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Automated Equipment Management For Organization 9500

system
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Lewis A. Faw

MASTER

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→ AUTOMATED EQUIPMENT MANAGEMENT SYSTEM
FOR ORGANIZATION 9500 ✓

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Abstract

The Automated Equipment Management system for Organization 9500 is a series of computer programs designed to perform the following functions:

- a. Schedule several kinds of preventive maintenance on selected items of equipment, including electrical and mechanical tests, and adjustments.
- b. Maintain an up-to-date repair and maintenance history of the items charged to the organization as required by ERDA regulations.
- c. Maintain an up-to-date file of data to supplement the data in the corporate inventory master file. This data is intended for management use in studies, special reports, budget requests, etc. It also provides a check for the data most likely to change in the corporate master file to insure accuracy through a feedback loop.

The system is resident on the UNIVAC-1108 computer. It is in UNIVAC ANS COBOL (Field data).

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AUTOMATED EQUIPMENT MANAGEMENT SYSTEM FOR ORGANIZATION 9500

1. GENERAL DESCRIPTION.

The automated equipment management system for Organization 9500 is a series of computer programs designed to perform the following functions:

- a. Schedule several kinds of preventive maintenance on selected items of equipment, including lubrication, electrical and mechanical tests, and adjustments.
- b. Maintain an up-to-date repair and maintenance history of the items charged to the organization as required by ERDA regulations.
- c. Maintain an up-to-date file of data to supplement the data in the corporate inventory master file. This data is intended for management use in studies, special reports, budget requests, etc. It also provides a check for the data most likely to change in the corporate master file to insure accuracy through a feedback loop.

The system is resident on the UNIVAC 1108 computer. It is in COBOL and in field data. It consists of 39 active programs, 4 "permanent" files of data, and a number of temporary and scratch files. The permanent files are small compared to the normal COBOL data files. Since the files are not used often and then as background or non-prime-time runs, they could be tape files. The system was written as a number of smaller programs rather than several large ones to provide the greatest amount of flexibility in the writing of the programs and in their use.

The programs were written to use the corporation master data files wherever possible to avoid duplicating the input effort. Two earlier programs of preventive maintenance and repair history were bogged down in prior years due to the input effort (at that time corporate files were not available). This present system uses the corporate equipment file for equipment data and the accounting file for portions of the cost of repairs. Routine input is limited to the repair and maintenance portion of the system. Input for editing to correct errors is necessary, of course; but it is kept to a minimum. Some special forms of input that can be generated by computer are done in that way by special programs included in the system.

The programs are divided into two groups. The first group is programs that are included in the automatic updating of the files and the routine reports. This group of programs are run in the production control mode on a scheduled time basis. They are described in detail in Section 2 of this document labeled "PRODUCTION CONTROL PROGRAMS". The second group of programs are those which are run when needed. These are the edit programs, the input programs, and the special sort and print programs. This group is described in detail in Section 3 that follows labeled "LOCAL CONTROL PROGRAMS".

1. continued

The files are discussed in detail in Section 4 labeled "FILES" which follows. These are the permanent files on fastran and tape, and the temporary (but catalogued) files used by more than one program.

The various forms of input (including input to edit the files) are shown in Section 5 which follows labeled "INPUT FORMATS AND INSTRUCTIONS". A final Section 6, of interest primarily to the systems programmer, is labeled "PROGRAM DETAILS". This section provides details of each of the active programs shown in diagram form.

The manpower required to run this complete system for the directorate is estimated as follows, on a monthly basis:

(1) Normal data input

1 1/2 days, clerical

(2) Checking of changes in master files

2 - 3 days, clerical

(3) Editing, copying and moving input files, and editing changes

1 1/2 days, programmer

This can be handled by the present staff; indeed the first cycles that have occurred during the past few months require more than the normal effort and these have been done rather routinely.

The estimates do not consider any major changes or additions to the system.

2. PRODUCTION CONTROL PROGRAMS.

This section presents in diagram form the flow of information through the system in that portion of it that is in the production control mode. Paralleling the diagrams of the programs, the main files they use, and the listings that are produced, are shown the control streams needed to accomplish the process. The control streams do not show the @RUN, @SOC and @FIN cards.

The discussion is divided into 5 segments as follows:

a. Getting the listed data from the corporate master file. (2.1)

b. Updating the preventive maintenance file and producing the schedule.
(2.2)

2. continued

- c. Updating the repair and maintenance file and producing the end reports (update history). (2.3)
- d. Updating the inventory file, checking data, correcting both files, and writing routine reports. (Requires 2 control streams.) (2.4)
- e. Saving all current data on backup files. (2.5)

2.1 Copy Data from Master File.

2.1 continued

```
U208A*COBOL(1),MAKNEWEQUIP
  @ASG,A U467M*M-PRPMST.
  @USE M-PMS-PRPMST.,U467M*M-PRPMST.
  @ASG,A U208A*PMaster.
  @USE PMaster.,U208A*PMaster.
  @ASG,A U208A*EQUIPMENT.
  @USE EQUIPMENT.,U208A*EQUIPMENT
  @XQT U208A*COBOL.COB12
  @PRT,S U208A*COBOL.EQUIPMES
```

```
U208A*COBOL (1).EQUIPMES
```

```
*****
```

```
*
```

```
*A NEW VERSION OF THE EQUIPMENT FILE HAS JUST BEEN MADE. IT CONTAINS
*ALL THE ITEMS IN THE CORPORATE EQUIPMENT CHARGED TO THIS ORGANIZATION
*PLUS THOSE THAT RECEIVE PREVENTIVE MAINTENANCE FROM THIS ORGANIZATION.
```

```
*
```

```
*****
```

The above ADD elements should be initiated by the following command:

```
@ADD U208A*COBOL.MAKNEWEQUIP
```

Removable storage UR-0013 must be up and the file U208A*COBOL must be assigned prior to the @ADD command. Run on the 6th day of each month.

2.2 Update the Preventive Maintenance File and Produce the Schedule.

EQUIPMENT - Latest data
from corporate file.

PMASTER. Master file for
preventive maintenance.

This program reads EQUIPMENT
and PMASTER and updates into
NEWPMMASTER. It produces a list
of the updated file and a list
of changes made, a schedule of
maintenance and a deck of cards
for the work scheduled.

This listing is in S-number order.

This listing is in organization
order.

Each card gives name, organization,
identification, and location of each
item; the type of maintenance to be
done and the scheduled time.

2.2 continued

NEWPMaster (temporary)
Updated data.

NOTE: Records are edited
but not deleted by
this update.

PMaster

```

U208A*COBOL(1).RUNPMSCHED
  @ASG,A U208A*EQUIPMENT.
  @DELETE,C U999Z*208-011.
  @ASG,CP U999Z*208-011.
  @ASG,A U208A*PMaster.
  @USE PMaster.,U208A*PMaster.
  @ASG,T NEWPMaster.
  @ASG,T CHANGES.
  @AEC,T OIL.,F2//400
  @ASG,T TEA.
  @ASG,T XA,D17/100000.
  @ASG,T R$CORE,F2//30
  @USER*PLIB.INPAGE 208-011
  @XQT U208A*COBOL.COB11A
  @USER*PLIB.ONLINE 208-011
  @COPY NEWPMaster.,PMaster.
  @PRT,S U208A*COBOL.PMES
  
```

2.2 continued

U208A*COBOL(1).PMES

*

*A NEW PREVENTIVE MAINTENANCE SCHEDULE HAS JUST BEEN MADE. THE UPDATED
*FILE HAS BEEN COPIED BACK INTO THE PMASTER FILE.

*

The @ADD element above should be initiated by the following command:

@ADD U208A*COBOL.RUNPMSCHED

The file, U208A*COBOL must be assigned.

This program divides the year into 13 4-week "months". The first month begins on the 1st Sunday after the 1st day of the year. Run the program 6 days before the beginning of each "month". For the first period, run after the first of the year and prior to beginning the first "month". Use the manual edit program COB14, between runs of COB11A.

2.3 Update Repair and Maintenance.

2.3 continued

PURGED. Temporary file copied in from tape. Contains purged data from last cycle. Copied to a backup tape file after use.

RAMASTER. Contains updated data. Purge items are marked.

This program purges the unwanted data. Inserts it into NEWPURGE, sends unpurged data to NEWRAMASTER.

NEWPURGE. Temporary file. Contains updated purged data. Copied to two backup tape files for next cycle.

NEWRAMASTER. Temporary file. Contains current updated, purged data.

2.3 continued

RAMASTER. Updated file.

Print program. Repair and maintenance history in S-number order.

Repair and maintenance history in S-number order. Includes a summary

2.3 continued

```
U208A*COBOL(1).RAMUPDATE
  @ASG,A U208A*RAMASTER.
  @USE RAMASTER.,U208A*RAMASTER.
  @ASG,T NEWRAMASTER.
  @ASG,A U208A*EQUIPMENT.
  @USE EQUIPMENT.,U208A*EQUIPMENT.
  @XQT U208A*COBOL.COB47
  @COPY NEWRAMASTER.,RAMASTER.
  @PRT,S U208A*COBOL.RAMES1
  @ASG,T TAPE1.,T,9656
  @REWIND TAPE1.
  @ASG,T PURGED.,F2///500
  @COPY,GM TAPE1.,PURGED.
  @ASG,T TAPE2.,T,6656
  @REWIND TAPE2.
  @ASG,T NEWPURGE.,F2///500
  @XQT U208A*COBOL.COB48
  @COPY NEWRAMASTER.,RAMASTER.
  @ASG,T TAPE3.,T,5155
  @REWIND TAPE3.
  @COPY,GM PURGED.,TAPE3.
  @REWIND TAPE3.
  @REWIND TAPE1.
  @COPY,GM NEWPURGE.,TAPE1.
  @REWIND TAPE1.
  @COPY,GM NEWPURGE.,TAPE2.
  @FREE TAPE1.,TAPE2.,TAPE3.
  @PRT,S U208A*COBOL.PMES2
  @ASG,T SUMMARY.
  @ASG,T XA,D17/300000
  @ASG,T R$CORE.,F2///40
  @XQT U208A*COBOL.COB46
```

```
U208A*COBOL(1).RAMES1
```

```
*****
```

```
*
```

```
*THE RAMASTER FILE HAS BEEN UPDATED BY MARKING THE DATA TO BE
*PURGED AND BY ADDING ANY NEW EQUIPMENT. THE UPDATED DATA HAS
*BEEN COPIED INTO RAMASTER FROM NEWRAMASTER.
```

```
*
```

```
*****
```

```
U208A*COBOL(1).RAMES2
```

```
*****
```

```
*
```

```
*THE PURGED DATA HAS BEEN REMOVED FROM THE RAMASTER FILE AND
*SAVED ON TAPES. THE RAMASTER FILE CONTAINS CURRENT DATA.
```

```
*
```

```
*****
```

2.3 continued

The above ADD element should be initiated by the following command:

```
@ADD U208A*COBOL.RAMUPDATE
```

File U208A*COBOL must be assigned. Run on the 15th of the month, in the months of March, June, September and December.

