**EUR 4404 e**
**PART 3**

EUROPEAN ATOMIC ENERGY COMMUNITY - EURATOM

# IBM 1800 PROGRAMS FOR DATA PROCESSING AT THE ACCELERATORS OF THE CENTRAL BUREAU FOR NUCLEAR MEASUREMENTS

## PART 3: PROGRAMS FOR INTERACTIVE DATA REDUCTION

by

H. HORSTMANN

**1972**


**Joint Nuclear Research Centre**
**Geel Establishment - Belgium**

**Central Bureau for Nuclear Measurements - CBNM**

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are : subtraction of background data, retransmission of disk data to an analyser for examination on a display unit, integration of count rates between channel limits, normalization of spectra, examination of available disk storage, deleting of disk data, orders for the computer operator, etc.

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**ABSTRACT**

A set of IBM 1800 interrupt servicing programs for interactive data reduction at the Van de Graaff and the electron linear accelerator of the Central Bureau for Nuclear Measurements is described. Most of the data to be processed are neutron cross section data collected in time-of-flight multi-channel analysers which are interfaced to an IBM 1800. The experimental data are transferred to the disk storage of the computer on interrupt requests from the analysers.

The data reduction procedures described are initiated at the analyser computer interface units by push-buttons and data entry switches. Typical operations are : subtraction of background data, retransmission of disk data to an analyser for examination on a display unit, integration of count rates between channel limits, normalization of spectra, examination of available disk storage, deleting of disk data, orders for the computer operator, etc.

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**KEYWORDS**

PROGRAMMING
LINEAR ACCELERATORS
VAN DE GRAAFF ACCELERATORS
DATA ACQUISITION SYSTEMS
ON-LINE COMPUTERS
RECORDING SYSTEMS
MULTI-CHANNEL ANALYSERS
NEUTRONS
CROSS SECTIONS

CONTENTS

## 1. INTRODUCTION *)

The integrated data processing system (Fig. 1) of the Central Bureau for Nuclear Measurements (CBNM) has mainly been installed for neutron cross section measurements at a 90 MeV electron linear accelerator and a 3 MV Van de Graaff. The system is based on an IBM 1800 computer (32K, 2 μsec cycle time, 4 disk drives: IBM 1810/A3 and 1810/A1, 3 magnetic tapes IBM 2401) to which seven data acquisition stations are connected by special interface units.
Six of these data acquisition stations are equipped with fast time-of-flight multi-channel analysers (five of them having 4096 and one 1600 channels) and one with a GA 18/30 satellite computer.

The analyser computer interface units request computer interrupts for data transfers either automatically according to preset experimental conditions or by operator intervention. Having accepted an interrupt the computer controls the data transfer by sending special commands to and receiving status information from the corresponding interface unit, i. e. the computer takes over complete control of the data transfer. Several validity checks are made on the transferred data before they are stored into general disk files which are used later on for interactive data reduction and numerical analysis with respect to interesting physical parameters.

This report describes the interrupt servicing programs for interactive reduction of data stored on disk. These data reduction procedures can be initiated by the users of the analyser computer interface units by pressing push-buttons and adjusting data entry switches at their interface units. Typical operations are: subtraction of background data, retransmission of a disk spectrum to the data acquisition station for examination on a display unit, integration of count rates between channel limits, normalization of spectra, examination of available disk storage, orders for the computer operator, etc.
All programs of this report are written in ASSEMBLER language for the Time-Sharing Executive System (TSX). Programs supporting other features of the CBNM integrated data processing system, such as transfers of experimental data from the multi-channel analysers to the computer, satellite computer operation, off-line data reduction and analysis, are reported elsewhere ( (1), (2), (3), (4), (5), (6) ).

## 2. OPERATION OF ANALYSER COMPUTER INTERFACE UNITS

The data reduction procedures to be described in this report are initiated by the user of an interface unit. The user specifies the operation code for the work to be done, enters the data to be transferred to the computer by adjusting data entry switches, and finally requests a computer interrupt by pressing a special push-button.

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*) Manuscript received on February 2, 1972

In order to perform these operations the user must not be familiar with details of the functional characteristics ( (7), (8)) of the interface unit. But it is highly recommended that he reads the instruction manual for the operation of the interface units.

Digit switches at the interface unit are used for the specification of control words and scalers (1) named in the following way:

ID (control word 1)
PRESET (control word 4)
BLOCKS (control word 3)
SCALER 1, ..., SCALER 9

For each word six decimal digits and a sign can be defined. The information in these words is read by the computer. The interpretation of these words depends on the interrupt program which is specified by two decimal digits in OP. CODE.

A level switch with two positions defines the computer interrupt level on which an interrupt can be requested. Only position ON LINE L2 is used for the computer operations to be described in this report. When the push-button START EXECUTE is pressed an interrupt is requested.
The different computer operations (programs) which can be selected by different values of the operation code (OP. CODE) are described in sections 4 to 17.

## 3. FORMAT SPECIFICATIONS

Data for the interface words ID, BLOCKS, PRESET and SCALER 1 - 9 can be introduced via the digit switches in the following way:

$\pm D_1 D_2 D_3 D_4 D_5 D_6$

$D_n = 0, 1, \ldots 9, \quad n = 1, 2, \ldots 6$

The following numbers are used in the programs to be described in sections 4 to 16:

1) Identification number (3):

$D_1$ ) group no.
$D_2$

$D_3$ 1. experiment no.

$D_4$ 2. experiment no.

$D_5$ ) serial no.
$D_6$

2) Block numbers:

$D_1$, $D_2$ ) number of blocks in the spectrum

$D_3$, $D_4$, $D_5$, $D_6$ ) number of first block to be used

Both numbers have to be right justified in their field.

3) Integers:

$D_1\ D_2\ D_3\ D_4\ D_5\ D_6$

$D_1$ = high order digit.

4) Real numbers 0. $D_1\ D_2\ D_3\ D_4\ D_5\ E \pm D_6$:

$\pm$ sign of exponent

$D_1$, $D_2$, $D_3$, $D_4$, $D_5$ ) mantissa 0. $D_1\ D_2\ D_3\ D_4\ D_5$

$D_6$ exponent of power of 10

## 4. DISPLAY OF SPECTRA

Data blocks (256 channels each) of spectra stored on disk can be transferred to the analyser memory for display. The data blocks can be multiplied by a normalization factor 0. XXXXX E $\pm$ X (X = 0, 1, ... 9) before the transfer. Each negative channel content Y = -a (a > 0) is replaced by $Y' = Y + 10^5$ before the transfer is started. (For the SKIP analyser $Y' = Y + 10^6$.)

Switches:

| | |
|---|---|
| ID: | Identification no. of spectrum on disk. |
| PRESET: | No. of the analyser block in which the first transferred block of the disk spectrum is to be stored. Numbering of blocks starts with 1. |
| SCALER 1: | Normalization factor. There is no multiplication if SCALER 1 is zero. |

BLOCKS: Total number of blocks and the no. of the first block of the spectrum to be displayed. Numbering of blocks starts with 1.
OP. CODE: 10
Level switch: ON LINE L2
Press START EXECUTE

Messages:

Operation complete:
ID in blocks .... to .... normalization factor.

