (Transactions 80 and 82)

CONTRACTOR (RECEIVER): Enter either left or right justified (stored right justified with leading space) (Transaction 67 and 68)

DATE SHIPPED: Must not be greater than current date (Transaction 65)

INSTALLATION(RECEIVER) Must be numeric and must be on Table 252 as an Accountable

LOCAL DATA: Must be either 'Y' or spaces (most of transactions) (default value is 'Y')

OTHER AGENCY NO.: Must be on Table 132 (Transaction 66)

** Transaction number, entry reference number and delete date are generated by supporting programs for the History File.

When the Transaction 14 (Add Transaction, receipt from retagging) is initiated, the supporting programs (TRN014P1 and TRN014P2) will write the old record to the History File and delete the old record, then it writes (adds) the new record on the Equipment File. If the Transaction 74 (Delete Transaction lost tag) is initiated, then the Add Transaction menu is displayed. The Transaction 14 should be selected from the Add Transaction menu if the equipment has been retagged (See Attachment #1). This also applies for Transactions 21 and 87.

When a record is deleted through Transaction 65 or 66 or 67, and if the record belonged to a custodian account which is under going inventory, a message will be displayed to warn the user, due to this Delete Transaction the inventory may not be closed.

4. REPORT SELECTION SUBSYSTEM

4.1 REPORT SELECTION OPTIONS

Report generating functions of the Report Selection Subsystem are fulfilled through online processing and batch processing. The process of scheduling or requesting reports is performed through the online portion of processing which is carried out usually in the day, and the process of JCL generation and execution of jobs for reports is performed through the batch portion of processing which is run at night.

The Report Selection Subsystem allows the user to control the processing of NEMS reports. The NEMS reports include regularly scheduled reports and on-request reports. The regularly scheduled reports are run cyclically (i.e., daily, monthly, annually etc.) without user intervention. The on-request reports are run one-time only on each request. A regularly scheduled report keeps running periodically, once the report is scheduled, and as long as the schedule remains on the Report Request File. An on-request report should be requested every time the report is necessary.

As mentioned above, all reports are scheduled (for cyclical reports) or requested (for one-time reports) through online processing. The scheduling or the requesting for a report adds a new record to the Report Request File. While records for one-time reports are purged after execution of the reports, records for scheduling periodic reports stay on the file as long as the reports are to be generated cyclically. But the date field for the next execution of the report (for cyclical reports) is adjusted by the maintenance program after running jobs for report generation.

Purging the records on the Report Request File, or adjusting dates on the record for the next scheduled run, is performed daily as a function of the system maintenance subsystem when the batch processing is performed.

In addition to the report requesting, the online processing also provides such functions as displaying or changing (adjusting) jobs for either periodic or one-time reports. These functions are accessed and utilized through the NEMS Report Selection Menu Screen for the Report Selection Subsystem.

The NEMS Report Selection Menu screen displays 5 options. They are:

1. List regularly scheduled reports by frequency
2. Select on-request reports
3. Alter currently scheduled jobs
4. Change regularly scheduled reports

5. Change standard report distribution

Option 1 (list regularly scheduled reports by frequency) is for displaying the current schedule for periodic reports. When this option is initiated, the supporting program (RPTLSTP1) searches the Report Request File, and selecting appropriate records, displays the contents of the records which were entered for scheduling cyclical reports. The records for the periodical reports are distinguished from other records (records for one-time reports or maintenance requests) by checking the report number and report frequency fields of the records.

The report number (3 positions) for all report request records (either for periodical reports or for one-time reports) is arranged to be greater than '000', and the report number for all maintenance request records is arranged to be less than '000'. The first character of the number for all maintenance request records is alphabetic. The report number for the standard report distribution record is 'std'. The report frequency field (2 characters) for all one-time request records is arranged to carry 'RQ', while the field for cyclical reports or cyclical maintenance requests has data depending upon the frequency required.

Entries for the report frequency field (2 positions) of the report request records are defined as follows:

01	daily	(1 day)
02	weekly	(7 days)
03	bi-weekly	(14days)
04	monthly	(1 month anniversary)
05	quarterly	(3 month anniversary)
06	trimester	(4 month anniversary)
07	semiannual	(6 month anniversary)
08	annual	(1 year anniversary)
09	biennial	(2 year anniversary)
10	triennial	(3 year anniversary)
RQ	on request	(one-time only)

Schedules for periodical reports are displayed immediately by taking the option 1 on the NEMS Report Selection Menu screen. The schedules are displayed by report frequency. These schedules remain in the system (on the Report Request File) until they are deleted or changed using option 4 (change regularly scheduled reports).

Option 2 (Select On-Request Reports) is for requesting one-time reports. Since this option is used most frequently, Option 2 is considered as the main option for the Report Selection Subsystem. Selection of Option 2 on the NEMS Report Selection Menu Screen brings up the NEMS On-Request Report Selection Menu

Screen which displays all reports in the NEMS System. The user selects the report to be run by its report number from the list of reports displayed. If the selected report requires input parameters, the Input Parameter Screen for that report is displayed following the NEMS On-Request Report Selection Menu Screen. This screen displays the fields which are the basis for selecting records for the report. The report can be written either using all records on the file or using some part of records extracted from the file based on the parameters entered on the screen. The parameters are a beginning value and an ending value for a field on the file. The user may enter values or use the default values indicated.

LIST REGULARLY SCHEDULED REPORTS BY FREQUENCY SCREEN

```

USERID: XXXXX          NASA EQUIPMENT MANAGEMENT SYSTEM          DATE: MM/DD/YY
PROGRAM: RPTLSTP1      (INSTALLATION NAME)                      TIME: HH:MM:SS
                                CYCLICAL REPORTS LISTED BY FREQUENCY

NUMBER: 010
NAME: DAILY TRANSACTION REGISTER (BY TRANS NO)
FREQUENCY: DAILY
EFFECTIVE DATE: 96/11/15
INSTALLATION NUMBER: 0808 (INSTALLATION NAME)
DISTRIBUTION: NEMS CONTROL
MAIL STOP: 4471
NUMBER OF COPIES: 1
DESTINATION: 041
XEROX/PRINT: PRINT
BINDING:

ENTER ' ' TO CONTINUE OR 'X' TO EXIT: _____

```

Purpose:

This menu lists the regularly scheduled reports by their frequency starting with daily and proceeding through triennial. Two reports will be displayed per screen.

Called From Screen:

This screen is called by the NEMS Report Selection Menu.

Calls Screen:

Upon completion, this screen calls the NEMS Report Selection Menu.

NEMS ON-REQUEST REPORT SELECTION MENU - 5 of 5

```
USERID: XXXXX                      NEMS                      DATE: MM/DD/YY
PROGRAM: RPTSELP1                  ON-REQUEST REPORT SELECTION MENU      TIME: HH:MM:SS

ENTER REPORT NUMBER OR 'X' TO EXIT: _____

800 SF-120 REPORT OF EXCESS PERSONAL PROPERTY
810 DD-1342 DOD PROPERTY RECORD
830 NEMS-1 BY ECN
831 NEMS-1 BY CUSTODIAN ACCOUNT NUMBER
900 ITEMS HELD IN STORAGE
910 CUSTODIAN TABLE REPORT
920 USER TABLE REPORT
930 BUILDING NUMBER TABLE REPORT
960 NEMS SENSITIVE ITEMS SUMMARY
980 INVENTORY GRID LOCATION ADJUSTMENT **MSFC**
998 ERN REPORT FOR NEMSPCM (SOURCE DOCUMENT FOR MICROFICHE)
```

Purpose:

This menu lists all the on-request reports in the NEMS system in report number order, thirteen per screen.

Called From Screen:

This screen is called by the NEMS Report Selection Menu, and by either the NEMS Report Distribution Information Screen or a report selection criteria screen.

Calls Screen:

1. This screen calls the NEMS Report Distribution Information Screen, or a report selection criteria screen if the report needs selection criteria.
2. Upon completion, this screen calls the NEMS Report Selection Menu.

NEMS REPORT 020 SELECTION CRITERIA SCREEN

```
USER-ID: XXXXX          NASA EQUIPMENT MANAGEMENT SYSTEM          DATE: 09/29/97
PROGRAM: PRM020P1      MARSHALL SPACE FLIGHT CENTER              TIME: 10:29:02

                                CUSTODIAN MONTHLY TRANSACTION REPORT

BEGINNING CUSTODIAN ACCOUNT NUMBER: _____ (DEFAULT IS '  A')
ENDING CUSTODIAN ACCOUNT NUMBER:   _____ (DEFAULT IS '99999')

BEGINNING CUSTODIAN NUMBER:        _____ (DEFAULT IS '  A')
ENDING CUSTODIAN NUMBER:           _____ (DEFAULT IS '999999')

BEGINNING DATE:                    _____
                                   (DEFAULT IS '1926 01 01' (YYYY MM DD)FORMAT)
ENDING DATE:                        _____
                                   (DEFAULT IS '2025 12 31' (YYYY MM DD)FORMAT)

                                ENTER 'C' TO CANCEL: _____
```

Purpose:

This screen displays the fields which are the basis of selecting records to be used in the report. The user enters whichever values are required. The report will be produced based on the values entered, or the default values.

Called From Screen:

This screen is called by the NEMS On-Request Report Selection Menu.

Calls Screen:

Upon completion, this screen calls the NEMS Report Distribution Information Screen.

The final screen for the option 2 (Select On-Request Reports) is the NEMS Report Distribution Information Screen. This screen contains default distribution information. The user may change it to fit his needs. The NEMS Report Distribution Information Screen is displayed from the standard report distribution record on the Report Request File. There is only one standard report distribution record on the Report Request File in order to provide standardized default distribution information. The Report Request File contains records for regularly scheduled maintenance, on-request maintenance and providing standard report distribution.

When all procedures for the Option 2 (Select On-Request Reports) are through, then the subsystem (the supporting program, RPTSELP2) adds a new record to the Report Request File reflecting all input data supplied during the process for the Option 2. The records on the Report Request File stay on the file until next batch processing is performed. Requested reports are actually generated

through the batch processing. Explanations for the batch processing for report generation will be described later.

The Option 3 (Alter Currently Scheduled Jobs) is to adjust the schedule for jobs currently expected to run that night. Selection of the Option 3 on the NEMS Report Selection Menu Screen brings the Job Status Screen. The screen displays all cyclical and on-request reports scheduled to run that night. The users can alter report status in any of three ways:

- a. Postpone (P) the report so that it will run the following night. If this is a cyclical report its next production date is unaffected.
- b. Cancel (C) the report. If it is an on-request report it will be deleted from the list of reports scheduled to be produced. If it is a cyclical report its next effective production date will be set ahead by its previously established frequency.
- c. Return a previously postponed, or canceled report to its scheduled execution (blank).

This change can only be made prior to the nightly batch run.

All information for the Option 3 (Alter Currently Scheduled Jobs) is also obtained from the Report Request File, and the records on the file are updated (altered) through processing of this option. When this option is selected, the supporting program (RPTSUBP1) extracts records whose effective date (Run Date) field is equal to or less than the current (System) date, and appropriate information is displayed from the records on the Job Status Screen. The records are expected to be used for reports which will be produced that night. When a postponement for a job running is requested, then the program (RPTSUBP1) puts a 'P' in the Report Status Field of the record. Likewise, the program enters a 'C' for canceling a job, or clears the Report Status Field in order to reinstate a job previously postponed or canceled.

If the report status field of a record on the Report Request File remains blank, then the report based on the record will be generated. If the field carries a 'P', the effective date (Run Date) field of the record will be adjusted for postponement of execution. In the case of canceling a report, the record will be deleted when the maintenance (housekeeping) function is performed during the batch processing. There, resetting functions for the Report Request File are performed after the execution of the report generating process during the batch processing. Option 4 (Change Regularly Scheduled Report) is used to control the generation of cyclical reports. This option allows the user to create a new cyclical report (Add Option), to change an existing cyclical report (Change Option) or to delete an existing cyclical report (Delete Option). The processing for this option is an add of a new record for a cyclical report to the Report Request File, a change of an existing record, or the delete of an existing record from the Report Request File. A record for a cyclical report is distinguished from

an on-request report record or from a maintenance record by checking the Report Number Field and the Report Frequency Field on the record.

Two screens follow the NEMS Report Selection Menu Screen to process the Option 4 (Change Regularly Scheduled Report). Using the 2 screens, the function (Add, Change or Delete), Report Number, Effective Date, Installation Number, Report Frequency, Distribution, Mail Stop, Number of Copies, Printer Destination Code, Report Print Type and Binding Instructions are supplied, or adjusted. When all necessary data is supplied and the 'ENTER' key is hit, the Subsystem (the supporting program, RPTCHGP1) either writes a record or updates (Change or Delete) an existing record for the cyclical report.

The Option 5 (Change Standard Report Distribution) is for adjusting the Standard Report Distribution Record on the Report Request File. There is one Standard Report Distribution Record on the file for each subinstallation. These records carry a report number of 'STD'. This record is used for all report distribution purposes. When the report request update program (RPTLTP2) writes an on-request report record, the distribution information from the standard distribution record is used as a boiler plate. The user is permitted to change any part of this information for their request.

The Option 5 (Change Standard Report Distribution) allows the user to adjust the values of the Standard Distribution Record. Selection of Option 5 on the NEMS Report Selection Menu Screen brings up the NEMS Standard Distribution Screen which displays distribution information. Corrections can be made on this screen. When all corrections are made and the 'ENTER' key is hit, then the supporting program (RPTSTDP1) updates the Standard Report Distribution Record on the Report Request File. When the process for this option is through, the NEMS Report Selection Menu Screen is called with the update message.

4.2 REPORT GENERATION PROCESS

As described above (Section 1, Report Selection Options), the user requests reports through online processing. The requested reports are logged on the Report Request File, records for all report requests are written to the file. The records stay on the file until they are used for JCL generation and batch processing. In other words, the Report Generation Function is first performed partially through online processing, and the remaining portion of the processing is extended to the batch processing.

The NEMS System is designed basically to perform daytime online processing and nighttime batch processing, supplementing each other. The batch processing should be performed daily in order to conclude the processing which was initiated by the online processing. The daily batch processing is performed for the overall NEMS System (System Batch Processing). Many jobs are executed as part of the batch processing, but all jobs are prearranged to be

executed in an appropriate sequence automatically, once the first job is initiated. Since all scheduled jobs are controlled to be executed sequentially, the batch processing seems like running one large job.

The batch processing is indispensable for the NEMS System because it performs various system maintenance processing as well as report generating processing. An explanation of the report generating portion of the processing will be presented here and an overall description on the batch processing will be presented when the System Maintenance Subsystem is described.

There are 4 JCL generating programs (JCLGENP1, P2, P3, and P4) which generate all the necessary JCL for all of the batch processing, and there is one utility program (JCLCHKP1) which resets switches on the control record to help control all batch jobs. The entire batch processing is initiated by submitting the first job for initiating the first JCL generation program (JCLGENP1). Subsequent jobs are generated or controlled by this program. The first JCL generator program checks each control switch on the control record of the control file. If any one of the control switches except switch #6 (Report Generation) and switch #11 (System Maintenance), contains a '1' or '2' (0: job is not scheduled, 1: job is scheduled, 2: job has started, 8: job ended normally, 9: job ended abnormally), then the program generates the necessary JCL extracting JCL cards from the control file. If the program finds the control switch #6 (Report Generation) has a '1' or '2', then the program calls the second JCL generator program (JCLGENP2), instead of generating JCL for report jobs by itself. The second JCL generation program generates all of the necessary JCL for the report jobs. Likewise, the third JCL generation PROGRAM (JCLGENP3) provides all of the JCL for the system maintenance job.

The report JCL generator (JCLGENP2), once called, reads the Report Request File. The program selects all records where the REPORT-EFF-DATE is less than or equal to the system date, the REPORT-NUMBER is numeric, and the REPORT-STATUS is equal to ' ' or '2'. Selected records with this criteria are the active report requests for the batch processing for the night. If there are no such records, then the program (JCLGENP2) fetches the first JCL generator program (JCLGENP1).

These report requests (records) were registered through the online processing. The report effective date field of the record should be matured against the system run date. The report number field for the report request records are designed to be numeric. The report status field of ' ' means JCL for that record (request) has not submitted been yet, a status of '1' that the JCL for that record was generated, but the job had not yet started.

For each of these records (requests) the JCL for a report production is generated. This is done by an inner loop routine. The JCL generation routine has the steps of reading the Control File and extracting appropriate JCL cards.

Reviewing the record layout for the Control File is necessary here. The record contains 98 characters. All characters are defined as alphanumeric. The first 6 character-field (col 1-6) is defined as the Control Sequence Field, and next 8 character-field (col 7-14) is defined as the Control Key Field, and they are followed by 12 control switches (control-1 through control-12). Each of the control switch is made of 1 character. Accordingly, 12 columns (col 15-26) are used for the control switches. The last portion of the record is the 72 character JCL-card field (col 27-98).

The Control Sequence Field is used for maintaining JCL card sequence, and the Control Key Field is used for identifying JCL cards. The control switches are used for marking each record in order to identify each category of processing for which the card is used. For example, all JCL records to be used for report generation carry an 'X' or 'P' in the sixth control switch (control-6, column 20).

All JCL records necessary for report generating jobs can be obtained by extracting JCL records with a non-space character in column 20. Likewise, all JCL records for maintenance processing carry an 'X' in the 11th control switch (control-11, column 25). JCL cards for maintenance processing are obtained by extracting JCL records which carry an 'X' in column 25. The JCL-card field (last 72 characters) of the JCL record contains rearranged JCL entries. Actual JCL cards are written into the Internal reader from the JCL-card field of the record. This standardized and pre-fabricated JCL records and JCL extraction mechanism is used repeatedly with minor adjustments (by the programs) according to a job.

Now, explanations will go back to arrangements of the JCL generator program (JCLGENP2). As mentioned above, the program extracts JCL for a job from the Control File, according to a report request record on the Report Request File. The JCL is extracted for each active report request record. For this purpose, the external routine for reading the Report Requesting File and initiating the inner routine when it is necessary, and the inner routine for reading the control file and extracting JCL are provided in the program.

Since the function of the external routine was explained above, description on the function of the inner routine will be presented here. The JCL generation routine (inner) reads the Control File, and extracts all records with the control-6 field (column 20 of the record) not equal to a blank, the CONTROL-KEY greater than or equal to 'JCL ', and the CONTROL-KEY less than or equal to 'JCL99999', sorted by the CONTROL-SEQ.

As explained above, all JCL records for reporting jobs carry 'X' or 'P' in the control-6 field (column 20). All JCL records for reporting jobs can be extracted if all records which have a non-space character in column 20 (control-6) are extracted. All JCL records carry 'JCL' in the CONTROL-KEY field (8 character-Field, col 7-14) in its left most 3 positions. The field may have 5 more characters

up to '99999'. The JCL records for reporting jobs are extracted in an appropriate sequence using the CONTROL-SEQ field. The CONTROL-SEQ field (col 1-6) of the JCL record is arranged to contain a number which is used as the sort field when extracting JCL records from the control file.

The records extracted based on the criteria are a set of JCL for a reporting job. But some of this standard set of records should be adjusted according to jobs requested, though the adjustment is made to a minor extent. The adjustments are made based on the information from the report request record that was read and saved by the external routine which initiated this routine (inner routine, JCL generation routine). The JCL generation routine checks each JCL record, and adjusts entries when that is necessary. The job-name on the job card, a report program name to be called and the ISN (internal sequence number) of the report request record, this is used by an executed report program in updating the report status field. This is done for marking the report status on the specific record which is identified by the control-key field (the field carries 'JCL-PGM') and the report printing instructions on the card whose CONTROL-KEY field carries the value of 'JCLPRINT'.

When a JCL record is ready after the check-and-adjustment process, the record is written into the internal reader. When all JCL cards for a report job were written into the internal reader, then the JCL generation routine (inner) goes back to the external routine. This process is repeated until the external routine reads all report request records on the report request file and supplies all JCL for each of the records initiating the JCL generation routine (inner routine).

Each JCL card for a report job is arranged to call a report execution program (RPT???P1) and a program to check that execution. The report check program is initiated at the end of each report job. When the report program starts processing, the program reads the Report Request File and extracts the record which initiated the job using the ISN passed by the JCL card, and updates the report-status field marking that the job has started. The program puts a '2' in the field. The program will put an '8' in the field when the job has successfully concluded. Toward the end of each job, the JCL check program (JCLCHKP1) reads the Report Request File, and checks whether all requested jobs were executed.

The program checks the report status field of each report request record. The report status field may have ' ', '1', '2' or '8'. The value of ' ' for this field indicates that the job was requested, but the JCL for the job was not yet submitted. A value of '1' for the field means that the JCL for the job was submitted, but the job is queued for execution. A value of '2' for the report status tells that the job was started execution and the job is currently executing, or that the job had started execution but the job had not concluded successfully. A value of '8' for the field means that the job had run successfully. Each report request record initiates one JCL stream for a separate job. If there were 20 active report requests, then

20 JCL streams for 20 independent jobs will be generated. These report JCL's can be generated almost instantly, and queued for execution. Each job runs one by one independently, and at the end of each jobs processing, the JCL check program (JCLCHKP1) checks all report request records (check the report status fields). Therefore, the Report Request File is examined repeatedly. As indicated above, the purpose of the repeated examination is to check whether all requested jobs were executed successfully.

In fact, the examination of the Report Request File performed by the JCL check program (JCLCHKP1) is meaningful only when it is performed at the end of the last job for report generation. All report jobs run, even when one of them abnormally ends in the middle of processing, because each job is independent. Only the report status field of the corresponding report request record which initiated the job that abnormally ended carries a '2' in its report status field. Anyway, if the JCL check program (JCLCHKP1) finds any record on the Report Request File with a '1' or '2' in its Report Status Field, the program simply terminates. The next job will start execution if the job for which the JCL check program (JCLCHKP1) was executed was not the last one.

Now, the instance of running the last reporting job is to be considered. The JCL check program (JCLCHKP1) may find that all report request reports carry an '8' in their report status fields, indicating all requested jobs ran successfully. Only in this case, the program turns the control of processing back to the first JCL generator program (JCLGENP1) after setting the Control-6 (column 20) of the control record of the Control File to '8', and let the program submit the remaining batch processing. The JCL check program (JCLCHKP1) may not find any record which has a '1' in its Report Status Field, because current processing is for the last job. The program may find a record which has a '2' in its Report Status Field, indicating that the job was abnormally ended. In this case, the JCL check program (JCLCHKP1) simply terminates without turning over the control of processing to any other program. This means the termination of batch processing, because there is no more report generating independent job following the last job.

In order to resume the batch processing for the remaining process, manual adjustments are necessary in the case described above. The report request related to that problem can be canceled setting the report status field to 'C', or the Control-6 Field (column 20) of the control record of the Control File can be set to '8' (successful completion of all reports) in order to get around the report generation process. Of course, the report can be requested later after making corrections on the report writing program. Anyway, the batch processing has to be initiated again after making certain adjustments, by running the first JCL generator program (JCLGENP1).

Detail description on the JCL for the reporting jobs was not presented here, but the JCL will be introduced when the System Maintenance Subsystem will be

discussed. On concluding this part of the description a few lines are added. The first JCL Generator program (JCLGENP1) acts like a control program. The program directs batch processing referring to the control record of the Control File, as well as generating JCL for non-report or non-maintenance jobs. The report request records are created online, and the file is frequently read and updated (the Report Status Field) in order to maintain status. The file is first read and updated (from ' ' to '1' in the Report Status Field) by the second JCL generator program (JCLGENP2, JCL generator for reporting jobs) for JCL generation, and the file is read and updated by a report generating program (from '1' to '2', and from '2' to '8'). The Report Request File is again read by the JCL check program (JCLCHKP1) in order to check whether all report requests were fulfilled. The file is also read and cleared later by the maintenance program.

The control record of the Control File helps the batch processing maintain the status of processing. The records on the Report Request File help report generating process by maintaining report status during the execution of the process. The Control File contains and supplies JCL records in addition to the control records and the status code summary records. There are 4 JCL generator programs. The first JCL generator program (JCLGENP1) acts like a control program for batch processing, as well as providing JCL for non-reporting or non-maintenance JOBS. The second JCL generator program (JCLGENP2) generates all necessary JCL for all reports. The third JCL generator program (JCLGENP3) is used for generating JCL for maintenance jobs. The JCL check program (JCLCHKP1) also helps for overall control of the batch processing.

5. TABLE FILE UPDATE SUBSYSTEM

5.1 NEMS TABLE FILE ORGANIZATION

The Table File is an ADABAS file. Records on the file are compressed while they stay on the file; that is, unnecessary zeroes and spaces for unfilled fields of the records are removed from the records when they were saved on the file. Each record contains 48 fields, the uncompressed record length of the record is 1,104 characters. A relatively large number of fields and the unusual record length for the record are provided in order to accommodate all necessary tables for the NEMS System (see Attachment #2).

Instead each table has its own record layout, each table shares fields on the record, and the record itself maintains the uniform layout for the file. In fact, each table uses a few fields. Since most of the fields are unused and compressed, records become much smaller and simpler while they are on the file. Actually tables are handled by related programs as if they use the simplified format said above.

An important point is that each table entry for all tables forms a record, and the record is accessed directly by giving TABLE-ID-KEY (the first 13 character field of each record. This is a descriptor field. The field is divided into sub-descriptors: TABLE-ID (3 characters) and TABLE-KEY (10 characters). Each entry (record) has a unique TABLE-ID-KEY). All entries for a table can be retrieved by giving the TABLE-ID, and a specific entry of a table can be retrieved by giving the TABLE-ID and the TABLE-KEY or giving the TABLE-ID-KEY. Note that the basic unit of the Table File is each table entry, and each entry forms a record even though most of fields of the record are not used.

The Table File currently contains 28 tables; that is, there are 28 TABLE-ID's. Out of the 28 tables, 7 tables are used for system maintenance, and the rest of the 19 tables are used for general purposes. Among the 9 system maintenance tables, 3 tables are only accessed by NEMS DBAs or NEMS programmers. They are the USERID Table (table-id:'S03'), the Journal Message Table (TABLE-ID:'S07') and the Maintenance Name Table (TABLE-ID:'S08').