2.4 Update the Inventory File.

EQUIPMENT. Latest data from corporate master.

MANMASTER. Corrected data of this organization's equipment from last update cycle plus any editing.

This program updates from the corporate master file. Makes a list of the file and a list of changes made during update. These are used for checking and possible corrections.

This listing goes to individual organizations for checking and corrections if update is not correct.

INV-CHANGES. Alternate print file. Contains the changes made during update. Becomes the basis of corrections to the changes.

2.4 continued

NEWMANMASTER. Temporary file.
Updated inventory from the corporate
master.

MANMASTER. Data updated from
corporate master file.

This listing has been corrected
manually with corrections inked in.

INV-CHANGES. Contains updating
changes.

Correct the INV-CHANGES file to
match the corrected listing.
This is an edit operation.

2.4 continued

INV-CHANGES. Data has now been corrected.

MANMASTER. Data has been updated from corporate master.

This program corrects the inventory to match the correction list and provide a listing for feedback to the corporate master.

This listing sent to 3411 to use for correcting any errors in the master file.

NEWMANMASTER. Temporary file. Contains updated, corrected data.

2.4 continued

2.4 continued

```
U208A*COBOL(1).UPDATE-INV
  @ASG,T NEWMANMASTER.
  @ASG,A U208A*MANMASTER.
  @USE MANMASTER.,U208A*MANMASTER.
  @ASG,A U208A*EQUIPMENT.
  @USE EQUIPMENT.,U208A*EQUIPMENT.
  @ASG,T XA,D17/300000
  @ASC,T R#CORE,F2///50
  @ASG,A U208A*INV-CHANGES.
  @USE INV-CHANGES.,U208A*INV-CHANGES.
  @XQT U208A*COBOL.COB67
  @COPY NEWMANMASTER.,U208A*MANMASTER.
  @PRT,S U208A*COBOL.INVMES1
```

```
U208A*COBOL(1).INVMES1
```

```
*****
```

```
*
```

```
*THE MANMASTER FILE HAS BEEN UPDATED USING THE LATEST DATA FROM
*THE CORPORATE MASTER EQUIPMENT FILE. THE LISTING SHOWING THE
*CHANGES WILL BE SEPARATED AND SENT TO THE VARIOUS ORGANIZATIONS
*FOR CHECKING AND TO MAKE CORRECTIONS IF NECESSARY. DISTRIBUTION
*IS NOT THE RESPONSIBILITY OF PRODUCTION CONTROL.
```

```
*
```

```
*****
```

The ADD element above should be initiated by the command:

```
@ADD U208A*COBOL.UPDATE-INV
```

File U208A*COBOL must be assigned. Run on the 6th of every month.

2.4 continued

```
U208A*COBOL(1).CORRECT-INV
  @ASG,A U208A*INV-CHANGES.
  @USE INV-CHANGES.,U208A*INV-CHANGES.
  @ASG,T NEWMANMASTER.
  @ASG,A U208A*MANMASTER.
  @ASG,T XA,D17/300000
  @ASG,T R$CORE,F2///40
  @ASG,T FEEDBACK.,F2///200
  @XQT U208A*COBOL.COB77
  @ADD U208A*INV-CHANGES.
  @COPY NEWMANMASTER.,U208A*MANMASTER.
  @XQT U208A*COBOL.COB60
  @XQT U208A*COBOL.COB90
  @PRT,S U208A*COBOL.INVMES2
```

```
U208A*COBOL(1).INVMES2
```

```
*****
```

```
*
```

```
*THE MANMASTER FILE HAS BEEN UPDATED AND CORRECTED. TWO
*COPIES OF THE FEEDBACK LISTING WILL BE SENT TO CORRECT THE
*CORPORATE MASTER EQUIPMENT FILE. THE LISTING SORTED ON
*ORGANIZATION WILL BE SEPARATED AND SENT OUT TO THE
*VARIOUS ORGANIZATIONS AS THEIR UPDATED INVENTORY LIST.
*DISTRIBUTION IS NOT THE RESPONSIBILITY OF PRODUCTION CONTROL.
```

```
*
```

```
*****
```

The ADD element above should be initiated by the following command:

```
@ADD U208A*COBOL.CORRECT-INV
```

File U208A*COBOL. must be assigned. Run on the 23rd of each month.

2.5 Save Current Data on Backup Tape.

2.5 continued

```
U208A*COBOL(1).MAKE-BACKUP
  @ASG,A U208A*PMaster.
  @ASG,A U208A*RAMaster.
  @ASG,A U208A*MANMaster.
  @ASG,A U208A*EQUIPMENT.
  @ASG,T TAPE.,T,377
  @REWIND TAPE.
  @COPY,GM U208A*PMaster.,TAPE.
  @COPY,GM U208A*RAMaster.,TAPE.
  @COPY,GM U208A*MANMaster.,TAPE.
  @COPY,GM U208A*EQUIPMENT.,TAPE.
  @FREE TAPE.
  @PRT,S U208A*COBOL.BAKMES
```

```
@PRT,S COBOL.BAKMES
```

```
U208A*COBOL(1).BAKMES
```

```
*****
```

```
*
```

```
*FILES HAVE BEEN SAVED ON TAPE 377.
```

```
*
```

```
*****
```

The above ADD element should be initiated by the following command:

```
@ADD U208A*COBOL.MAKE-BACKUP
```

File U208A*COBOL must be assigned and tape number 377 must be mounted.

Run on the 26th of each month.

2.5 continued

The foregoing diagrams show the portions of the system assigned to Production Control for execution. The process is equivalent to dropping the following run decks into the over-the-counter box the specified number of times:

```
@RUN 207AFW,00930409583P,U208A,10,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*COBOL.
@ADD U208A*COBOL.MAKNEWEQUIP
@FIN
```

(12 runs per year)

```
@RUN 207AFW,00930409583P,U208A,30,300
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*COBOL.
@ADD U208A*COBOL.RUNFMSCHED
@FIN
```

(13 runs per year)

```
@RUN 207AFW,00930409583P,U208A,40,1500
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*COBOL.
@ADD U208A*COBOL.RAMUPDATE
@FIN
```

(4 runs per year)

```
@RUN 207AFW,00930409583P,U208A,20,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*COBOL.
@ADD U208A*COBOL.UPDATE-INV
@FIN
```

(12 runs per year)

```
@RUN 207AFW,00930409583P,U208A,40,1000
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*COBOL.
@ADD U208A*COBOL.CORRECT-INV
@FIN
```

(12 runs per year)

```
@RUN 207AFW,00930409583P,U208A,5,100
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*COBOL.
@ADD U208A*COBOL.MAKE-BACKUP
@FIN
```

(12 runs per year)

3. LOCAL CONTROL PROGRAMS.

The programs discussed in this section are those that need to be run at 1 to 3 month intervals but do not require a regular time interval. They are not suited to the production control mode. These programs are the normal input of the repair and maintenance file and the edit programs used to correct the data in the permanent files. There are other seldom run programs that do special edits and are very useful at times. They are discussed in Section 6, "Program Details", written for the systems programmer.

The local control programs discussed next are done in diagram form in parallel with the control streams needed to run them. The input programs are discussed in 3.1 and the edit programs in 3.2.

3.1 Repair and Maintenance Input Programs.

The input of new data to the repair and maintenance history file is of two types. The first type is based on estimated costs and is used by Departments 9560 and 9580. The second type is based on actual costs using cost data from the accounting files and is used by Department 9570. The programs were written in such a way that 9570 can use type 1 now, and 9560 and 9580 could use type 2 with only minor programming effort. Type 1 is shown in 3.1.1 and 3.1.2; type 2 is shown in 3.1.3 and 3.1.4.

3.1.1 Input from OCR Tapes.

OCR. This magnetic tape file was made by the optical character reader. See Section 5 for input formats.

RAMASTER. Master file of repair and maintenance history.

This program reads the input data tape and intersperses it into the old data. Records with errors are copied to RAMERR for editing.

Listing of NEWRAMASTER.

RAMERR. This is an alternate print file. Input errors found are stored here. Correct the errors and add it to RERR for the next run.

NEWRAMASTER. Temporary file contains updated data with new input.