Error messages:

check block no. s: The numbers specified in BLOCKS and PRESET disagree or are not in the range 1 to 16.

id not on disk: The spectrum specified in ID is not on disk.

check gr. no. : The group number in ID is outside the range 1 to 15.

## 5. INTEGRATION OF SPECTRA

The channel counts between a lower channel no. (lcn) and upper channel no. (ucn) of a disk spectrum can be summed up. (The counts of lcn and ucn are included in the sum). The sum can be multiplied by 5 real numbers and divided by four real numbers.

Switches:

ID: Identification no. of spectrum.
PRESET: Upper channel no. or lower channel no. (Numbering of channels starts with 0).
BLOCKS: Lower channel no. or upper channel no.
SCALER 1-5: Real numbers for multiplication.
SCALER 6-9: Real numbers for division. A zero in one of the scalers is interpreted as 1.0 by the computer.
OP. CODE: 12
Level switch: ON LINE L2
Press START EXECUTE

Messages:

Operation complete:
id = .... lcn = .... ucn = .... res = ....
Real numbers used for multiplication (if any).
Real numbers used for division (if any).

Error messages:

check chan. no. s: The channel numbers are outside the range 0 to 4095 or they are equal inside this range.

id not on disk: The spectrum specified in ID is not on disk.

check gr. no.: The group no. in ID is outside the range 1 to 15.

## 6. DELETING OF SPECTRA

Spectra stored on disk can be deleted if the group numbers of the identification numbers specified for this operation are equal to the station no. of the analyser used.

Switches:

ID, PRESET, BLOCKS, SCALER 1-9: Identification numbers of the spectra to be deleted.

OP. CODE: 14
Level switch: ON LINE L2
Press START EXECUTE

Messages:

After START EXECUTE has been pressed the interface words (ID, PRESET, BLOCKS and the 9 scalers) are printed, however identification numbers with invalid group numbers in the scalers have been reset to zero.
When the message REPEAT has been printed check identification numbers carefully, and in case no corrections have to be made press again START EXECUTE. During the time the interface words are printed again change OP CODE to 24. A message about the identification numbers of the spectra deleted is then printed.

If after the printing of the interface words you have made corrections press START EXECUTE and wait for the message REPEAT. If no more corrections are necessary continue as explained above.

Error message:

id not on disk: The spectra with the identification numbers specified in the interface words are not on disk or they do not belong to the group no. which is equal to the station no. of the analyser you are using. This message is only printed if no spectrum of those specified has been deleted.

## 7. TABLE OF IDENTIFICATION NUMBERS

The identification numbers of all disk spectra with a given group number are listed.

Switches:

ID: Group number into the first two digits.

OP. CODE: 15
Level switch: ON LINE L2
Press START EXECUTE

Messages:

Operation complete:
Under the heading id table gr.... the identification numbers (without the group no.) of spectra with 16 blocks are listed. Identification numbers for spectra with less than 16 blocks are listed under the heading small spectra. In this case each identification number is followed by the number of the first block and the total number of blocks in the spectrum.

Error messages:

check gr. no.: The group number in ID is outside the range 1 to 15.

no id on disk: There are no identification numbers for the group number specified.

## 8. ADDITION AND SUBTRACTION OF SPECTRA

Up to 11 spectra stored on disk can be added or subtracted to result in one spectrum which is stored on disk.

Switches:

ID: Identification number of resulting spectrum.
BLOCKS, PRESET, SCALER 1-9: Identification numbers of spectra to be added (+ sign) or subtracted (- sign).
OP. CODE: 16 if scalers are to be excluded.
19 if scalers are to be included.
Level switch: ON LINE L2
Press START EXECUTE

Messages:

Operation complete:
+ id1 - id2 +-.... = ID
To the left of the equal sign the identification numbers of the spectra which have been added or subtracted are given. To the right of the equal sign the identification number of the result is printed.

Error messages:

check gr. no.: The group no. of the identification no. for the result (ID) is outside the range 1 to 15.

id already used: The result is not stored on disk. Repeat operation with other ID.

no storage: The result is not stored on disk because of lack of disk room. Delete a spectrum which is no more used.

no id on disk: No spectrum of those specified for this operation is found on disk.

Remark: If spectra of less than 16 blocks are used the number of blocks in the resulting spectrum is equal to the highest number of blocks in the spectra which have been added or subtracted.

## 9. NORMALIZATION OF SPECTRA

A spectrum on disk can be multiplied by a real number 0. XXXXX E± X (X = 0, 1, .... 9) and stored on disk with another identification number.

Switches:

| | |
|---|---|
| ID: | Identification number of spectrum before multiplication. |
| PRESET: | Identification number of spectrum after multiplication. |
| SCALER 1: | Multiplication factor. If the multiplication factor is zero there is no multiplication but the spectrum specified in ID is stored once more on disk with the identification number specified in PRESET. |
| OP. CODE: | 17 |
| Level switch: | ON LINE L2 |
| Press START EXECUTE | |

Messages:

Operation complete:

(id. no. before) (multiplication) * factor = (id. no. after ) (multiplication)

Error messages:

check gr. no.: Group numbers in ID and PRESET must be equal and inside the range 1 to 15.

id not on disk: The spectrum specified in ID is not on disk.

id already used: The result is not stored on disk. Repeat operation with other identification number in PRESET.

no storage: The result is not stored on disk because of lack of disk room. Delete a spectrum which is no more used.

## 10. AVAILABLE DISK STORAGE

A message about the available disk room for the storage of spectra is printed out.

Switches:

.... 4K, .... sm. sp., .... ov. ch.

4K: The number of free areas for the storage of spectra with 4096 channels.

sm. sp.: The number of free sectors for the storage of spectra with less than 16 blocks.
1 sector = 160 channels if there are channels with a count higher than 65535.
1 sector = 320 channels if there are no channels with a count higher than 65535.

ov. ch.: The number of free sectors for the storage of overflow channels (= channels with a count higher than 65535). If in a spectrum of 4K less than half of the channels are overflow channels, the spectrum is stored in single precision (1 word = 1 channel) and the overflow channels are stored separately. If more than half of the channels in the 4K spectrum are overflow channels then the whole spectrum is stored in double precision (2 words = 1 channel). In this case two 4K areas are used for one spectrum of 4096 channels.

## 11. PRINTING OF IN/OUT CHECK VALUES

The numbers used for the check of the IN/OUT ratio for automatic sample changer operation are printed out (1).

Switches:

OP. CODE: 21
Level switch: ON LINE L2
Press START EXECUTE

Message:

....0/0, .... seq., .....m.v.

0/0: If the IN/OUT ratio of a sequence of runs differs from the mean value (m. v.) by more than ±.... %, the corresponding sequence is suppressed.

seq.: For ..... sequences of runs after the experiment has been started the IN/OUT check is suppressed.

m. v.: The mean value of the IN/OUT ratio in the format +X. XXXXXXXX E± XX (X = 0, .... 9).