The tables used for the NEMS System are as follows:

TBL-ID	TBL-KEY	TABLE NAME	UPDATE PGM
*	BLANK	TABLE DESCRIPTION AND AUTHORIZATION	TBLS01P1
S02	ERROR CODE	ERROR CODES AND MESSAGES	TBLS02P1
S03	USERID	NEMS USERID TABLE	TBLS03P1
S04	'1 OR'1'	SEQUENCE NUMBER TABLE	TBLS04P1
S05	RPT. NO.	REPORT NUMBER TABLE	TBLS05P1

S07	MSG. CODE	JOURNAL MESSAGE TABLE	JRNUPDP1
S08	MAINT. NO.	MAINTENANCE NAME TABLE	MNTTBLP1
S09	INV RPT NO.	INVENTORY REPORT NUMBER TABLE	TBLS09P1
S10	INV TRN NO.	INVENTORY TRANSACTION NO. TABLE	TBLS10P1
S11	USERID	INVENTORY USERID TABLE	MNTIUIP1
040	MFG'S CD	MANUFACTURER'S CODE TABLE	TBL040P1
050	FD SUP GP	FEDERAL SUPPLY GROUP TABLE	TBL050P1
052	EQ TP ACCT	EQUIPMENT TYPE ACCOUNT TABLE	TBL052P1
078	CUST ACC NO.	CUSTODIAN ACCOUNT NUMBER TABLE	TBL078P1
090	USER NO	USER NUMBER TABLE	TBL090P1
102	BULD NO	BUILDING NUMBER TABLE	TBL102P1
130	CAP/SEN CD	CAPITAL/SENSITIVE CODE TABLE	TBL130P1
132	AGENCY NO	U.S. TREASURY AGENCY NUMBER TABLE	TBL132P1
155	EQUIP MGT CD	EQUIPMENT MANAGEMENT CODE TABLE	TBL155P1
160	EQUIP IN CD	EQUIPMENT 'IN' CODE TABLE	TBL160P1
165	EQUIPOUT CD	EQUIPMENT 'OUT' CODE TABLE	TBL165P1
180	HAZ MAT CD	HAZARDOUS MATERIAL CODE TABLE	TBL180P1
182	PRC MET CD	PRECIOUS METAL CODE TABLE	TBL182P1
184	IDLE EQ CD	IDLE EQUIPMENT CODE TABLE	TBL184P1
250	CONT NO ACCT	CONTRACTOR ACCOUNTABLE NAME TABLE	TBL250P1
252	INST NO	NASA INSTALLATION NUMBER TABLE	TBL252P1
410	AVAIL ST CD	AVAILABILITY STATUS CODE TABLE	TBL410P1
510	COND CODE	CONDITION CODE TABLE	TBL510P1
620	TRANS NO	TRANSACTION NUMBER TABLE	TBL620P1

* This is for a table title for each table. Each table, except tables 'S07' and 'S08' have an entry which contains the table name. This entry has an appropriate TABLE-ID from each table, but the TABLE-KEY for each entry is blank. The record layout for the NEMS Table File (see Attachment #2) shows fields which each table contains. The record layout does not indicate fields used for the S07 table and the S08 table. The Journal Message Table (S07 table) uses the T-ERROR-MESSAGE field for its journal message, and the Maintenance Name Table uses the T-REPORT-NAME field for its maintenance name. As the TABLE-ID-KEY field is a descriptor, each table entry can be retrieved and updated quickly. A table update program which was fetched by the table menu program retrieves the requested record using the TABLE-ID-KEY user supplied, and updates the record according to user's requests. If a table-key is unknown, the key should be identified first by using the table listing option of the Adhoc Inquiries subsystem.

5.2 TABLE UPDATE PROCESSING

Table update transactions are performed entirely through online processing. No batch processing is involved for the transactions. Process for the online processing will be described here. Briefly, the NEMS Table Update Process is entered by selecting the Table File Update option on the NEMS Main Menu (see next page). This option passes control to the table menu program (TBL000P1). This program displays the NEMS Table File Update Menu which lists those tables the user is authorized to update. If a valid table number (TABLE-ID) is

selected, the table menu program passes control to the table update program which will update the selected table. The program provides the update function and table-key input screen. The exit option will return control to the NEMS Main Menu.

There are three types of table update functions: add, change and delete. One of these functions must be selected and the appropriate TABLE-KEY element must be entered. This TABLE-KEY is required to properly identify the Table File record to be updated. The table update program can retrieve the record to be updated by using the TABLE-ID (table number) already selected and the TABLE-KEY which is to be supplied using this screen.

The TABLE-KEY entered for an add transaction must be unique for the table being updated; therefore duplicate records will not exist. The TABLE-KEY entered for a change transaction or delete transaction must already exist on the table being updated. The Exit option will return control to the NEMS Table File Update Menu. When a valid function and TABLE-KEY have been entered, a screen will be displayed indicating data elements for which information must be entered to update the selected table record all elements on this Data Update Screen are considered mandatory and will be edited for content. The cancel option will return the user to the previous screen without updating the record. The data in the record being updated will be displayed.

6. SYSTEM MAINTENANCE SUBSYSTEM

6.1 SYSTEM MAINTENANCE FUNCTIONS

There are various system maintenance functions for the NEMS system. The system maintenance functions are performed through different combinations of processing:

- (1) Some maintenance functions are performed exclusively through online processing.
- (2) Other maintenance functions are performed partially through online processing and the remaining portion of processing is extended to batch processing.
- (3) Other maintenance functions are designed to be performed entirely through batch processing, though related control switches on the control record can be reset through online processing (processing for the functions is initiated during batch processing when related control switches are set on ('1'). The switch contains '0' when they are set off.). The maintenance functions in the third category above include such functions as:
 - A. Database Restore - (Control Switch #1)
 - B. Database Backup - (Control Switch #2)
 - C. Archive - (Control Switch #5)
 - D. Final Backup - (Control Switch #12)

But these database related functions are designed to be developed in the future. More online processing is involved in performing the other category of maintenance functions (category (1) and (2) above).

Broadly speaking, system maintenance functions may include all 3 categories of functions above, while a more narrow definition may include only category (1) and category (2) above. The System Maintenance Subsystem performs the more narrow sense of maintenance functions. In view of processing, the subsystem is able to fulfill its functions through combined processing of online processing and batch processing.

The maintenance functions processed through the System Maintenance Subsystem (Options on the NEMS Maintenance Selection Menu screen) are as follows:

- (1) Update NEMS USERID Table

- (2) List Cyclical Maintenance By Frequency
- (3) Select On-Request Maintenance
- (4) Alter Currently Scheduled Maintenance
- (5) Change Cyclical Maintenance
- (6) Update JCL File
- (7) List JCL File
- (8) List Control Records
- (9) List Availability Status Code Records
- (10) Update Maintenance Name Table
- (11) List Maintenance Name Table
- (12) Update Inventory USERID Table

6.2 DESCRIPTION OF MAINTENANCE FUNCTIONS

6.2.1 General Description

The NEMS Maintenance Selection Menu provides 12 functions (options) for the system maintenance subsystem. The 12 maintenance functions are listed above. Each of the maintenance functions will be explained briefly later. Before getting into itemized explanations on each function, the functions are summarized here briefly.

Several system tables on the table file are listed or updated. Update processing for the tables is performed on the tables which are accessed only by a Data Base Administrator (DBA) or a NEMS programmer. The tables are the USERID table (S03 table), the journal message table (S07 table updating this table is not shown among the 12 options. This table is updated by running the journal message update program (JRNUPDP1)) and the maintenance name table (S08 table).

Cyclical maintenance or on-request maintenance already requested may be listed, requested newly or updated. Currently scheduled job status may be listed or updated. JCL file records such as Control Records (2 records, one for production one for testing), JCL records (JCL card images) or Availability Status Records (4 records according to the availability codes, A, B ,C, and D) are listed or updated.

6.2.2 Update NEMS USERID Table (MNTUIDP1)

This function updates the NEMS USERID table (S03 table) on the Table File. This function is performed by the system maintenance subsystem instead of

being performed by the table file update subsystem, because the NEMS USERID table is accessed only by a Data Base Administrator (DBA) or a NEMS programmer.

This function brings up a screen which requests the user to select a function (add, change, or delete) and a USERID. The USERID must already be in the table if the function is change or delete. Once the data on this screen is entered correctly, a second screen will be brought up which allows The entry of a user name, installation and sub-installation numbers, and the establishment of functions which will be granted to the USERID, e.g., Adhoc Authority, Equipment File Update Authority, Report Authority, Table File update Authority and Maintenance Authority.

6.2.3 List Cyclical Maintenance By Frequency (MNTLSTP1)

This function lists the contents of cyclical maintenance request record on the Report Request File. Currently scheduled cyclical maintenance requests are viewed using this function. Jobs for the requests are run regularly (batch) without user intervention on a predetermined frequency, such as daily, monthly or yearly processing. The type of maintenance is listed with its frequency, and next effective run date. Certain types of maintenance jobs can be run either on a cyclically or on-request basis. Each installation has the flexibility to adjust its maintenance jobs. Another way of running maintenance jobs is to hard-code them in the JCL. In this way, certain maintenance jobs are run whenever batch processing is executed.

In order to help understanding, several examples of suggested cyclical maintenance jobs are listed below.

<u>No.</u>	<u>Program</u>	<u>Maintenance Name</u>	<u>** Remarks</u>
A01	MSA001P1	Reset Equipment File Year To Date Field	Annual
M02	MSM002P1	Monthly Trans. File To Tape and Purge	Monthly
D03	MSD003P1	Report Req. File Records(Report) Reset	Daily
*	MSD004P1	Daily Maintenance Request (Maint) Reset	Daily

*Hard Coded in the JCL. This job resets maintenance request records on the report request file.

**Suggested Maintenance Cycle.

6.2.4 Select On-Request Maintenance (MNTSELP1)

This function is for requesting one time maintenance jobs. Records for an on-request maintenance request are added to the Report Request File through this function. The records on the report request file remain on the file until batch processing is performed. The records are used in the initiation of maintenance jobs by the third JCL generator program (JCLGENP3). The job generation process for maintenance jobs will be described later.

All maintenance in the NEMS system is listed on the NEMS On-Request Maintenance Selection Menu screen. The user selects the maintenance to be run by its maintenance number. This will be a one time only run. If on-request maintenance is selected, it does not effect the regularly scheduled maintenance production timing. On-request maintenance currently provided for the NEMS system is as follows:

<u>Mnt No.</u>	<u>Program</u>	<u>Maintenance Name</u>	<u>Remarks*</u>
A01	MSA001P1	Reset Year To Date Fields (EQ file)	Annual
A02	MSA002P1	Periodic Purge of History File	Annual
D02	MSD002P1	Entry Reference/Freeze Number Reset	Daily
D03	MSD003P1	Report File Records Reset(Report Rec)	Daily
D06	MSD006P1	Items Transferred To History File Report	Daily
D07	MSD007P1	Daily Transaction File Delete	Daily
M02	MSM002P1	Monthly Trans. File To Tape and Purge	Monthly
M04	MSM004P1	Global Trans. File To Tape and Purge	Monthly
M08	MSM008P1	Purge of Transfer File	Monthly
R08	MSR008P1	Delete of invalid transfer records	As needed

* Suggested Maintenance Cycle

Note The list above is displayed from the maintenance name table (S08 table) of The Table File (Maintenance Menu Option 11).

6.2.5 Alter Currently Scheduled Maintenance (MNTSUBP1)

All cyclical and on-request maintenance scheduled to run that night are displayed on the Maintenance Scheduled To Run Tonight screen. This screen is displayed from the maintenance request records on the Report Request File.

The users can alter maintenance status by changing the maintenance request records in any of three ways:

- A. Postpone (P) the maintenance so that it will run the following night. If this is cyclical maintenance, its next production date is unaffected. A 'P' is moved into the report (maintenance) status field of the maintenance request record. The postponed record is disregarded during batch processing. The effective run rate is adjusted by the daily maintenance request reset program (MSD004P1).
- B. Cancel (C) the maintenance. A 'C' is moved into the report (maintenance) status field of the maintenance request record. The canceled record is disregarded during batch processing. If it is on-request maintenance, the request record is deleted later. If it is cyclical maintenance, its next effective production date will be set ahead by its previously established frequency. The maintenance reset program (MSD004P1) performs these adjustments.
- C. Return previously postponed, or canceled maintenance to its scheduled execution (blank). A space is moved into the report (maintenance) status field of the maintenance request record to erase the 'P' or 'C' in the field. If the field is blank, the record is in the active status.

This change can only be made prior to the nightly batch run.

6.2.6 Change Cyclical Maintenance (MNTCHGP1)

This option allows the user to add, change, or delete regularly scheduled, cyclical maintenance. When adding, the maintenance must be unique on the basis of its maintenance number, effective production date, and frequency. An exception is daily maintenance, where only one maintenance per maintenance number may be added regardless of the effective production date.

Changing maintenance entails changing only the effective date and/or frequency which is collected on a separate screen. The change may not create a record which duplicates an existing record with respect to maintenance number, effective date, and frequency. This adjustment is performed through changes to the cyclical maintenance request records on the Report Request File.

6.2.7 Update JCL File (MNTJCLP1)

The Control File contains 3 kinds of records, though their record layout is the same. They are Control Records (2 records, one for production and the other for testing), JCL records (multiple number of JCL card images) and Status Code Records (4 records for each center, according to the status codes - a, b, c, and d).

This function allows the user to update (add, change or delete) the Control Records, the JCL Records and the Status Code Records in the Control File. The status code records on the file are updated primarily by the monthly status

code change extract/update program (MSM001P1). But the records are also adjusted manually using this option of the System Maintenance Subsystem.

The control record is used to control overall NEMS batch processing. The first JCL generator program (JCLGENP1) controls overall batch processing using the control record. The record has 12 control switches or control value fields. Each of the switches stands for a specific category of processing.

They are as follows:

- | | |
|---------------------------|-------------------|
| 1. Database restore | (not applied yet) |
| 2. Database backup | (not applied yet) |
| 3. NEMS batch edit/update | (currently used) |
| 4. Global transactions | (currently used) |
| 5. Archive | (not applied yet) |
| 6. Reports | (currently used) |
| 7. Not used | |
| 8. Not used | |
| 9. Not used | |
| 10. Not used | |
| 11. NEMS maintenance | (currently used) |
| 12. Final backup | (not applied yet) |

Each of these switches keeps track of the status of the respective category of processing using the value (control value) it contains. In fact, values for the switches (control fields) are moved into them by various programs. the values for the switches can be:

- | | |
|---|----------------------|
| 0 | Job Is Not Scheduled |
| 1 | Job Is Scheduled |
| 2 | Job Started |
| 8 | Job Ended Normally |
| 9 | Job End Abnormally |

For example, the control switches of the control record can be set when batch jobs are to start processing as follows:

Control	Control	Control Values
<u>Key</u>	<u>Seq</u>	<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> <u>11</u> <u>12</u>
Control	000000	0 0 1 1 0 1 0 0 0 0 1 0

The control record above indicates that the jobs for NEMS batch edit/update, report generation, and NEMS maintenance are requested. The other categories of processing are skipped. The control values in the control switches are changed keeping track of the status of processing during batch processing. For example, control switch #6 (control-6, report generation) starts with the value of '1'. The value (control value) is changed to '2' by the second JCL generator program (JCLGEN2) as soon as the program generate the first JCL for a report. The control value of '2' means processing (for the report generation) is started.

The JCL check program (JCLCHKP1, utility program) checks whether all report generation jobs were processed successfully. If all jobs were processed successfully the program moves an '8' into the control switch #6 (control-6, report generation) indicating all report generation was successful. After updating the control record (moving an '8' into the control switch #6), the program fetches the first JCL generator program (JCLGENP1, control program), returning control for continued processing (NEMS maintenance jobs will follow in this example).

The control program (JCLGENP1) checks the control switch #6 (control-6). If the program finds the control value of the switch is '8', then the control program initiates processing for maintenance jobs, the next category of processing, fetching the third JCL generator program (JCLGEN3). The control program (JCLGENP1) resets control switches at the end of batch processing for the next day's batch process. The appropriate control values are changed to '1' from '8'.

Now, explanations on the option for Updating JCL File will be included here. As mentioned above, this function allows the user to update the Control Records, the JCL Records and the status code records in the Control File. First, the control switches on the control records can be reset manually using this option of the System Maintenance Subsystem, so that the user can control overall batch processing. The function of resetting control values in the control switches is performed by the control program (JCLGENP1) for a normal cycle of batch processing.

Secondly, JCL records can be changed manually. The JCL cards for NEMS batch processing are basically the same as normal IBM JCL cards for general batch processing. However NEMS JCL records contain control parts (control key, control sequence, and control fields--control switches) in addition to the JCL card part. Some examples are shown below.

Control	Control	Control Values												JCL Card Image
<u>Key</u>	<u>Seq</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	
JCLJOB	050060						X							//NZZTR999 JOB (,
JCLEXEC	100010	X	X		X							X		//NEMSNAT1 EXEC PGM=

```
JCLPRINT 100315      P      //CMPRINT DD SYSOUT=*,
JCLPGM   100570      X      RPT999P1
```

The control part is used for extracting appropriate records in correct sequence when the JCL generation programs (JCLGENP1, JCLGENP2 and JCLGENP3) generate JCL for jobs. Actual JCL is written from the card images, though the fields of the control part are used for selecting records. Either fields of the control part or the card field can be changed, an entire record can be deleted from the Control File or it may be added to the file. Explanations on the NEMS JCL and overall NEMS batch processing will be described later.

The Status Code Records have no relation with control functions. The records (4 records for each installation) are contained in the Control File for convenience. Each of these records can be extracted and updated if necessary. All records (control records, JCL records and status code records) on the Control File can be extracted and updated giving the Control Key and the Control Sequence by the JCL file updating option (option '6' of the system maintenance subsystem).

6.2.8 List JCL File (MNTJCLP2)

This function allows the user to list JCL records of the Control File on a series of screens. Note that, due to the limitation imposed by the screen size, only columns 1 to 38 of the JCL image, in addition to the control fields, are displayed.

6.2.9 List Control Records (MNTJCLP3)

This function allows the user to list control records of the Control File on the screen. Two control records (one for production, the other for testing) are listed on the screen. Such fields as control key, control sequence, control values, and process date are displayed.

6.2.10 List Availability Status Code Records (MNTJCLP4)

This function allows the user to list availability status code records of the Control File on the screen. Four records (4 records for each center, according to the status codes -a, b, c, and d) are listed on the screen. An example shows as below.

<u>Control Key</u>	<u>Control Seq</u>	<u>Items</u>	<u>Cost</u> _____
STATCODE	1111 A	519	1110090015
STATCODE	1111 B	304	35420457
STATCODE	1111 C	142	1994998992

STATCODE 1111 D 98 4002398

6.2.11 Update Maintenance Name Table (MNTTBLP1)

This function allows the user to update the maintenance name table (S08 table) on the Table File. Entries on the table can be modified or deleted, or a new entry may be added to the table. The maintenance name table should be updated using this function when maintenance functions are to be added, updated, or deleted. Maintenance functions are more easily adjusted through the adjustment of the table instead modifying hard-coded programs. The maintenance name table contains maintenance numbers and names for selective maintenance functions which can be selected through the option 3 (select on-request maintenance) of the system maintenance subsystem. The NEMS On-Request Maintenance Selection Menu is displayed from this table.

6.2.12 List Maintenance Name Table (MNTABHP1)

This function allows the user to list selective maintenance functions on the screen. The screen is displayed from the maintenance name table of the Table File. In addition to the selective maintenance functions, there are several maintenance functions which are performed whenever batch processing is executed. These maintenance functions are initiated by hard-coded JCL cards included in the job stream for batch processing.

6.2.13 Update Inventory Userid Table (MNTIUIP1)

This function updates the inventory USERID table (table S11) on the Table File. This function is performed by the system maintenance subsystem instead of being performed by the table file update subsystem, because the inventory USERID table is accessed only by a Data Base Administrator (DBA) or NEMS programmer.

This function brings up a screen which requests the user to select a function (add, change or delete) and a USERID. the USERID must already be in the table if the function is change or delete. Once the data on this screen is entered correctly, a second screen will be brought up which allows the entry of a user name, installation and sub-installation numbers, and the establishment of functions which will be granted to the USERID, e.g., inventory open/close, account authority, status authority, workoff discrepancies, and report authority.

6.3 MAINTENANCE BATCH JOBS

6.3.1 Batch Jobs For Maintenance

Batch job maintenance functions are summarized as follows:

- A. Selective maintenance jobs
- B. Routine maintenance jobs
- C. Other maintenance related programs

6.3.2 Selective Maintenance Jobs (Batch)

Selective maintenance jobs are registered on the maintenance name table (S08 table). The maintenance jobs can be requested for either cyclical running or one time running. The contents of the table entries were introduced already, but they are listed here again for additional explanations.

<u>Mnt*</u> <u>No</u>	<u>PROGRAM</u>	<u>MAINTENANCE NAME</u>	<u>REMARKS **</u>
A01	MSA001P1	RESET YEAR TO DATE FIELDS	R1
A02	MSA002P1	PERIODIC PURGE OF HISTORY FILE	R2
D02	MSD002P1	ENTRY REFERENCE/FREEZ NUMBER RESET	R3
D03	MSD003P1	REPORT FILE RECORDS RESET (REPORT)	R4
D06	MSD006P1	ITEMS TRANSFERRED TO HISTORY FILE REPORT	R5
D07	MSD007P1	DAILY TRANSACTION FILE DELETE	R6
M02	MSM002P1	MONTHLY TRANS. FILE TO TAPE AND PURGE	R8
M04	MSM004P1	GLOBAL TRANS. FILE TO TAPE AND PURGE	R11
M08	MSM008P1	PURGE OF TRANSFER FILE	R12
R08	MSR008P1	DELETE OF INVALID TRANSFER RECORDS	R13

* Relationship between mnt no. and program name is as follows:

- A. First 2 characters of all programs are all ms maintenance service)
- B. The 3rd character of program name matches to the 1st character of mnt no.
(a-annual, d-daily, m-monthly)

- C. The 4th character of program names are all '0'
- D. The 5th and 6th characters of program names match to the last 2 characters of mnt no.

E. The last 2 characters of program names are all P1

** Relationship between mnt no. and program name is used in JCL generation. Mnt no. on the report Request File is read and an appropriate program is invoked.

R1 - For example, labor-cost-ytd or parts-cost-ytd fields on the equipment file are zeroed to start next year's processing.

R2 - Move history file records to a tape and purge the history file to start next year's processing.

R3 - Entry-ref-no field and freeze-no field on the table file are zeroed for next day's processing. This maintenance should be cyclical.

R4 - Report request records on the report request file are reviewed. The records are deleted or their next run dates (cyclical report request record) are rescheduled, if the records show successful performance of report generation (report status field of the records contain an '8'). Similar functions for the maintenance request records on the report request file are initiated by a hard-coded JCL card (MSD004P1). Note that maintenance jobs are executed following report generation jobs.

R5 - Items transferred to the history file are items whose records were deleted from the equipment file during the online session for equipment file update transactions. a report is written for these items. this is a daily cyclical maintenance.

R6 - This deletes the transactions from the Daily Trans File.

R7 -This is for monthly updating for the availability status code records on the Control File. Each center has 4 records by the codes (a, b, c, and d). The equipment file is read and items are counted by the codes and cost for equipment is also accumulated by the codes. The statistical records are updated monthly.

R8 - Resetting of the monthly Transaction File for next month's processing.

R9 - Utility function to interface NEMS with other existing financial system. Some specific installations perform this maintenance.

R10-Same as above.

R11 -Resetting the Global Transaction File for next month's processing.

R12 - Purge all records from the transfer file that have been previously added to the Equipment File.

R13 -Delete all Transfer File records where the receiving installation account is the same as the sending.

6.3.3 Routine Maintenance Jobs (Batch)

Routine maintenance jobs are for those maintenance functions which will be executed whenever NEMS batch processing is performed. The maintenance functions are executed by JCL cards hard-coded in the job stream. The routine maintenance jobs are as follows:

<u>Program</u>	<u>Maintenance Name</u>	<u>Remarks</u>
MSD001P1	Copy Daily Trans To Monthly Trans	S1
MSD004P1	Daily Maintenance Request Reset	S2
MSD005P1	NEMSp rint Program	S3
MSD008P7	Daily Transaction Extract	S4
MSD008P8/9	Transfer File Update	S5
JCLCHKP1	Control Value Reset	S6
JRNRPTP1	NEMS Journal Report	S7
JRNCLRP1	Journal File Clear Program	S8
JCLGENP1	Batch Job Control	S9
INVBCHP1	inventory batch processing driver	S10

S1 - Reset the Daily Transaction File. Copies the NEMS daily transactions to the Monthly Transaction File, deleting them from the Daily Transaction File. Performed during Edit/update Process (before report generation and maintenance processing).

S2 - Delete completed on-request maintenance records from the Report Request File, and resets the cyclical maintenance records for their next anniversary date.

S3 - Query the Daily Transaction File, and print (Form 1602) for every transaction where a NEMS1 was requested. This function is performed during Edit/update Process (before daily resetting).

S4 - Extract daily transaction records and transmit via NDM to central data base (NASA HQ).

S5 - Update the Transfer File with transfer data transmitted from the central data base (NASA HQ).

S6 - Reset control (status) switches on the control record of the Control File. checks also for the completion of all report jobs.

S7 - Write journal report from the Journal File (Work File 2).

S8 - Clears the Journal File for next batch processing.

S9 - Reset control (status) switches for next batch processing

S10 - Initiates the inventory processing in batch.

**For the last portion of maintenance processing, resetting control switches (JCLGENP1) is performed first, followed by journal report writing (JRN RPTP1) and Journal File clearing (JRNCLR P1).

6.3.4 Other maintenance related programs (Batch and Online)

Other maintenance related programs are as follows:

PROGRAM	DESCRIPTION	REMARKS
JCLGENP1	JCL generator program, and also Batch control program. Queries the control record and submits appropriate JCL to the internal reader (Work File 1), or calls JCLGENP2 (for report jobs) or JCLGENP3 (for maintenance jobs).	Batch
JCLGENP2	JCL generator for reports, submits the report JCL to 1 the internal reader.	Batch
JCLGENP3	JCL generator for maintenance, submits the maintenance JCL to the internal reader.	Batch
JCLGENP4	JCL generator for global trans., submits the global trans. JCL to the internal reader.	Batch
JCLCHKP1	Control file batch utility. Used to set the control record status switch when a natural program is not used, also checks for completion of all report jobs.	Batch
JRN RPTP1	Journal report - formatted listing of the NEMS Daily Journal File. Writes batch processing messages.	Batch

JRNCLRP1	Journal file clear program resets the NEMS Daily Journal File at the end of a run.	Batch
MNT000P1	Main Maintenance Menu Program	Online
MNTUIDP1	USERID Table Update Program	Online
MNTLSTP1	Cyclical Maintenance List Program	Online
MNTSELP1	On-Request Selection Menu Program.	Online
MNTSUBP1	Alter Scheduled Maintenance Program.	Online
MNTCHGP1	Maintenance Cycle Update Program.	Online
MNTJCLP1	Control File Update Menu Program.	Online
MNTJCLP2	JCL Record List Menu Program.	Online
MNTJCLP3	Control Record List Menu Program.	Online
MNTJCLP4	Status Code Summary Record List menu program.	Online
MNTTBLP1	Maintenance Name Table Update Program (S08-Maintenance Name Table).	Online
MNTADHP1	Maintenance Name Table (S08 Table) list program	Online
MNTIUIP1	Inventory USERID Table Update program	Online

6.4 MAINTENANCE JOB GENERATION PROCESS

Maintenance functions can be executed either by requesting them through the Report Request File (online), or by providing necessary JCL cards in the job stream. Any way, maintenance functions are performed primarily through batch processing, though there are some functions which can be performed entirely through online processing.

JCL's for maintenance jobs are generated by the third JCL generator program (JCLGENP2). The batch control program (JCLGENP1) fetches (calls) the maintenance JCL generator program (JCLGENP3) for maintenance jobs. The maintenance JCL generator program simply terminates after generating a JCL stream for maintenance processing. But the generated JCL contains a card, toward the end of the job stream, which calls (executes) the control program

(JCLGENP1), in order to turn control back to the control program. The JCL check program (JCLCHKP1, a utility program) helps control the process of maintenance batch processing.