3.1.1 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583P,U208A,20,400
@SOC 458189643,FAW,LEW,,840
@ASG,A COBOL.
@ASG,A RAMASTER.
@ASG,A RAMERR.
@ASG,A NEWRAMASTER.
@ASG,T XA,D17/300000
@ASG,T R$CORE,F2//40
@ASG,THIE OCR.,T,4369
@REWIND OCR.
@XQT COBOL.COB49
@COPY NEWMANMASTER.,RAMASTER.
@FIN
```

3.1.2 Input From A File.

RERR. This file contains the input data in SDF format. Produced by teletype or as an alternate print file. Read in a card-reader file. (See Section 5 for format.)

RAMASTER. Master file for repair and maintenance data.

Listing of master file with latest input data.

RAMERR. Alternate print file. Errors found in input are stored here for correction. After editing it, add it to RERR for next run.

NEWRAMASTER. Temporary file. Contains updated data.

3.1.2 continued

RAMASTER. Contains updated data including new input.

Sample RUN deck:

```
@RUN 207AFW,00930409583P,U208A,20,400
@SOC 458189643,FAW,LEW,,840
@ASG,A COBOL.
@ASG,A RAMASTER.
@ASG,T NEWRAMASTER.
@ASG,A RAMERR.
@ASG,T XA,D17/300000
@ASG,T R$CORE,F2///40
@ASG,A RERR.
@XQT COBOL.COB50
@ADD RERR.
@COPY NEWMANMASTER.,RAMASTER.
@FIN
```

This run shows the normal input mode. Data is typed into RERR from the teletype.

3.1.3 Input of M-Number 'Story' Data.

3.1.3 continued

RERR. This is an alternate print file. It can be run using COB50 to update the RAMASTER file to include the M-number "story".

Sample RUN deck:

```
@RUN 207AFW,00930407583P,U208A,20,300
@SOC 458189643,FAW,LEW,,840
@ASG,A COBOL.
@ASG,A MANMASTER.
@ASG,T MNOMASTER.
@ASG,A RERR.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@XQT COBOL.COB88
@ASG,A VERA2.
@XQT COBOL.COB89
@ADD VERA2.
@FIN
```

3.1.4 Input of M-Number Cost Data.

MNODOLLARS. An accounting file that contains charges to the M-numbers.

(U4580D*M-FIN-FIS-M is on UR0021. It must be up)

This program reads the cost of repairs charged to M-numbers and copies that data to the file named RERR.

RERR. This file contains the cost or "dollar" data. This is an alternate print file to be used as input to update the RAMASTER file.

Sample RUN decks:

```
@RUN 207AFW,00930409583T,U208A,10,100
@SOC 458189643,FAW,LEW,,840
@ASG,A COBOL.
@ASG,A U458D*-FIN-FIS-M.
@USE MNODOLLARS.,U458D*M-FIN-FIS-M.
@ASG,A RERR.
@XQT COBOL.COB91
@FIN
```


3.1.4 continued

```
@RUN 207AFW,00930409583T,U208A,10,100
@SOC 458189643,FAW,LEW,,840
@ASG,A COBOL.
@ASG,A U458D*-FIN-FIS-M.
@USE MNODOLLARS.,U458D*M-FIN-FIS-M.
@ASG,T TEMP.
@USE RERR.,TEMP.
@XQT COBOL.COB91
@FREE MNODOLLARS.
@ASG,A RERR.
@ED,U RERR.
ADD TEMP.
EXIT
@FIN
```

The above run uses a temporary file and adds the data in it after the run to the file U208A*RERR. This is convenient when other input data is on RERR.

NOTE: The programs dealing with input to the RAMASTER file, programs COB91, COB89, COB40, and COB50, shown on this and the preceeding pages use a file named "RERR". This file is the input file for program COB50. It can be run after every batch of data produced by COB89 or COB91, or several runs of each can be combined as one batch in RERR. (COB49 and COB50 produce the same form of data as errors stored in file RAMERR. This should be corrected and combined with the other batches.) RERR should be used to update the RAMASTER file about once every three months, but it is anticipated that there will be times when it is desirable to update more frequently. The format is shown in Section 5. A sample control stream is shown below for combining files:

```
@ED,U RERR.
ADD RAMERR.
EXIT
```

On completion of this stream, the data that was in RAMERR has been transferred into RERR behind any data that was there previously and RAMERR can now be erased. Another form of this process, but done at execution time, is shown above in the second sample control stream in program COB91.

3.2 Edit Programs.

3.2.1 To Correct Data Errors in the Repair and Maintenance File.

3.2.1 continued

RAMASTER. Edited data, repair
and maintenance file.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,20,300
@SOC 458189643,FAW,LEW,,840
@ASG,A COBOL.
@ASG,A RAMASTER.
@ASG,T NEWRAMASTER.
@XQT COBOL.COB51
@ADD COBOL.RAMEDITDATA
@FIN
```

3.2.2 To Correct Data Errors in the Preventive Maintenance File.

MASTER. This file contains the preventive maintenance data.

COBOL.EDITPMDATA. This is an "ADD" element that contains the data to edit the PMASTER file. (See Section 5 "Input Formats and Instructions" for details.)

This program uses an "add" element to make changes to the PMASTER file.

This listing has input and diagnostics.

NEWPMaster. Temporary file. Has been edited.

3.2.2 continued

PMaster. Has the edited data of preventive maintenance.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,20,300
@SOC 158189643,FAW,LEW,,840
@ASG,A COBOL.
@ASG,A PMASTER.
@ASG,T NEWPMaster.
@XQT COBOL.COB14.
@ADD COBOL.EDITPMDATA
@COPY NEWPMaster.,PMaster.
@FIN
```

3.2.3 To Change Data Errors in the Inventory File.

MANMASTER. This file contains the inventory data.

COBOL.EDITMANDATA. This is an "ADD" element that contains the data to edit the MANMASTER file. (See Section 5 "Input Formats and Instructions" for details.)

This program uses an "ADD" element to change the MANMASTER file.

This listing shows input data and diagnostics.

NEWMANMASTER. Temporary file. Has been edited.

3.2.3 continued

MANMASTER. Has the edited inventory data.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,20,300
@SOC 458189643,FAW,LEW,,840
@ASG,A COBOL.
@ASG,A MANMASTER.
@ASG,T NEWMANMASTER.
@XQT COBOL.COB66
@ADD COBOL.EDITMANDATA
@COPY NEWMANMASTER.,MANMASTER.
@FIN
```

4. FILES.

The following tables describe the contents of the 4 permanent files used by the equipment management system. Each of these files has only one type of record. Each table below shows the appropriate record, its contents and format.

4.1 Preventive Maintenance File, PMASTER.

ORDER	COLS.	LENGTH	SUBFIELD OF	CORPORATION MASTER	CONTENTS	FORMAT
1	1-6	6		Yes	Organization - division and section number with a dash	9(4)X9
2	1-4	4	1		Division number	9(4)
3	5	1	1		Filler with "-"	X
4	6	1	1		Section number	9
5	7-11	5			Filler with blanks	X(5)
6	12-14	3			Unique number - useful in past - obsolescent now	X(3)
7	15-19	5			Filler with blanks	X(5)
8	20-49	30		Yes	Nomenclature of the equipment item	X(30)
9	50-54	5			Filler with blanks	X(5)
10	55-61	7		Yes	S-number	X9(6)
11	62-64	5			Filler with blanks	X(5)
12	65-79	14		Yes	Location	X(14)
13	80-84	5			Filler with blanks	X(5)
14	85-102	18			Maintenance codes	X(18)
15	85	1	14		Weekly lubrication X=lubricate	X
16	86-87	2	14		Monthly lubrication X=lubricate on week 1-4	X9
17	88-90	3	14		Quarterly lubrication X=lubricate on week 1-12	X99
18	91-93	3	14		Semiannual lubrication X=lubricate on week 1-24	X99
19	94-96	3	14		Annual lubrication X=lubricate on week 1-48	X99
20	97-98	2	14		Semiannual adjustments - on week 1-24	99
21	99-100	2	14		Annual tests - on week 1-48	99
22	101-102	2	14		Annual electrical checks - on week 1-48	99
23	103-132	29	14		Filler with blanks	X(29)

- NOTES: 1. The maintenance codes used are those developed for an earlier Fortran program.
 2. The formats listed show what is expected in the field. All values are actually alphanumeric.

4.2 Repair and Maintenance File, RAMASTER.

ORDER	COLS.	LENGTH	SUBFIELD OF	CORPORATION MASTER	CONTENTS	FORMAT
1	1	1			Type "1" or a "2". 1= Original data on item 2= Repair data	9
2	2-5	4		Yes	Division number	9(4)
3	6-12	7		Yes	S-number	X9(6)
4	13-18	6			Date as YRMODA	9(6)
5	19-22	4			Organization doing repair - blanks in type 1	9(4)orX(4)
6	23-26	4			Organization charged with equipment - blanks in type 1	9(4)orX(4)
7	27-32	6			Labor cost of repair (\$), blanks in type 1	9(6)orX(6)
8	33-38	6		Yes	Material cost of purchases (\$), original cost in type 1	9(6)
9	39-98	60		Yes	Description of repair, nomenclature in type 1	X(60)
10	99-132	34			Filler with blanks	X(33)

NOTES: 1. The formats listed show what is expected in the field.
2. All costs are in dollars, not dollars and cents.

4.3 Inventory Management File, MAINMASTER.

ORDER	COLS.	LENGTH	SUBFIELD OF	CORPORATION MASTER	CONTENTS	FORMAT
1	1-6	6	1		Organization Number	X(6)
2	1-4	4	1	Yes	Division Number	9(4)
3	5	1	1		Filler with "-"	X
4	6	1	1		Section Number	9
5	7-36	30		Yes	Nomenclature	X(30)
6	37-43	7		Yes	S-number	X(7)
7	44-57	14		Yes	Location	X(14)
8	58-67	10		Yes	Original Cost	S9(8)V99
9	68-71	4		Yes	Acquisition Date	X(4)
10	68-69	2	9	Yes	Acquisition Year	9(2)
11	70-71	2	9	Yes	Acquisition Month	9(2)
12	72	1			Filler with blanks	X
13	73	1		Yes	Condition code ¹ E=Excellent, G=Good, F=Fair, P=Poor	X
14	74-79	6			Status Code	X(6)
15	74-75	2	14		Year of last rebuild of item	9(2)
16	76-77	2	14		Use code ² A P , B P , C P , D P , E P , F P , G P , H P , I P	X(2)
17	78-79	2	14		Year of next rebuild (estimated). X P =more than 10 years	9(2)orX(2)
18	80-176	97			Filler - reserved for anticipated additional data - blanks	X(97)
19	177-183	7			M-numbers	X(7)
20	177-179	3	19		Prefix "M93" or blank	X(3)
21	180-183	4	19		M-number integer from 0200 through 9999	9(4)
22	184-185	2			Filler with blanks	X(2)
23	186-192	7			S-number of the major item when this is a sub-item	X(7)
24	193-222	30			Name when master file name not acceptable	X(30)
25	223-240	18			Filler with blanks	X(18)

4.3 continued

¹ CONDITION CODE

- E = New or used property in excellent condition.
- G = New or used property in good condition. Any necessary repairs would cost between 11 and 25 percent of acquisition cost.
- F = New or used property in fair condition but has been soiled, shop-worn, rusted, deteriorated or damaged to the extent that repair costs would be from 26 to 40 percent of acquisition cost.
- P = New or used property in poor condition. Equipment repair would be uneconomical.