## 12. CHANGE OF IN/OUT CHECK VALUES

The % value and the number of sequences for which the IN/OUT check is suppressed can be changed (1).

Switches:

PRESET: The number (right justified) of sequences for which the check is suppressed.

BLOCKS: The % value (right justified).

OP. CODE: 22
Level switch: ON LINE L2
Press START EXECUTE

Message:

The same message as for OP. CODE 21 is printed.

## 13. SHIFTING OF SPECTRA

A spectrum stored on disk can be shifte d left or right the number of channels specified as shift count. Channels leaving the position of the first or last channel in the spectrum are lost. The shifted spectrum has the same identification number as the unshifted spectrum which is lost.

Switches:

ID: Identification number of spectrum to be shifted.
PRESET: Shift count in the range 0 to 4095 (+ sign: shift right, - sign: shift left).
OP. CODE: 23
Level switch: ON LINE L2
Press START EXECUTE

Messages:

Operation complete:

ID shift right (left) .... (channels)

Error messages:

check gr. no.: The group no. of the identification no. is outside the range 1 to 15.
id not on disk: The spectrum specified in ID is not on disk.
shift count error: The shift count is greater than 4095.

## 14. ORDERS

Orders for lists, integral lists, binary cards (3), and plots (5) of spectra stored on disk can be specified at an interface unit. These orders are stored on disk in a special order file. Several times per day the computer operator examines the order file and starts a program which performs the requested work.

Switches:

ID: Identification number of spectrum.
PRESET: The four rightmost digits are used for order specifications:

| | | L | C | I | P |
|---|---|---|---|---|---|

L = 1: list
C = 1: binary cards
I = 1: integral listing
P = 1: plot

For a value unequal 1 the operation under consideration is suppressed.

SCALER 1: (only for plot): Length of X-axis in mm (maximum length = 3200 mm). If SCALER 1 is 0 a standard length of 512 mm is assumed for the X-axis.

SCALER 2: (only for plot): Length of Y-axis in mm (maximum length = 700 mm). If SCALER 2 is 0 a standard length of 250 mm is assumed for the Y-axis.

SCALER 3: (only for plot): Maximum count. All channel counts greater than the maximum count are replaced by the maximum count. If SCALER 3 is 0 a maximum count of $10^{20}$ is assumed. In this case a 0 is printed for the maximum count in the interface message.

BLOCKS: Total number of blocks and the number of the first block to be operated on.

OP. CODE: 26

Level switch: ON LINE L2

Press START EXECUTE

Messages:

Operation complete:

ID 1 c i p, no. blocks, 1st. block, X-axis, Y-axis, max. count. 1, c, i, p are only printed if specified. The values for X-axis, Y-axis, and maximum count are only printed if a plot is requested.

Error messages:

check gr. no.: The group number in ID is outside the range 1 to 15.

check bl. no. s: The numbers specified in BLOCKS disagree or are not in the range 1 to 16.

error axis length: The length of the X- or Y-axis is greater than the maximum length specified above.

no order stored: No order is stored because nothing has been specified in PRESET.

repeat later: The order file on disk is filled up. Repeat your order later on.

## 15. CANCELLATION OF ORDERS

Orders made for lists, integral lists, binary cards, and plots can be deleted from the order file on disk.

Switches:

ID: Identification number of spectrum for which all orders will be deleted.
OP. CODE: 25
Level switch: ON LINE L2
Press START EXECUTE

Messages:

Operation complete:

orders ID deleted.

Error messages:

id not on disk: The identification number specified in ID is no more (or has never been) in the order file on disk.

## 16. ACCORDEON

The program ACCORDEON has two functions:

1) A disk spectrum of 4096 channels can be compressed to 1024 or 2048 channels, i. e. the contents of the first 4 or first 2 channels are summed up and the sum is stored as content of the first channel of a new spectrum, etc.
2) The first 1024 or 2048 channels of a disk spectrum may be extended to 4096 channels, i. e. the content of the first channel is divided by 4 or 2 and the result stored in each of the first 4 or 2 channels of a new spectrum, etc.

The original disk spectrum is not destroyed. The compressed or extended spectrum is stored on disk with a new identification number.

Switches:

ID: Identification no. of spectrum to be compressed or extended.
PRESET: +4: extension from 1024 to 4096 channels
+2: extension from 2048 to 4096 channels
-4: compression from 4096 to 1024 channels
-2: compression from 4096 to 2048 channels
BLOCKS: Identification no. of the compressed or extended spectrum.
OP. CODE: 24
Level switch: ON LINE L2
Press START EXECUTE

Messages:

Operation complete:

old ID compr. (exten.) 4 (2) new ID.

Error messages:

check gr. no.: The group number in ID is outside the range 1 to 15.
check preset: The number in PRESET is not ± 4 or ± 2.
id not on disk: The spectrum specified in ID is not on disk.
same id already used: The compressed or extended spectrum is not stored on disk. Repeat operation with other identification no. in BLOCKS.
no storage: The compressed or extended spectrum is not stored on disk because of lack of disk room. Delete a spectrum which is no more used.

## 17. RESERVATION OF DISK ROOM

The number of 4K disk places which is reserved for an analyser station can be changed in the following way: At station no. N1 (group no. in ID) one or more 4K spectra are deleted and the disk place of each deleted spectrum is then reserved for station no. N2.

If you want to transfer disk places to another analyser station start the DELETE operation as usual with OP. CODE 14. When the message REPEAT has been printed check identification numbers carefully and in case no corrections have to be made press again START EXECUTE. During the time the interface words are printed again change OP. CODE to the group no. (analyser station) to which you want to transfer the places of the deleted spectra. A message about the deleted spectra and the number of the transferred spectra is then printed.

## 18. INTERRUPT SERVICING PROGRAM IDOP

The operations described in sections 4 - 17 are performed by the interrupt servicing program IDOP with its major subroutines IDOP1, IDOP2, IDOP3, IDOP4.

The main program IDOP first detects the address of the interface unit (station) which has provoked the interrupt. Then the four control words and the nine scaler words (1) are read in data channel operation with external synchronization.

According to the operation code in control word 2 the program branches to the subroutines IDOP1, IDOP2, IDOP3, IDOP4 or executes a CALL LEVEL for the interface test program ATEST (1). (The operation code is specified by the OP. CODE digit switches at the interface unit).

Error messages of main program IDOP:

check op. code: OP. CODE and level switch (ON LINE L2 or ON LINE L1) do not correspond or OP. CODE is incorrect.
error word...: Contact electronics engineer.