The JCL generating function of the maintenance JCL generator program (JCLGENP3) will be described here briefly. the overall JCL structure for NEMS batch processing will be explained later.

The maintenance JCL generator program (JCLGENP3), once called, reads the Control File (NEMS-control), and extracts all JCL records with an 'x' in their maintenance control switches (control-11, 25th column of the record) one by one. each extracted record is checked to decide whether to write a JCL card into the internal reader directly from the record or to adjust the record and write a JCL card into the internal reader, or to discard the record totally.

Most of the extracted maintenance JCL records ('x' in their control-11 fields) are submitted (their card portions) without any adjustment. For example, the job card, the execution card, dd cards for system files and standard system work files, and program name cards for routine maintenance jobs (see item 3 above, programs to be executed whenever batch processing is performed) are all included in the category. These fixed or constant type (hard-coded JCL cards) of JCL records are identified by the value of the control key field (programs JCLCHKP1, TRN062P0, MSD005P1, MSD001P1, MSD004P1 JRNRPTP1, JCLGENP1 and JRNLRP1 are all hard-coded).

There is one standard JCL record for selective maintenance jobs which are executed according to requests (either cyclical or on-request) logged on the Report Request File. When the maintenance JCL generator program (JCLGENP3) encounters this record, it then reads the Report Request File and submits appropriate program name cards for all selective maintenance requests after copying and adjusting the standard JCL record. The standard JCL record is distinguished from other cards, because the card is unique. The record has JCLMAINT' in its control key field and 'MSZ099P1' in its JCL-card field (JCL card columns 1 to 8, or record columns 27 to 34).

For example, the program name to be executed can be changed from the 'MSZ099P1' to 'MSD002P1' (entry reference/freeze number reset), changing the third character and two characters in the fifth and sixth positions. The change is made according to the selective maintenance request. In this example, the report (maintenance) number field of the maintenance request records (on the Report Request File) has the maintenance number of 'D02'. The character 'z' in the maintenance program name is replaced by the 'd' from the maintenance number, and the '99' is replaced by the '02'. In this way, all necessary program name cards for selective maintenance jobs are supplied.

JCL program work files are also selected using the report (maintenance) numbers of maintenance request records. If a JCL record has an 'x' in its control-11 field (the 25th position) and 'JCLMS' in its first 5 positions of the control key field, then next 3 positions of the control key field is checked against the maintenance request record on the report request file whose report (maintenance) number matches the last 3 positions of the control key field. If a matching record is found, then the JCL card is submitted from the JCL record. The JCL card is for a program work file.

For example, if a JCL card has a value 'JCLMSM02' in its control key field, The JCL generator program (JCLGENP3) checks the Report Request File to see if the file has a record whose report (maintenance) number is 'm02' (Monthly Transaction File to tape and purge). If the JCL generator program (JCLGENP3) finds the maintenance request record, then a JCL card is generated from the JCL record. In this example, JCL cards for the work file 4 are submitted.

The basic concept of the maintenance job generation process for the NEMS system was described here briefly. If the JCL generator program (JCLGENP3) and the job stream are studied closely, then JCL generating process should be understood more clearly. Note that a series of maintenance functions are performed in one job for the NEMS maintenance batch processing, though separate maintenance functions are often mentioned as 'jobs' when describing this portion.

6.5 NEMS BATCH PROCESSING

6.5.1 Control For Batch Processing

NEMS batch processing is initiated by running the NEMS batch control program (JCLGENP1). The control program is run by submitting the JCL prepared for this purpose. JCL used under the ADABAS-natural environment is actually standardized, and easily understood.

The NEMS batch control program (JCLGENP1), once initiated, controls the whole process of NEMS batch processing. The program checks the control switches on the control record of the Control File. The program looks through the control switches one by one starting from the first control switch (control-1) the last control switch (control-12).

The batch control program (JCLGENP1) initiates one of 12 categories of processing, if the program finds any of their control switches has a value of '1' (job is scheduled) or '2' (job has started). A control value of '2' means that a category of processing started, but terminated before concluding that category of processing. The control program (JCLGENP1) restarts that category of processing when it has been terminated before concluding all processing.

Currently, 4 categories of processing are performed for NEMS batch processing. They are Edit /update processing, Global transaction processing, Report generation processing, Maintenance processing, and their control switches (control-3 for edit/update, control-4 for global transactions, control-6 for report generation and control-11 for maintenance) are set to '1' (job is scheduled) at the start of batch processing. The other 9 control switches are set to '0' (job is not scheduled) at all times.

The batch control program (JCLGENP1) naturally initiates edit/update processing first. This processing includes NEMS (Form 1602) printing (MSD005P1) and daily transaction printing (MSD005P1) and daily transaction copy/purge copy/purge (MSD001P1) processing. These processes are hard-coded in the JCL to be performed always prior initiating other categories of processing.

On starting Edit/update processing the control switch (control-3) is reset from '1' to '2' by the JCL check program (JCLCHKP1). If the whole process of Edit/update processing was performed successfully, then the JCL check program (JCLCHKP1) reset the control switch from '2' to '8' (job ended normally). If processing ends abnormally, then the JCL check program (JCLCHKP1) resets the control switch from '2' to '9' (job ended abnormally). If processing terminates for some other reason, then the control value remains as '2'. resetting a control value is performed using JCL job steps. either way control goes back (hard-coded in the JCL) to the batch control program (JCLGENP1).

The batch control program (JCLGENP1) checks the control switches again. The program may find the control value of the control-3 field (Edit/update processing switch) either '8', '9' or '2'. If the value is '8', then control goes to next category of processing. The control program initiates Global Transaction Processing. If the value shows '9', then the control program (JCLGENP1) terminates processing after writing a journal message which indicates an abnormal termination. All batch processing stops here. If the value indicates '2', then the control program restarts edit/update processing. the entire process of edit/update processing is performed as one job.

Controlling the category of global transaction processing is performed in a similar manner as that applied for edit/update processing. But, on global transaction processing, each global transaction is performed as one job. since many globals can be requested, the global transaction process may initiate a large number of global jobs. The batch control program (JCLGENP1) fetches (calls) the global generation program (JCLGENP4) when the control program initiates global transaction processing. Once control is given to the global generation program (JCLGENP4), the program generates separate jobs continuously until all jobs for globals requested on the Global Transaction File

have been generated. The global generation program (JCLGENP4) resets the control-4 field from '1' to '2' when it has generated the JCL for the first job.

Each job generated runs independently. Control goes back to the control program (JCLGENP1) only when all jobs have been generated and executed successfully. In order to check whether all jobs for global requests were generated and executed successfully, the JCL check program (JCLCHKP1) checks the global transaction file at the end of each job. If the JCL check program (JCLCHKP1) finds a global request that has not yet been processed, the job ends. If the JCL check program finds all global requests on the Global Transaction File have been processed successfully (this should be the last global job where JCLCHKP1 was run), then the program resets the control-4 from '2' to '8', and fetches the batch control program (JCLGENP1), returning control back to the control program.

If one of the global jobs fails during processing, the job ends abnormally after writing a journal message. But the next global job is executed, because each of the global jobs is independent. In this case, however, the JCL check program (JCLCHKP1) simply terminates even though the program was running for the last global job, because the global request on the Global Transaction File indicates the corresponding job was run but unsuccessful. Since the last global job terminated without returning control to the batch control program (JCLGENP1), the batch processing stops at the end of global request processing. In order to continue batch processing (to process reports) manual adjustments are needed.

If Global Generation Processing was executed successfully, and control went back to the batch control program (JCLGENP1), then the program checks the control switches again. If everything is successful up to now (both the control-3 and the control-4 fields carry '8'), then the control program (JCLGENP1) initiates the next category of processing. NEMS report processing is initiated by fetching program JCLGENP2. Report processing is identical to global processing. NEMS maintenance processing is initiated by fetching (calling) the maintenance generation program (JCLGENP3) after report processing has successfully completed.

Various maintenance functions are performed as one job. Control goes back to the batch control program (JCLGENP1) automatically (hard-coded in the JCL) after processing maintenance functions, even if part of the job failed during processing. These features are similar to that of edit/update processing. The maintenance generation program (JCLGENP3) generates one job for various maintenance functions. The JCL check program (JCLCHKP1) is submitted soon after the maintenance generator program (JCLGENP3) starts extracting JCL cards. The JCL check program simply resets the control-11 (control switch for maintenance processing) from '1' to '2'.

The maintenance generation program (JCLGENP3) next submits all selective maintenance programs, according to the maintenance request records on the Report Request File. If all requested maintenance functions were performed properly, then the maintenance request records are reset by the maintenance request reset program (MSD004P1) and the control-11 is reset from '2' to '8' by the JCL check program (JCLCHKP1). Resetting report request records on the Report Request File is performed as a part of selective maintenance.

If a part of maintenance processing fails, then a journal message indicating the failure is created and the control-11 is reset from '2' to '9' by the JCL check program (JCLCHKP1).

Control goes back to the batch control program (JCLGENP1) whether all processing was successful or not. The control program again checks control switches. If all switches show '0' or '8' the control program resets the control-3 (edit/update), the control-6 (report generation) and the control-11 (maintenance) from '8' to '1' in order to prepare for the next day's batch processing. If any one of the switches shows '9' then the control program (JCLGENP1) simply terminates processing after writing a message indicating the failure.

6.5.2 JCL Structure For Batch Processing

The standardized JCL structure was developed for NEMS batch processing. there are four steps (NEMSNAT1, NEMSNAT2, NEMSNAT3 and NEMSNAT4) for each job. All steps contain identical system JCL cards, and each step contains additional JCL cards which are necessary in processing for the step (See Attachment #3).

The four job steps are designed to help control NEMS batch processing. The Main processing step is the first step (NEMSNAT1 step). The other three steps are provided mainly for control purposes.

Every job executes step 1 (NEMSNAT1) and step 4 (NEMSNAT4). In addition, step 2 (NEMSNAT2) is executed if processing was successful in step 1. Step 3 (NEMSNAT3) is executed if processing was not successful in step 1. In another word, if processing step 1 was successful then step 2 and step 4 are executed, and if processing in step 1 was not successful then step 3 and step 4 are executed. This is controlled by the condition parameter on the execution cards.

Briefly speaking, each step contains the execution card, system file cards, cards for output devices and work file cards. following are a few more system related cards, there are program name cards at the end portion of each step. The program name cards actually call their respective programs.

In order to understand the four job steps quickly, note that the first step (NEMSNAT1 step) first calls the JCL check program (JCLCHKP1) and lets the

program reset control switches from '1' to '2' (job has been started), and calls other programs for various processing. If processing in the first step was successful, then the second step (NEMSNAT2 step) is executed. In the second step, the JCL check program (JCLCHKP1) is again calls in, and the program resets control switches from '2' to '8' this time, because the first step (main processing step) was successful. If the step was not successful, then the second step is first skipped.

If processing in the first step was not successful, then the third step is executed. In the third step the JCL check program (JCLCHKP1) now resets control switches from '2' to '9' indicating processing in the first step was unsuccessful. If the first step was successful the third step is skipped.

The last step (the fourth step, NEMSNAT4) is mainly for giving control back to the batch control program (JCLGENP1), writing the journal report and clearing the journal file. The purpose and the general structure of the four job steps were explained above. Now each step will be explained more in detail.

Before getting into step 1, job cards will be reviewed briefly. Instantly the first job card is recognized as one to be used for the edit/update job, because the control-3 field contains an 'x' and also the job name is to be 'NEMSDUP'. Similarly the second job card is used for global jobs, because the control-4 field has an 'x' and the nature of the job name. The third job card is used for reporting jobs, because the control-6 field has an 'x' and the job name is to be 'NEMSR999'. Since each reporting program generates a job, the last 3 characters of the reporting job name (999) will be replaced by the 4 to 6th characters of a program name (for example, 010) to be executed. This is done by the report generation program (JCLGEN2). The third job card is extracted by the maintenance generation program (JCLGEN3) and used for the maintenance job, because the control-11 field contains an 'x' (see below)

3	4	6	11	JCL Card Image
X				//NEMSEDUP Job (Account numbers), 'NEMS',Class=A,
	X			//NEMSGL99 Job (Account numbers),'NEMS',Class=A,
		X		//NEMSR999 Job (Account Numbers),'NEMS',Class=A,
			X	//NEMSMNT Job (Account Numbers),'NEMS',Class=A,
X	X	X	X	// Msgclass=A,Msglevel=(1,1)

Now, JCL cards for the first step (NEMSNAT1) will be reviewed. There is an execution card followed by cards for system files, sort files, output devices, 10 work files, system related files and program name cards. The last card for the step (fin) also a system related card.

The execution card is used to initiate a system program, which will provide the interface between ADABAS, natural and natural programs. The card also indicates that the job should be executed using the production system. The JCL used here for explanation is for production. The steplib card indicates the load library which has the system programs. The steplib card is followed by a dd card named (dd name) ddcard. This card is for additional parameters to be used by the system programs. These cards are always used and for all steps (see 01 below).

3	4	6	11	JCL Card Image	
X	X	X	X	//NEMSNAT1	Exec Pgm=Natdemo,Parm='Sys=Prod'
X	X	X	X	//STEPLIB	DD DSN=Natural.VXXX.Load,Disp=Shr
X	X	X	X	//DDCARD	DD DSN=NEMS.Lib.Data(NATDEMOM),Disp=Shr

The next 5 data sets are system files. These files are used for providing the data base system work files. The first file named (dd name) DDASSOR1 is the data base association file used for the inverted lists. The second file named DDATAR1 is the data base file used for ADABAS files. The data file is followed by 3 system work files named (dd name) DDWORKR1, DDTEMPR1 and DDSORTR1. These cards are used for all 4 steps (see below).

3	4	6	11	JCL Card Image	
X	X	X	X	//DDASSOR1	DD DSN=Adabas.VXXX.Prod.Asso,Disp=Shr
X	X	X	X	//DDDATAR1	DD DSN=Adabas.VXXX.Prod.Data,Disp=Shr
X	X	X	X	//DDWORKR1	DD DSN=Adabas.VXXX.Prod.Work,Disp=Shr
X	X	X	X	//TEMPR1	DD DSN=Adabas.VXXX.Prod.Temp,Disp=Shr
X	X	X	X	//DDSORTR1	DD DSN=Adabas.VXXX.Prod.Sort,Disp=Shr

The following 5 cards are for sort processing. There is a sort library card which tells the data set where the system sort program is located. Four sort work files are requested in order to provide sort work space. These cards for sort processing are also used for all 4 steps (see below).

3	4	6	11	JCL Card Image	
X	X	X	X	//SORTLIB	DD DSN=Sys1.Sortlib,Disp=Shr
X	X	X	X	//SORTWK01	DD Unit=Sysda,Space=(Cyl,10)
X	X	X	X	/SORTWK02	DD Unit=Sysda,Space=(Cyl,10)
X	X	X	X	//SORTWK03	DD Unit=Sysda,Space=(Cyl,10)
X	X	X	X	//SORTWK04	DD Unit=Sysda,Space=(Cyl,10)

The sort processing files are followed by several cards for output devices. The first card is the system output card used by the system. The next 4 cards are used by natural programs. the first 2 cards named (dd name) CMPRINT are for default printers the next 2 cards named CMPRT04 are for specific printers which can be specified in natural programs. These cards for output devices can be adjusted and used when necessary.

3	4	6	11	JCL Card Image	
X	X	X	X	//SYSOUT	DD Sysout=A(Printer)
X	X	X	X	//CMPRINT	DD Sysout=1,Copies=(Xerox)
		P		//CMPRINT	DD Sysout=A,Copies=(Printer)
X	X			//CMPRT04	DD Sysout=(C,,1602),DCB=Blksize=84 (Special Form)
X	X			//CMPRT05	DD Sysout=(C,,1342),DCB=Blksize=84 (Special Form)

The next 10 cards are program work files. They are non-data base files used for processing. The work files are described in part I (general framework), but it is useful to review them here briefly.

- I. Work File 01 - Internal Reader
- II. Work File 02 - Disk File For Journal Message
- III. Work File 03
 - A. Same File As Work File 02 when used by JRNCLRP1

- B. Generation (0) tape for monthly transaction when used by MSM002P1
- IV. Work File 04 - Generation (+1) Tape For Monthly Transaction
- V. Work File 06 - Generation(+1) Tape For Monthly Global Transaction
- VI. Work File 06 - Transaction Transfer Data Set
- VII. Work File 07 - Temporary Work File Used In Extracting Status Code Data By RPT700P1 and MSM001P1
- VIII. Work File 08 - Generation (+1) Tape History Purge
- IX. Work File 09 - Temporary Disk Work File For Global Change Processing
- X. Work File 10 - Temporary Disk Work File For Global Change Processing
- XI. Work File 12 - Transfer Disk Data Set
- XII. Work File 13 - Temporary Disk Work File For Transfer

JCL cards for these work files are as follows:

```
// CMWKF01 DD Sysout=(A,Intrdr),DCB=Blksize=80
// CMWKF02 DD DSN=NEMS.NHQ.Journal,Disp=(Mod,Pass)
// CMWKF03 DD Dummy,DCB=Blksize=562 (Dummied Out, data is not
accumulated)
// CMWKF04 DD DSN=NEMS.Prod.Month.Trans(+1),Disp=(New,Catlg>Delete),
//   DCB=(SYS1.Gdgmodel,Recfm=Fb,Lrecl=562,Blksize=5620),
//   UNIT=Tpaehi,Label=Eepdt=99000
// CMWKF06 DD DSN=NEMS.Prod.Global.Trans(+1),Disp=(New,Catlg>Delete),
//   DCB=(SYS1.Gdgmodel,Recfm=Fb,Lrecl=528,Blksize=5280),
//   UNIT=Tapehi,Label=Expdt=99000
// CMWKF06 DD DSN=NEMS.NHQ.Transfer.Data,Disp=Mod
// CMWKF07 DD DSN=&&NEMSWRK7,Disp=(,Delete), (Used By RPT700P1)
//   UNIT=SYSDA,Space=(Cyl,(1,1)),DCB=Blksize=140
// CMWKF07 DD DSN=&&NEMSWRK7,Disp=(,Delete),
//   DCB=(Recfm=Fb,Lrecl=140,Blksize=1400),
//   UNIT=Sysda,Space=(Cyl,(1,)) (Used By MSM001P1)
// CMWKF08 DD DSN=NEMS.Prod.Hist.Archive(+1),Disp=(New,Catlg>Delete),
//   DCB=(SYS1.Gdgmodel,Recfm=Fb,Lrecl=721,Blksize=7210),
//   UNIT=Tapehi,Label=Expdt=99000
// CMWKF09 DD DSN=&&NEMSWRK7,Disp=(,Delete),
//   UNIT=Sysda,Space=(Cyl,(1,1)),DCB=Blksize=2610
// CMWKF10 DD DSN=&&NEMSWK10,Disp=(,Delete),
```

```
// UNIT=Sysda,Space=(Cyl,(1,1)),DCB=Blksize=3600  
// CMWKF12 DD DSN=NEMS.Prod.Transfer,Disp=Shr  
// CMWKF13 DD DSN=&&NEMSWK10,Disp=(,Delete),  
// UNIT=Sysda,Space=(Cyl,(10,5)Rlse),  
// DCB=(Recfm=Fb,Lrecl=240,Blksize=1920)
```

Following the cards for work files, there are a few system related data cards followed by program name cards and a 'fin' statement for terminating the natural session. These data cards are preceded by a dd* card which indicates that input data will follow. First few data cards are for information needed initiating an online natural session (natural logon process). The NEMS,userid card is used to supply the application id (NEMS) and the user id (USERID). The password card is for supplying the password for the USERID while the %* card is used to suppress the printing of the password that is entered.

```
//CMSYSNIN DD *  
NEMS,USERID  
%*  
PASSWORD
```

The next JCL cards are program name (input for running the program) cards. The first program to be run is the JCLCHKP1. The program is to run resetting control-3 (edit/update) and control-11 (maintenance) from '1' to '2' (the job has started). Resetting control-6 (report generating) is performed by the report generation program (JCLGENP2). The second program is the TRN062P0. This program runs during the edit/update processing whenever batch processing is performed, because the program name is hard-coded here.

The third program is the MSD005P1. This program always runs during the edit/update processing. The next 2 program names are somewhat different. The RPT99P1 is used for report generation. The report generation program replaces the 4th to 6th characters using a report number from the Report Request File Record. For example, the program name may be changed to RPT010P1. The program name for selective maintenance is provided in a similar manner. The maintenance program name MSZ099P1 is adjusted by the maintenance generation program (JCLGENP3). The program replaces the 3rd, 5th and 6th characters. The program uses a maintenance number from a maintenance request record of the Report Request File. For example, the maintenance program name may be changed to MSD003P1. Note that these 2 cards are used repeatedly.

The last program name card is for initiating MSD001P1 which is to run during the edit/update processing. This program runs always, because the program name is hard-coded here. the last card for the first step is the fin card. This fin

statement is used to terminate the natural session. After executing all programs the natural session initiated in this step is terminated.

3	4	6	11	JCL Card Image
X				JCLCHKP1 UTIL 01 2
			X	JCLCHKP1 UTIL 11 2
	X			TRN062PA
	X			RPT999P1
		X		MSZ099P1
X				MSD001P1
X	X	X	X	FIN

Only 2 programs JCLCHKP1 and MSD004P1 are to run in the second step (NEMSNAT2). As described above, the first step (NEMSNAT1) is the Main Processing Step, and the other steps are provided for controlling or housekeeping purposes. All system files used for step 1 are used for step 2. since step 2 is executed only when the processing in step 1 was successful, the JCLCHKP1, this time, resets control switches from '2' to '8' (job ended normally) and MSD004p1 resets the maintenance request records on the Report Request File.

The step 3 (NEMSNAT3) also execute only 2 programs (JCLCHKP1 and JRNRPTP1). Since step 3 is executed only when the processing in step 1 (Main Processing Step) was unsuccessful, the (JCLCHKP1 now resets control switches from '2' to '9' (job ended abnormally) and the JRNRPTP1 prints a journal report.

The step 4 (NEMSNAT4) is always executed for controlling and house-keeping. Programs such as the JCLGENP1 (batch control program), JCLCHKP1, JRNRPTP1 and JRNCLRP1 are executed in the listed order. The JCLGENP1 again checks control switches on the control record, resets the switches and terminates. JCLCHKP1, this time, works for report generation processing. The program checks whether all reporting jobs are through. If all reporting jobs were completed successfully, then the JCLCHP1 fetches the JCLGENP1 after resetting the control switch for report generation processing from '2' to '8'. Otherwise, the program terminates. The JRNRPTP1 prints the journal report from the journal file which will explain all process of job execution. The JRNCLRP1 clears the journal file for the next day's processing and terminates.

7. STAND ALONE PROGRAMS

7.1 STAND ALONE PROGRAM FUNCTIONS

There are several programs that are not a part of the NEMS Online or Batch Systems. These 'stand alone' programs are used to perform specific functions usually related to a recovery procedure (eg. MSX005P1 - 1602 Printing from the Monthly Transaction File). The programs are intended to be used by the NEMS System ADP Support Staff. Though many of programs can be executed online, the use of work files and secondary print files restrict other programs to batch processing.

In the following sections each program is identified and described. The description will include: the nature of the program, input and output files, whether the program can be executed online and any special considerations. An index has been provided to assist in locating the individual programs.

7.2 INDEX OF STAND ALONE PROGRAMS

<u>PROGRAM ID</u>	<u>CATEGORY</u>	<u>ONLINE/ BATCH</u>	<u>COMMENTS</u>
CON321EE	4	BATCH	EXTRACT EQUIPMENT FILE FOR 3.2.1
CON321EH	4	BATCH	EXTRACT HISTORY FILE FOR 3.2.1
CONV32EQ	4	BATCH	EQUIPMENT FILE CONVERSION FOR 3.2
CONV32HS	4	BATCH	HISTORY FILE CONVERSION FOR 3.2
CONV32BC	4	BATCH	BAR CODE FILE CONVERSION FOR 3.0
CONV30BC	4	BATCH	BAR CODE FILE CONVERSION FOR 3.0
CONV30DS	4	BATCH	DAILY TRANS FILE CONVERSION FOR 3.0
CONV30EQ	4	BATCH	EQUIPMENT FILE CONVERSION FOR 3.0
CONV30HS	4	BATCH	HISTORY FILE CONVERSION FOR 3.0
CONV30IN	4	BATCH	INVENTORY FILE CONVERSION FOR 3.0
CONV30IS	4	BATCH	INV STATUS FILE CONVERSION FOR 3.0
CONV30MS	4	BATCH	MONTHLY TRANS FILE CONVERSION FOR 3.0
CONV30ND	4	BATCH	NMIS DAILY TR FILE CONVERSION FOR 3.0
CONV30NS	4	BATCH	NMIS SUMMARY FILE CONVERSION FOR 3.0
CONV30RP	4	BATCH	REPORT FILE CONVERSION FOR 3.0
CONV30TB	4	BATCH	TABLE FILE CONVERSION FOR 3.0
CONV30XF	4	BATCH	TRANSFER FILE CONVERSION FOR 3.0
DD1342	1	ONLINE	ONLINE 1342 PRINT (REGULAR)
DD1342R	1	ONLINE	ONLINE 1342 PRINT (ON REQ)
INVFIX30	4	EITHER	JCL FILE FIX FOR GLOBALS
JCLLSTP1	2	ONLINE	JCL FILE DISPLAY
JCLLSTP2	2	BATCH	JCL FILE LISTING

<u>PROGRAM ID</u>	<u>CATEGORY</u>	<u>ONLINE/ BATCH</u>	<u>COMMENTS</u>
JCLLSTP3	2	ONLINE	JCL FILE DISPLAY
JCLLSTP4	2	BATCH	JCL FILE LISTING
JCLUPDP1	2	ONLINE	JCL FILE UPDATE PROGRAM
JRNLSSTP1	2	ONLINE	ONLINE JOURNAL LIST
JRNLSSTP2	2	BATCH	BATCH JOURNAL LISTING
JRNUPDP1	2	ONLINE	JOURNAL TABLE UPDATE
M00063	4	EITHER	ZERO OUT DATE AVAILABLE FOR STATUS 'A'
MSD008P5	5	BATCH	MONTHLY TRANS EXTRACT TO CENTRAL
MSD008P6	5	BATCH	MONTH TRANS TAPE EXTRACT TO CENTRAL
MSX001P1	3	ONLINE	COPY TRANS TO PRIOR MONTH
MSX005P1	3	BATCH	1602 RECREATE
MSX006P1	3	BATCH	1602 RECREATE FROM TAPE
NEMS1	1	ONLINE	ONLINE 1602 PRINT (REGULAR)
NEMS1REQ	1	ONLINE	ONLINE 1602 PRINT (ON REQ)
NEMSLNUP	1	ONLINE	ONLINE 1602 LINEUP ROUTINE
TABLEUPD	4	BATCH	NEMS TABLE UPDATE PROGRAM

7.3 DESCRIPTION OF PROGRAM FUNCTIONS

7.3.1 FORMS PRINT PROGRAMS

<u>PROGRAM NUMBER</u>	<u>DESCRIPTION</u>
DD1342	ONLINE PRINT OF DD1342 FORMS. WILL CREATE DATA TO BE DOWNLOADED TO A PC FILE AND THEN DUMPED TO THE PC PRINTER. WILL PROCESS FORMS ONLY FOR THE APPROPRIATE RECORDS DELETED BY A 67 TRANSACTION ON THAT DAY.
DD1342R	ONLINE PRINT OF DD1342 FORMS. WILL CREATE DATA TO BE DOWNLOADED TO A PC FILE AND THEN DUMPED TO THE PC PRINTER. WILL REQUIRE AN ECN TO BE INPUT FOR RECORD SELECTION PURPOSES.
NEMS1	ONLINE PRINT OF 1602 FORMS. WILL CREATE DATA TO BE DOWNLOADED TO A PC FILE AND THEN DUMPED TO THE PC PRINTER. WILL PROCESS FORMS ONLY FOR THE CURRENT DAYS TRANSACTION ACTIVITY.
NEMS1REQ	ONLINE PRINT OF 1602 FORMS. WILL CREATE DATA TO BE DOWNLOADED TO A PC FILE AND THEN DUMPED TO THE PC PRINTER. WILL REQUIRE AN ECN TO BE INPUT FOR RECORD SELECTION PURPOSES.
NEMSLNUP	1602 FOR LINE UP ROUTINE. WILL CREATE DUMMY DATA TO BE DOWNLOADED TO A PC FILE AND THEN DUMPED TO THE PRINTER. SHOULD BE USED TO DO THE INITIAL LINEUP OF THE 1602 FORMS BEFORE EXECUTING NEMS1 OR NEMS1REQ.