² STATUS CODE

Under 'last refurb' is the year it was last refurbished.

Under 'replac refurb' is the year it should be again refurbished or replaced. An "X" indicates more than 10 years from the present date.

Under 'use' is a letter code shown below.

- A~~p~~ = Item being used in regular operations.
- B~~p~~ = Special use item. Will not be required at end of program.
- C~~p~~ = Item is technically obsolete and should be replaced.
- D~~p~~ = Item is worn beyond economical repair and should be replaced.
- E~~p~~ = Item is no longer needed and should be sent to redistribution and marketing.
No replacement needed.
- F~~p~~ = Item is in storage awaiting installation.
- G~~p~~ = Item is in storage, seasonal or periodic use.
- H~~p~~ = Item is in storage, used only for special function.
- I~~p~~ = Item is in storage, held for future project.

S-Number

If several S-numbered items are combined or associated as a single unit, the relationship is shown by writing the S-number of the major item in the S-major field (23).

NOTE: The formats listed show what is expected in the field.

4.4 Data From the Corporate Master File, EQUIPMENT.

ORDER	COLS.	LENGTH	SUBFIELD CF	USED BY SYSTEM	CONTENTS	FORMAT
1	1-7	7		Yes	S-number	X(7)
2	8-10	3			ACC	X(3)
3	11	1			Filler (in FD = VP)	X
4	12-15	4		Yes	Organization	X(4)
5	16-23	8			DOC	X(8)
6	24-27	4		Yes	Acquisition date, year - month	9(4)
7	28-32	5		Yes	Manufacturer's code	X(5)
8	33-44	12		Yes	Model number	X(12)
9	45-52	8		Yes	Serial number	X(8)
10	53-57	5			CAT	X(5)
11	58-60	3			JE-Type 1	X(3)
12	61-90	30		Yes	Nomenclature	X(30)
13	91-100	10		Yes	Original cost	S9(8)V99
14	101-103	3			DEN	X(3)
15	104-111	8			QTY	S9(8)
16	112-115	4			REC	X(4)
17	116-117	2			USE-CODE	X(2)
18	118-124	7			REIM	X(7)
19	125-126	2			SL	X(2)
20	127-129	3			HIST	9(3)
21	130-131	2			ACT	9(2)
22	132-134	3			PREV-TYPE	X(3)
23	135	1			HIST-PRT-IND	9
24	136	1			CIS-IND	9
25	137	1			MISC-IND-1	9
26	138	1			MISC-IND-2	9
27	139	1			MISC-IND-3	9
28	140	1			MISC-IND-4	9

4.4 continued

ORDER	COLS.	LENGTH	SUBFIELD OF	USED BY SYSTEM	CONTENTS	FORMAT
29	141	1			MISC-IND-5	9
30	142-145	4			INVEN-DATE (YR-MO)	X(4)
31	146	1			INV-CODE	9
32	147-150	4			FILLER	X(4)
33	151-156	6			TRAN-DATE	X(6)
34	157-162	6			DOC-NUM	X(6)
35	163-165	3			IDX-CODE	X(3)
36	166-171	6			IDX-DATE	X(6)
37	172-174	3			TIMES USED	9(3)
38	175-183	9			ACCT-EMP	X(9)
39	184-187	4			INV-DATE	X(4)
40	188-201	14		Yes	Location	X(14)
41	202-203	2		Yes	Condition code E, G, F, P	X(2)
42	204-209	6			RET-DATE	X(6)
43	210-214	5			ORG-PROP	X(5)
44	215-219	5			BOR-ORG	X(5)
45	220-226	7			ACCT-CON	X(7)
46	227-230	4			WRNT-DATE	X(4)
47	231-234	4			LOAN-DATE	X(4)
48	235-240	6			FILLER	X(6)

- NOTES: 1. Ten fields of data in the corporate master file are used in the 9500 system. The other fields show the name from the property master file description under "CONTENTS" and in capitals.
2. The contents of field 4 and field 42 have been swapped in this file compared to the fields in the corporate master file.
3. In the update program (COB67) the first 6 characters of the location (field 40) are dropped when this data is transferred to the MANMASTER file.
4. The formats show what is expected in the fields.
5. The condition code in field 41, cols. 202-203 in the corporate master file is sometimes left justified and sometimes right justified. In this file, EQUIPMENT, it is always right justified in col. 203, and it will be the character in the corporate master file col. 202 unless that column is a blank, then it will be the character from col. 203. This change is made by COB12.

5. INPUT FORMATS AND INSTRUCTIONS.

Two types of "manual" instructions input are used by the equipment management system. The first of these is the input to the repair and maintenance history file. This is the only routine input to the system. The second type is input to the edit programs to correct any erroneous data in the three permanent files.

Input to the repair and maintenance file can be by a magnetic tape made on the optical character reader, or a file stored on the UNIVAC-1108 generated on the teletype (a card file can also be used). Input to the edit programs are files created on the teletype (or a card deck).

5.1 Repair and Maintenance Input.

The data for repair and maintenance is collected by having the employees who do the maintenance and repair complete the Job Order Assignment Form (SC6505-F). The cost data is based on estimates by those doing the work. A sample of this form is shown in Figure 1, along with the input format for the data to be put into the computer. The fields are numbered to show corresponding positions. The forms and the format are those that were established a number of years ago for the original FORTRAN programs using the data.

A second path to gather data has also been included in the system and is being used by one of the departments. This path differs from the first one in the following respects:

- a. The input form is different and requires less information. It is primarily used to input the "story" portion, that is, what repairs were made and by whom.
- b. The actual costs are collected by computer using files generated by the accounting organization.
- c. "M-numbers" have been assigned to use as keys for collecting and collating the information.

A sample of the input form and the input formats are shown in Figure 2. This data is changed in form by the computer to be the same form as the data in Figure 1, and is then combined in the same file with that data as the actual input into the repair and maintenance file.

5.1 continued

SC 6505-F (7-72)

JOB ORDER ASSIGNMENT

INSTRUCTIONS:

1. All unshaded areas must be filled in.
2. Requesting Org. is at DIVISION level.
3. Responsible Org. (Org. performing work) is at SECTION level.
4. Labor hours to be in 15 minutes increments; ie 1.25, 1.50, 1.75, etc.
5. Labor and Parts Cost to be in even dollars; no cents.

REQ. ORG.		SUPERVISOR		
036454		JEWETT		
BLDG.	AREA	ROOM	CONSULTANT	PHONE
6587	III		TURNBOUGH	5845
DATE REC.	RESP. ORG.	RECEIVED BY		F ORDER #
3-12	03644-2	B.J.		0073042

WORK REQUIRED

EXCELLO KNEE TO
TIGHT TO TRAVEL UPON
DOWN

S. #	DATE COMPLETED Date To Be Filled			COMPLETED BY
13687976	Yr	Mo	Da	all
13687976	03	22		
LABOR HRS	LABOR COST	PARTS COST		
16	128	20		
SHORT DESCRIPTION OF WORK PERFORMED				

Remove Table and cleaned
up level gear. Installed
cover over gears.

Figure 1 - Input Forms and Input Format Using Estimated Costs.

Above is the form used to gather the input data. This form is completed by the employee doing the maintenance or repair work. The cost data shown is in dollars and is the estimated cost of labor and materials.

5.1 continued

The data below shows the format of the data to be input into the data file (see file RERR in Section 3.1.4) or a card deck. This data is typed into the file using an edit processor such as the @ED processor on the 1108. The numbers in the circles are provided to show which data goes into what field.

The second line below shows the only change necessary when the data is typed for the Optical Character Reader (OCR) using the special typewriter and on the special OCR forms.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				If costs are zero, show commas anyway			
3645	,S136879	,760322	,3644	,3646	,128	,20	,REMOVED TABLE AND CLEANED BEVEL GEAR,AL/
ORG	S-NUM	DATE	RESP	REQ	LABOR	DESCRIPTION OF WORK	
		YRMODA	ORG	ORG		INITIALS	
UP TO 60 COLS INCLUDING INITIALS AND SLASH (Only 43 if cards are used)							

OCR format is the same as that shown above, except that the first page of the typed output must have the control characters shown in cols. 1 and 2 below.

13645,S136879,760322,3644,3646,128,20,REMOVED TABLE AND CLEANED BEVEL GEAR,AL/

Place the typed OCR forms in plastic bags and drop into the outgoing box with a peripheral request instruction form. A completed form is shown below as a sample.

5.1 continued

SA 7195-WW (8-73)

☐ REQUESTER: Place an "X" in the box if your job has more than one processing requirement. OPERATOR: Initial completed steps. CONTROL CLERK: Resubmit job to the next processing area.		INPUT PRIVATE ☐ YES ☒ NO		OUTPUT PRIVATE ☐ YES ☒ NO	
PERIPHERAL REQUEST INSTRUCTIONS		JOB NO. 207	DATE SUBMITTED 4 JAN 1977	DATE REQUIRED -	OUTPUT BOX NO. 747
REQUESTER LINDA TAYLOR		ORG. 9572	BLDG. 840	ROOM 7	EXT. 2-2000
PERIPHERAL CODES: (Use Standard Codes where applicable)		REEL NO'S 4369			
OTHER INSTRUCTIONS:					
Run on OCR. Use the program included on the 1st tape.					

SPECIAL PROGRAM (typed on a separate OCR page):

|CTL|FMT,A|EOL,D|**

|STK|020,363,076|**

|CNV|A,20|1,34|**

|FMT,1|154|**

E

5.1 continued

The form below is used to gather the "story" portion only of the input data. The form is completed by the employee doing the work. This data is put into a data file. It is typed in using an edit processor such as the @ED processor. (A card deck can be used as an alternate.) The numbers in circles shown are used to key the fields to the format below.

<div style="text-align: center;">(1) →</div>	Responsible Organization		Repaired By:		
	3623-3		V. JOHN		
<div style="text-align: center;">(2) →</div>	M Order No.	Equipment Name:	Date Completed		
	M-931843	ELECTRON BEAM WELDER	Yr.	Mo.	Day
			76	2	13

Repair Description:

COMPLETE OVERHAUL

(4) ↑

(3) ↑

Figure 2 - Input Forms and Formats Using Actual Costs.