IDOP1

The following operations are performed:

| OP. CODE | OPERATION |
|---|---|
| 10 | DISPLAY OF SPECTRA |
| 14 | DELETING OF SPECTRA<br>RESERVATION OF DISK ROOM |

IDOP2

The following operations are performed:

| OP. CODE | OPERATION |
|---|---|
| 15 | TABLE OF IDENTIFICATION NUMBERS |
| 16 | ADDITION AND SUBTRACTION OF SPECTRA (SCALERS EXCLUDED) |
| 17 | NORMALIZATION OF SPECTRA |
| 18 | AVAILABLE DISK STORAGE (MESSAGE) |
| 19 | ADDITION AND SUBTRACTION OF SPECTRA (SCALERS INCLUDED) |

IDOP3

The following operations are performed:

| OP. CODE | OPERATION |
|---|---|
| 21 | PRINTING OF IN/OUT CHECK VALUES |
| 22 | CHANGE OF IN/OUT CHECK VALUES |
| 23 | SHIFTING OF SPECTRA |
| 24 | ACCORDEON |
| 25 | CANCELLATION OF ORDERS |

IDOP4

The following operations are performed:

| OP. CODE | OPERATION |
|---|---|
| 12 | INTEGRATION OF SPECTRA |
| 26 | ORDERS |

Disk files used by IDOP1, IDOP2, IDOP3, IDOP4:

All disk files used have the length of 1 sector.

IDOP1: SPECN: Reservation of disk places for the different data acquisition stations.

IDOP2: SPTBL, SPT3L, SPTB1: Storage of identification numbers of spectra (3).

IDOP3: CONSC, CONS1: Control information for automatic sample changer operation (1).
ORD1: Storage of orders given by the users of the data acquisition stations to the computer operator.

IDOP4: ORD1 (cf. IDOP3).

## 19. SUBROUTINES OF PROGRAM IDOP

The subroutines of IDOP and its main subroutines IDOP1, IDOP2, IDOP3, IDOP4 (except those already published elsewhere) are described in this section. They may only be used in ASSEMBLER language calling programs.

Subroutines published elsewhere:

| | |
|---|---|
| DISKM, MINT, MDISK, MFLT, SPSRC | (3) |
| BLANK, CHIF, MOVE, MOVE1 | (4) |
| BIDEC, DECBY, FORMT, MOVEF, PER, RESET, TICON | (1) |

Subroutines described here:

BICA
CONCA
CONID
CONI1
DECID
MREAL

BICA

Entry point with calling sequence:

```
CALL  BICA
DC    ADDR1
DC    ADDR2
DC    N
```

Subroutines called by BICA: BINDC (TSX System)

Core locations used: 50 (32 hexadec.)

Description:

BICA converts a single word binary number at address ADDR1 to its decimal equivalent in five card-coded numerical characters and one card-coded sign character. The last N of these card-coded characters are placed into N computer words starting at address ADDR2.

CONCA

Entry point with calling sequence:

```
CALL  CONCA
DC    ADDR1
DC    ADDR2
```

Subroutines called by CONCA: BIDEC (1)
BINDC (TSX System)
MOVE (4)

Core locations used: 104 (68 hexadec.)

Description:

CONCA converts a double word binary number at address ADDR1 to its decimal equivalent in 10 card-coded numerical characters and one card-coded sign character placed into 11 computer words starting at address ADDR2. Leading zeros are suppressed. The sign character is in the location before the first non-zero digit. In case of no non-zero digits only one zero is put into the last word of the 11-word zone and all other locations contain card-coded blanks.

CONID

Entry point with calling sequence:

```
CALL  CONID
DC    ADDR1
DC    ADDR2
```

Subroutines called by CONID: BICA

Core locations used: 52 (34 hexadec.)

Description:

CONID converts the first four words of a spectrum identification number (3) to 6 card-coded digits with period in the format XX.XXXX (X = 0, ..., 9). The four-word identification number is at address ADDR1. The card code characters are placed into 7 computer words starting at address ADDR2.

CONI1

Entry point with calling sequence:

```
CALL  CONI1
DC    ADDR1
DC    ADDR2
DC    I
```

Subroutines called by CONI1: BICA

Core locations used: 96 (60 hexadec.)

Description:

CONI1 converts the first six words of a spectrum identification number (3) to 4 card-coded digits for I = 0 and to 8 card-coded digits for I = 1 (spectra with less than 16 data blocks). The six-word identification number is at address ADDR1. The card code characters are placed into 8 computer words for I = 0 and into 12 computer words for I = 1, in both cases starting at address ADDR2. The converted identification numbers are in the following format:

I = 0:
1. digit = 1. experiment no.
2. digit = 2. experiment no.
3. digit = serial no. (high order digit)
4. digit = serial no. (low order digit)
5.-8. digit = blank

I = 1:
1. digit = 1. experiment no.
2. digit = 2. experiment no.
3. digit = serial no. (high order digit)
4. digit = serial no. (low order digit)
5. digit = blank
6. digit = no. of 1st block (high order digit)
7. digit = no. of 1st block (low order digit)
8. digit = blank
9. digit = total no. of blocks (high order digit)
10. digit = total no. of blocks (low order digit)
11. digit = blank
12. digit = blank

DECID

Entry point with calling sequence:

```
CALL  DECID
DC    ADDR1
DC    ADDR2
DC    ADDR3
```

Subroutines called by DECID: None

Core locations used: 80 (50 hexadec.)

Description:

DECID converts the identification number in BCD format (1) (as transferred to the computer by control word 1) to five binary computer words. ADDR1 is the address of the identification no. in BCD format (2 computer words). The converted identification no. is placed in ADDR2 through ADDR2+4 where the content of ADDR2+4 is always 1. ADDR3 is the address of an error indicator which is 1 if the group no. in the identification no. is not in the range 1 - 15, otherwise 0.

The converted identification no. is stored in the following way:

| | |
|---|---|
| ADDR2 | group no. |
| ADDR2+1 | 1st experiment no. |
| ADDR2+2 | 2nd experiment no. |
| ADDR2+3 | serial number |
| ADDR2+4 | 1 |

MREAL

Entry point with calling sequence:

```
CALL  MREAL
DC    ADDR1
DC    ADDR2
```

Subroutines called by MREAL: FDTB (TSX System)
FSTO (TSX System)
HOLEB (TSX System)
MOVE (4)

Core locations used: 114 (72 hexedec.)

Description:

MREAL converts an interface word in the format of a real number (cf. section 3) to a standard precision floating point number and to 12 card-coded characters. The interface word at address ADDR1 is replaced by the standard precision floating point number. The card-coded floating point number is placed in ADDR2 through ADDR2+11 in the format +.XXXXX E±0X (X = 0, ..., 9) with a blank in ADDR2+11.

Acknowledgements

It is a pleasure for the author to thank C. Cervini, F. Colling, and A. De Keyser for many useful discussions.