7.3.2 JCL AND JOURNAL UTILITY PROGRAMS

<u>PROGRAM NUMBER</u>	<u>DESCRIPTION</u>
-----------------------	--------------------

JCLLSTP1	ONLINE DISPLAY OF NEMS JCL FILE, THE JCL CARD IMAGE IS TRUNCATED TO FIT ON THE 80 CHARACTER DISPLAY SCREEN. IDENTICAL TO NEMS MAINTENANCE OPTION 7.
JCLLSTP2	BATCH REPORT OF NEMS JCL FILE, A 132 CHARACTER PRINT LINE RESTRICTS THE USE OF THIS PROGRAM TO BATCH.
JCLLSTP3	ONLINE DISPLAY OF NEMS CONTROL RECORDS. PERFORMS THE SAME FUNCTION AS NEMS MAINTENANCE MENU OPTION 1 8.
JCLLSTP4	ONLINE DISPLAY OF NEMS STATUS CODE RECORDS. PERFORMS THE SAME FUNCTION AS NEMS MAINTENANCE MENU OPTION 9.
JCLUPDP1	ONLINE UPDATE OF THE NEMS JCL FILE. PERFORMS THE SAME FUNCTION AS NEMS MAINTENANCE MENU OPTION 6.
JRNLSSTP1	ONLINE DISPLAY OF NEMS JOURNAL TABLE.
JRNLSSTP2	BATCH REPORT OF NEMS JOURNAL TABLE. 132 CHARACTER PRINT LINE RESTRICTS THE USE OF THIS PROGRAM TO BATCH.
JRNUPDP1	ONLINE UPDATE OF THE NEMS JOURNAL TABLE. ALLOWS YOU TO ADD, CHANGE OR DELETE JOURNAL MESSAGES.

7.3.3 DATA COPY AND FORMS RECOVERY PROGRAMS

<u>PROGRAM NUMBER</u>	<u>DESCRIPTION</u>
MSX001P1	COPY NEMS TRANSACTIONS FROM THE MONTHLY TRANSACTION TAPE TO A 'PRIOR MONTH' FILE. THE MONTHLY TRANSACTIONS ARE INPUT AS WORK FILE 1.
MSX005P1	RECOVER 1602 FORMS FROM THE MONTHLY TRANSACTION FILE. A JCL DD STATEMENT FOR 'CMPRT04' IS NEEDED FOR THE FORMS CREATION. THE PROGRAM HAS TWO INPUT PARAMETERS: START DATE AND STOP DATE (BOTH IN MM/DD/YYYY FORMAT). THE INPUT FILE IS THE NEMS MONTHLY TRANSACTION ADABAS FILE.
MSX006P1	RECOVER 1602 FORMS FROM THE MONTHLY TRANSACTION TAPE FILE. A JCL DD STATEMENT FOR 'CMPRT04' IS NEEDED FOR THE FORMS CREATION. THE PROGRAM HAS TWO INPUT PARAMETERS: START DATE AND STOP DATE (BOTH IN MM/DD/YYYY FORMAT). THE INPUT FILE IS THE NEMS MONTHLY TRANSACTION TAPE FILE (JCL DD 'CMWKF01').

7.3.4 SOFTWARE RELEASE RELATED PROGRAMS

<u>PROGRAM NUMBER</u>	<u>DESCRIPTION</u>
TABLEUPD	THIS PROGRAM ADDS, CHANGES OR DELETES RECORDS ON THE NEMS TABLE AS REQUIRED FOR A SOFTWARE UPGRADE. THIS PROGRAM SHOULD BE RUN IN BATCH SINCE A HARD COPY OF THE UPDATES WILL BE PRODUCED. THIS PROGRAM CAN BE REEXECUTED (THOUGH THE UPDATE RESULTS WILL DIFFER). ONCE THE TABLE UPDATES HAVE BEEN MADE FOR THE SOFTWARE UPGRADE, THIS PROGRAM SHOULD BE SCRATCHED.

7.3.5 TRANSACTION EXTRACT PROGRAMS

<u>PROGRAM NUMBER</u>	<u>DESCRIPTION</u>
MSD008P5	EXTRACTS RECORDS FROM THE MONTHLY AND GLOBAL TRANSACTION FILES AND TRANSMITS THEM TO THE CENTRAL DATA BASE; USED AS A BACKUP WHEN THE DAILY EXTRACT FAILS AND DATA IS LOST. THIS PROGRAM SHOULD BE RUN IN BATCH WITH A START AND STOP DATE,

MSD008P6 BOTH IN THE FORM YYYYMMDD. THE INPUT FILES ARE THE MONTHLY TRANSACTION FILE AND THE GLOBAL TRANSACTION FILE. RECORDS ARE WRITTEN TO THE INTERNAL READER (WORK FILE 1).
EXTRACTS RECORDS FROM THE MONTHLY TRANSACTION TAPE FILE AND THE GLOBAL TRANSACTION TAPE FILE AND TRANSMITS THEM TO THE CENTRAL DATA BASE; USED AS A BACKUP WHEN DAILY EXTRACT FAILS AND DATA IS LOST. THIS PROGRAM SHOULD BE RUN IN BATCH WITH A START AND STOP DATE, BOTH IN THE FORM YYYYMMDD. THE INPUT FILES ARE THE MONTHLY TRANSACTION TAPE FILE (WORK FILE 4) AND THE GLOBAL TRANSACTION TAPE FILE (WORK FILE 5). RECORDS ARE WRITTEN TO THE INTERNAL READER (WORK FILE 1).

8. MISCELLANEOUS PROCEDURES

8.1 GENERAL DESCRIPTION

There are procedures that do not fall into the realm of NEMS Online or Batch Systems. These procedures include such things as archiving NEMS data. Though these procedures are not part of the regular NEMS System, they are loosely supported through this document.

8.2 ARCHIVING NEMS DATA

A procedure to archive NEMS data for future use is explained here. The procedure consists of unloading the appropriate ADABAS file and using the archived data as a new ADABAS file.

1. FILE UNLOAD

- A. Schedule a File Unload with Your DBA - A file unload would have to be scheduled for each file. If the file is unloaded in decompressed format, report programs may be written against this data so that the file does not have to be reloaded as an ADABAS file.
- B. Produce a Copy of the Userview (DDM) - A copy of the data definition module (DDM) or userview of the file should be produced as a hardcopy, or unloaded and saved along with the unloaded data. This would be used as a reference when the file is reloaded. This can also serve as the file record layout if the data is not reloaded as an ADABAS file. Since the DDM changes from one release to the next, a copy of the DDM at the time of archival is a prudent measure.
- C. Note the File Parameters - Make a note of pertinent ADABAS parameters such as: file size, number of records, padding factors, size of indices. These parameters will be important when the file is reloaded.

I. FILE ACCESS WITHOUT A RELOAD

- A. Decompress the Data - If the file was unloaded in compressed format, it will have to be decompressed before it is used. Consult with your DBA on this.

- B. Load the Data to Disk - If the file was unloaded to tape and will be used more than a few times, it is a good idea to copy the data to a disk file. Disk access is faster and more efficient than tape access and the disk data can be deleted when finished.
- C. Code Programs - Any programming language can be used to code programs against this data. If NATURAL is used, the data is accessed as a work file. The DDM at the time of the if the unload would serve as the record layout.

II. FILE RELOAD

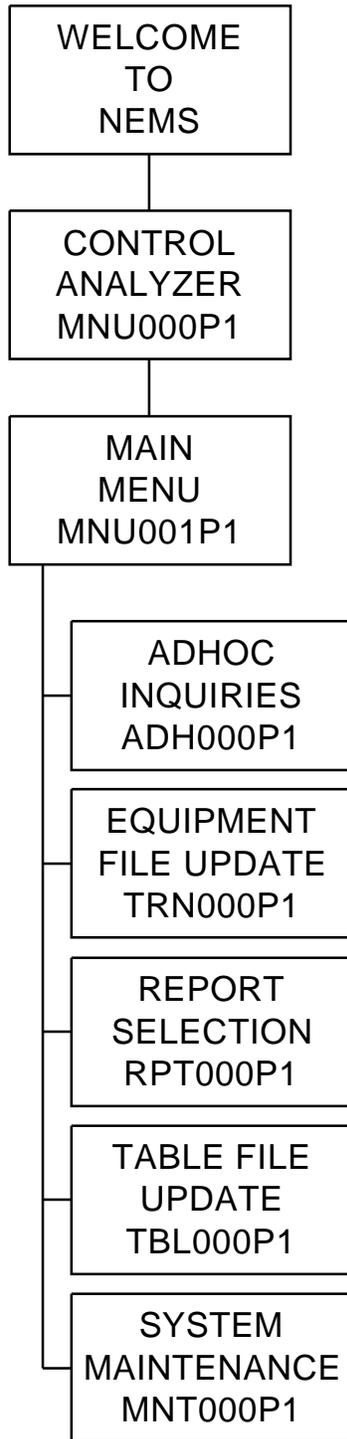
- A. Assign a New File Name (and Number) - Consult with your DBA on this item.
- B. Schedule a File Reload with Your DBA - This will in no way interfere with your normal NEMS processing.
- C. Produce a New DDM - A copy of the DDM for the file to be reloaded may be used. If any differences exist between this DDM and the DDM at the time of the unload, the copy of the DDM can be modified.
- D. Code or Modify Code to Access New File - If a copy of NEMS programs are used, make sure the appropriate file names are changed and any unneeded code is removed. Copies of the NEMS report programs can be made to access the archived data and be included in the normal NEMS overnight production. Please consult Headquarters to review this procedure.

APPENDIX A - ACRONYMS

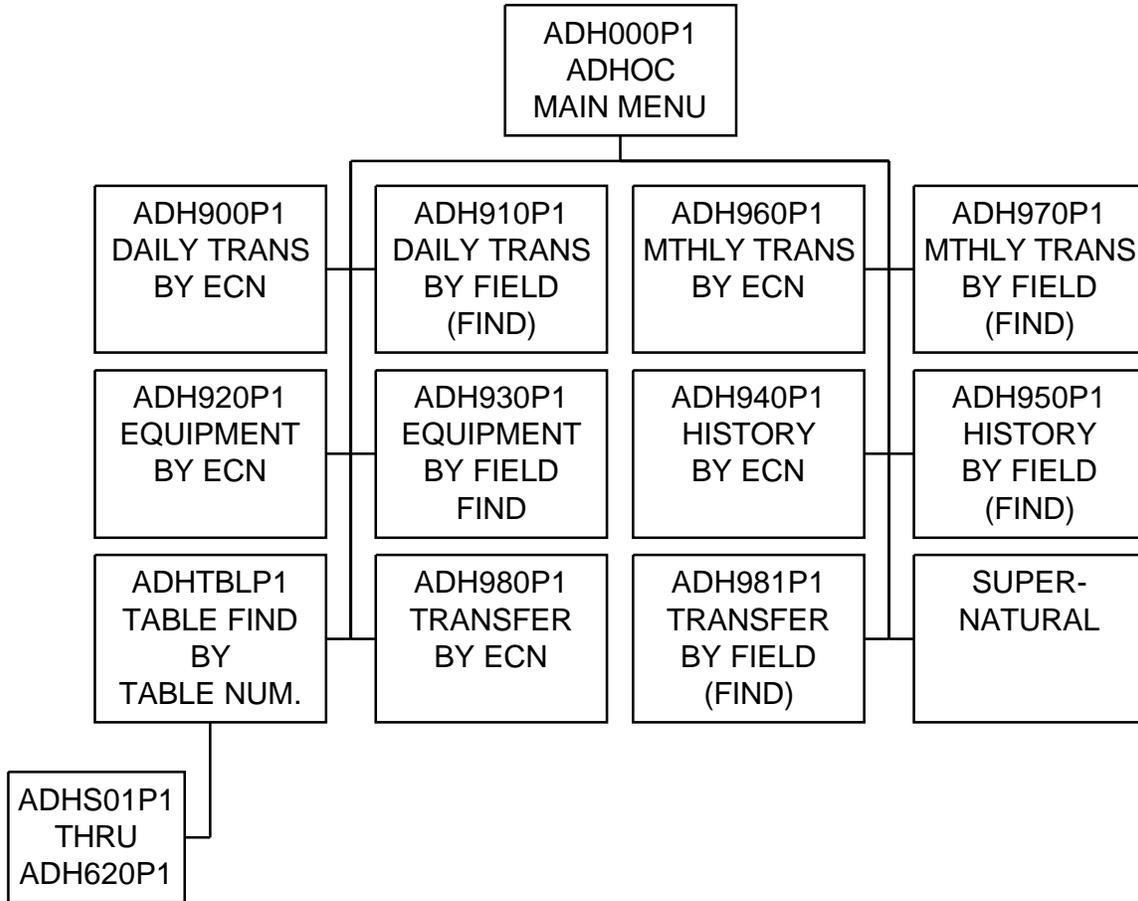
ADABAS	Adaptable Data Base
DBA	Data Base Administrator
DBMS	Data Base Management System
ECN	Equipment Control Number
ID	Identification
ISN	Internal System Numbers
JCL	Job Control Language
NASA	National Aeronautics and Space Administration
NEMS	NASA Equipment Management System
USERID	User Identification