(1) (2) (3) (4) (5)
 3623,M931843,760213,COMPLETE OVERHAUL,VJ/

Program COB59 converts the above to the format shown below

(3) (1) (4) (5)
 9573,S157473,760213,3623,9573,000000,000000,COMPLETE OVERHAUL,VJ/
 (A) (B) (A) (C) (C)

5.1 continued

2, shown above, was used to search the master file. The matching S-number was obtained and put into B . The number of the owning organization was inserted at A . Zeros were inserted in C . The data is now the same form as that in Figure 1 and can be added to that information for updating the repair and maintenance master file. This provides the "story" portion of the data.

The "Costs" portion of the M-number data is obtained by running COB91. This program reads the accounting master file and extracts the costs that are pertinent to the repair and maintenance history. It produces a file continuing that data in the same format as the file above. It, too, can be added to the data for updating. (See also the note on file RERR in Section 2.)

5.2 Input to Edit the Preventive Maintenance File - PMASTER.

The input to edit the PMASTER file using program COB14 is similar to the UNIVAC-1108 ELT Processor. There are two types of records, control records and data records. The control cards are in the following format and fields:

- a. The first field is a minus sign in column 1. This indicates that this is a control record.
- b. The second field is a 4 column field, an integer number in columns 2 through 5. It is right justified and zero filled on the left if necessary. This number represents a line number of the current listing of the PMASTER file.

If fields 3 and 4 are not present, that is, blank, then the meaning of the command is: insert any data cards that follow in the file immediately after the line number specified by the integer number in field 2.

- c. Field 3 is a comma in column 6.
- d. Field 4 is a 4 column field, an integer number right justified and zero filled on the left if necessary. This number also represents a line number on the current listing of the PMASTER file.

If fields 3 and 4 are present, then the meaning of the control card is: delete the records in the current file beginning with the line number represented by the integer in field 2, through the line number represented by the integer in field 4. Insert at this point any data cards that follow this command card.

The data record is an 80 character record divided into the following fields:

COL. 1-6	Organization	(6 cols)
COL. 7	Blank	(1 col)
COL. 8-10	Unique Number	(3 cols)
COL. 11	Blank	(1 col)
COL. 12-41	Nomenclature	(30 cols)
COL. 42	Blank	(1 col)
COL. 43-49	S-Number	(7 cols)
COL. 50	Blank	(1 col)
COL. 52-61	Location	(11 cols)
COL. 62	Blank	(1 col)
COL. 63-80	Maintenance Code	(18 cols)

5.2.d continued

The maintenance code is further broken down as follows:

COL. 63	Weekly lubrication	X= Yes Y = No
COL. 64	Monthly lubrication	X= Yes Y = No
COL. 65	Week of monthly lubrication	1 to 4
COL. 66	Filler	
COL. 67-68	Week of quarterly lubrication	01-12
COL. 69	Filler	
COL. 70-71	Week of semiannual lubrication	01-24
COL. 72	Filler	
COL. 73-74	Week of annual lubrication	01-48
COL. 75-76	Week of semiannual adjustment	01-24
COL. 77-78	Week of annual test	01-48
COL. 79-80	Week of annual electrical check	01-48

Note that the fields are the same order and the same number of characters as the file PMASTER and only the spacing varies.

Below is a sample input deck for editing the PMASTER file using COB14. (Refer also to Section 4, Local Control Programs.)

```
-0012,0017
-0103
3645-2 067 LATHE HIGH SPEED 11 IN      S074596 840 150  XX4   04182021
-0183,0187
9573-2 414 SAW CONTOUR                  S137351 841      X3  113 0113 01
9573-1 913 ACTUATOR HYDRAULIC           S137382 841A     20  4422 08
```

It will produce the following results. Lines 12 through 17 will be deleted from the current file. The data on the first data card will be inserted after line 103. Lines 183 through 187 will be deleted and the data on the next two data cards will be inserted after line 182.

The program produces diagnostics that may be helpful in case of errors in the input shown above.

5.3 Input to Edit the Repair and Maintenance File, RAMASTER.

The input to edit the RAMASTER file using COB51 is similar to the UNIVAC-1108 ELT Processor. There are two types of records, control records and data records. There are two kinds of data records in the file, Type 1 which contains the original purchase date and cost, and Type 2 which is a repair or maintenance record. Normally the Type 1 record will be handled by the automatic updating (see Production Control Programs, Section 2, COB47), but it may be necessary to correct this kind of record at some future time. The Type 2 record looks almost like a normal input record (used by COB50) and discussed in Figure 1 of this section), with one exception, there is an extra field which must contain a "2". It is located in Col. 1 of the record. A sample of each follows:

1 2 3 4 5 6 7
19583,S020148,481000,,15836,LATHE METAL WORKING

- 1 Type 1=original acquisition (COL. 1)
- 2 Organization (COLS. 2-5)
- 3 S-number (COLS. 7-13)
- 4 Original purchase date (COLS. 15-20)
- 5 Blank fields - include commas as shown
- 6 Original costs in dollars, up to 6 cols.
- 7 Nomenclature - up to 60 cols.

1 2 3 4 5 6 7 8 9
29583,S020148,761207,9581,9583,12,29,CHECK NOISE IN CLUTCH AND PULLEY,JT

- 1 Type 2 = repair or maintenance (COL. 1)
- 2 Organization (COL. 2-5)
- 3 S-number (COL. 7-13)
- 4 Date of Repair (COL. 15-20)
- 5 Organization that performs work (COL. 22-25)
- 6 Requesting organization- usually the same as 2 (COL. 27-30)
- 7 Labor cost - up to 6 columns
- 8 Material cost - up to 6 columns
- 9 Description - up to 60 columns

5.3 continued

The control records are as follows:

- (1) The first field is a minus sign in Col. 1. This indicates that this is a control record.
- (2) This second field is an integer number that contains up to 6 digits (any spaces are deleted). If fields 3 and 4 are not present, that is the rest of the card is blank, then the meaning of the command is: insert any data cards that follow in the file immediately after the line number specified by the integer number in field 2.
- (3) Field 3 is a comma (delimiter).
- (4) Field 4 contains an integer number. This number represents a line number on the listing of the current RAMASTER file. If fields 3 and 4 are present, then the meaning of the control card is: delete records in the current file beginning with the line number represented by the integer in field 2 through those line numbers represented by the integer in field 4. Insert any data cards that follow this control card at that point.

Below is a sample input file on editing this RAMASTER file using COB51 (refer also to Section 4, Local Control Programs).

-90,90

23623,S003918,750902,3644,3623,12,16,REPAIRED SPRING LOADED SHIFTER,AL
-159

19583,S020148,481000,,,,,15836,LATHE METAL WORKING

29583,S020148,761207,9581,9583,12,39,CHECK NOISE IN CLUTCH AND PULLEY,JT
-172,188

In the above line number 90 will be deleted and the data in the second card will be inserted in that position.

The data on the 4th and 5th cards will be inserted after line number 159.

Lines 172 through 188 will be deleted.

5.4 Input to Edit the Inventory Management File, MANMASTER.

Program COB66 edits the 9500 master inventory file, MANMASTER. The changed data is written onto the NEWMANMASTER file. The edit data is on a card deck or as card images in an add file. The edit file contains two kinds of images, command images and data images.

Command images. Command images use a format similar to those used by the @ELT processor. (Example, a minus sign in Col. 1 followed by an integer number such as -17 means 'insert any images which follow after line number 17'. Example, a minus sign in column 1 followed by two integer numbers separated by a comma such as -92,108 means 'delete lines 92 through 108'.) If any data cards follow the second format shown, it means that the records on those lines are to be corrected. (Example, a command image such as -115,117 followed by data cards means that records 115,116, and 117 will be corrected using the data given. The program will expect sufficient data to match 3 records.)

Data images. Data images are free form using delimiters. The delimiters are the following special characters =,*\$ blanks are ignored on data images. A record may consist of several images. The \$ delimiter indicates the end of a record. The data is grouped in data pairs. The pairs are separated from each other by the , delimiter. Each pair consists of a field name and a value separated by the = delimiter. Where the * delimiter is used when a value is expected, it means that spaces are to be used. The field names (and their 3 letter abbreviations which can be used instead) follow:

ORGANIZATION	ORG
NOMENCLATURE	NOM
SNUMBER	SNU
LOCATION	LOC
COST	COS
ACQUISITION DATE	ACQ
CONDITION CODE	CON
STATUS CODE	STA
MNUMBER	MNU
SMAJOR	SMA

A sample set of command and data cards follow:

```
-2
SNU=S407392,MNUMBER=M937000,ORG=9500-1$
-12,13
-14,14
SNUMBER=S307893$
-17,19
```


5.4 continued

A new record containing S407392, M937000, 9500-1 in the proper fields, will be inserted after line number 2. All other fields in this record will be blank.

Lines 12 and 13 will be deleted.

The S-number field of line 14 will be changed to S307893. All other fields of that record will remain the same.

Lines 17, 18, and 19 will be deleted. Since a sort is performed after changes are made using the S-number as a key, the new record that replaced 14 will precede the record that was inserted after 2.

5.5 Editing the "INV-CHANGES" File After Running COB66.

When the program that updates the MANMASTER file (COB66) is run, it produces a file named INV-CHANGES. This file is in the same order as the listing of changes that is sent to the various organizations for their checking and correction. Any corrections that are made, are made in the listing according to the correction instructions which are a part of the listing. When the corrected listings are returned, the file must be altered to match it. If more than 50 items have been corrected, it is probably easier to correct the file by making a card deck and correcting it, then using the card deck for the input medium with COB77. Otherwise, it is better to alter the INV-CHANGES file on line, then use it as an "ADD" file for COB77 input. In either case, the correction methods are the same.