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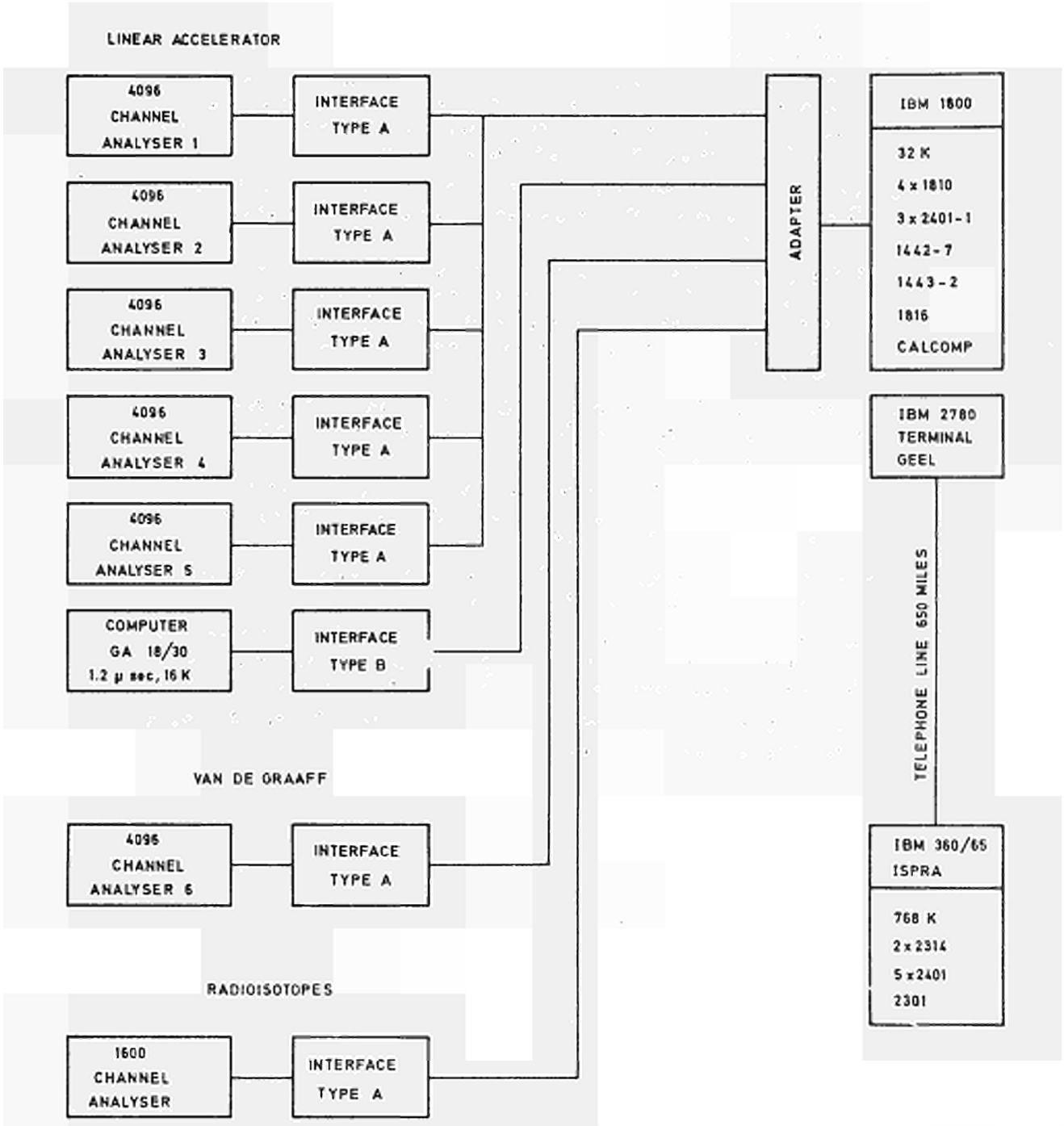