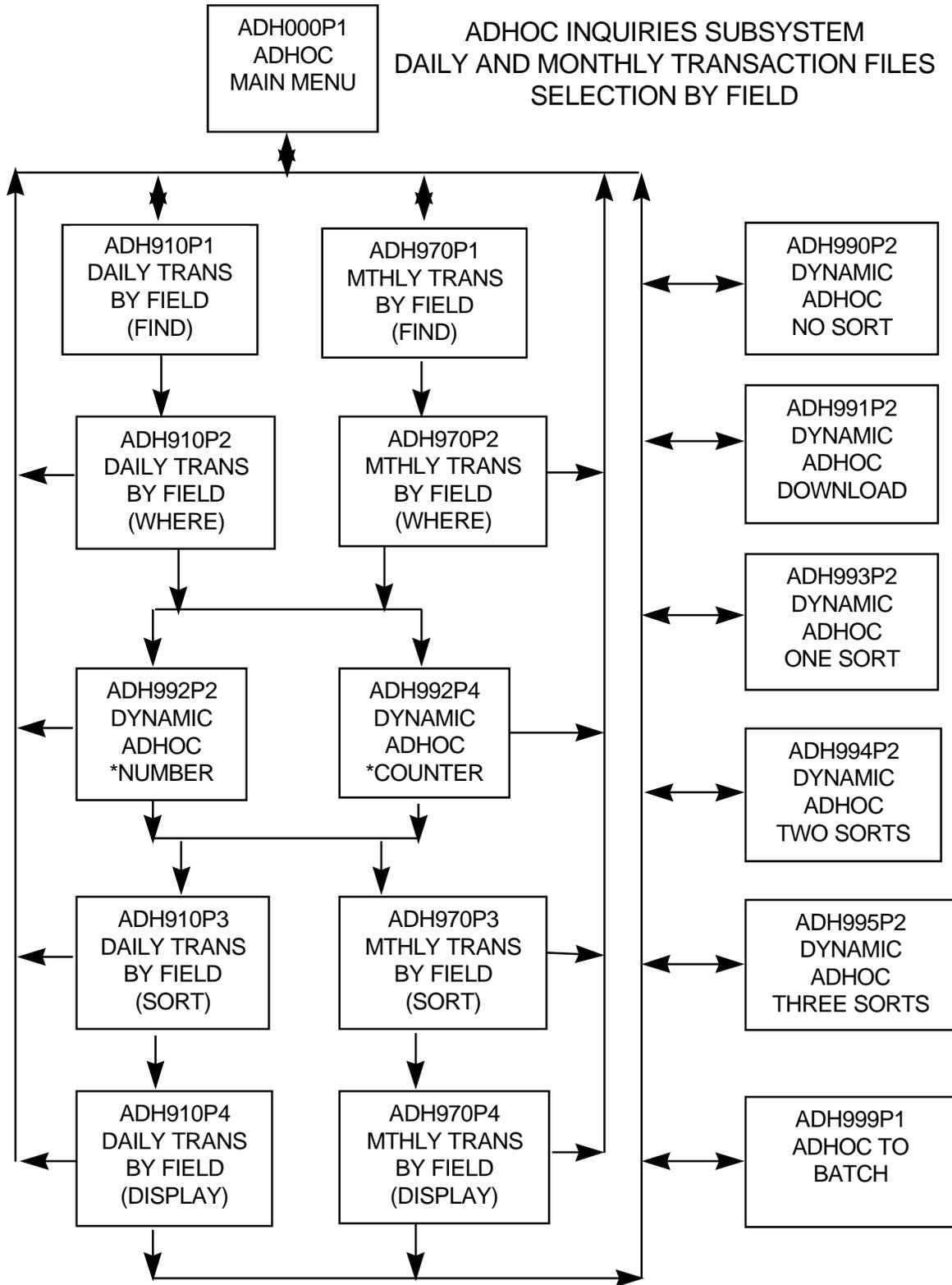
APPENDIX B - NEMS SYSTEM CHARTS

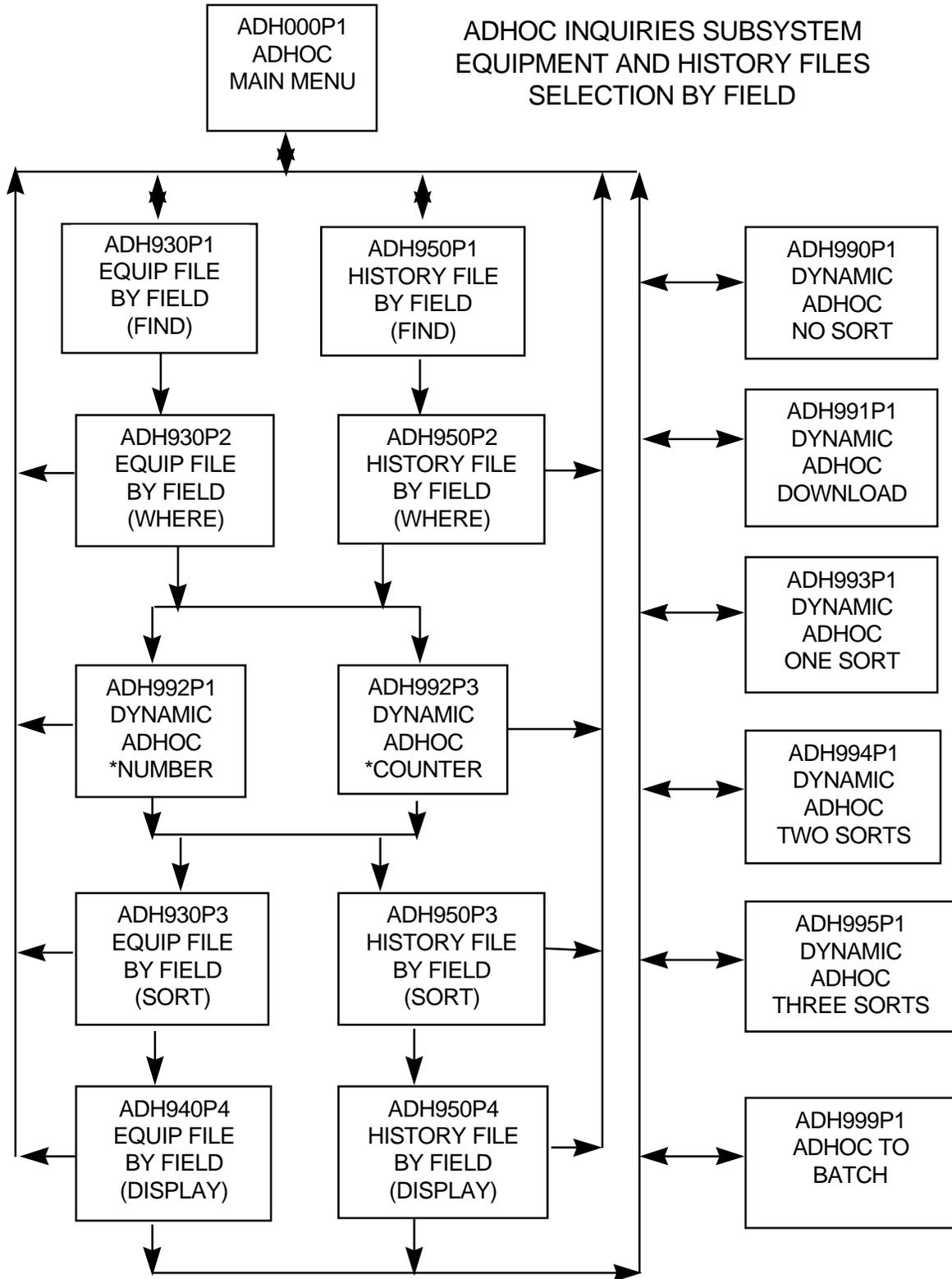
ONLINE PROCESSING



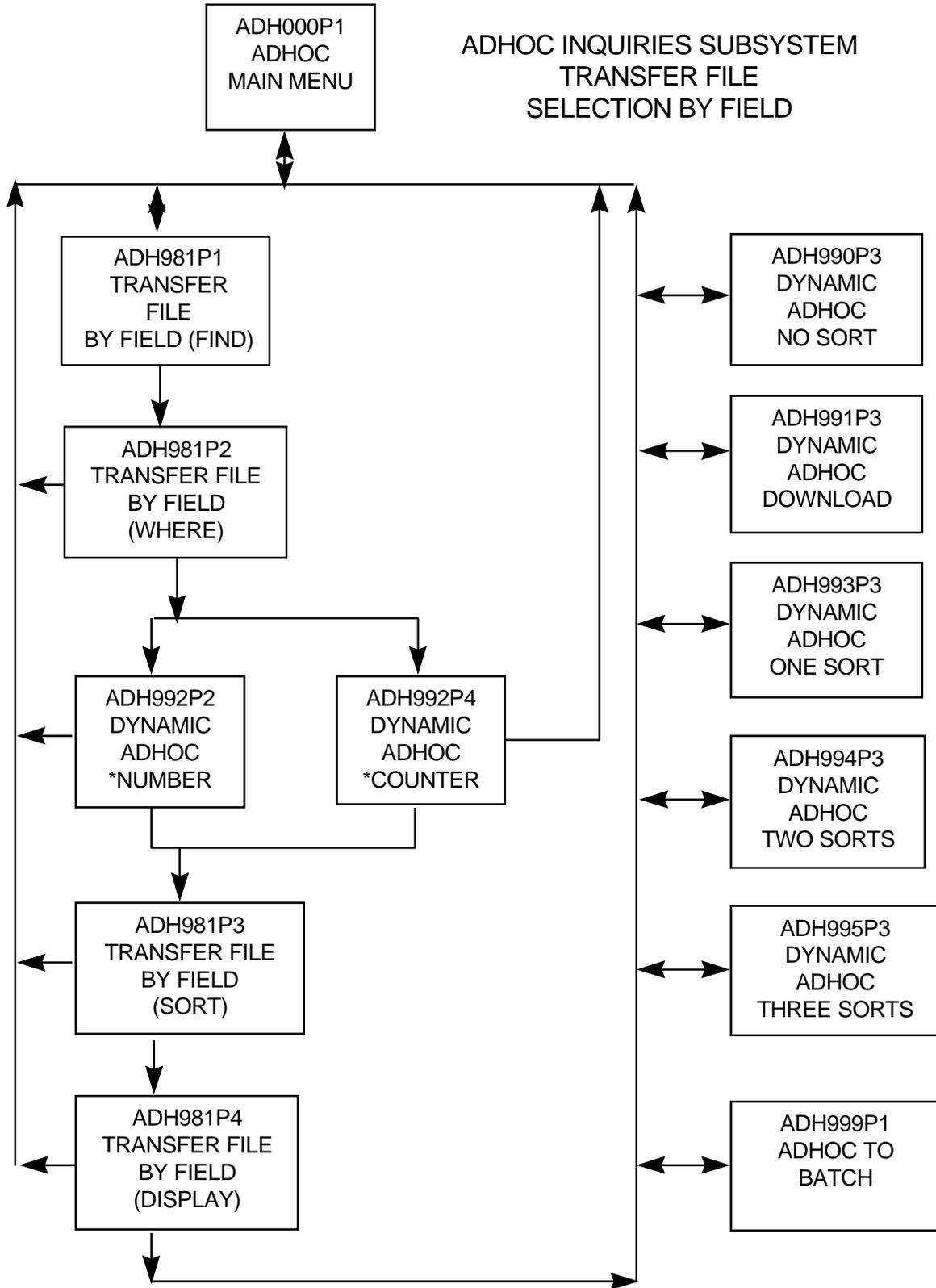
ADHOC INQUIRIES SUBSYSTEM



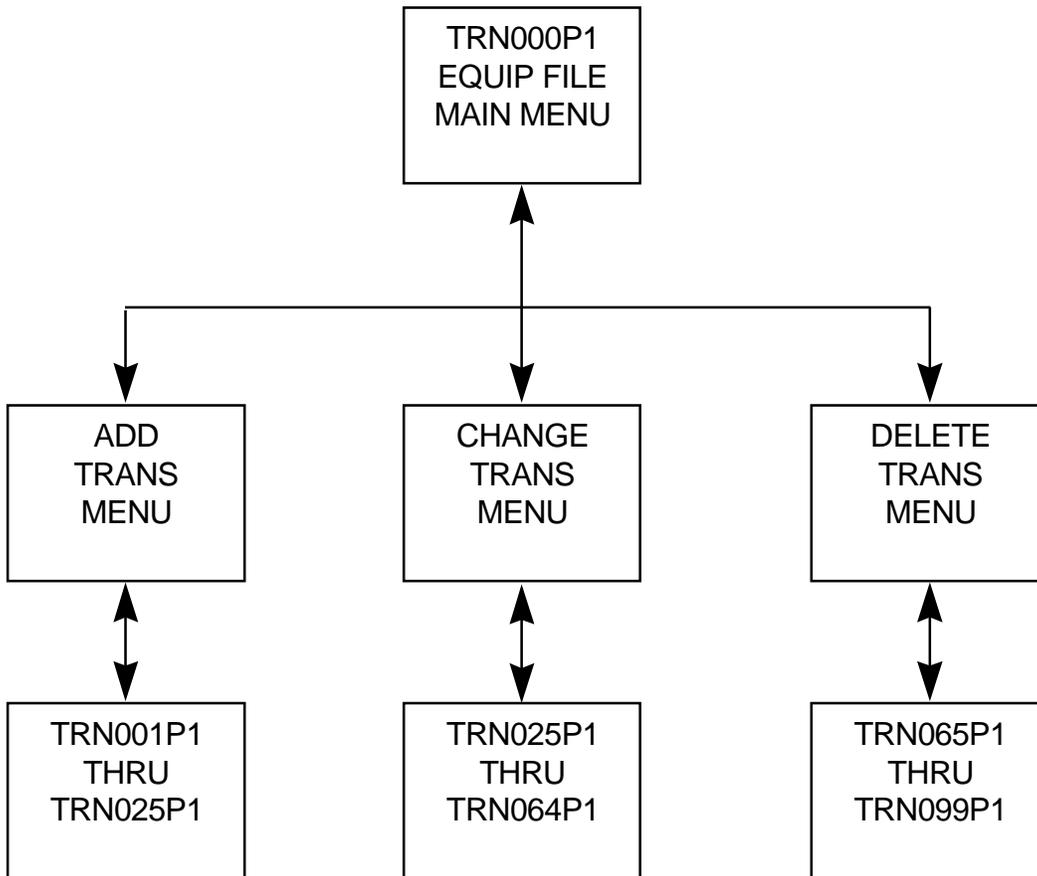




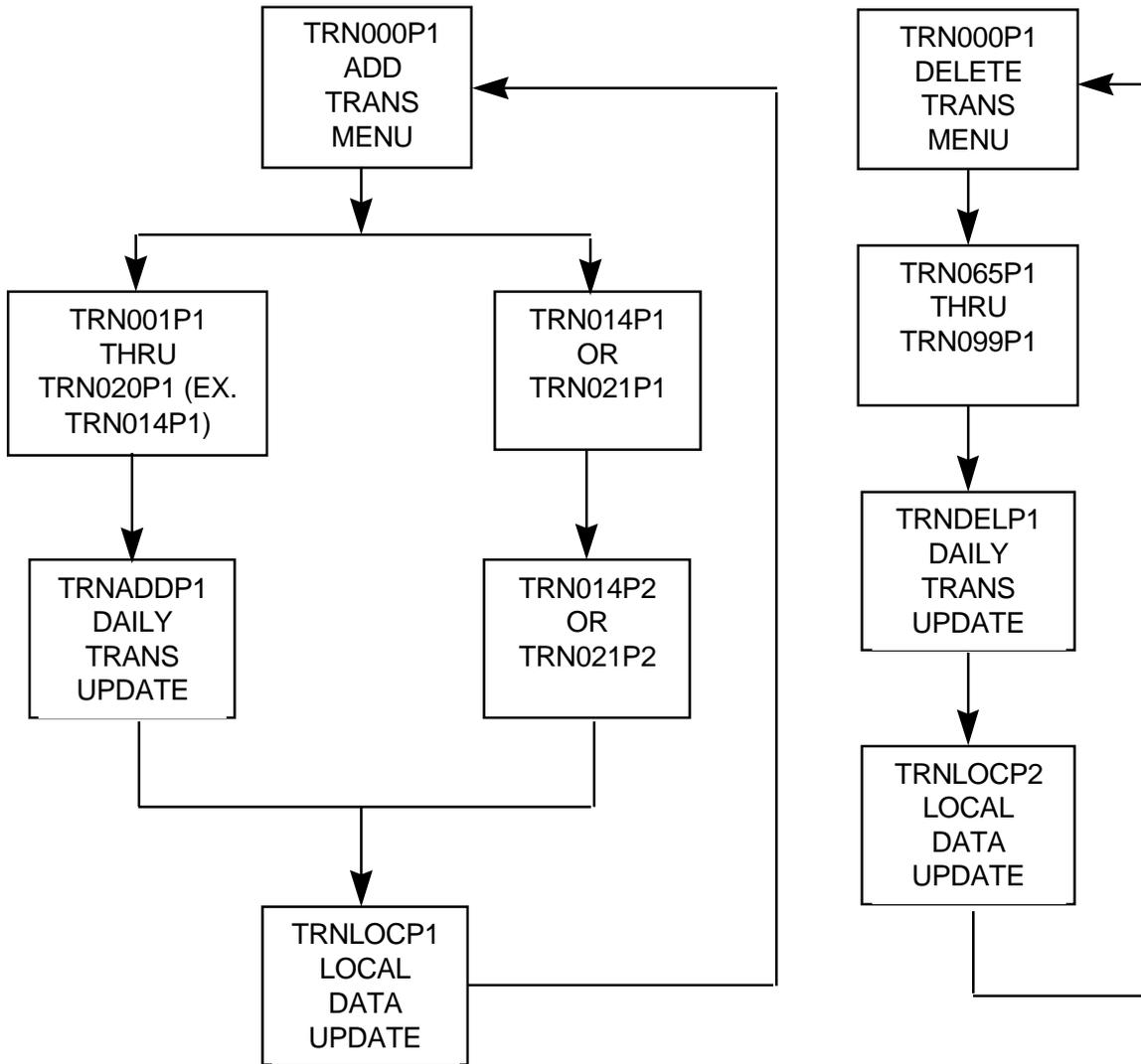
ADHOC INQUIRIES SUBSYSTEM
 TRANSFER FILE
 SELECTION BY FIELD



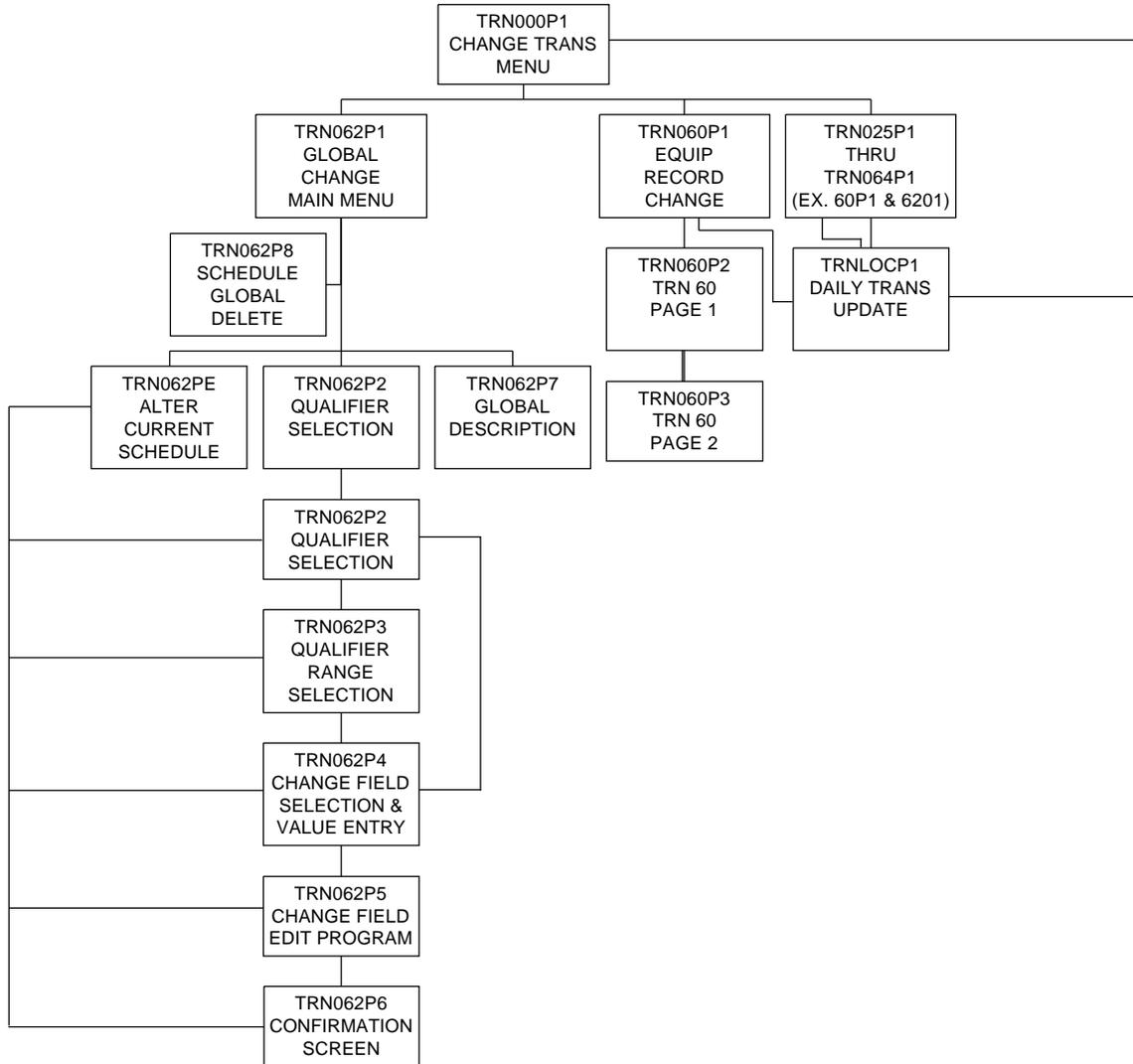
EQUIPMENT FILE UPDATE



EQUIPMENT FILE UPDATE ADD AND DELETE TRANSACTIONS



EQUIPMENT FILE UPDATE
 CHANGE TRANSACTIONS



EQUIPMENT FILE UPDATE LIST OF PROGRAMS

ADD TRANSACTIONS

TRN001P1	PURCHASE - NASA FUNDED
TRN002P1	PURCHASE - OGA FUNDED
TRN003P1	PURCHASE - REPORTED BY CONTRACTOR
TRN004P1	TRANSFER - FROM NASA
TRN005P1	TRANSFER - FROM OGA
TRN006P1	TRANSFER - FROM CONTRACTOR
TRN007P1	TRANSFER - REPORTED BY CONTRACTOR
TRN008P1	LEASE IN
TRN009P	LOAN IN
TRN010P1	FABRICATION
TRN011P1	ASSEMBLY/DISASSEMBLY
TRN012P1	FOUND ON STATION
TRN013P1	EXCESS
TRN014P1-2	RETAGGING
TRN015P1	RETURN FROM HISTORY FILE
TRN016P1	TRANSFER OF REAL TO PERSONAL PROPERTY
TRN017P1	NON-GOVERNMENT SOURCE
TRN018P1	NOT PREV MEETING CRITERIA FOR RETAG
TRN019P1	REINSTATING ITEMS PREVIOUSLY SURVEYED
TRN020P1	BORROW IN
TRN021P1-2	LEASE TO PURCHASE

DELETE TRANSACTIONS

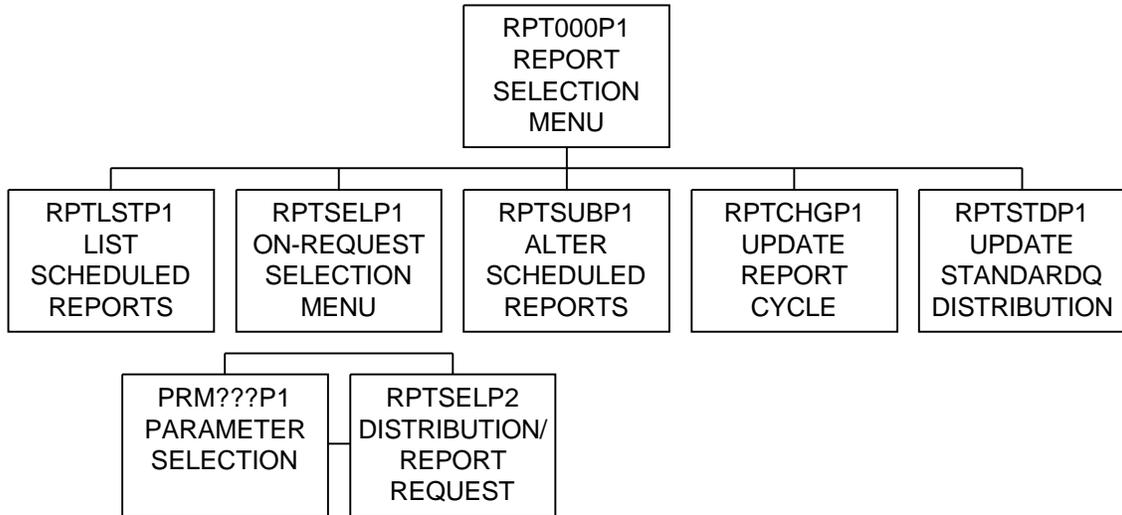
TRN065P1	TRANSFER TO NASA INSTALLATION
TRN066P1	TRANSFER TO OGA
TRN067P1	TRANSFER OF GFE TO CONTRACTOR
TRN068P1	TRANSFER OF GFE BY A CONTRACTOR
TRN069P1	LEASE IN - RETURNED
TRN070P1	LOANED IN - RETURNED
TRN071P1	SURVEY MISSING EQUIPMENT
TRN072P1	DECONTROL (REMOVAL OF TAG)
TRN073P1	ASSEMBLY/DISSASSEMBLY
TRN074P1	DELETE FROM RETAG
TRN075P1	BORROW IN RETURNED
TRN080P1	DISPOSAL OF NASA EQUIPMENT BY CUSTODIAN
TRN081P1	DISPOSAL OF NASA EQUIPMENT BY EVS
TRN082P1	DISPOSAL OF CONTRACTOR EQUIPMENT
TRN083P1	DISPOSAL OF CONTRACTOR EQUIPMENT BY EVS
TRN084P1	REMOVAL OF EQUIP FROM EVS - REPORTED BY CONTRACTOR
TRN085P1	TRADE-IN
TRN086P1	TRANSFER TO READ PROPERTY
TRN087P1	LEASE TO PURCHASE
TRN099P1	LOCAL DATA UPDATE FOR HIST (NON-REPORTABLE)

CHANGE TRANSACTIONS

TRN025P1	COST CHANGE
TRN026P1	CUSTODIAN ACCOUNT CHANGE

TRN027P1	DATE AVAILABLE CHANGE
TRN028P1	DATE DUE CHANGE
TRN029P1	EQUIPMENT LOCATION CHANGE
TRN030P1	STATUS CODE CHANGE
TRN031P1	USER NUMBER CHANGE
TRN038P1	BORROWED OUT
TRN039P1	BORROWED OUT - RETURNED
TRN040P1	LOAN/LEASE OUT
TRN041P1	LOAN/LEASE OUT - RETURNED
TRN042P1	LOAN POOL OUT
TRN043P1	LOAN POOL OUT - RETURNED
TRN044P1	STORAGE IN
TRN045P1	STORAGE IN - RETURNED
TRN050P1	FREEZE NUMBER ASSIGNMENT
TRN051P1	FREEZE NUMBER REMOVAL
TRN052P1	EXCESS TURN IN BY CUSTODIAN
TRN053P1	EXCESS TURN IN BY CONTRACTOR
TRN054P1	CALIBRATION UPDATE
TRN056P1	REPAIR UPDATE
TRN057P1	REPAIR TURN IN
TRN060P1 - 3	NASA EQUIPMENT RECORD DATA CHANGE
TRN061P1	CONTRACTOR EQUIP RECORD DATA CHANGE
TRN062P1 - 8, F	GLOBAL CHANGE (ONLINE)
TRN063P1	REVERSE ADD
TRN064P1	LOCAL DATA UPDATE FOR EQUIP (NON-REPORTABLE)

REPORT SELECTION



REPORT SELECTION LIST OF PROGRAMS

REPORT	PARAMETER	FUNCTION
RPT010P1		DAILY TRANSACTION REGISTER (BY TRANS NO)
RPT011P1		DAILY TRANS REGISTER (BY TRANS NO EXPLODED)
RPT012P1		DAILY TRANSACTION REGISTER (BY ECN)
RPT013P1		DAILY TRANSACTION REGISTER (BY ENTRY REF NO)
RPT015P1		DAILY ITEM VALIDATION REPORT
RPT020P1	PRM020P1	CUSTODIAN MONTHLY TRANSACTION REPORT
RPT030P1		MONTHLY TRANSACTION STATISTICAL SUMMARY
RPT060P1		GLOBAL CHANGE INVALID TRANSACTION REGISTER
RPT110P1		MANUFACTURER'S CODE XXXXX SUSPENSE REPORT
RPT120P1	PRM120P1	PROPERTY LOCATION REPORT
RPT130P1	PRM130P1	LOANED (IN) EQUIPMENT EXPIRATION REPORT
RPT131P1	PRM131P1	LOANED (OUT) EQUIPMENT EXPIRATION REPORT
RPT132P1	PRM132P1	LEASED (IN) EQUIPMENT RETURN CANDIDATE LIST
RPT133P1	PRM133P1	LEASED (OUT) EQUIPMENT RETURN CANDIDATE LIST
RPT134P1	PRM134P1	BORROWED EQUIPMENT RETURN CANDIDATE LIST
RPT135P1		DD FORM 12342 RETURN CANDIDATE LIST (FOR GFE)
RPT136P1		LEASED EQUIPMENT SUBJECT TO CAPITALIZATION
RPT137P1		OFF SITE FOR REPAIRS
RPT138P1	PRM138P1	STORAGE (IN) EXPIRATION REPORT
RPT140P1	PRM140P1	CUST ACCT PROPERTY REPORT (BY CAP SENS CODE)
RPT141P1	PRM141P1	CUSTODIAN ACCT PROPERTY REPORT (BY ECN)
RPT150P1	PRM150P1	MONTHLY CUST ACCT REPORT STATISTICAL SUMMARY
RPT166P1		ITEMS IN STATUS CODE 'C' 120 DAYS OR MORE
RPT170P1	PRM170P1	ITEMS FOUND ON STATION
RPT171P1	PRM171P1	ITEMS SURVEYED
RPT174P1	PRM174P1	RETAGGED ITEMS LIST
RPT180P1		GLOBAL CHANGE REPORT
RPT190P1	PRM190P1	20% SENSITIVE ITEM INVENTORY
RPT194P1		IDLE EQUIPMENT REPORT AT TIME OF INVENTORY
RPT195P1		IDLE EQUIPMENT REPORT AT TIME OF INVENTORY
RPT196P1		IDLE EQUIP RPT NEEDING REPAIR AT TIME OF INV
RPT197P1		IDLE EQUIPT RPT NEEDING REPAIR AT TIME OF INV
RPT200P1	PRM200P1	CAPITAL EQUIPMENT TYPE ACCT (BY EQUIP TYPE ACCT)
RPT201P1	PRM201P1	CAPTIAL EQUIP TYPE ACCT (BY ACQ DOC CNTL NO)
RPT202P1	PRM202P1	CAPTIAL EQUIPMENT TYPE ACCT (BY FSG)
RPT310P1	PRM310P1	EQUIPMENT LOSS RATE REPORT
RPT320P1	PRM320P1	FOUND ON STATION (FOS) RATE REPORT
RPT330P1	PRM330P1	INVENTORY DISCREPANCY RATE REPORT
RPT350P1		BORROW OUT GREATER THAN ONE YEAR
RPT360P1		ITEMS FROZEN LONGER THAN 30 DAYS
RPT400P1	PRM400P1	SEMI-ANNUAL FINANCIAL RECONCILIATION SUMMARY
RPT410P1		1324 - CONTROLLED EQUIPMENT
RPT500P1	PRM500P1	DETAIL ITEM LIST (SINGLE RECORD)
RPT501P1	PRM501P1	DETAIL ITEM LIST (RANGE OF RECORDS)
RPT520P1		ECN DISTRIBUTION
RPT521P1		ECN VALIDATION
RPT602P1	PRM602P1	ORGANIZATION PROPERTY SUMMARY REPORT
RPT720P1	PRM720P1	EQUIPMENT UTILIZATION REVIEW (EVS)

RPT730P1	PRM730P1	CONTRACTOR HELD EQUIPMENT VERIFICATION LIST
RPT731P1	PRM731P1	CONTRACTOR HELD EQUIP (OVER \$1000) VER LIST
RPT780P1	PRM780P1	LOANED OUT EQUIPMENT VERIFICATION LIST
RPT800P1		SF-120 REPORT OF EXCESS OF PERSONAL PROPERTY
RPT810P1	PRM810P1	DD-1342 DOD PROPERTY RECORD
RPT820P1		DD-1348 DOD SINGLE LINE ITEM RELEASE/RECEIPT
RPT830P1	PRM830P1	NEMS-1 (BY ECN)
RPT831P1	PRM831P1	NEMS-1 (BY CUST ACCOUNT NO)
RPT900P1	PRM900P1	ITEMS HELD IN STORAGE LIST
RPT910P1-2	PRM910P1	CUSTODIAN TABLE REPORT
RPT920P1-2	PRM920P1	USER TABLE REPORT
RPT930P1-2	PRM930P1	BUILDING NUMBER REPORT
RPT955P1-D		DYNAMIC ADHOC REPORT TO BATCH

INVENTORY REPORT SELECTION
REQUESTED THROUGH NEMS LIST OF PROGRAMS

REPORT	PARAMETER	FUNCTION
RPT750P1	PRM750P1	PRE-INVENTORY PROPERTY SUMMARY BY CUST ACCOUNT
RPT751P1	PRM751P1	PRE-INVENTORY PROPERTY SUMMARY BY LOCATION
RPT752P1	PRM751P1	INVENTORY TRANSACTION STATISTICAL SUMMARY
RPT753P1	PRM753P1	CUSTODIAN INVENTORY STATISTICAL SUMMARY
RPT754P1	PRM754P1	ITEMS HELD FOR CENTERWIDE ACCOUNT REPORT
RPT760P1	PRM760P1	INVENTORY UNDERAGE DISCREPANCY REPORT
RPT761P1	PRM761P1	INVENTORY OVERAGE DISCREPANCY REPORT
RPT762P1	PRM762P1	INVENTORY LOCATION CHANGE REPORT
RPT763P1	PRM763P1	INVENTORY MATCHED ITEMS REPORT
RPT764P1	PRM764P1	BAR CODE FILE DISPLAY BY CUSTODIAN
RPT765P1	PRM765P1	BAR CODE FILE DISPLAY BU CUSTODIAN SORTED BY ECN
RPT766P1	PRM766P1	POST INVENTORY CUSTIDIAN ACCOUNT PROPERTY REPORT
RPT767P1		INVENTORY HISTORY REPORT
RPT768P1	PRM768P1	INVENTORY DAILY TRANSACTION REGISTER
RPT769P1	PRM769P1	INVENTORY LOCATION NOT CHANGED REPORT
RPT771P1	PRM771P1	RECORDS NOT INVENTORIED REPORT

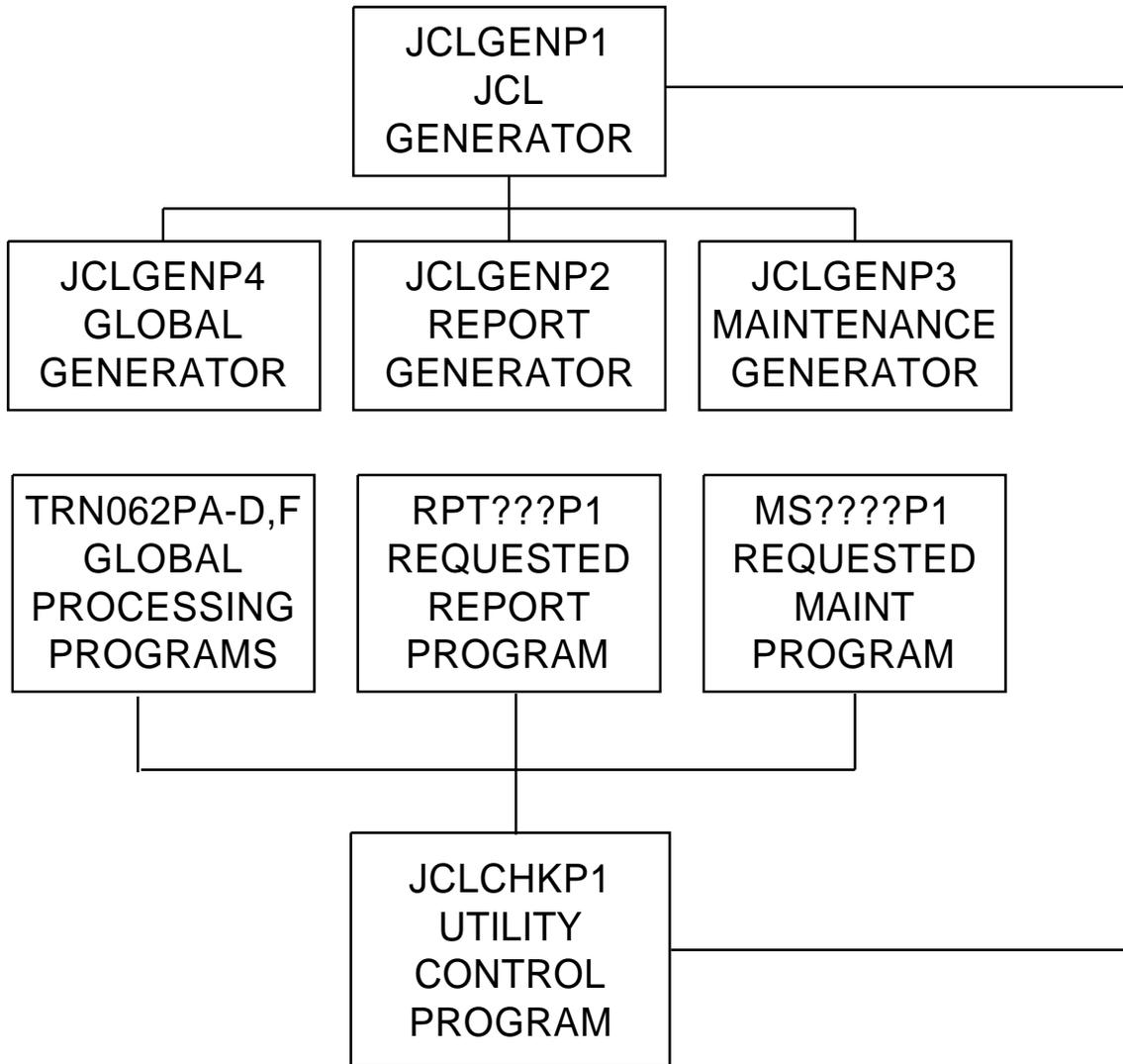
TABLE UPDATE

PROGRAM	TABLE
TBLS01P1	TABLE DESCRIPTION AND AUTHORIZATION
TBLS02P1	ERROR CODES AND MESSAGES
TBLS03P1	USER IDS
TBLS04P1	SEQUENCE NUMBERS
TBLS05P1	REPORTS NUMBERS
TBL040P1	MANUFACTURER'S CODES
TBL050P1	FEDERAL SUPPLY GROUP
TBL052P1	EQUIPMENT TYPE ACCOUNT
TBL078P1	CUSTODIAN ACCOUNT NUMBER
TBL090P1	USER NUMBER
TBL102P1	BUILDING NUMBER
TBL130P1	CAPITAL/SENSITIVE CODE
TBL132P1	U.S. TREASURY AGENCY NUMBER
TBL155P1	EQUIPMENT MANAGEMENT CODE
TBL160P1	EQUIPMENT 'IN' CODE
TBL165P1	EQUIPMENT 'OUT' CODE
TBL180P1	HAZARDOUS MATERIAL CODE
TBL182P1	PRECIOUS METAL CODE
TBL184P1	IDLE EQUIPMENT CODE
TBL250P1	CONTRACTOR (ACCOUNTABLE) NAME
TBL252P1	NASA INSTALLATION NUMBER
TBL410P1	AVAILABILITY STATUS CODE
TBL510P1	CONDITION CODE
TBL620P1	TRANSACTION NUMBER