The sample below shows how data exists in the INV-CHANGES file. Note that the lines are in pairs with the first line representing what was in the 9500 file from the last cycle, and the second line representing what it was changed to by the update using data from the corporate master. If no corrections have been made, the new change is correct and both lines must be deleted from the file. If a correction has been made, enter the correct data in the first line of the pair. That line is re-entered in the 9500 file by COB77 and a listing is generated to correct the master file. A few exceptions exist for the instruction above and are discussed as follows:

5.5 continued

- a. Nomenclatures cannot be changed in the master file, therefore the users have been requested to make no changes unless a nomenclature is grossly wrong. In that case, a correction is entered in the listing but not changed in this file. Instead, the information is added to the file used by COB85, where it then is incorporated as a second nomenclature in the 9500 file, and used where appropriate. The reason this problem is handled in this way is that nomenclatures are established in the corporate master file by an automatic naming program called the "CHASE CODE". When errors exist in this code, getting it corrected is so time consuming as to make this interim solution attractive during the waiting period. (See lines 1 and 2 in the sample below.)
- b. When an item has been dropped from the file (see lines 3 and 4) and it is found that the item is still in the possession of 9500, then correct the second line of the pair to match the first line but leave the organization number blank in the second line.
- c. When a new item is added from the master file (see lines 5 and 6) and it is found that it was not received, correct the first line of the pair to match the second line but leave the organization number blank in the first line.

<u>ORG. NO.</u>	<u>NOMENCLATURE</u>	<u>S-NUMBER</u>	<u>LOCATION</u>	<u>CONDITION</u>
9562-1	MACHINE WINDING	S213539	840 265	G
9562-1	COIL WINDER	S213539	840 265	G
9563-0	SCOPEMOBILE F/OSCILLOSCOPE	S108345	894 111	G
9563-0	ITEM DROPPED FROM 9500 FILE			
9563-0	NEW ITEM ADDED FROM CORPORATE			
9563-0	AMPLIFIER, DATA	S110321	870 C1	G
9563-0	NEW ITEM ADDED FROM CORPORATE			
9563-0	AMPLIFIER, DATA	S130545	870 C1	G
9563-0	AMMETER, DC	S147120	894 111	G
9563-0	AMMETER, DC	S147120	870 C1	G
9563-0	METER MILLIVOLT DC	S149131	894 111	G
9563-0	METER MILLIVOLT DC	S149131	870 C1	G
9563-0	NEW ITEM ADDED FROM CORPORATE			
9563-0	OSCILLOGRAPH (LIGHT)	S156330	870 C1	G
9563-0	NEW ITEM ADDED FROM CORPORATE			
9563-0	OSCILLOGRAPH (LIGHT)			
9563-0	NEW ITEM ADDED FROM CORPORATE			
9563-0	METER AMP MILLIVOLT DC	S158664	894 111	G
9563-0	METER AMP MILLIVOLT DC	S158664	870 C1	G

Generally, the changes made by the update are correct so most of the file editing consists of deleting lines.

6. PROGRAM DETAILS.

In this section each of the programs in the equipment management system that is still active is discussed. Each program is shown in diagram form to illustrate the files used and the output produced, pertinent details are discussed, and a sample run deck is provided. The order is by number (file element name). (See also the index of this document.)

This section is primarily for the use of the system programmers. It is intended to show the individual programs more clearly, rather than the multiple program executions in a single run stream shown in the earlier portions of this document.

6.1 COB11A.

EQUIPMENT. Latest data
from the corporate file.

PMaster.

This program reads EQUIPMENT and
PMaster files and updates into
NEWPMaster. It produces a list
of the updated files, a list of
changes made, a schedule of main-
tenance and a deck of cards for
the work scheduled.

S-Number order.

Organization number order.

Each card gives name, organization,
S-number and location; the type of
maintenance to be done, and the
scheduled time.

NEWPMaster. Updated preventive
maintenance file.

6.1 continued

Sample RUN deck:

```
@RUN,207AFW,00930409583T,U208A,20,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*EQUIPMENT.
@DELETE,C U9992*208-011
@ASG,CP U9992*208-011
@ASG,A U208A*PMASTER.
@ASG,A U208A*NEWPMASTER.
@ASG,T CHANGES.
@ASG,T OIL,F211400
@ASG,T TEA.
@ASG,T XA,D17/100000
@ASG,T R$CORE,F2///30
@USER*PLIB.INPAGE 208-011
@ASG,A U208A*COBOL.
@XQT 208A*COBOL.COB11A
@USER*PLIB.ONLINE 208-011
@FIN
```

After execution, the update file resides in NEWPMASTER. It must be copied into PMASTER to complete the update process.

This program divides the year into 13 4-week "months". The first "month" begins on the 1st Sunday after the 1st day of the year. Normally the program is run 6 days before the beginning of each "month". For the first period, run after the 1st day of the year and prior to the first "month". The program will produce an accurate schedule for 3 weeks prior to each period, and 1 week after it begins, except for the 1st period, which is after the 1st day of the year and 1 week after the period starts.

The cards are in the following sort-key order: type (lubrication, test, etc.), organization, S-number, week. Each machine that receives maintenance has a card for each week and for each activity. Several types of lubrication may be combined on a single card. Each organization receives a schedule showing which machines and the type of activity for the current month.

- 6.1.1 It has been requested that the preventive maintenance program be expanded to include an electronics calibration activity. This is more than a trivial change. It is suggested that COB11A be broken into two programs as shown below.

6.1.1 continued

PMASTER (in S-number order)

MANMASTER. Contains all of the data in PMASTER except maintenance code (in S-number order):

This program should update the PMASTER file using the MANMASTER file. NOTE: It should change data but not add nor delete items. This should be done by editing using COB14.

NEWPMASTER. Updated data. Copy to PMASTER to complete the cycle.

6.1.1 continued

6.1.1 continued

Suggested Flow Chart for the Scheduling Program

6.1.1 continued

The first program would update the PMASTER file using the MANMASTER file instead of the EQUIPMENT file, because MANMASTER carries section numbers. Since a new maintenance code would be necessary, consideration should be given to compressing it into the current lubrication code field, and perhaps reducing the current record size at the same time. A one-time-run program to manipulate the data seems appropriate. The second program would list the schedule and print the cards as shown below. These two programs would be better and more flexible than the current program.

The following things should be considered:

- a. The PMASTER file contains this data:

ORG - including sections

UNUM

NOMENCLATURE

SNUM

LOCATION

MAINTENANCE CODE

- b. The maintenance code must have new codes for electronic calibration. Use a "C" as the abbreviation. It requires two digits, 01-24, since it is semiannual.
- c. Card programs (in and out) must be changed if these are not obsoleted by this change. (Programs COB15 and COB26)
- d. The edit program must be changed (COB14).
- e. Should the record size be reduced in the PMASTER and NEWPMaster files - 20 to 30 tracks are required now?
- f. Data on listing must include all scheduled maintenance for 4 weeks, two main headings (lubrication and maintenance) with up to 5 possibilities for lubrication (weekly, monthly, quarterly, semiannual, annual), and up to 4 kinds of maintenance (test, electrical, adjustment, calibration). Include organization, S-number, nomenclature, unique number, and location also.
- g. Data on cards must include lubrication (up to 4 cards on each machine - 4 weeks and up to 5 kinds of lubrication per card). Maintenance requires up to 4 cards on each machine, each week. One type of maintenance only.

6.2 COB12.

Corporate Master
EQUIPMENT file.

FMASTER - master file for
preventive maintenance.

This program reads the master file
and copies part of it to EQUIPMENT.
Copied is 9500 equipment, plus other
items on which preventive maintenance
is performed.

EQUIPMENT. Used for updating.
Much smaller than the corporate
master.

This is a simplified print format.

6.2 continued

Sample RUN deck:

```
@RUN 208AFW,00930409583T,U208A,10,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U467M*M-PRPMST.
@USE MPMS-PRPMST.,U467M*M-PRPMST.
@ASG,A U208A*PMaster.
@ASG,A U208A*COBOL.
@ASG,A EQUIPMENT.
@XQT U208A*COBOL.COB12
@FIN
```

NOTE: Removable storage UR-0013 must be up.

This program provides a shorter version of the property master to use to update the other files in the 9500 system. The print is simplified and is of interest only to the systems programmer. (See also the EQUIPMENT file in Section 4, FILES).

6.3 COB14.

PMaster. This file contains the repair and maintenance data.

COBOL.EDITPMDATA. This is an "ADD" element that contains commands and data to edit the PMaster file. (See Section 5, Input Instructions and Formats. for details.)

This program uses an add element to edit the PMaster file.

This shows changes plus diagnostics.

Listing of the edited data.

NEWPMaster. Contains the edited data that must be copied into PMaster to complete the edit cycle.

6.3 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,100
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*PMaster.
@ASG,A U208A*NEWPMaster.
@ASG,A U208A*COBOL.
@XQT COBOL.COB14
@ADD COBOL.EDITPMDATA
@FIN
```

This program edits the PMaster file. It uses an "ADD" element, COBOL.EDITPMDATA, for command and execution. The edit scheme is similar to the @ELT processor. Section 5, "Input Instructions and Formats" provides the data for creating this ADD element. After the program has run, the corrected data is in file NEWPMaster which must be copied to PMaster to complete the cycle.

6.4 COB15 and COB26.

6.4.1 COB15.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,4,50
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*PMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/100000
@ASG,T R$CORE,F2///30
@XQT COBOT.,COB15
@FIN
```

This is a seldom used program to sort and list the PMASTER file in U-number (unique number) order.

6.4.2 COB26.

This program is similar to COB15 above, but it sorts and prints the PMASTER file in organization order. The card that reads @XQT COBOT.,COB15 shown in the sample RUN deck must read @XQT COBOT.,COB26.

6.5 COB21.

EQUIPMENT. Contains the 9500 portion of the corporate master inventory.

Sorts and lists EQUIPMENT file. Sorted on time code, condition codes and organization.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*EQUIPMENT.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///30
@ASG,A U208A*COBOL.
@XQT COBOL.COB21
@FIN
```

This is a program that was written early in the system development for study. It might have an occasional use in the future. The time code key is two-year periods beginning at the present year, extending backwards into time, with periods numbered from 1 to 11 and with Group 11 containing all items more than 20 years old.

6.6 COB43.

RAMASTER. Repair and maintenance history file.

This program lists the RAMASTER file in Org. number order.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,20,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*RAMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/300000
@ASG,T R$CORE,F2///50
@ASG,T SUMMARY.
@XQT COBOL.COB43
@FIN
```

This program lists the RAMASTER file in org. number cost per item in a detailed form. It also prints a summary of that data on a separate summary listing. This is the main printout of the repair and maintenance history.