Fig. 1: C B N M DATA PROCESSING SYSTEM

```
                ********************************************************  IDOP 002
                *      ADDRESS ASSIGNMENT FOR COMMON                     IDOP 003
                ********************************************************  IDOP 004
DFFE            SPEC   EQU      -8194                                     IDOP 005
DFCE            SCAL   EQU      -8242                                     IDOP 006
DFBE            IDEN   EQU      -8258                                     IDOP 007
DFBC            TABLE  EQU      -8260                                     IDOP 008
DF9C            WORDS  EQU      -8292                                     IDOP 009
DF9A            WCOUT  EQU      -8294                                     IDOP 010
DD14            BUF    EQU      -8940                                     IDOP 011
BD14            SPEC1  EQU      -17132                                    IDOP 012
BCE4            SCAL1  EQU      -17180                                    IDOP 013
BCD4            IDEN1  EQU      -17196                                    IDOP 014
BCD2            TABL1  EQU      -17198                                    IDOP 015
                ********************************************************  IDOP 016
```

```
                                                                                IDOP 018
0000 20 040565C0  START LIBF     DAOP       RESET 16-BIT DIGITAL REGI-          IDOP 019
0001 0  1000            DC       /1000      STER OUTPUT TO ZERO                 IDOP 020
0002 1  00DB            DC       AREA2                                          IDOP 021
0003 0  0000            DC       0                                              IDOP 022
                *-------------------------------------------------------------- IDOP 023
0004 01 650000E0        LDX   L1  X          FIND PISW BIT OF INTERRUPT          IDOP 024
0006 00 66800068        LDX   I2  104        XR2 TO LWA                          IDOP 025
0008 0  C228            LD    X2  40         LOAD ADDR.OF WC/SA OF PROG          IDOP 026
0009 0  D1FE            STO    1  BITNO-X     FOR BIT 0 OF PISW FROM ICL          IDOP 027
000A 0  C226            LD    X2  38         TABLE AND SUBTRACT ADDR.            IDOP 028
000B 0  91FE            S      1  BITNO-X     OF WC/SA OF PROG. FOR               IDOP 029
000C 0  1801            SRA    1             INTERRUPTING PISW BIT.              IDOP 030
000D 0  D1FE            STO    1  BITNO-X     DIFF.DIV.BY 2 IS PISW BIT.          IDOP 031
                *-------------------------------------------------------------- IDOP 032
000E 20 02255103        LIBF     BINDC      TYPEWRITER CODE                     IDOP 033
000F 1  00E0            DC       OUTPT                                          IDOP 034
0010 20 085935D9        LIBF     HOLPR                                          IDOP 035
0011 0  0000            DC       /0000                                          IDOP 036
0012 1  00E4            DC       OUTPT+4                                        IDOP 037
0013 1  0131            DC       T*12                                           IDOP 038
0014 0  0002            DC       2                                              IDOP 039
                *-------------------------------------------------------------- IDOP 040
0015 00 6600DF9A        LDX   L2  Y                                            IDOP 041
                *-------------------------------------------------------------- IDOP 042
0017 0  C107            LD     1  B2-X        PREPARE COMMAND *READ 1ST           IDOP 043
0018 0  81FE            A      1  BITNO-X     16 BIT OF CONTROL WORD 2*           IDOP 044
0019 0  D10A            STO    1  AREA3+2-X                                     IDOP 045
                *-------------------------------------------------------------- IDOP 046
001A 01 440000D0        BSI   L   A310       COMMAND *READ CW2*                  IDOP 047
                *-------------------------------------------------------------- IDOP 048
001C 20 042555C0        LIBF     DINP       READ 1ST 16 BIT OF CW2              IDOP 049
001D 0  3000            DC       /3000                                          IDOP 050
001E 0  0043            DC       67                                             IDOP 051
001F 0  0000            DC       0                                              IDOP 052
                *-------------------------------------------------------------- IDOP 053
0020 0  1888            SRT      8          DECODE OPERATION CODE               IDOP 054
0021 0  1010            SLA      16                                             IDOP 055
0022 0  1084            SLT      4                                              IDOP 056
0023 0  D200            STO    2  WCOUT-Y                                       IDOP 057
0024 0  1010            SLA      16                                             IDOP 058
0025 0  1084            SLT      4                                              IDOP 059
0026 0  D201            STO    2  WCOUT+1-Y                                     IDOP 060
0027 0  C200            LD     2  WCOUT-Y                                       IDOP 061
0028 0  A115            M      1  TEN-X                                         IDOP 062
0029 0  1090            SLT      16                                             IDOP 063
002A 0  8201            A      2  WCOUT+1-Y                                     IDOP 064
002B 0  D122            STO    1  OPCOD-X                                      IDOP 065
                *-------------------------------------------------------------- IDOP 066
002C 0  B121            CMP    1  OP99-X                                       IDOP 067
002D 0  7005            MDX      A101                                           IDOP 068
002E 0  7000            MDX      *                                              IDOP 069
002F 0  B11F            CMP    1  OP80-X                                       IDOP 070
0030 0  7004            MDX      A100       UP-CODE 81-99                       IDOP 071
0031 0  700E            MDX      A61                                            IDOP 072
0032 0  700D            MDX      A61        READ WORDS                          IDOP 073
                *-------------------------------------------------------------- IDOP 074
0033 01 4C0000C4  A101  BSC   L   A53                                           IDOP 075
                *-------------------------------------------------------------- IDOP 076
0035 00 6680009C  A100  LDX   I2  156        STORE BITNO AND OPCOD               IDOP 077
0037 0  C122            LD     1  OPCOD-X     INTO COMMON INSCELETON              IDOP 078
```

```
0038 0  D2FF          STO   2 -1                                        IDOP 079
0039 0  C1FE          LD    1 BITNO-X                                   IDOP 080
003A 0  D2FE          STO   2 -2                                        IDOP 081
*-------------------------------------------------------------------- IDOP 082
003B 30 13165153      CALL    LEVEL       TEST PROGRAMS FOR           IDOP 083
003D 1  0103          DC      LEVL        INTERFACE UNITS             IDOP 084
003E 30 09563167      CALL    INTEX                                   IDOP 085
*-------------------------------------------------------------------- IDOP 086
0040 0  C106    A61   LD    1 B8-X        PREPARE COMMAND*READ        IDOP 087
0041 0  81FE          A     1 BITNO-X     WORDS*                      IDOP 088
0042 0  D10A          STO   1 AREA3+2-X                               IDOP 089
*-------------------------------------------------------------------- IDOP 090
0043 0  C10B          LD    1 MNPC-X                                    IDOP 091
0044 0  D10C          STO   1 NPC-X       COUNTER NO. OF PAR. CHECKS  IDOP 092
*-------------------------------------------------------------------- IDOP 093
0045 0  C10D          LD    1 WC33-X      PREPARE TABLE TO READ IN    IDOP 094
0046 0  D200          STO   2 WCOUT-Y     WORDS ON DC                 IDOP 095
0047 0  C10E          LD    1 AD67-X                                    IDOP 096
0048 0  D201          STO   2 WCOUT+1-Y                               IDOP 097
*-------------------------------------------------------------------- IDOP 098
0049 20 024C1552    A1    LIBF    BLANK       CLEAR INPUT TABLE FOR   IDOP 099
004A 0  DF9C          DC      WORDS       WORDS                       IDOP 100
004B 0  0020          DC      32                                      IDOP 101
*-------------------------------------------------------------------- IDOP 102
004C 01 440000D0      BSI   L  A310       COMMAND *READ WORDS*        IDOP 103
*-------------------------------------------------------------------- IDOP 104
004E 20 042555C0      LIBF    DINP        READ WORDS SINGLE ADDRESS,  IDOP 105
004F 0  1005          DC      /1005       EXTERNAL SYNCHR.            IDOP 106
0050 0  DF9A          DC      WCOUT                                   IDOP 107
0051 0  0000          DC      0                                       IDOP 108
*-------------------------------------------------------------------- IDOP 109
0052 00 660000C8      LDX   L2 200        WAIT 200*10 MICROSECONDS    IDOP 110
0054 0  1010    A2    SLA     16          )                           IDOP 111
0055 0  72FF          MDX   2 -1          )=10 MICROSECONDS           IDOP 112
0056 0  70FD          MDX     A2          )                           IDOP 113