SYSTEM MAINTENANCE LIST OF PROGRAMS

PROGRAM	TABLE
MSA001P1	RESET NEMS-EQUIPMENT YEAR TO DATE FIELDS
MSA002P1	PERIODIC PURGE OF HISTORY FILE TO TAPE
MSD001P1	COPY NEMS-DAILY-TRANS TO NEMS-MONTH-TRANS
MSD002P1	ENTRY REFERENCE NUMBER AND FREEZE NUMBER RESET
MSD003P1	DAILY REPORT REQUEST FILE RESET
MSD004P1	DAILY MAINTENANCE REQUEST FILE RESET
MSD005P1	NEMS-1 (1602) DAILY PRINT PROGRAM
MSD006P1	DAILY DELETED ITEMS REPORT
MSD007P1	PURGE OF NEMS-DAILY-TRANS FILE
MSD008P1	NEMS-DAILY-TRANS FILE EXTRACT FOR NDM
MSD008P5	NEMS-MONTH-TRANS FILE EXTRACT
MSD008P6	NEMS CUMM MONTH TRANS (TAPE) FILE EXTRACT
MSD008P7	NEMS-DAILY-TRANS FILE EXTRACT
MSD008P8	NEMS TRANSFER DATA COMPILE PROGRAM
MSD008P9	NEMS-TRANSFER FILE ADD PROGRAM
MSD009P1	DD 1342 DAILY PRINT PROGRAM
MSDCLRP1	CLEAR OF NEMS TRANSFER DATA SET
MSM001P1, 2	AVAILABLE STATUS CODE CONTROL DATA RESET
MSM002P1	COPY NEMS-MONTH-TRANS TO TAPE AND PURGE
MSM004P1	COPY NEMS-GLOBL-TRANS TO TAPE AND PURGE
MSM008P1	NEMS-TRANSFER FILE CLEANUP
MSR001P1	INVENTORY CLOSE
MSR008P1	DELETE INVALID RECORDS FROM TRANSFER FILE
MSX001P1	COPY NEMS CUMM TRANS TO NEMS-PRIOR-MONTH
MSX005P1	NEMS-1 PRINT RECOVER FROM NEMS-MONTH-TRANS
MSX006P1	NEMS-1 PRINT RECOVER FROM CUMM TRANS TAPE
NAV100P1	NEMS ONLINE NAVIGATION CONTROL PROGRAM
NEMS	NEMS APPLICATION START UP PROGRAM
NEMSLNUP	NEMS-1 PRINT LINEUP FOR DOWNLOADING TO PC
NEMS1	NEMS-1 DAILY PRINT FOR DOWNLOADING TO PC
NEMS1REQ	NEMS-1 ON REQUEST PRINT FOR DOWNLOADING TO PC
DD1342	DD 1342 DAILY PRINT FOR DOWNLOADING TO PC
DD1342R	DD 1342 ON REQUEST PRINT FOR DOWNLOADING TO PC
JCLLSTP1	STANDALONE JCL FILE LIST (ONLINE DISPLAY)
JCLLSTP2	STANDALONE JCL FILE LIST (BATCH DISPLAY)
JCLLSTP3	STANDALONE CONTROL RECORD DISPLAY
JCLLSTP4	STANDALONE AVAILABLE STATUS CODE ACCUM. DISPLAY
JCLUPDP1	STANDALONE CONTROL FILE UPDATE PROGRAM
JRNCLRP1	JOURNAL CLEAR PROGRAM
JRNLSTP1	STANDALONE JOURNAL FILE LIST (ONLINE DISPLAY)
JRNLSTP2	STANDALONE JOURNAL FILE LIST (BATCH DISPLAY)
JRNRTP1	JOURNAL REPORT PROGRAM
JRNUPDP1	STANDALONE JOURNAL FILE UPDATE PROGRAM

BATCH PROCESSING



APPENDIX C - DATABASE FILE LAYOUT

DB 0	File 188 - NEMS-EQUIPMENT		Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
1	AA	ECN HD=ECN	A	7	D	
G 1	AB	INST-NO HD=INST/ NO				
2	A1	INST-ACCT HD=INST/ACCT	N	2.0		
2	A2	INST-SUB HD=INST/SUB	N	2.0	D	
1	AC	ITEM-NAME HD=ITEM NAME	A	30	N D	
1	HA	ITEM-NAME-STD HD=ITEM/NAME/STD	A	1	N	
1	AD	MFG-CODE HD=MFG/CODE	A	5	D	
1	AE	MFG-MODEL-NO HD=MFG MODEL NO	A	20	N D	
1	AF	MFG-SERIAL-NO HD=MFG SERIAL NO	A	20	N D	
1	AG	YEAR-MFG HD=YEAR/MFG	A	4		
1	AH	NATIONAL-STOCK-NO HD=NATIONAL/STOCK NO	A	13	N D	
1	AI	COST HD=COST	N	9.2	N	
1	AJ	CAP-SENS-CODE HD=CAP/SENS/CODE	A	1	D	
1	AK	AVAIL-STATUS-CODE HD=AVAIL/STATUS/CODE	A	1	D	
1	AL	DATE-STATUS-CODED HD=DATE/STATUS/CODED EM=Z99/99/99	N	8.0	N	
1	AM	DATE-NASA-ACQ HD=DATE/NASA ACQ EM=Z99/99/99	N	8.0	D	
1	AO	DATE-INST-ACQ HD=DATE/INST ACQ EM=Z99/99/99	N	8.0	D	
1	AP	ACQ-TRANS-NO HD=ACQ/TRANS/NO	A	3	D	
1	AQ	ACQ-ENTRY-REF-NO HD=ACQ ENTRY/REF NO	N	10.0		
1	AR	ACQ-DOC-CNTL-NO HD=ACQ DOC/CONTROL NO	A	11	N D	
1	HB	LAST-TRANS-NO HD=LAST/TRANS/NO	A	3	D	
1	HC	LAST-ENTRY-REF-NO HD=LAST ENTRY/REF NO	N	10.0		
1	AU	CUST-ACCT-NO HD=CUST/ACCT/NO	A	5	N D	
1	AV	CUST-NO HD=CUST/NO	A	6	N D	
1	AW	CUST-ORG-CODE HD=CUST/ORG/CODE	A	7	N D	
1	AX	USER-NO HD=USER/NO	A	6	N D	
1	AY	EQUIP-ZIP-CODE HD=EQUIP/ZIP/CODE	A	5	D	
1	AZ	EQUIP-BUILDING HD=EQUIP/BLDG	A	10	N D	
1	BA	EQUIP-ROOM HD=EQUIP/ROOM	A	5	N	
1	BB	EQUIP-TYPE-ACCT HD=EQUIP/TYPE/ACCT	N	4.0	N D	
1	BC	DATE-INVENTORIED	N	8.0	N D	

		HD=DATE/INVENTORIED				
		EM=Z99/99/99				
1	BD	OLD-TAG-NO	A	8	N	D
		HD=OLD/TAG NO				
1	BE	DATE-AVAILABLE	N	8.0	N	D
		HD=DATE/AVAILABLE				
		EM=Z99/99/99				
1	BF	EST-COST-CODE	A	1		
		HD=EST/COST/CODE				
1	BG	CONDITION-CODE	A	2		
		HD=COND/CODE				
1	BH	UNIQUE-EQUIP-NO	A	8	N	D
		HD=UNIQUE/EQUIP NO				
1	BI	HAZ-MATERIAL-CODE	A	1		
		HD=HAZ/MAT/CODE				
1	BJ	PREC-METAL-CODE	A	1		
		HD=PREC/METAL/CODE				
1	BK	DATE-LAST-CALIBRATED	N	8.0	N	
		HD=DATE LAST/CALIBRATED				
		EM=Z99/99/99				
1	BL	DATE-CALIBRATION-DUE	N	8.0	N	D
		HD=DATE/CAL/DUE				
		EM=Z99/99/99				
1	BM	DATE-WRNTY-EXP-MATERIAL	N	6.0	N	
		HD=DATE WRNTY/EXP-MAT				
		EM=99/99				
1	BN	DATE-WRNTY-EXP-LABOR	N	6.0	N	
		HD=DATE WRNTY/EXP-LABOR				
		EM=99/99				
1	BO	OTHER-AGENCY-NO	N	2.0	N	
		HD=OTHER/AGENCY/NO				
1	BP	CONTRACTOR-TAG-NO	A	13	N	D
		HD=CONTRACTOR/TAG NO				
1	BQ	CONTRACTOR-ACCT	A	9	N	D
		HD=CONTRACTOR/ACCT				
1	BR	L-L-DOC-NO	A	6	N	D
		HD=LOAN/LEASE/DOC NO				
1	BS	DATE-L-L-B-IN-DUE	N	8.0	N	
		HD=LOAN LEASE/BORROW/IN DUE				
		EM=Z99/99/99				
1	BT	DATE-LOANED-OUT	N	8.0	N	D
		HD=DATE/LOANED/OUT				
		EM=Z99/99/99				
1	BU	DATE-LEASED-OUT	N	8.0	N	
		HD=DATE/LEASED/OUT				
		EM=Z99/99/99				
1	BV	DATE-SHIPPED-OTHER-INST	N	8.0	N	
		HD=DATE/SHIPPED/OTHER INST				
		EM=Z99/99/99				
1	BW	DATE-BORROWED-OUT	N	8.0	N	D
		HD=DATE/BORROWED/OUT				
		EM=Z99/99/99				
1	BX	DATE-STORAGE-DUE	N	8.0	N	
		HD=DATE/STORAGE/DUE				
		EM=Z99/99/99				
1	BZ	DATE-STORED-IN	N	8.0	N	D
		HD=DATE/STORED/IN				
		EM=Z99/99/99				
1	CA	DATE-L-L-B-OUT-DUE	N	8.0	N	D
		HD=LOAN LEASE/BORROW/OUT DUE				
		EM=Z99/99/99				
1	HD	DATE-REPAIR-RETURN-DUE	N	8.0	N	D
		HD=DATE/REPAIR/DUE				
		EM=Z99/99/99				
1	CB	EQUIP-IN-CODE	A	1		D
		HD=EQUIP/IN/CODE				
1	CD	EQUIP-OUT-CODE	A	1		D
		HD=EQUIP/OUT/CODE				
1	CE	EQUIP-MGMT-CODE	A	1		D
		HD=EQUIP/MGMT/CODE				
1	CF	IDLE-EQUIP-CODE	A	1		

		HD=IDLE/EQUIP/CODE				
1	CG	LABOR-COST-LAST-SERV HD=LABOR/COST/LAST EM=ZZZZZ9	N	6.0	N	
1	CH	LABOR-COST-YTD HD=LABOR/COST/YTD EM=ZZZZZ9	N	6.0	N	
1	CI	LABOR-COST-TD HD=LABOR/COST/TD EM=ZZZZZ9	N	7.0	N	
1	CJ	PARTS-COST-LAST-SERV HD=PARTS/COST/LAST EM=ZZZZZ9	N	6.0	N	
1	CK	PARTS-COST-YTD HD=PARTS/COST/YTD EM=ZZZZZ9	N	6.0	N	
1	CL	PARTS-COST-TD HD=PARTS/COST/TD EM=ZZZZZ9	N	7.0	N	
1	CM	NO-OF-TIMES-SERV HD=NO OF/TIMES/SERV EM=ZZ9	N	3.0	N	
1	CN	DATE-LAST-SERV HD=DATE/LAST/SERVICED EM=Z99/99/99	N	8.0	N	
1	CO	CONTRACTOR-CONVEYOR HD=CONTRACTOR/CONVEYOR	A	9	N	
1	CP	INST-CONVEYOR HD=INST/CONVEYOR	N	4.0	N	
1	CQ	CONTRACTOR-RECEIVER HD=CONTRACTOR/RECEIVER	A	9	N	
1	CR	INST-RECEIVER HD=INST/RECEIVER	N	4.0	N	
1	CS	FREEZE-NO HD=FREEZE NO	N	10.0		D
1	CT	PREVIOUS-ECN HD=PREVIOUS/ECN	A	7	N	
1	HE	PREV-CUST-ACCT-NO HD=PREV/CUST/ACCT	A	5	N	
1	CU	MFG-NAME HD=MANUFACTURER NAME	A	30	N	
M 1	CW	ENTRY-REF-NO HD=ENTRY/REF NO	N	10.0	N	
M 1	CX	TRANS-NO HD=TRANS/NO	A	3	N	
1	CY	LOCAL-DATA HD=LOCAL/DATA	A	70	N	
1	PA	EXCESS-CASE-NUMBER	A	14	N	D
1	SA	FED-SUPPLY-GROUP	A	2	N	S
1	GJ	LOCATION	A	5		D
M 1	DA	PROP-TRNSCTN-ERN-NMBR HD=NPDMS/ENTRY/REF NO	N	12.0	N	
M 1	DB	PROP-TRNSCTN-ID HD=NPDMS/TRANS/id	A	4	N	

DB 0	File 190	- NEMS-HISTORY				Default Sequence	
TYL	DB	Name	F	Leng	S	D	Remarks
1	KE	HISTORY-KEY HD=HISTORY/KEY	A	10		D	
1	AA	ECN HD=ECN	A	7		D	
G 1	AB	INST-NO HD=INST/NO					
2	A1	INST-ACCT HD=INST/ACCT	N	2.0			
2	A2	INST-SUB HD=INST/SUB	N	2.0		D	
1	AC	ITEM-NAME HD=ITEM NAME	A	30	N	D	
1	HA	ITEM-NAME-STD HD=ITEM/NAME/STD	A	1		N	
1	AD	MFG-CODE HD=MFG/CODE	A	5		D	
1	AE	MFG-MODEL-NO HD=MFG MODEL NO	A	20	N	D	
1	AF	MFG-SERIAL-NO HD=MFG SERIAL NO	A	20	N	D	
1	AG	YEAR-MFG HD=YEAR/MFG	A	4		D	
1	AH	NATIONAL-STOCK-NO HD=NATIONAL/STOCK NO	A	13		N	
1	AI	COST HD=COST	N	9.2		N	
1	AJ	CAP-SENS-CODE HD=CAP/SENS/CODE	A	1			
1	AK	AVAIL-STATUS-CODE HD=AVAIL/STATUS/CODE	A	1			
1	AL	DATE-STATUS-CODED HD=DATE/STATUS/CODED EM=Z(9)99/99/99	N	8.0		N	
1	AM	DATE-NASA-ACQ HD=DATE/NASA ACQ EM=Z(9)99/99/99	N	8.0			
1	AO	DATE-INST-ACQ HD=DATE/INST ACQ EM=Z(9)99/99/99	N	8.0			
1	AP	ACQ-TRANS-NO HD=ACQ/TRANS/NO	A	3		D	
1	AQ	ACQ-ENTRY-REF-NO HD=ACQ ENTRY/REF NO	N	10.0			
1	AR	ACQ-DOC-CNTL-NO HD=ACQ DOC/CONTROL NO	A	11	N	D	
1	HB	LAST-TRANS-NO HD=LAST/TRANS/NO	A	3		D	
1	HC	LAST-ENTRY-REF-NO HD=LAST ENTRY/REF NO	N	10.0			
1	AU	CUST-ACCT-NO HD=CUST/ACCT/NO	A	5		N	
1	AV	CUST-NO HD=CUST/NO	A	6		N	
1	AW	CUST-ORG-CODE HD=CUST/ORG/CODE	A	7		N	
1	AX	USER-NO HD=USER/NO	A	6		N	
1	AY	EQUIP-ZIP-CODE HD=EQUIP/ZIP/CODE	A	5			
1	AZ	EQUIP-BUILDING HD=EQUIP/BLDG	A	10		N	
1	BA	EQUIP-ROOM HD=EQUIP/ROOM	A	5		N	
1	BB	EQUIP-TYPE-ACCT HD=EQUIP/TYPE/ACCT	N	4.0		N	
1	BC	DATE-INVENTORIED HD=DATE/INVENTORIED EM=Z(9)99/99/99	N	8.0	N	D	

1	BD	OLD-TAG-NO HD=OLD/TAG NO	A	8	N	D
1	BE	DATE-AVAILABLE HD=DATE/AVAILABLE EM=Z(9)99/99/99	N	8.0	N	
1	BF	EST-COST-CODE HD=EST/COST/CODE	A	1		
1	BG	CONDITION-CODE HD=COND/CODE	A	2		
1	BH	UNIQUE-EQUIP-NO HD=UNIQUE/EQUIP NO	A	8	N	D
1	BI	HAZ-MATERIAL-CODE HD=HAZ/MAT/CODE	A	1		
1	BJ	PREC-METAL-CODE HD=PREC/METAL/CODE	A	1		
1	BK	DATE-LAST-CALIBRATED HD=DATE LAST/CALIBRATED EM=Z(9)99/99/99	N	8.0	N	
1	BL	DATE-CALIBRATION-DUE HD=DATE/CAL/DUE EM=Z(9)99/99/99	N	8.0	N	
1	BM	DATE-WRNTY-EXP-MATERIAL HD=DATE WRNTY/EXP-MAT EM=99/99	N	6.0	N	
1	BN	DATE-WRNTY-EXP-LABOR HD=DATE WRNTY/EXP-LABOR EM=99/99	N	6.0	N	
1	BO	OTHER-AGENCY-NO HD=OTHER/AGENCY/NO	N	2.0	N	
1	BP	CONTRACTOR-TAG-NO HD=CONTRACTOR/TAG NO	A	13	N	
1	BQ	CONTRACTOR-ACCT HD=CONTRACTOR/ACCT	A	9	N	D
1	BR	L-L-DOC-NO HD=LOAN/LEASE/DOC NO	A	6	N	D
1	BS	DATE-L-L-B-IN-DUE HD=LOANLEASE/BORROW/IN DUE EM=Z(9)99/99/99	N	8.0	N	
1	BT	DATE-LOANED-OUT HD=DATE/LOANED/OUT EM=Z(9)99/99/99	N	8.0	N	
1	BU	DATE-LEASED-OUT HD=DATE/LEASED/OUT EM=Z(9)99/99/99	N	8.0	N	
1	BV	DATE-SHIPPED-OTHER-INST HD=DATE/SHIPPED/OTHER INST EM=Z(9)99/99/99	N	8.0	N	
1	BW	DATE-BORROWED-OUT HD=DATE/BORROWED/OUT EM=Z(9)99/99/99	N	8.0	N	
1	BX	DATE-STORAGE-DUE HD=DATE/STORAGE/DUE EM=Z(9)99/99/99	N	8.0	N	
1	BZ	DATE-STORED-IN HD=DATE/STORED/IN EM=Z(9)99/99/99	N	8.0	N	
1	CA	DATE-L-L-B-OUT-DUE HD=LOAN LEASE/BORROW/OUT DUE EM=Z(9)99/99/99	N	8.0	N	
1	HD	DATE-REPAIR-RETURN-DUE HD=DATE/REPAIR/DUE EM=Z(9)99/99/99	N	8.0	N	
1	CB	EQUIP-IN-CODE HD=EQUIP/IN/CODE	A	1		
1	CD	EQUIP-OUT-CODE HD=EQUIP/OUT/CODE	A	1		
1	CE	EQUIP-MGMT-CODE HD=EQUIP/MGMT/CODE	A	1		
1	CF	IDLE-EQUIP-CODE HD=IDLE/EQUIP/CODE	A	1		
1	CG	LABOR-COST-LAST-SERV	N	6.0	N	

		HD=LABOR/COST/LAST			
1	CH	LABOR-COST-YTD	N	6.0	N
		HD=LABOR/COST/YTD			
1	CI	LABOR-COST-TD	N	7.0	N
		HD=LABOR/COST/TD			
1	CJ	PARTS-COST-LAST-SERV	N	6.0	N
		HD=PARTS/COST/LAST			
1	CK	PARTS-COST-YTD	N	6.0	N
		HD=PARTS/COST/YTD			
1	CL	PARTS-COST-TD	N	7.0	N
		HD=PARTS/COST/TD			
1	CM	NO-OF-TIMES-SERV	N	3.0	N
		HD=NO OF/TIMES/SERV			
		EM=ZZ9			
1	CN	DATE-LAST-SERV	N	8.0	N
		HD=DATE/LAST/SERVICED			
		EM=Z(9)99/99/99			
1	CO	CONTRACTOR-CONVEYOR	A	9	N
		HD=CONTRACTOR/CONVEYOR			
1	CP	INST-CONVEYOR	N	4.0	N
		HD=INST/CONVEYOR			
1	CQ	CONTRACTOR-RECEIVER	A	9	N
		HD=CONTRACTOR/RECEIVER			
1	CR	INST-RECEIVER	N	4.0	N
		HD=INST/RECEIVER			
1	CS	FREEZE-NO	N	10.0	
		HD=FREEZE NO			
1	HF	NEW-ECN	A	7	N
		HD=NEW/ECN			
1	CT	PREVIOUS-ECN	A	7	N
1	HE	PREV-CUST-ACCT-NO	A	5	N
		HD=PREV/CUST/ACCT			
1	CU	MFG-NAME	A	30	N
		HD=MANUFACTURER NAME			
M 1	CW	ENTRY-REF-NO	N	10.0	N
		HD=ENTRY/REF NO			
M 1	CX	TRANS-NO	A	3	N
		HD=TRANS/NO			
1	CY	LOCAL-DATA	A	70	N
		HD=LOCAL/DATA			
1	CZ	DELETE-DATE	N	8.0	N D
		HD=DELETE/DATE			
		EM=Z(9)99/99/99			
1	PA	EXCESS-CASE-NUMBER	A	14	N D
1	SA	FED-SUPPLY-GROUP	A	2	N S
1	GJ	LOCATION	A	5	N
M 1	DA	PROP-TRNSCTN-ERN-NMBR	N	12.0	N
		HD=NPDMs/ENTRY/REF NO			
M 1	DB	PROP-TRNSCTN-ID	A	4	N
		HD=NPDMs/TRANS/id			

DB 0	File 187	- NEMS-DAILY-TRANS	Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
1	AA	ECN HD=ECN	A	7	D	
G 1	AB	INST-NO HD=INST/NO				
2	A1	INST-ACCT HD=INST/ACCT	N	2.0		
2	A2	INST-SUB HD=INST/SUB	N	2.0		
1	AC	ITEM-NAME HD=ITEM NAME	A	30	N D	
1	HA	ITEM-NAME-STD HD=ITEM/NAME/STD	A	1	N	
1	AD	MFG-CODE HD=MFG/CODE	A	5	D	
1	AE	MFG-MODEL-NO HD=MFG MODEL NO	A	20	N D	
1	AF	MFG-SERIAL-NO HD=MFG SERIAL NO	A	20	N	
1	AG	YEAR-MFG HD=YEAR/MFG	A	4		
1	AH	NATIONAL-STOCK-NO HD=NATIONAL/STOCK NO	A	13	N	
1	AI	COST HD=COST	N	9.2	N	
1	AJ	CAP-SENS-CODE HD=CAP/SENS/CODE	A	1		
1	AK	AVAIL-STATUS-CODE HD=AVAIL/STATUS/CODE	A	1	D	
1	AL	PREV-AVAIL-STATUS-CODE HD=PREV/AVAIL/STATUS	A	1		
1	AM	DATE-NASA-ACQ HD=DATE/NASA ACQ EM=Z(9)99/99/99	N	8.0		
1	AO	DATE-INST-ACQ EM=Z(9)99/99/99	N	8.0		
1	AR	ACQ-DOC-CNTL-NO HD=ACQ DOC/CONTROL NO	A	11	N	
1	AU	CUST-ACCT-NO HD=CUST/ACCT/NO	A	5	N D	
1	AV	CUST-NO HD=CUST/NO	A	6	N D	
1	AX	USER-NO HD=USER/NO	A	6	N D	
1	AY	EQUIP-ZIP-CODE HD=EQUIP/ZIP/CODE	A	5	D	
1	AZ	EQUIP-BUILDING HD=EQUIP/BLDG	A	10	N D	
1	BA	EQUIP-ROOM HD=EQUIP/ROOM	A	5	N	
1	BC	DATE-INVENTORIED HD=DATE/INVENTORIED EM=Z(9)99/99/99	N	8.0	N	
1	BE	DATE-AVAILABLE HD=DATE/AVAILABLE EM=Z(9)99/99/99	N	8.0	N	
1	BF	EST-COST-CODE HD=EST/COST/CODE	A	1		
1	BG	CONDITION-CODE HD=COND/CODE	A	2		
1	BH	UNIQUE-EQUIP-NO HD=UNIQUE/EQUIP NO	A	8	N D	
1	BI	HAZ-MATERIAL-CODE HD=HAZ/MAT/CODE	A	1		
1	BJ	PREC-METAL-CODE HD=PREC/METAL/CODE	A	1		
1	BK	DATE-LAST-CALIBRATED HD=DATE LAST/CALIBRATED EM=Z(9)99/99/99	N	8.0	N	