6.7 COB46.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,20,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*RAMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F///50
@ASG,T SUMMARY.
@XQT COBOL.COB46
@FIN
```

This program lists the RAMASTER file in S-number order with total costs per item in a detailed form. It also prints out a summary listing of the data on a separate listing.

6.8 COB47.

RAMASTER. Contains the repair and maintenance history.

EQUIPMENT. Contains latest corporate data for equipment charged to Organization 9500.

This program updates the data in the RAMASTER file.

NEWRAMASTER. Contains the updated data.

Sample RUN deck:

```

@RUN 207AFW,00930409583T,U208A,20,300
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*EQUIPMENT.
@ASG,A U208A*RAMASTER.
@ASG,A U208A*NEWRAMASTER.
@ASG,A U208A*COBOL.
@XQT COBOL.COB47
@FIN
  
```

6.8 continued

This program reads the EQUIPMENT file and the RAMASTER file. New items are inserted into the NEWRAMASTER file and items that have been transferred out of the 9000 organization are marked for purging. (Purging is done by another program.) The updated data will be on NEWRAMASTER at the end of the run. It must be copied to RAMASTER to complete the cycle.

6.9 COB48.

PURGED. Temporary file copied in from tape. Contains purged data from last cycle. Copied to a backup tape file after use.

RAMASTER. Contains updated data from a run of COB47. Purge items are included.

This program purges updated data from the RAMASTER file and writes the edited date to NEWRAMASTER. It saves the purged data on NEWPURGE.

NEWPURGE. Temporary file. Contains updated purged data. It must be copied to tape before this run ends. Backup tapes must also be made. (See the sample RUN deck below.)

NEWRAMASTER. Contains current updated data.

6.9 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,100
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*RAMASTER.
@ASG,A U208A*NEWRAMASTER.
@ASG,A U208A*COBOL
@ASG,T TAPE1.,T,9656
@REWIND,TAPE1.
@ASG,T PURGED.,F2///150
@COPY,TAPE1.,PURGED.
@ASG,T TAPE2.,T,6656
@REWIND,TAPE2.
@ASG,T NEWPURGE.,F2///150
@XQT COBOL.COB48
@ASG,T TAPE3.,T,5155
@REWIND TAPE3.
@COPY,GM PURGED.,TAPE3.
@REWIND TAPE3.
@REWIND TAPE1.
@COPY,GM NEWPURGE.,TAPE1.
@REWIND TAPE1.
@COPY,GM NEWPURGE.,TAPE2.
@FREE TAPE1.,TAPE2.,TAPE3.
@FIN
```

This program removes the data marked for purging by COB47 and saves the current data file and the purged data file. Note that a backup tape file is included. Note also the current data is in the NEWRAMASTER file and must be copied back into RAMASTER to complete the update-purge cycle. The purged data is in the same format as the master file and the print programs COB48 and COB43 will print this file also.

6.10 COB49.

OCR. This magnetic tape was made on the optical character reader (see Section 5 for input formats). This is new repair data.

RAMASTER. Master file of repair and maintenance history.

This program reads the input tape covering the new repair data and inserts it into the old data.

RAMERR. This is an alternate print file. Input errors are stored here. Correct and rerun on COB50.

NEWRAMASTER. Contains updated data.

6.10 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,20,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*COBOL.
@ASG,A U208A*RAMASTER.
@ASG,A U208A*NEWRAMASTER.
@ASG,A U208A*RAMERR.
@ASG,T XA,D17/300000
@ASG,T R$CORE,F2///40
@ASG,TAPE OCR.,T,4369
@REWIND OCR.
@XQT CODOL.COD49
@FIN
```

This program reads a magnetic tape produced on the optical character reader and inserts the data into the data from the RAMASTER file and writes it into NEWRAMASTER. This data is new repair and maintenance data. The program checks the data and saves the error records in a file named RAMERR. This file is an alternate print file which can be corrected and rerun using COB50. Section 4 of this document describes the data formats. The updated data resides in the file NEWRAMASTER at the end of the run. It must be copied to RAMASTER to complete the cycle.

6.11 COB50.

RERR. This contains new repair and maintenance data. (See Section 4 for format)

RAMASTER. Master file of repair and maintenance data history.

RAMERR. Stores the error records for later corrections.

NEWRAMASTER. Updated file.

6.11 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,20,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*RERR.
@ASG,A U208A*RAMERR.
@ASG,A U208A*RAMASTER.
@ASG,A U208A*NEWRAMASTER.
@ASG,T XA,D17/300000
@ASG,T R$CORE,F2///40
@ASG,A U208A*COBOL.
@XQT COBOL.COB50
@ADD RERR.
@FTN
```

This program reads a file containing new input data for repair and maintenance, merges it with the data from RAMASTER and writes to NEWRAMASTER. When input errors are found, they are stored in RAMERR for correction at a later date. RAMERR is an alternate print file. It can be corrected, the data copied into RERR and rerun. The updated data is on file NEWRAMASTER. It must be copied to RAMASTER to complete the update cycle.

6.12 COB51.

RAMASTER. This file contains the repair and maintenance history data.

COBOL.RAMEDITDATA. This is an "ADD" element that contains the data to edit the RAMASTER file. (See Section 4 for details.)

This program edits the RAMASTER file using an "ADD" element.

Input and diagnostics.

NEWRAMASTER. Contains the edited data.

6.12 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,300
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*RAMASTER.
@ASG,A U208A*NEWRAMASTER.
@ASG,A U208A*COBOL.
@XQT COBOL.COB51
@ADD COBOL.RAMEDITDATA
@FIN
```

This program uses an "ADD" element to edit the RAMASTER file. The edited data is written to NEWRAMASTER. The NEWRAMASTER file must be copied back into RAMASTER to complete the edit cycle. Section 5 describes the format of the edit data. NOTE: A card deck can be substituted for the ADD file.

6.13 COB57.

PMMASTER. Master file of preventive maintenance data.

This program lists the PMMASTER file in nomenclature order.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,100
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*COBOL.
@ASG,A U208A*PMMASTER.
@AJG,T XA D17/100000
@ASG,T R$CORE,F2///20
@XQT COBOL.COB57
@FIN
```

This program sorts and lists the PMMASTER file on the nomenclature.

6.14 COB59.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@XQT COBOL.COB59
@FIN
```

6.14 continued

This program generates the MANMASTER file from a card deck. This program, used in conjunction with COB60 which produces a deck from the MANMASTER file, is a good way to make massive changes to the file. It was written for that purpose when the corporation master had many errors. NOTE: This program, unless changed, would lose the M-number data and S-MAJOR data. Do not use without changing. The second nomenclature will also be lost, but can be regenerated very easily (see COB85).

The cards are in organization order, approximately. The file and the listing are sorted to S-number order.

6.15 COB60.

MANMASTER. Master inventory
file for 9500.

In organization order.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,400/4000
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@XQT COBOL.COB60
@FIN
```

6.15 continued

This program uses the MANMASTER file and generates a card deck containing the vital data. This program, used in conjunction with COB59, is a good way to make massive changes to the file when necessary. The listing and cards are in organization order. The list can be marked and the cards changed to match, then rerun on COB59 to regenerate the corrected file. A set of instructions for changing is included for each organization.

NOTE: This program, unless changed, would lose the M-number data and O-MAJOR data. Do not use without making the few simple changes necessary to retain this data. The second nomenclature would also be lost but this can be regenerated very easily by COB85.

6.16 COB61.

MANMASTER. Master inventory file for 9500.

One card containing last M-number assigned on last cycle (4-digit integer).

NEWMANMASTER. Updated file containing newly assigned M-numbers plus all prior data.

6.16 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*NEWMANMASTER.
@ASG,A U208A*COBOL.
@XQT COBOL.COB61
XXXX (4 digit integer number beginning in col. one.
      Highest M-number assigned in last cycle)
@FIN
```

This program assigns a new M-number to each piece of equipment in 9500 that has no M-number assigned to it. Numbers starting with the first number after the number on the input card shown.

NOTE: All items are given M-numbers no matter which organization they are assigned to. In most print programs in this system, the M-numbers are listed only for items that are assigned to Organization 9570. These are also the only numbers that are "authorized" (see COB63). M-numbers are used to charge costs for repair and maintenance. They provide exact rather than estimated costs. The updated data is on NEWMANMASTER. This must be copied to MANMASTER to complete the update cycle.

6.17 COB62.

MANMASTER.

Prints sticky labels to attach to items, showing M-number, S-number relationship.

Contains label images.

Labels for items.

6.17 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T TAP.,T,13701
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///110
@XQT COBOL.COR62
@FIN
```

This program produces a sticky label to attach to each item. The labels relate the S-numbers and M-numbers. The labels also carry nomenclature, location, and organization information. The listing will carry instructions for each organization. It is in organization order.

This program must be changed to reflect the on-line printing of special forms, similar to the changes made earlier to COB11.

6.18 COB63.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@XQT COBOL.COB63
@FIN
```

6.18 continued

This program produces a deck of cards that provide an authorization to use the M-numbers described. It produces "change" cards and "new" cards. The "change" cards provide changed data relating to a prior "authorized" card. The "new" cards "authorize" a new M-number. The cards are given to 9561 for further processing. This program is run at 6 months to 1 year intervals or when needed. Minor adjustments may be needed for each run.

6.19 COB64.

MANMASTER.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T LISTWO.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@XQT COBOL.CO64
@FIN
```

This program lists the MANMASTER file in S-number order. It provides a "double" listing. That is, two listings with a line of data continuing across both of them. Subtotals are not provided.

6.20 COB66.

MANMASTER. Master inventory file for 9500.

COBOL.EDITMANDATA. Contains corrections to make corrections to the MANMASTER file.

Edits the MANMASTER file, producing an updated file, a listing of the updated file, and listing of the changes.

NEWMANMASTER.