*-------------------------------------------------------------------- IDOP 114
0057 20 042555C0      LIBF    DINP        RESET DINP                  IDOP 115
0058 0  4005          DC      /4005                                   IDOP 116
0059 00 6600DF9A      LDX   L2 Y                                      IDOP 117
*-------------------------------------------------------------------- IDOP 118
005B 30 17159000    A3    CALL    PER                                 IDOP 119
005D 0  DF9C          DC      WORDS                                   IDOP 120
005E 0  0010          DC      16                                      IDOP 121
005F 0  0000          DC      *-*         ERROR INDICATOR             IDOP 122
0060 0  0000          DC      *-*         NO.OF DOUBLE WORD IN ERROR  IDOP 123
0061 0  7002          MDX     A4          ERROR EXIT OF PER           IDOP 124
0062 01 4C000090      BSC   L  A5         NO-ERROR EXIT OF PER        IDOP 125
*-------------------------------------------------------------------- IDOP 126
0064 01 74FF00EC    A4    MDX   I  NPC,-1                             IDOP 127
0066 0  70E2          MDX     A1          READ WORDS AGAIN            IDOP 128
0067 0  C0F8          LD      A3+5                                    IDOP 129
0068 0  9112          S     1 ONE-X                                   IDOP 130
*-------------------------------------------------------------------- IDOP 131
0069 20 02255103      LIBF    BINDC                                   IDOP 132
006A 1  00E0          DC      OUTPT       CARD CODE FOR SCALER OR     IDOP 133
006B 0  C104          LD    1 OUTPT+4-X   CONTROL WORD NO.            IDOP 134
006C 01 D4000112      STO   L  AM11                                   IDOP 135
006E 0  C105          LD    1 OUTPT+5-X                               IDOP 136
006F 01 D4000113      STO   L  AM11+1                                 IDOP 137
*-------------------------------------------------------------------- IDOP 138
0071 20 085935D9      LIBF    HOLPR       TYPEWRITER CODE FOR SCALER  IDOP 139
```

```
0072 0  0000          DC      /0000       OR CONTROL WORD NO.          IDOP 140
0073 1  00E4          DC      OUTPT+4                                  IDOP 141
0074 1  012F          DC      TM11                                     IDOP 142
0075 0  0002          DC      2                                        IDOP 143
                *-------------------------------------------------     IDOP 144
0076 0  C118          LD    1 ADTYP-X     PREPARE ERROR MESSAGE        IDOP 145
0077 0  D009          STO     A17         *WORD ERROR*                 IDOP 146
0078 0  C116          LD    1 ADAPR-X                                  IDOP 147
0079 0  D012          STO     A18                                      IDOP 148
                *-------------------------------------------------     IDOP 149
A13     LD    1 B1-X          PREPARE COMMAND *PRINT                   IDOP 150
007A 0  C113          A     1 BITNO-X     ALPHAMERIC*                  IDOP 151
007B 0  81FE          STO   1 AREA3+2-X                                IDOP 152
007C 0  D10A    *-------------------------------------------------     IDOP 153
007D 01 44000000      BSI   L A310        COMMAND *PRINT ALPHAMERIC*   IDOP 154
                *-------------------------------------------------     IDOP 155
007F 20 23A17155      LIBF    TYPEN       TYPEWRITER ERROR MESSAGE     IDOP 156
0080 0  2001          DC      /2001                                    IDOP 157
0081 0  0000    A17   DC      *-*                                      IDOP 158
0082 0  0000          DC      0                                        IDOP 159
                *-------------------------------------------------     IDOP 160
0083 30 23243595      CALL    TICON                                    IDOP 161
0085 1  0140          DC      TM102                                    IDOP 162
                *-------------------------------------------------     IDOP 163
0086 20 23A17155      LIBF    TYPEN                                    IDOP 164
0087 0  2001          DC      /2001                                    IDOP 165
0088 1  013D          DC      TM100-1                                  IDOP 166
0089 0  0000          DC      0                                        IDOP 167
                *-------------------------------------------------     IDOP 168
008A 20 040565C0      LIBF    DAOP        INTERFACE ERROR MESSAGE      IDOP 169
008B 0  1310          DC      /1310       SINGLE ADDR.,EXTER.SYNCH.    IDOP 170
008C 0  0000    A18   DC      *-*                                      IDOP 171
008D 0  0000          DC      0                                        IDOP 172
                *-------------------------------------------------     IDOP 173
008E 30 19162163      CALL    RESET                                    IDOP 174
0090 1  0131          DC      TM12                                     IDOP 175
0091 1  0092          DC      A273        GO TO A273                   IDOP 176
                *-------------------------------------------------     IDOP 177
A273    LD    1 B15-X         PREPARE COMMAND *END OF                  IDOP 178
0092 0  C114          A     1 BITNO-X     INTERRUPT*                   IDOP 179
0093 0  81FE          STO   1 AREA3+2-X                                IDOP 180
0094 0  D10A    *-------------------------------------------------     IDOP 181
0095 01 44000000      BSI   L A310        COMMAND *END OF INTERRUPT*   IDOP 182
                *-------------------------------------------------     IDOP 183
0097 20 040565C0      LIBF    DAOP                                     IDOP 184
0098 0  1000          DC      /1000                                    IDOP 185
0099 1  00EF          DC      RESET                                    IDOP 186
009A 0  0000          DC      0                                        IDOP 187
                *-------------------------------------------------     IDOP 188
009B 30 09563167      CALL    INTEX                                    IDOP 189
                *-------------------------------------------------     IDOP 190
009D 0  C122    A5    LD    1 OPCOD-X                                  IDOP 191
009E 0  B05B          CMP     OP12                                     IDOP 192
009F 0  7004          MDX     A64                                      IDOP 193
00A0 0  7003          MDX     A64                                      IDOP 194
                *-------------------------------------------------     IDOP 195
00A1 0  C11E          LD    1 OP30-X                                   IDOP 196
00A2 0  D122          STO   1 OPCOD-X                                  IDOP 197
00A3 0  701C          MDX     A71                                      IDOP 198
                *-------------------------------------------------     IDOP 199
00A4 0  B056    A64   CMP     OP15                                     IDOP 200
```

```
00A5 0  7009              MDX     A67                                    IDOP 201
00A6 0  7001              MDX     *+1                                    IDOP 202
00A7 0  7007              MDX     A67                                    IDOP 203
00A8 0  B04C              CMP     TEN                                    IDOP 204
00A9 0  7001              MDX     A68                                    IDOP 205
00AA 0  7019              MDX     A53           ERROR EXIT               IDOP 206
00AB 30 091165F1  A68     CALL    IDOP1         OP-CODE= 10,11,13,14     IDOP 207
00AD 1  0102              DC      OPCOD                                  IDOP 208
00AE 1  00DE              DC      BITNO                                  IDOP 209
                  *-------------------------------------------------     IDOP 210
00AF 0  B04C      A67     CMP     OP20                                   IDOP 211
00B0 0  7005              MDX     A69                                    IDOP 212
00B1 0  7000              MDX     *                                      IDOP 213
00B2 30 091165F2          CALL    IDOP2         OP-CODE= 15-20           IDOP 214
00B4 1  0102              DC      OPCOD                                  IDOP 215
00B5 1  00DE              DC      BITNO                                  IDOP 216
                  *-------------------------------------------------     IDOP 217
00B6 0  B046      A69     CMP     OP25                                   IDOP 218
00B7 0  7005              MDX     A70                                    IDOP 219
00B8 0  7000              MDX     *                                      IDOP 220
00B9 30 091165F3          CALL    IDOP3         OP-CODE= 21-25           IDOP 221
00BB 1  0102              DC      OPCOD                                  IDOP 222
00BC 1  00DE              DC      BITNO                                  IDOP 223
                  *-------------------------------------------------     IDOP 224
00BD 0  B040      A70     CMP     OP30                                   IDOP 225
00BE 0  7005              MDX     A53                                    IDOP 226
00BF 0  7000              MDX     *                                      IDOP 227
00C0 30 091165F4  A71     CALL    IDOP4         OP-CODE= 26-30           IDOP 228
00C2 1  0102              DC      OPCOD                                  IDOP 229
00C3 1  00DE              DC      BITNO                                  IDOP 230
                  *-------------------------------------------------     IDOP 231
00C4 0  C119      A53     LD    1 ADTYP+1-X     PREPARE ERROR MESSAGE    IDOP 232