1	BL	DATE-CALIBRATION-DUE HD=DATE/CALIBRATION/DUE EM=Z(9)99/99/99	N	8.0	N
1	BM	DATE-WRNTY-EXP-MATERIAL HD=DATE WRNTY/EXP-MAT EM=99/99	N	6.0	N
1	BN	DATE-WRNTY-EXP-LABOR HD=DATE WRNTY/EXP-LABOR EM=99/99	N	6.0	N
1	BO	OTHER-AGENCY-NO HD=OTHER/AGENCY/NO	N	2.0	N
1	BP	CONTRACTOR-TAG-NO HD=CONTRACTOR/TAG NO	A	13	N D
1	BQ	CONTRACTOR-ACCT HD=CONTRACTOR/ACCT	A	9	N D
1	BR	L-L-DOC-NO HD=LOAN/LEASE/DOC NO	A	6	N D
1	BS	DATE-L-L-B-IN-DUE HD=LOAN LEASE/BORROW/IN DUE EM=Z(9)99/99/99	N	8.0	N
1	BT	DATE-LOANED-OUT HD=DATE/LOANED/OUT EM=Z(9)99/99/99	N	8.0	N
1	BU	DATE-LEASED-OUT HD=DATE/LEASED/OUT EM=Z(9)99/99/99	N	8.0	N
1	BV	DATE-SHIPPED-OTHER-INST HD=DATE/SHIPPED/OTHER INST EM=Z(9)99/99/99	N	8.0	N
1	BW	DATE-BORROWED-OUT HD=DATE/BORROWED/OUT EM=Z(9)99/99/99	N	8.0	N
1	BX	DATE-STORAGE-DUE HD=DATE/STORAGE/DUE EM=Z(9)99/99/99	N	8.0	N
1	CA	DATE-L-L-B-OUT-DUE HD=LOAN LEASE/BORROW/OUT DUE EM=Z(9)99/99/99	N	8.0	N
1	HD	DATE-REPAIR-RETURN-DUE HD=DATE/REPAIR/DUE EM=Z(9)99/99/99	N	8.0	N
1	CE	EQUIP-MGMT-CODE HD=EQUIP/MGMT/ CODE	A	1	
1	CF	IDLE-EQUIP-CODE HD=IDLE/EQUIP/ CODE	A	1	
1	CG	LABOR-COST-LAST-SERV HD=LABOR/COST/LAST	N	6.0	N
1	CJ	PARTS-COST-LAST-SERV HD=PARTS/COST/LAST	N	6.0	N
1	CN	DATE-LAST-SERV HD=DATE/LAST/SERVICED EM=Z(9)99/99/99	N	8.0	N
1	CO	CONTRACTOR-CONVEYOR HD=CONTRACTOR/CONVEYOR	A	9	N
1	CP	INST-CONVEYOR HD=INST/CONVEYOR	N	4.0	N
1	CQ	CONTRACTOR-RECEIVER HD=CONTRACTOR/RECEIVER	A	9	N
1	CR	INST-RECEIVER HD=INST/RECEIVER	N	4.0	N
1	CS	FREEZE-NO HD=FREEZE NO	N	10.0	
1	CT	PREVIOUS-ECN HD=PREVIOUS/ECN	A	7	N
1	CU	MFG-NAME HD=MANUFACTURER NAME	A	30	N
1	CW	ENTRY-REF-NO HD=ENTRY/REF NO	N	10.0	N D
1	CX	TRANS-NO HD=TRANS/NO	A	3	N D
1	CY	LOCAL-DATA	A	70	N

		HD=LOCAL/DATA			
1	DA	PRINT-NEMS-1	A	1	D
		HD=PRINT/NEMS/1			
1	DB	CURRENT-DATE	N	8.0	N
		HD=CURRENT/DATE			
		EM=Z(9)99/99/99			
1	DC	CURRENT-TIME	N	7.0	N
		HD=CURRENT/TIME			
1	DD	NEMS-USER-ID	A	8	
		HD=NEMS/USER/ID			
1	DE	ADJUSTMENT-COST	N	9.2	N
1	DF	RECON-CODE	A	1	N
1	DG	ADJ-DOC-REF	A	11	N
1	DH	PREV-CUST-ACCT-NO	A	5	N
		HD=PREVIOUS/CUST-ACCT/NUMBER			
1	DI	PREV-NATIONAL-STOCK-NO	A	13	N
		HD=PREVIOUS/NATIONAL/STOCK NO			
1	DJ	PREV-COST	N	9.2	N
		HD=PREVIOUS/COST			
1	DK	PREV-CAP-SENS-CODE	A	1	F
		HD=PREVIOUS/CAP SENS/CODE			
1	DL	PREV-USER-NO	A	6	N
		HD=PREVIOUS/USER NO			
1	DM	PREV-CUST-NO	A	6	N
		HD=PREVIOUS/CUST NO			
1	SA	FED-SUPPLY-GROUP	A	2	N S

DB 0	File 193	- NEMS-MONTH-TRANS	Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
	1	AA ECN HD=ECN	A	7	D	
G 1	AB	INST-NO HD=INST/NO				
	2	A1 INST-ACCT HD=INST/ACCT	N	2.0		
	2	A2 INST-SUB HD=INST/SUB	N	2.0		
	1	AC ITEM-NAME HD=ITEM NAME	A	30	N D	
	1	HA ITEM-NAME-STD HD=ITEM/NAME/STD	A	1	N	
	1	AD MFG-CODE HD=MFG/CODE	A	5	D	
	1	AE MFG-MODEL-NO HD=MFG MODEL NO	A	20	N D	
	1	AF MFG-SERIAL-NO HD=MFG SERIAL NO	A	20	N	
	1	AG YEAR-MFG HD=YEAR/MFG	A	4		
	1	AH NATIONAL-STOCK-NO HD=NATIONAL/STOCK NO	A	13	N	
	1	AI COST HD=COST	N	9.2	N	
	1	AJ CAP-SENS-CODE HD=CAP/SENS/CODE	A	1		
	1	AK AVAIL-STATUS-CODE HD=AVAIL/STATUS/CODE	A	1	D	
	1	AL PREV-Avail-STATUS-CODE HD=PREV/AVAIL/STATUS	A	1		
	1	AM DATE-NASA-ACQ HD=DATE/NASA ACQ EM=Z(9)99/99/99	N	8.0		
	1	AO DATE-INST-ACQ EM=Z(9)99/99/99	N	8.0		
	1	AR ACQ-DOC-CNTL-NO HD=ACQ DOC/CONTROL NO	A	11	N	
	1	AU CUST-ACCT-NO HD=CUST/ACCT/NO	A	5	N D	
	1	AV CUST-NO HD=CUST/NO	A	6	N D	
	1	AX USER-NO HD=USER/NO	A	6	N D	
	1	AY EQUIP-ZIP-CODE HD=EQUIP/ZIP/CODE	A	5	D	
	1	AZ EQUIP-BUILDING HD=EQUIP/BLDG	A	10	N D	
	1	BA EQUIP-ROOM HD=EQUIP/ROOM	A	5	N	
	1	BC DATE-INVENTORIED HD=DATE/INVENTORIED EM=Z(9)99/99/99	N	8.0	N	
	1	BE DATE-AVAILABLE HD=DATE/AVAILABLE EM=Z(9)99/99/99	N	8.0	N	
	1	BF EST-COST-CODE HD=EST/COST/CODE	A	1		
	1	BG CONDITION-CODE HD=COND/CODE	A	2		
	1	BH UNIQUE-EQUIP-NO HD=UNIQUE/EQUIP NO	A	8	N D	
	1	BI HAZ-MATERIAL-CODE HD=HAZ/MAT/CODE	A	1		
	1	BJ PREC-METAL-CODE HD=PREC/METAL/CODE	A	1		
	1	BK DATE-LAST-CALIBRATED HD=DATE LAST/CALIBRATED EM=Z(9)99/99/99	N	8.0	N	

1	BL	DATE-CALIBRATION-DUE HD=DATE/CALIBRATION/DUE EM=Z(9)99/99/99	N	8.0	N
1	BM	DATE-WRNTY-EXP-MATERIAL HD=DATE WRNTY/EXP-MAT EM=99/99	N	6.0	N
1	BN	DATE-WRNTY-EXP-LABOR HD=DATE WRNTY/EXP-LABOR EM=99/99	N	6.0	N
1	BO	OTHER-AGENCY-NO HD=OTHER/AGENCY/NO	N	2.0	N
1	BP	CONTRACTOR-TAG-NO HD=CONTRACTOR/TAG NO	A	13	N D
1	BQ	CONTRACTOR-ACCT HD=CONTRACTOR/ACCT	A	9	N D
1	BR	L-L-DOC-NO HD=LOAN/LEASE/DOC NO	A	6	N D
1	BS	DATE-L-L-B-IN-DUE HD=LOANLEASE/BORROW/IN DUE EM=Z(9)99/99/99	N	8.0	N
1	BT	DATE-LOANED-OUT HD=DATE/LOANED/OUT EM=Z(9)99/99/99	N	8.0	N
1	BU	DATE-LEASED-OUT HD=DATE/LEASED/OUT EM=Z(9)99/99/99	N	8.0	N
1	BV	DATE-SHIPPED-OTHER-INST HD=DATE/SHIPPED/OTHER INST EM=Z(9)99/99/99	N	8.0	N
1	BW	DATE-BORROWED-OUT HD=DATE/BORROWED/OUT EM=Z(9)99/99/99	N	8.0	N
1	BX	DATE-STORAGE-DUE HD=DATE/STORAGE/DUE EM=Z(9)99/99/99	N	8.0	N
1	CA	DATE-L-L-B-OUT-DUE HD=LOAN LEASE/BORROW/OUT DUE EM=Z(9)99/99/99	N	8.0	N
1	HD	DATE-REPAIR-RETURN-DUE HD=DATE/REPAIR/DUE EM=Z(9)99/99/99	N	8.0	N
1	CE	EQUIP-MGMT-CODE HD=EQUIP/MGMT/ CODE	A	1	
1	CF	IDLE-EQUIP-CODE HD=IDLE/EQUIP/ CODE	A	1	
1	CG	LABOR-COST-LAST-SERV HD=LABOR/COST/LAST	N	6.0	N
1	CJ	PARTS-COST-LAST-SERV HD=PARTS/COST/LAST	N	6.0	N
1	CN	DATE-LAST-SERV HD=DATE/LAST/SERVICED EM=Z(9)99/99/99	N	8.0	N
1	CO	CONTRACTOR-CONVEYOR HD=CONTRACTOR/CONVEYOR	A	9	N
1	CP	INST-CONVEYOR HD=INST/CONVEYOR	N	4.0	N
1	CQ	CONTRACTOR-RECEIVER HD=CONTRACTOR/RECEIVER	A	9	N
1	CR	INST-RECEIVER HD=INST/RECEIVER	N	4.0	N
1	CS	FREEZE-NO HD=FREEZE NO	N	10.0	
1	CT	PREVIOUS-ECN HD=PREVIOUS/ECN	A	7	N
1	CU	MFG-NAME HD=MANUFACTURER NAME	A	30	N
1	CW	ENTRY-REF-NO HD=ENTRY/REF NO	N	10.0	N D
1	CX	TRANS-NO HD=TRANS/NO	A	3	N D
1	CY	LOCAL-DATA	A	70	N

		HD=LOCAL/DATA			
1	DA	PRINT-NEMS-1	A	1	
		HD=PRINT/NEMS/1			
1	DB	CURRENT-DATE	N	8.0	N
		HD=CURRENT/DATE			
		EM=Z(9)99/99/99			
1	DC	CURRENT-TIME	N	7.0	N
		HD=CURRENT/TIME			
1	DD	NEMS-USER-ID	A	8	
		HD=USER/ID			
1	DE	ADJUSTMENT-COST	N	9.2	N
1	DF	RECON-CODE	A	1	N
1	DG	ADJ-DOC-REF	A	11	N
1	DH	PREV-CUST-ACCT-NO	A	5	N
		HD=PREVIOUS/CUST ACCT/NUMBER			
1	DI	PREV-NATIONAL-STOCK-NO	A	13	N
		HD=PREVIOUS/NATIONAL/STOCK NO			
1	DJ	PREV-COST	N	9.2	N
		HD=PREVIOUS/COST			
1	DK	PREV-CAP-SENS-CODE	A	1	F
		HD=PREVIOUS/CAP SENS/CODE			
1	DL	PREV-USER-NO	A	6	N
		HD=PREVIOUS/USER NO			
1	DM	PREV-CUST-NO	A	6	N
		HD=PREVIOUS/CUST NO			
1	SA	FED-SUPPLY-GROUP	A	2	N S

DB 0	File 186	- NEMS-CONTROL	Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
1	AA	CONTROL-SEQ HD=CONTROL/SEQ NO	A	6	D	
1	AG	CONTROL-KEY HD=CONTROL/KEY	A	8	D	
1	BA	CONTROL-1 HD=RESTORE/SWITCH	A	1	F D	
1	BC	CONTROL-2 HD=BACKUP/SWITCH	A	1	F D	
1	BE	CONTROL-3 HD=EDIT-UPDATE/SWITCH	A	1	F D	
1	BG	CONTROL-4 HD=GLOBALS/SWITCH	A	1	F D	
1	BI	CONTROL-5 HD=ARCHIVE/SWITCH	A	1	F D	
1	BK	CONTROL-6 HD=REPORT/SWITCH	A	1	F D	
1	BM	CONTROL-7 HD=NOT-USED/SWITCH	A	1	F D	
1	BO	CONTROL-8 HD=NOT-USED/SWITCH	A	1	F D	
1	BQ	CONTROL-9 HD=NOT-USED/SWITCH	A	1	F D	
1	BS	CONTROL-10 HD=NAT-USED/SWITCH	A	1	F D	
1	BU	CONTROL-11 HD=NOT-USED/SWITCH	A	1	F D	
1	BW	CONTROL-12 HD=BACKUP/SWITCH	A	1	F D	
1	CA	JCL-CARD HD=JCL CARD/IMAGE	A	72	N	

DB 0	File 189	- NEMS-GLOBL-TRANS	Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
1	AA	ENTRY-REF-NO HD=ENTRY/REF NO	N	10.0	N D	
1	AB	PROCESS-SW HD=PROCESS/SWITCH	A	1	F D	
1	AC	TRANS-NO HD=TRANS/NO	A	3	N	
1	AE	LOCAL-DATA HD=LOCAL/DATA	A	70	N	
1	AG	PRINT-NEMS-1 HD=PRINT/NEMS/1	A	1	F	
1	AI	CURRENT-DATE HD=CURRENT/DATE	A	8	N	
1	AK	CURRENT-TIME HD=CURRENT/TIME	N	7.0	N	
1	AO	NEMS-USER-ID HD=USER/ID	A	8	F	
1	AQ	QUALIFIER-NO-1 HD=QUALIFIER/NO-1	A	2	F D	
1	AU	QUALIFIER-START-1 HD=QUALIFIER/START-1	A	30	N	
1	AW	QUALIFIER-END-1 HD=QUALIFIER/END-1	A	30	N	
1	AY	QUALIFIER-NO-2 HD=QUALIFIER/NO-2	A	2	F D	
1	BA	QUALIFIER-START-2 HD=QUALIFIER/START-2	A	30	N	
1	BC	QUALIFIER-END-2 HD=QUALIFIER/END-2	A	30	N	
1	BE	QUALIFIER-NO-3 HD=QUALIFIER/NO-3	A	2	F D	
1	BG	QUALIFIER-START-3 HD=QUALIFIER/START-3	A	30	N	
1	BJ	QUALIFIER-END-3 HD=QUALIFIER/END-3	A	30	N	
1	BL	CHANGE-FIELD-NO HD=CHANGE/FIELD/NO	A	2	F D	
1	BN	OLD-VALUE HD=OLD VALUE	A	70	N	
1	BP	NEW-VALUE HD=NEW VALUE	A	70	N	
1	BR	REC-COUNT-SELECTED HD=REC/COUNT/SELECTED	N	7.0	N	
1	BT	REC-COUNT-CHANGED HD=REC/COUNT/CHANGED	N	7.0	N	
1	BU	ERROR-CODE HD=ERROR/CODE	A	70	N	
1	BX	RPT-500-SW HD=RPT/500 SW	A	1	F D	
1	BZ	REC-COUNT-QUALIFIED HD=REC/COUNT/QUALIFIED	N	7.0	N	

DB 0	File 194	- NEMS-REPORTS	Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
1	AA	REPORT-NUMBER HD=REPORT/NUMBER	A	3	D	
1	AC	REPORT-FREQ HD=REPORT/FREQUENCY	A	2	D	
1	AE	REPORT-EFF-DATE HD=EFFECTIVE/DATE	A	7	D	
1	AG	REPORT-USERID HD=REQUESTING/USERID	A	8	D	
1	AH	REPORT-PARAMS HD=REPORT PARAMETERS	A	150	N	
1	AI	REPORT-DEST HD=REPORT/DESTINATION	A	10	N	
1	AK	REPORT-MAIL-STOP HD=MAIL STOP	A	7	N	
1	AM	REPORT-COPIES HD=NUMBER/COPIES	N	2.0	N	
1	AO	REPORT-DIST HD=REPORT/DISTRIBUTION	A	20	N	
1	AQ	REPORT-INSTAL HD=REPORT INSTALLATION	A	40	N	
1	AS	REPORT-XEROX HD=XEROX/PRINT	A	1		
1	AU	REPORT-BINDING HD=BINDING	A	1		
1	AW	REPORT-STATUS HD=REPORT/STATUS	A	1		
1	BA	REPORT-SELECTION HD=REPORT SELECTION VALUES	A	250	N	
1	BD	REPORT-WHERE HD=REPORT WHERE FIELDS	A	250	N	
1	BG	REPORT-SORT HD=REPORT SORT FIELDS	A	250	N	
1	BJ	REPORT-DISPLAY HD=REPORT DISPLAY FIELDS	A	253	N	

DB 0	File 192 - NEMS-INVENTORY		Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
1	AA	INV-RECORD-TYPE	A	1	F D	
1	AC	INV-PROCESS-TYPE	A	1	F D	
1	AE	INV-ACCOUNT-TYPE	A	1	F D	
1	AF	INV-PROCESS-FLAG	A	1	F D	
1	AG	INV-DISCREPANCY-FLAG	A	1	F D	
1	AI	INV-ACCOUNT-NO	A	5	N D	
1	AJ	INV-LOCATION-NO	A	5	N D	
1	AK	INV-SUB-ACCT-NO	A	5	N D	
1	AO	INV-OPEN-DATE	A	8	N D	
1	AQ	INV-PROCESS-DATE	A	8	N	
1	AU	INV-CLOSE-DATE	A	8	N	
1	AW	INV-DATE-STAMP	A	8	N	
1	AY	INV-TIME-STAMP	A	10	N	
1	BA	INV-USERID-STAMP	A	8	N	
1	BC	INV-ECN	A	7	D	
1	BD	INV-ITEM-NAME	A	30	N	
1	BF	INV-MFG-CODE	A	5		
1	BH	INV-MFG-MODEL-NO	A	20	N	
1	BJ	INV-MFG-SERIAL-NO	A	20	N	
1	BL	INV-DATE-INVENTORIED	N	8.0	D	
1	BN	INV-CUST-ACCT-NO	A	5	N D	
1	BO	INV-LOCATION	A	5	N D	
1	BP	INV-CUST-NO	A	6	N	
1	BR	INV-USER-NO	A	6	N	
1	BT	INV-EQUIP-ZIP-CODE	A	5		
1	BV	INV-EQUIP-BUILDING	A	10	N	
1	BX	INV-EQUIP-ROOM	A	5	N	
1	BZ	INV-IDLE-EQUIP-CODE	A	1	F	
1	CA	INV-EQUIP-MGMT-CODE	A	1	F	
1	CC	INV-EQUIP-IN-CODE	A	1	F	
1	CE	INV-EQUIP-OUT-CODE	A	1	F	
1	CF	INV-CAP-SENS-CODE	A	1	F	
1	CH	INV-COST	N	9.2	N	
1	CJ	INV-INST-ACCT	N	2.0		
1	CL	INV-INST-SUB	N	2.0	D	
1	CN	INV-NEMS1-SW	A	1	F D	
1	CP	INV-LOC-CHANGE-SW	A	1	F D	
1	CQ	INV-ACCT-LOC-SW	A	1	N	
1	ZA	SUPER-INV-DISCREPANCY	A	10	S	
1	ZB	SUPER-INV-PROCESS-CUST	A	9	N S	
1	ZC	SUPER-INV-PROCESS-LOC	A	9	N S	

DB 0		File 185 - NEMS-BAR-CODE	Default Sequence				
TYL	DB	Name	F	Leng	S	D	Remarks
1	AA	BAR-PROCESS-FLAG	A	1	F	D	
1	AC	BAR-DISCREPANCY-FLAG	A	1	F	D	
1	AE	BAR-RECORD-TYPE	A	1	F	D	
1	AG	BAR-ACCOUNT-ENTERED	A	5	N	D	
1	AH	BAR-LOCATION-ENTERED	A	5	N	D	
1	AI	BAR-ACTUAL-ACCT	A	5	N	D	
1	AJ	BAR-ACTUAL-LOCATION	A	5	N	D	
1	AK	BAR-CURRENT-DATE	A	8	N		
1	AO	BAR-CURRENT-TIME	A	10	N		
1	AQ	BAR-USERID	A	8	N	D	
1	AU	BAR-UNIT-ID	A	7			
1	AW	BAR-OPERATOR-ID	A	6			
1	AY	BAR-DATE-INVENTORIED	N	8.0		D	
1	BA	BAR-CUST-ACCT-NO	A	5	N	D	
1	BB	BAR-LOCATION	A	5	N	D	
1	BC	BAR-EQUIP-BLDG	A	10		D	
1	BE	BAR-EQUIP-ROOM	A	5		D	
1	BG	BAR-ECN	A	7		D	
1	BI	BAR-FLAG	A	1	F	D	
1	BK	BAR-INST-ACCT	N	2.0			
1	BM	BAR-INST-SUB	N	2.0		D	
1	BO	BAR-REC-UPLOADED	N	7.0			
1	ZA	SUPER-BAR-DISCREPANCY	A	10		S	

DB 0	File 196	- NEMS-TRANSFER	Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks

1	AA	ECN HD=ECN	A	7	F D	
1	AB	INST-RECEIVER HD=INST/RECEIVER	N	4.0		
1	AC	INST-CONVEYOR HD=INST/CONVEYOR	N	4.0		
1	AD	TRANS-NO HD=TRANS/NO	A	3	N	
1	AE	DATE-SHIPPED-OTHER-INST HD=DATE/SHIPPED EM=Z(9)99/99/99	N	8.0	N	
1	BA	DATE-NASA-ACQ HD=DATE/NASA/ACQ EM=Z(9)99/99/99	N	8.0	N	
1	AF	ITEM-NAME HD=ITEM NAME	A	30	N	
1	BC	ITEM-NAME-STD HD=ITEM/NAME/STD	A	1	N	
1	AG	MFG-CODE HD=MFG CODE	A	5	F	
1	AH	MFG-MODEL-NO HD=MFG MODEL NO	A	20	N	
1	AI	MFG-SERIAL-NO HD=MFG SERIAL NO	A	20	N	
1	AJ	YEAR-MFG HD=YEAR/MFG	A	4	F	
1	AK	NATIONAL-STOCK-NO HD=NAT/STOCK/NO	A	13	N	
1	AL	COST HD=COST	N	9.2	N	
1	AM	CAP-SENS-CODE HD=CAP/SENS/CODE	A	1	F	
1	AN	EST-COST-CODE HD=EST/COST/CODE	A	1	F	
1	AO	CONDITION-CODE HD=COND/CODE	A	2	F	
1	AP	UNIQUE-EQUIP-NO HD=UNIQUE/EQUIP/NO	A	8	N	
1	AQ	HAZ-MATERIAL-CODE HD=HAZ/MAT/CODE	A	1	F	
1	AR	PREC-METAL-CODE HD=PREC/MET/CODE	A	1	F	
1	AS	DATE-LAST-CALIBRATED HD=DATE/LAST/CALIB EM=Z(9)99/99/99	N	8.0	N	
1	AT	DATE-CALIBRATION-DUE HD=DATE/CALIB/DUE EM=Z(9)99/99/99	N	8.0	N	
1	AU	DATE-WRNTY-EXP-MATERIAL HD=WRNTY/EXP/MAT EM=Z(9)99/99	N	6.0	N	
1	AV	DATE-WRNTY-EXP-LABOR HD=WRNTY/EXP/LABOR EM=Z(9)99/99	N	6.0	N	
1	AW	CONTRACTOR-TAG-NO HD=CONTRACTOR/TAG NO	A	13	N	
1	BD	DATE-ADDED-TO-TRANSFER HD=DATE/ADDED EM=Z(9)99/99/99	N	8.0	N	

DB 0	File 195	- NEMS-TABLE				Default Sequence	
TYL	DB	Name	F	Leng	S	D	Remarks
1	TA	TABLE-ID-KEY HD=TABLE/ID-KEY	A	13		D	
1	AB	T-MFG-NAME HD=MANUFACTURER NAME	A	30	N	D	
1	AC	T-MFG-ADDR HD=MANUFACTURER ADDRESS	A	40	N		
1	BB	T-EQUIP-TYPE-ACCT HD=EQUIP/TYPE/ACCT	N	4.0	N		
1	BC	T-FED-SUP-GP-DEF HD=FEDERAL SUPPLY/GROUP DEFINITION	A	70	N		
1	CB	T-EQUIP-TYPE-ACCT-DEF HD=EQUIPMENT TYPE/ACCOUNT DEFINITION	A	50	N		
1	DB	T-CUST-NO HD=CUST/NO	A	6	N		
1	DC	T-CUST-NAME HD=CUSTODIAN NAME	A	30	N	D	
1	DG	T-CUST-ACCT-NAME HD=CUST/ACCT/NAME	A	30	N		
1	DD	T-CUST-MAIL-CODE HD=CUST/MAIL/CODE	A	7	N		
1	DF	T-CUST-ORG-CODE HD=CUST/ORG CODE	A	7	N		
1	DH	T-PHONE-NO HD=PHONE/NUMBER	A	19	N		
1	EB	T-USER-NAME HD=USER NAME	A	30	N	D	
1	FB	T-BUILDING-NAME HD=BUILDING NAME	A	20	N	D	
1	GB	T-CAP-SENS-CODE-DEF HD=CAPITAL SENSITIVE/CODE DEFINITION	A	35	N		
1	HB	T-AGENCY-NAME HD=AGENCY NAME	A	50	N		
1	HC	T-AGENCY-ACRONYM HD=AGENCY ACRONYM	A	20	N		
1	IB	T-EQUIP-MGMT-CODE-DEF HD=EQUIPMENT MANAGEMENT/CODE DEFINITION	A	70	N		
1	JB	T-EQUIP-IN-CODE-DEF HD=EQUIPMENT IN/CODE DEFINITION	A	70	N		
1	KB	T-EQUIP-OUT-CODE-DEF HD=EQUIPMENT OUT/CODE DEFINITION	A	70	N		
1	LB	T-HAZ-MAT-CODE-DEF HD=HAZ MAT/CODE DEF	A	3	N		
1	MB	T-PREC-METAL-CODE-DEF HD=PREC METAL/CODE DEF	A	3	N		
1	NB	T-IDLE-EQUIP-CODE-DEF HD=IDLE EQUIP/CODE DEF	A	3	N		
1	OC	T-INST-NAME HD=INSTALLATION NAME	A	40	N		
1	OD	T-INST-ACRONYM HD=INST/ACRONYM	A	4	N		
1	OE	T-INST-ZIP-CODE HD=INST/ZIP/CODE	N	5.0	N		
1	OG	T-INST-DELETE-FORM HD=INST/DELETE/FORM	A	4	N		
1	PB	T-AVAIL-STAT-CODE-DEF	A	20	N		