6.20 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,300
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,A U208A*NEWMANMASTER.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///50
@XQT COBOL.COB66
@ADD COBOL.EDITMANDATA
@FIN
```

This program edits the MANMASTER file and writes the edited file into NEWMANMASTER. The edit data is contained in element COBOL.EDITMANDATA. (A card deck can be substituted for the "ADD" element.) The scheme of editing is similar to the "ELT" processor but has some variations. This is described in detail in Section 5 of this document. The edited data is on the NEWMANMASTER file at the end of the run. It must be copied to MANMASTER to complete the editing cycle.

6.21 COB67.

6.21 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*EQUIPMENT.
@ASG,A U208A*MANMASTER.
@ASG,A U208A*INV-CHANGES.
@ASG,A U208A*NEWMANMASTER.
@ASG,T XA D17/200000
@ASG,T R$CORE,F2///40
@ASG,T U208A*COBOL.
@XQT COBOL.COB67
@FTN
```

This program updates the MANMASTER file using the EQUIPMENT file and writes the updated data into NEWMANMASTER. A listing of the updated file is written and a listing of the changes. The changes are also written to the file named INV-CHANGES. A list of changes is sent to each organization for checking and possible corrections. Directions for correction are included for each organization. The updated data in the NEWMANMASTER file must be copied into MANMASTER to complete the update cycle.

6.22 COB69.

MANMASTER.

Sorted on organization, S-number,
single listing.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB69
@FIN
```

This program sorts the MANMASTER file on organization and S-number.
Subtotals and a skip to a new page are provided on organization changes.

6.23 COB72.

MANMASTER.

Sorted on replacement year and
S-number (9581 only).

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T,XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB72
@FIN
```

This program sorts the MANMASTER file using replacement year and S-number as sort keys. It is for items in 9581 only.

6.24 COB73.

MANMASTER.

Sorted on replacement year,
S-number. Above \$20,000.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB73
@FIN
```

This program sorts the MANMASTER file on the replacement year and S-number. It is for items that are \$20,000 and above.

6.25 COB74.

MANMASTER.

Sorted on replacement year
and S-number. Less than
\$20,000.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200  
@SOC 458189643,FAW,LEW,,840  
@ASG,A U208A*MANMASTER.  
@ASG,A U208A*COBOL.  
@ASG,T XA,D17/200000  
@ASG,T R$CORE,F2///40  
@ASG,T LISTWO.  
@XQT COBOL.COB73  
@FIN
```

This program sorts the MANMASTER file on the replacement year and S-number. It is for items less than \$20,000.

6.26 COB75.

MANMASTER.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB75
@FIN
```

This program sorts the MANMASTER file on the replacement year and S-number.

6.27 COB76.

MANMASTER.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,1000
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB76
@FIN
```

This program sorts the MANMASTER file by nomenclature and by S-number for items over \$20,000.

6.28 COB77.

MANMASTER.

INV-CHANGES. (see Section 4
for formats and details.)
Organization order.

NEWMANMASTER.

6.28 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*NEWMANMASTER.
@ASG,A U208A*INV-CHANGES.
@ASG,T U208A*COBOL.
@ASG,T FEEDBACK.,F2///20
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T FEEDBACK.
@XQT COBOL.COB77
@ADD INV-CHANGES. (this can also be a card deck)
@FIN
```

This program uses the MANMASTER file and the INV-CHANGES file to update the data and write it into the NEWMANMASTER file. (The use and format of the INV-CHANGES file is discussed in detail in Section 5.5 of this document.) This program also produces a listing of the corrected data and a listing for feedback to the corporate master file so that it can be corrected. The updated data is on file NEWMANMASTER which must be copied into MANMASTER to complete the cycle.

6.29 COB81.

MANMASTER.

S-number order (9580 only).

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 450109043,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB81
@FIN
```

This program sorts and lists the MANMASTER file on S-number.
It is for organization 9580 only.

6.30 COB82.

MANMASTER.

Sorted on last year refurbished
and S-number. (9580 only.)

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB82
@FIN
```

This program sorts and lists the MANMASTER file on the last refurbishment year and on S-number. It is for items in 9580 only.

6.31 COB83.

MANMASTER.

EQUIPMENT.

Sorted on S-number. Includes manufacturer's code, serial number, and catalog number. (Items from 9580 only.)

Sample RUN deck:

```

@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*EQUIPMENT.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB.83
@FIN
  
```

6.31 continued

This program sorts and lists the MANMASTER file on S-number. It also reads the EQUIPMENT file and picks up the manufacturer's code, serial number, and catalog number, and inserts this data into the listing. (This data is not carried in the MANMASTER file.) Only the items in 9580 are shown.

6.32 COB84.

MANMASTER.

Sorted on organization number and acquisition date.

Sample RUN deck:

```

@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F///40
@ASG,T LISTWO.
@XQT COBOL.COB84
@FIN
  
```

This program sorts and lists the MANMASTER file on organization number and acquisition date. It is a double page listing. Sub-totals and a skip to a new page are provided when the organization number changes.

6.33 COB85.

6.33 continued

Sample RUN deck:

```
@RUN 208AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/300000
@ASC,T R$CORE,F2///40
@XQT COBOL.COB85
@FIN
```

This program reads a card deck containing "second name" data and inserts the data into the data in the MANMASTER file and writes the changed data into NEWMANMASTER. Each card contains fields as follows:

Col. 1-7	= S-number
Col. 8	= blank
Col. 9-38	= "second name"
Col. 39-80	= blank

When run, the "second name" above is inserted into the "NAME2" field of the appropriate record. Presently there are only about 150 items with second names so the card deck is small. An ADD element should be made of them if the number increases to 300. At the end of the run, the corrected data is in NEWMANMASTER. It must be copied to MANMASTER file to complete the update cycle.

6.34 COB86.

6.34 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,  
@SOC 458189643,FAW,LEW,,840  
@ASG,A U208A*COBOL.  
@XQT COBOL.COB86  
@FIN
```

This program uses a card deck containing organization changes and a card deck containing the data from the master file of preventive maintenance and produces a deck with organization numbers changed. The normal procedure will automatically update the PM file (see COB11A), but this is a quick way if it is needed. The data on the updated deck must be put into the PMASTER file to complete the update cycle. The format of the organization change record is:

Col. 1-6	= old organization
Col. 7	= blank
Col. 8-13	= new organization
Col. 14-80	= blank

The organization change deck contains 85 records and the last one is blank.

6.35 COB87.

MANMASTER.

Card deck containing organization
change data (or ADD file).

Listing of updated data.

NEWMANMASTER.

6.35 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,10,200
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*NEWMANMASTER.
@ASG,A U208A*COBOL.
@XQT COBOL,COB87
@FIN
```

This program reads a deck of cards (or an ADD file) that contains organization changes data and updates the data in MANMASTER, writing it into NEWMANMASTER. The normal procedure of monthly updates will do the same thing, but it is slower and time-consuming since the corporate master does not carry section numbers. The new data is on NEWMANMASTER which must be copied to MANMASTER to complete the update cycle. The card format is described in 6.34 (COB86).

6.36 COB88.

Sample RUN deck:

```

@RUN 207AFW,00930409583T,U208A,5,100
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,A U208A*MNOMASTER.
@ASG,T XA,D17/100000
@ASG,T R$CORE,F2///30
@XQT COBOL.COB88
@FIN
  
```

6.36 continued

This program provides an updated file in M-number order named MNOMASTER for use by COB89. The file is short since it has items charged to 9570 only. It saves a long sort and uses a short one instead. The file can be erased as soon as COB89 is run as many times as needed. These two programs are a part of the process of getting data into the repair and maintenance history. This is the "story" part of the data.

6.37 COB89.

MNOMASTER. Transient file produced by COB88. M-number order for 9570 items only.

VERA2. Contains the "story" portion of the M-number data input (see Section 4).

M-number order.

RERR. Contains the "story" portion of the M-number data. S-number has now been inserted.

6.37 continued

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,5,100
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MNOMASTER.
@ASG,A U208A*VERA2.
@ASG,A U208A*COBOL.
@ASG,A U208A*RERR.
@ASG,T XA,D17/100000
@ASG,T R$CORE,F2///25
@XQT COBOL.COB89
@ADD VERA2.
@FIN
```

This program uses two files as input, MNOMASTER and VERA2. VERA2 is a data file (or card deck) which has the "story" portion of the M-number repair and maintenance data. MNOMASTER contains the M-number, S-number relationship. COB89 outputs the data to a file named RERR which is in suitable form for input to the repair and maintenance history file, NEWRAMASTER, including the X-number data. (See the note in Section 3 concerning the M-number data input.)

6.38 COB90.

MANMASTER.

Double page listing sorted
on organization and S-number.

Sample RUN deck:

```
@RUN 207AFW,00930409583T,U208A,12,400
@SOC 458189643,FAW,LEW,,840
@ASG,A U208A*MANMASTER.
@ASG,A U208A*COBOL.
@ASG,T XA,D17/200000
@ASG,T R$CORE,F2///40
@ASG,T LISTWO.
@XQT COBOL.COB90
@FIN
```

This program sorts the MANMASTER file on organization number and S-number and lists it as a double page listing.

6.39 COB91.

U458D*M-FIN-FIS-M. Accounting file containing M-number cost data, on pack UR00021.

In M-number order.

RERR. Contains the "dollar" portion for the M-number data.

Sample RUN deck:

```

@RUN 207AFW,00930409583T,U208A,5,50
@SOC 458189643,FAW,LEW,,840
@ASG,A U458D*M-FIN-FIS-M.
@ASG,A U208A*COBOL.
@ASG,A U208A*RERR.
@USE MNODOLLARS.,U458D*M-FIN-FIS-M.
@XQT COBOL.COB91
@FIN
  
```

6.39 continued

This program uses a file controlled by the accounting department to get the "dollar" data changed to the M-numbers. This data is written into a file named RERR in suitable form for input to the repair and maintenance listing file. (See the note in Section 3 concerning the M-number data input.)

NOTE: The accounting file shown above was used to check out this program. Since that time, the accounting data is being accumulated on a different file which 9500 has not been authorized to use. Authorization has been requested in a letter signed by R. S. Wilson, 9570, on January 27, 1977. It is assumed it will be granted in due time; until then, the program cannot be run.

DISTRIBUTION:

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9583 P. W. Plomp (5)
9583 S. T. Landrith (2)
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