DB 0	File 195	- NEMS-TABLE				Default Sequence	
TYL	DB	Name	F	Leng	S	D	Remarks
		HD=AVAILABILITY STATUS/CODE DEFINITION					
1	QB	T-CONDITION-CODE-DEF	A	25	N		
		HD=CONDITION CODE/DEFINITION					
1	RB	T-TRANS-NAME	A	70	N		
		HD=TRANSACTION NAME					
1	RC	T-TRANS-TYPE	A	1	N		
		HD=TRANS/TYPE					
1	RD	T-SHORT-TRANS-NAME	A	30	N		
		HD=SHORT TRANS NAME					
1	TC	TABLE-DESC	A	40	N		
		HD=TABLE DESCRIPTION					
1	TD	TABLE-AUTH	A	4	N		
		HD=TABLE AUTH					
1	UA	T-USERID-NAME	A	30	N		
		HD=USERID NAME					
1	UB	T-USERID-INST-ACCT	A	2	N		
		HD=USERID/INST/ACCT					
1	UC	T-USERID-INST-SUB	A	2	N		
		HD=USERID/INST/SUB					
G 1	UD	T-USERID-AUTH					
		HD=USERID AUTHORITY					
2	UE	T-EQUIP-AUTH	A	1	N		
		HD=EQUIP/AUTH					
2	UF	T-REPORT-AUTH	A	1	N		
		HD=REPORT/AUTH					
2	UG	T-TABLE-AUTH	A	1	N		
		HD=TABLE/AUTH					
2	UH	T-ADHOC-AUTH	A	1	N		
		HD=ADHOC/AUTH					
2	UI	T-MAINT-AUTH	A	1	N		
		HD=MAINT/AUTH					
1	VA	T-ERROR-MESSAGE	A	70	N		
		HD=ERROR MESSAGE					
1	WA	T-ENTRY-REFERENCE-NO	N	4.0	N		
		HD=ENTRY/REFERENCE/NUMBER					
1	WB	T-FREEZE-NO	N	4.0	N		
		HD=FREEZE/NUMBER					
1	XA	T-REPORT-NAME	A	60	N		
		HD=REPORT NAME					
1	XB	T-REPORT-OPTIONS	A	1	N		
		HD=REPORT OPTIONS					
1	XC	T-REPORT-RUNS	N	5.0	N		
		HD=NUMBER/RUNS					
1	YA	T-ACCEPT-REJECT-REASON	A	70	N		
		HD=ACCEPT-REJECT REASON					
1	SA	TABLE-ID	A	3	S		
1	SB	TABLE-KEY	A	10	S		

DB 0	File 191 - NEMS-INV-STATUS		Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
1	AA	STA-RECORD-TYPE	A	1	F D	
1	AC	STA-REC-PROCESSED	N	7.0		
1	AE	STA-OVERAGE	N	7.0		
1	AG	STA-UNDERAGE	N	7.0		
1	AI	STA-LOCATION	N	7.0		
1	AK	STA-ACCOUNT-NO	A	5	N D	
1	AL	STA-LOCATION-NO	A	5	N D	
1	AO	STA-OPEN-DATE	A	8		
1	AQ	STA-OPERATOR-ID	A	6	D	
1	AU	STA-UNIT-ID	A	7	D	
1	AW	STA-DATE-INVENTORIED	N	8.0	D	
1	AY	STA-TRANS-NO	A	3	N D	
1	BA	STA-BUILDING	A	10	N D	
1	BC	STA-ROOM	A	5	N	
1	BE	STA-COST	N	9.2	N	
1	BG	STA-INST-ACCT	N	2.0		
1	BI	STA-INST-SUB	N	2.0	D	
1	BK	STA-ECN	A	7	D	
1	BM	STA-CLOSE-DATE	A	8	N	
1	BO	STA-ITEM-NAME	A	30	N	
1	BQ	STA-ENTRY-REF-NO	N	10.0	N D	
1	BS	STA-COMMENTS	A	70	N	
1	BU	STA-CUST-ACCT-NEW	A	5	N	
1	BV	STA-LOCATION-NEW	A	5	N	
1	BW	STA-DISCREPANCY-FLAG	A	1	F	
1	SA	STA-TRANS-NO-ENTRY-REF	A	13	N S	
1	SC	STA-ACCT-NO-ENTRY-REF	A	15	N S	

DB	0	File 198 - NEMS-PCM-AUTH				Default Sequence	
TYL	DB	Name	F	Leng	S	D	Remarks
1	AA	AUTH-USERID HD=USERID	A	8		D	
1	AB	AUTH-USER-NAME HD=USER NAME	A	30		N	
1	AC	AUTH-INST-NO HD=INST/NO	N	4.0		N	
1	AD	AUTH-CUST-ACCT-NO HD=CUST/ACCT/NO	A	5		N D	
1	AE	AUTH-USER-TYPE HD=USER/TYPE	A	1		D	
1	AF	AUTH-SIGNATURE HD=SIGNATURE	A	8		D	
1	AG	AUTH-ADH-AUTH HD=ADH/SIGN	A	1			
M 1	AH	AUTH-TRANS-AUTH HD=TRANS/AUTH	A	3			
M 1	AI	AUTH-RPT-AUTH HD=RPT/AUTH	A	3			
1	AJ	AUTH-TABLE-UPDATE-AUTH HD=TBL/UPD/AUTH	A	1			
1	AK	AUTH-DATE-SIGN-CHANGED HD=DATE/SIGN/CHANGED	N	8.0		N	
1	AL	AUTH-TIME-SIGN-CHANGED HD=TIME/SIGN/CHANGED	N	7.0		N	
1	AM	AUTH-USER-SIGN-CHANGED HD=SIGN/CHANGED/BY	A	8		N	
1	AN	ATHRZTN-CSTDN-ACNT-IND HD=MULTIPLE/CUST ACCT/INDICATOR	A	1			

DB 0	File 197	- NEMS-PCM-PENDING	Default Sequence			
TYL	DB	Name	F	Leng	S D	Remarks
1	AA	PEND-ECN HD=ECN	A	7	F D	
1	AB	PEND-ENTRY-REF-NO HD=ENTRY REF/NUMBER	N	10.0	N	
1	AC	PEND-TRANS-NO HD=TRANS/NO	A	3	N	
1	AD	PEND-CUST-ACCT-NO HD=CUST/ACCT/NO	A	5	N D	
1	AE	PEND-TO-CUST-ACCT-NO HD=TO/CUST	A	5	N D	
1	AF	PEND-ACTION-DATE HD=ACTION/DATE EM=Z99/99/99	N	8.0	N D	
1	AG	PEND-ACTION-ACC-REJ HD=ACTION/ACCEPT/REJECT	A	1	N	
1	AH	PEND-ACTION-ACC-REJ-DATE HD=ACCEPT/REJECT/DATE EM=Z99/99/99	N	8.0	N	
1	AI	PEND-ACTION-ACC-REJ-REASON HD=ACCEPT/REJECT/REASON	A	2	N	
1	AJ	PEND-APPROVAL-NEEDED HD=APPROVAL/NEEDED	A	1	N D	
1	AK	PEND-ACQ-DOC-CNTL-NO HD=ACQ DOC/CONTROL NO	A	11	N	
1	AL	PEND-CONTRACTOR-CONVEYOR HD=CONTRACTOR/CONVEYOR	A	9	N	
1	AM	PEND-ITEM-NAME HD=ITEM NAME	A	30	N	
1	AN	PEND-OTHER-AGENCY-NO HD=OTHER/AGENCY/NO	N	2.0	N	
1	AO	PEND-MFG-CODE HD=MFG/CODE	A	5	N	
1	AP	PEND-MFG-MODEL-NO HD=MFG MODEL NO	A	20	N	
1	AQ	PEND-MFG-SERIAL-NO HD=MFG SERIAL NO	A	20	N	
1	AR	PEND-OLD-TAG-NO HD=OLD/TAG NO	A	8	N	
1	AS	PEND-NATIONAL-STOCK-NO HD=NATIONAL/STOCK NO	A	13	N	
1	AT	PEND-UNIQUE-EQUIP-NO HD=UNIQUE/EQUIP NO	A	8	N	
1	AU	PEND-EST-COST-CODE HD=EST/COST/CODE	A	1		
1	AV	PEND-USER-NO HD=USER/NO	A	6	N	
1	AW	PEND-EQUIP-ZIP-CODE HD=EQUIP/ZIP/CODE	A	5		
1	AX	PEND-EQUIP-BUILDING HD=EQUIP/BLDG	A	10	N	
1	AY	PEND-EQUIP-ROOM HD=EQUIP/ROOM	A	5	N	
1	AZ	PEND-CAP-SENS-CODE HD=CAP/SENS/CODE	A	1		
1	BA	PEND-CONDITION-CODE HD=COND/CODE	A	2		
1	BB	PEND-AVAIL-STATUS-CODE HD=AVAIL/STATUS/CODE	A	1		
1	BC	PEND-L-L-DOC-NO HD=LOAN/LEASE/DOC NO	A	6	N	
1	BD	PEND-HAZ-MATERIAL-CODE HD=HAZ/MAT/CODE	A	1		
1	BE	PEND-PREC-METAL-CODE HD=PREC/METAL/CODE	A	1		
1	BF	PEND-EQUIP-MGMT-CODE HD=EQUIP/MGMT/CODE	A	1		
1	BG	PEND-IDLE-EQUIP-CODE HD=IDLE/EQUIP/CODE	A	1		

1	BH	PEND-DATE-INST-ACQ HD=DATE/INST/ACQ EM=Z99/99/99	N	8.0	
1	BI	PEND-YEAR-MFG HD=YEAR/MFG	A	4	
1	BJ	PEND-DATE-INVENTORIED HD=DATE/INVENTORIED EM=Z99/99/99	N	8.0	N
1	BM	PEND-DATE-BORROWED-OUT HD=DATE/BORROWED/OUT EM=Z99/99/99	N	8.0	N
1	BN	PEND-DATE-LOANED-OUT HD=DATE/LOANED/OUT EM=Z99/99/99	N	8.0	N
1	BO	PEND-DATE-LEASED-OUT HD=DATE/LEASED/OUT EM=Z99/99/99	N	8.0	N
1	BP	PEND-DATE-AVAILABLE HD=DATE/AVAILABLE EM=Z99/99/99	N	8.0	N
1	BQ	PEND-DATE-L-L-B-OUT-DUE HD=LOAN LEASE/BORROW/OUT DUE EM=Z99/99/99	N	8.0	N
1	BR	PEND-DATE-L-L-B-IN-DUE HD=LOAN LEASE/BORROW/IN DUE EM=Z99/99/99	N	8.0	N
1	BS	PEND-DATE-STORED-IN HD=DATE/STORED/IN EM=Z99/99/99	N	8.0	N
1	BT	PEND-DATE-STORAGE-DUE HD=DATE/STORAGE/DUE EM=Z99/99/99	N	8.0	N
1	BU	PEND-DATE-SHIPPED-OTHER-INST HD=DATE/SHIPPED/OTHER INST EM=Z99/99/99	N	8.0	N
1	BV	PEND-DATE-LAST-SERV HD=DATE/LAST/SERVICED EM=Z99/99/99	N	8.0	N
1	BW	PEND-DATE-WRNTY-EXP-MATERIAL HD=DATE WRNTY/EXP-MAT EM=Z99/99	N	6.0	N
1	BX	PEND-DATE-WRNTY-EXP-LABOR HD=DATE WRNTY/EXP-LABOR EM=Z99/99	N	6.0	N
1	BY	PEND-LOCAL-DATA HD=LOCAL DATA	A	70	N
1	CA	PEND-FREEZE-NO HD=FREEZE NO	N	10.0	
1	CB	PEND-LABOR-COST-LAST-SERV HD=LABOR/COST/LAST EM=ZZZZZ9	N	6.0	N
1	CC	PEND-PARTS-COST-LAST-SERV HD=PARTS/COST/LAST EM=ZZZZZ9	N	6.0	N
1	CD	PEND-INST-RECEIVER HD=INST/RECEIVER	N	4.0	N
1	CE	PEND-CONTRACTOR-RECEIVER HD=CONTRACTOR/RECEIVER	A	9	N
1	CF	PEND-DATE-REPAIR-RETURN-DUE HD=DATE/REPAIR/DUE EM=Z99/99/99	N	8.0	N
1	CG	PEND-NO-OF-TIMES-SERV HD=NO OF/TIMES/SERV	N	1.0	N
1	CH	PEND-LOCATION HD=LOCATION	A	5	N
1	DA	PEND-ACTN-CODE HD=ACTN/CODE	A	2	D

APPENDIX D - NEMS BATCH JCL

```

JCLJOB 050010X          //IRNEMSTR JOB (MSIRMNEMS004,4201),'NEMS PMGR',CLASS=D,
JCLJOB 050020 X        X//IRNEMSMP JOB (MSIRMNEMS004,4201),'NEMS PGMR',CLASS=D,
JCLJOB 050030 X        //IRNEMSUP JOB (MSIRMNEMS004,4201),'NEMS PGMR',CLASS=D,
JCLJOB 050040 X        //IRNEMSLX JOB (MSIRMNEMS004,4201),'NEMS PROG',CLASS=D,
JCLJOB 050060 X        //IRNEM999 JOB (MSIRMNEMS004,4201),'NEMS PGMR',CLASS=D,
JCLJOB 050110 X //IRNEMSNT JOB (MSIRMNEMS004,4201),'NEMS PGMR',CLASS=D,
JCLJOB2 050310XXXX X  XX//
                        MSGCLASS=I,NOTIFY=XXXXX
JCLJOB2 050312XXXX X  XX/*JOBPARM L=150,LINECT=66
JCLOUTP 050910XXXX X  XX//HP4201  OUTPUT DEFAULT=NO,CLASS=I,DEST=U1109
JCLOUTP 050915XXXX X  XX//HP1342  OUTPUT DEFAULT=NO,CLASS=I,DEST=U1109
JCLOUTP 050920XXXX X  XX//HP1602  OUTPUT DEFAULT=NO,CLASS=I,DEST=U1109
JCLOUTP 050910XXXX X  XX//LP4201  OUTPUT DEFAULT=NO,CLASS=7,DEST=HCCA,WRITER=P3103102
JCLEXEC 100010XXXX X  XX//NEMSNAT1 EXEC N01Z
JCLDD 100110XXXX X    XX//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 100120XXXX X    XX//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 100130XXXX X    XX//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 100150XXXX X    XX//SORTWK04 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 100160XXXX X    XX//SORTWK05 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 100165XXXX X    XX//SORTWK06 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 100180XXXX X    XX//SORTOUT DD DUMMY,DCB=BLKSIZE=80
JCLDD 100200XXXX X    XX//DDSORTIN DD DISP=(,DELETE),DCB=RECFM=FB,
JCLDD 100210XXXX X    XX//
                        UNIT=SYSDA,SPACE=(CYL,(1,3))
JCLDD 100220XXXX X    XX//DDSORTUT DD UNIT=SYSDA,DISP=(,DELETE),DCB=RECFM=FB,SPACE=(CYL,(1,3))
JCLDD 100230XXXX X    XX//SYSOUT DD SYSOUT=*
JCLDD 100240XXXX X    XX//SORTMSG DD SYSOUT=*
JCLDD 100250XXXX X    XX//SYSPRINT DD SYSOUT=*
JCLDD 100270XXXX X    XX//DDPRINT DD SYSOUT=*
JCLDD 100310XXXX X    XX//CMPRINT DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLPRINT100310 //CMPRINT DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLDD 100311 X //CMPRT02 DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLPRINT100311 //CMPRT02 DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLDD 100360 X X //CMPRT04 DD SYSOUT=(,),OUTPUT=(*.HP1602),COPIES=1
JCLDD 100365 X X //CMPRT05 DD SYSOUT=(,),OUTPUT=(*.HP1342),COPIES=1,DCB=BLKSIZE=64
JCLDD 100410XXXX X    XX//CMWKF01 DD SYSOUT=(A,INTRDR),DCB=(RECFM=F,LRECL=80,BLKSIZE=6160)
JCLDD 100420XXXX X    XX//CMWKF02 DD DSN=MSIRM.NEMS.JOURNAL,DISP=MOD
JCLMSM02100430 M //CMWKF03 DD DUMMY,DCB=BLKSIZE=562
JCLMSM02100440 M //CMWKF04 DD DSN=MSIRM.NEMS.MNTHTRNS(+1),
JCLMSM02100441 M //
                        DISP=(NEW,CATLG,DELETE),DCB=(NACCADM.MD,
JCLMSM02100442 M //
                        RECFM=FB,LRECL=562,BLKSIZE=5620),UNIT=SYSDA,
JCLMSM02100443 M //
                        SPACE=(CYL,(1,3))
JCLDD 100470 X X //CMWKF07 DD DISP=(,DELETE),
JCLDD 100471 X X //
                        UNIT=SYSDA,SPACE=(CYL,(1,3)),DCB=RECFM=FB
JCLMSM01100472 M //CMWKF07 DD DISP=(,DELETE),
JCLMSM01100473 M //
                        DCB=(RECFM=FB,LRECL=140,BLKSIZE=1400),
JCLMSM01100474 M //
                        UNIT=SYSDA,SPACE=(CYL,(1,1))
JCLMSA02100480 M //CMWKF08 DD DSN=MSIRM.NEMS.HISTDATA(+1),

```

```

JCLMSA02100481      M //          DISP=(NEW,CATLG,DELETE),DCB=(NACCADM.MD,
JCLMSA02100482      M //          RECFM=FB,LRECL=721,BLKSIZE=7210),UNIT=SYSDA,
JCLMSA02100483      M //          SPACE=(CYL,(1,3))
JCLDD  100490      X //CMWKF09 DD DSN=&&NEMSWRK9,DISP=(,DELETE),
JCLDD  100491      X //          UNIT=SYSDA,SPACE=(CYL,(1,1)),DCB=(RECFM=FB)
JCLDD  100495      X //CMWKF10 DD DSN=&&NEMSWK10,DISP=(,DELETE),
JCLDD  100496      X //          UNIT=SYSDA,SPACE=(CYL,(5,2)),DCB=(RECFM=FB)
JCLDD  100497      X //CMWKF12 DD DSN=MSIRM.NEMS.PROD.TRANSFER,DISP=SHR,
JCLDD  100498      X //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
JCLDD  100499      X //CMWKF13 DD DSN=&&NEMSWK13,DISP=(,DELETE),
JCLDD  100500      X //          UNIT=SYSDA,SPACE=(CYL,(10,5),RLSE),
JCLDD  100501      X //          DCB=(RECFM=FB,LRECL=240,BLKSIZE=1920)
JCLDD  100502      X //CMWKF14 DD DSN=MSIRM.NEMS.NTS.TRANSFER(+1),DISP=(,CATLG,DELETE),
JCLDD  100503      X //          DCB=(NACCADM.MD,RECFM=FB,LRECL=720,BLKSIZE=5760),
JCLDD  100504      X //          UNIT=SYSDA,SPACE=(CYL,(1,1),RLSE)
JCLDD  100510XXXX X XX//CMSYNIN DD *
JCLNATLG100511X XX X X NEDEVL,NEBATCH
JCLNATLG100512X XX X X %*
JCLNATLG100513X XX X X NEBATCH
JCLPGM  100530X      JCLCHKP1 UTIL 01 2
JCLPGM  100532 X      JCLCHKP1 UTIL 02 2
JCLPGM  100534 X      JCLCHKP1 UTIL 03 2
JCLPGM  100538      JCLCHKP1 UTIL 05 2
JCLPGM  100540      X JCLCHKP1 UTIL 11 2
JCLPGM  100542      XJCLCHKP1 UTIL 12 2
JCLPGM  100547 X      MSD005P1
JCLPGM  100550 X      MSD001P1
JCLPGM  100555      MSD009P1 _____/* X OUT OF CNTL 3 TO REMOVE 1342 PRINTS NEMS PRINT1
JCLPGM  100570      X RPT999P1
JCLPGM  100574      X MSD008P1
JCLPGM  100576      MSD008P8
JCLMAINT100580      X MSZ099P1
JCLPGM  100582 X      INVBCHP1
JCLPGM  100585 X      TRN062PA
JCLPGM  100597      MSD008P1
JCLNAT  100598XXXX X XXFIN
JCLECARD100599XXXX X XX/*
JCLEXEC 400010XXX XX//NEMSNAT2 EXEC N01Z,COND=(0,NE)
JCLDD  400110XXX XX//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD  400120XXX XX//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD  400130XXX XX//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD  400150XXX XX//SORTWK04 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD  400180XXX XX//SORTOUT DD DUMMY,DCB=BLKSIZE=80
JCLDD  400200XXX XX//DDSORTIN DD DISP=(,DELETE),DCB=RECFM=FB,
JCLDD  400210XXX XX//          UNIT=SYSDA,SPACE=(CYL,(1,3))
JCLDD  400220XXX XX//DDSORTUT DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(CYL,(1,3)),DCB=RECFM=FB
JCLDD  400230XXX XX//SYSOUT DD SYSOUT=*
JCLDD  400240XXX XX//SORTMSG DD SYSOUT=*

```

```

JCLDD 400250XXX XX//SYSRINT DD SYSOUT=*
JCLDD 400260XXX XX//SYSUDUMP DD SYSOUT=*
JCLDD 400270XXX X XX//DDPRINT DD SYSOUT=*
JCLPRINT400310XXX XX//CMPRINT DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLDD 400410XXX XX//CMWKF01 DD SYSOUT=(A,INTRDR),DCB=(RECFM=F,LRECL=80,BLKSIZE=6160)
JCLDD 400420XXX XX//CMWKF02 DD DSN=MSIRM.NEMS.JOURNAL,DISP=MOD
JCLDD 400510XXX XX//CMSYNIN DD *
JCLNATLG400511X X X NEDEVL,NEBATCH
JCLNATLG400512X X X %*
JCLNATLG400513X X X NEBATCH
JCLPGM 400530X JCLCHKP1 UTIL 01 8
JCLPGM 400532 X JCLCHKP1 UTIL 02 8
JCLPGM 400534 X JCLCHKP1 UTIL 03 8
JCLPGM 400538 JCLCHKP1 UTIL 05 8
JCLPGM 400539 D MSD004P1
JCLPGM 400540 X JCLCHKP1 UTIL 11 8
JCLPGM 400542 XJCLCHKP1 UTIL 12 8
JCLNAT 400580XXX XXFIN
JCLECARD400599XXX XX/*
JCLEXEC 500010XXXX X XX//NEMSNAT3 EXEC N01Z,COND=ONLY
JCLDD 500110XXXX X XX//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 500120XXXX X XX//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 500130XXXX X XX//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 500150XXXX X XX//SORTWK04 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 500180XXXX X XX//SORTOUT DD DUMMY,DCB=BLKSIZE=80
JCLDD 500200XXXX X XX//DDSORTIN DD DISP=(,DELETE),DCB=RECFM=FB,
JCLDD 500210XXXX X XX// UNIT=SYSDA,SPACE=(CYL,(1,3))
JCLDD 500220XXXX X XX//DDSORTUT DD UNIT=SYSDA,DISP=(,DELETE),DCB=RECFM=FB,SPACE=(CYL,(1,3))
JCLCOMM 500225XXXX X XX/*
JCLDD 500230XXXX X XX//SYSOUT DD SYSOUT=*
JCLDD 500240XXXX X XX//SORTMSG DD SYSOUT=*
JCLDD 500250XXXX X XX//SYSRINT DD SYSOUT=*
JCLSPRNT500255 P //SYSRINT DD SYSOUT=*,COPIES=01
JCLDD 500260XXXX X XX//SYSUDUMP DD SYSOUT=*
JCLDD 500270XXXX X XX//DDPRINT DD SYSOUT=*
JCLPRINT500310XXXX XX//CMPRINT DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLSPRNT500315 P //CMPRINT DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLDD 500410XXXX X XX//CMWKF01 DD SYSOUT=(A,INTRDR),DCB=(RECFM=F,LRECL=80,BLKSIZE=6160)
JCLDD 500420XXXX X XX//CMWKF02 DD DSN=MSIRM.NEMS.JOURNAL,DISP=MOD
JCLDD 500510XXXX X XX//CMSYNIN DD *
JCLNATLG500511X XX X X NEDEVL,NEBATCH
JCLNATLG500512X XX X X %*
JCLNATLG500513X XX X X NEBATCH
JCLPGM 500530X JCLCHKP1 UTIL 01 9
JCLPGM 500532 X JCLCHKP1 UTIL 02 9
JCLPGM 500534 X JCLCHKP1 UTIL 03 9
JCLPGM 500538 JCLCHKP1 UTIL 05 9
JCLPGM 500540 X JCLCHKP1 UTIL 11 9

```

```

JCLPGM 500542          XJCLCHKP1 UTIL 12 9
JCLPGM2 500579XXXX X  XXJRNRP1
JCLNAT 500580XXXX X  XXFIN
JCLECARD500599XXXX X  XX/*
JCLEEXEC 600010      //NDBAT EXEC NDMBAT,
JCLEEXEC 600050      //          PROCLB1='MSIRM.NEMS.NDM.PROCESS.LIB'
JCLCOMM 600090      // *
JCLDD 600180        //SYSIN DD *
JCLDD 600190        SIGNON USERID=(XXXX,XXXX)
JCLDD 600200        SUBMIT PROC=NEMSHQ
JCLDD 600210        //****SEL PROC WHERE (QUEUE=A) TABLE
JCLDD 600220        /*
JCLCOMM 600910      // *
JCLCOMM 600920      // *
JCLEEXEC 900010XXXX X  XX//NEMSNAT4 EXEC N01Z,COND=EVEN
JCLDD 900100XXXX X  XX//SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR
JCLDD 900110XXXX X  XX//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 900120XXXX X  XX//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 900130XXXX X  XX//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 900150XXXX X  XX//SORTWK04 DD UNIT=SYSDA,SPACE=(CYL,(50,10))
JCLDD 900180XXXX X  XX//SORTOUT DD DUMMY,DCB=BLKSIZE=80
JCLDD 900200XXXX X  XX//DDSORTIN DD DISP=(,DELETE),DCB=RECFM=FB,
JCLDD 900210XXXX X  XX//          UNIT=SYSDA,SPACE=(CYL,(1,3))
JCLDD 900220XXXX X  XX//DDSORTUT DD UNIT=SYSDA,DISP=(,DELETE),DCB=RECFM=FB,SPACE=(CYL,(1,3))
JCLDD 900230XXXX X  XX//SYSOUT DD SYSOUT=*
JCLDD 900240XXXX X  XX//SORTMSG DD SYSOUT=*
JCLDD 900250XXXX X  XX//SYSPRINT DD SYSOUT=*
JCLSPRNT900255 P      //SYSPRINT DD SYSOUT=*,COPIES=01
JCLDD 900260XXXX X  XX//SYSUDUMP DD SYSOUT=*
JCLDD 900270XXXX X  XX//DDPRINT DD SYSOUT=*
JCLPRINT900310XXXX X  XX//CMPRINT DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLSPRNT900315 P      //CMPRINT DD SYSOUT=(,),OUTPUT=(*.HP4201),COPIES=1
JCLCOMM 900400XXXX X  XX/*
JCLDD 900410XXXX X  XX//CMWKF01 DD SYSOUT=(A,INTRDR),DCB=(RECFM=F,LRECL=80,BLKSIZE=6160)
JCLDD 900420XXXX X  XX//CMWKF02 DD DSN=MSIRM.NEMS.JOURNAL,DISP=MOD
JCLDD 900430        X //CMWKF03 DD DSN=MSIRM.NEMS.JOURNAL,DISP=OLD
JCLDD 900510XXXX X  XX//CMSYNIN DD *
JCLNATLG900511X XX X  X NEDEVL,NEBATCH
JCLNATLG900512X XX X  X %*
JCLNATLG900513X XX X  X NEBATCH
JCLPGM 900530XXX     XXJCLGENP1 GEN
JCLPGM2 900535 X     JCLCHKP1 GLBL
JCLPGM2 900540 X     JCLCHKP1 REPT
JCLPGM 900570        X JRNRP1
JCLPGM 900571        X JRNCLRP1
JCLNAT 900580XXXX X  XXFIN
JCLECARD900599XXXX X  XX/*
JCLEOF 999999XXXX X  XX//

```