00C5 01 D4000081          STO   L A17           *CHECK OPERATION CODE*   IDOP 233
00C7 0  C117              LD    1 ADAPR+1-X                              IDOP 234
00C8 01 D400008C          STO   L A18                                    IDOP 235
                  *-------------------------------------------------     IDOP 236
00CA 01 C4000131          LD    L TM12                                   IDOP 237
00CC 01 D400013C          STO   L TM111                                  IDOP 238
00CE 01 4C00007A          BSC   L A13           INTERRUPT EXIT           IDOP 239
                  *-------------------------------------------------     IDOP 240
00D0 0  0000      A310    DC      *-*                                    IDOP 241
00D1 20 040565C0          LIBF    DAOP          COMMAND RESET            IDOP 242
00D2 0  1000              DC      /1000                                  IDOP 243
00D3 1  00EF              DC      RESET                                  IDOP 244
00D4 0  0000              DC      0                                      IDOP 245
                  *-------------------------------------------------     IDOP 246
00D5 20 040565C0          LIBF    DAOP          INTERFACE COMMAND        IDOP 247
00D6 0  1000              DC      /1000                                  IDOP 248
00D7 1  00E8              DC      AREA3                                  IDOP 249
00D8 0  0000              DC      0                                      IDOP 250
00D9 01 4C8000D0          BSC   I A310                                   IDOP 251
                  ********************************************************IDOP 252
00DB 0  0002      AREA2   DC      2                                      IDOP 253
00DC 0  007B              DC      123                                    IDOP 254
00DD 0  0000              DC      0                                      IDOP 255
00DE 0  0000      BITNO   DC      *-*           PISW BIT NUMBER          IDOP 256
00E0    0006      OUTPT   BSS   E 6                                      IDOP 257
00E6 0  4200      B8      DC      /4200         READ WORDS ON DC         IDOP 258
00E7 0  22F0      B2      DC      /22F0         READ 1ST 16 BIT OF CW2   IDOP 259
00E8 0  0002      AREA3   DC      2             AREA FOR INTERFACE COMMAND IDOP 260
00E9 0  007C              DC      124                                    IDOP 261
```

```
00EA 0 0000          DC      *-*          COMMAND                          IDOP 262
00EB 0 0003 MNPC     DC      3            MAX.NO.OF PAR.CHECKS             IDOP 263
00EC 0 0000 NPC      DC      *-*          COUNTER NO.OF PAR.CHECKS         IDOP 264
00ED 0 0021 WC33     DC      33           WORD COUNT                       IDOP 265
00EE 0 0043 AD67     DC      67           ADDRESS OF DIGITAL INPUT         IDOP 266
00EF 0 0002 RESET    DC      2            RESET COMMAND OUTPUT             IDOP 267
00F0 0 007C          DC      124                                           IDOP 268
00F1 0 0000          DC      0            COMMAND=0                        IDOP 269
00F2 0 0001 ONE      DC      1                                             IDOP 270
00F3 0 1400 B1       DC      /1400        PRINT ALPHAMERIC ON INTER-       IDOP 271
            *                             FACE TYPEWRITER                  IDOP 272
00F4 0 B000 B15      DC      /B000        END OF INTERRUPT                 IDOP 273
00F5 0 000A TEN      DC      10                                            IDOP 274
00F6 1 0104 ADAPR    DC      AM1          ADDRESSES OF INTERFACE           IDOP 275
00F7 1 0115          DC      AM6                                           IDOP 276
00F8 1 0127 ADTYP    DC      TM1-1        ADDRESSES OF TYPEWRITER          IDOP 277
00F9 1 0132          DC      TM112-1                                       IDOP 278
00FA 0 000C OP12     DC      12                                            IDOP 279
00FB 0 000F OP15     DC      15                                            IDOP 280
00FC 0 0014 OP20     DC      20                                            IDOP 281
00FD 0 0019 OP25     DC      25                                            IDOP 282
00FE 0 001E OP30     DC      30                                            IDOP 283
00FF 0 0050 OP80     DC      80                                            IDOP 284
0100 0 005E OP94     DC      94                                            IDOP 285
0101 0 0063 OP99     DC      99                                            IDOP 286
0102 0 0000 OPCOD    DC      *-*                                           IDOP 287
0103 0 000F LEVL     DC      15                                            IDOP 288
00E0        X        EQU     OUTPT                                         IDOP 289
DF9A        Y        EQU     WCOUT                                         IDOP 290
            ********************************************************      IDOP 291
0104 0 0010 AM1      DC      16                                            IDOP 292
0105 0 007B          DC      123                                           IDOP 293
0106 0 0900          DC      /0900        RED                              IDOP 294
0107 0 8100          DC      /8100        E                                IDOP 295
0108 0 4010          DC      /4010        R                                IDOP 296
0109 0 4010          DC      /4010        R                                IDOP 297
010A 0 4080          DC      /4080        U                                IDOP 298
010B 0 4010          DC      /4010        R                                IDOP 299
010C 0 0000          DC      /0000                                         IDOP 300
010D 0 2080          DC      /2080        W                                IDOP 301
010E 0 4080          DC      /4080        O                                IDOP 302
010F 0 4010          DC      /4010        R                                IDOP 303
0110 0 8200          DC      /8200        D                                IDOP 304
0111 0 0000          DC      /0000                                         IDOP 305
0112 0 0000 AM11     DC      *-*                                           IDOP 306
0113 0 0000          DC      *-*                                           IDOP 307
0114 0 0500          DC      /0500        BLACK                            IDOP 308
            *-------------------------------------------------------      IDOP 309
0115 0 0011 AM6      DC      17                                            IDOP 310
0116 0 007B          DC      123                                           IDOP 311
0117 0 0900          DC      /0900        RED                              IDOP 312
0118 0 8400          DC      /8400        C                                IDOP 313
0119 0 8020          DC      /8020        H                                IDOP 314
011A 0 8100          DC      /8100        E                                IDOP 315
011B 0 8400          DC      /8400        C                                IDOP 316
011C 0 4800          DC      /4800        K                                IDOP 317
011D 0 0000          DC      /0000                                         IDOP 318
011E 0 4080          DC      /4080        O                                IDOP 319
011F 0 4040          DC      /4040        P                                IDOP 320
0120 0 8420          DC      /8420        .                                IDOP 321
0121 0 0000          DC      /0000                                         IDOP 322
```

```
0122 0  8400                DC      /8400       C                          IDOP 323
0123 0  4080                DC      /4080       O                          IDOP 324
0124 0  8200                DC      /8200       D                          IDOP 325
0125 0  8100                DC      /8100       E                          IDOP 326
0126 0  0500                DC      /0500       BLACK                      IDOP 327
                    ********************************************************* IDOP 328
0127 0  000A                DC      TM2-TM1                                IDOP 329
0128    000E        TM1     DMES    'R'AERROR WORD 'E                      IDOP 330
012F 0  0000        TM11    DC      *-*         WORD NO.                   IDOP 331
0130    0002                DMES    ,A'E                                   IDOP 332
0131 0  0000        TM12    DC      *-*         BITNO                      IDOP 333
0132    0000        TM2     BES     0                                      IDOP 334
                    *-------------------------------------------------------- IDOP 335
0132 0  000A                DC      TM121-TM112                            IDOP 336
0133    0012        TM112   DMES    'R'A OP-CODE ERROR,A'E                 IDOP 337
013C 0  0000        TM111   DC      *-*         BITNO                      IDOP 338
013D    0000        TM121   BES     0                                      IDOP 339
                    *-------------------------------------------------------- IDOP 340
013D 0  0005                DC      TM101-TM100                            IDOP 341
013E    0004        TM100   DMES    'B'2X'E                                IDOP 342
0140    0003        TM102   BSS     3           TIME                       IDOP 343
0143    0000        TM101   BES     0                                      IDOP 344
                    ********************************************************* IDOP 345
0144    0000                END     START                                  IDOP 346

     NO ERRORS IN ABOVE ASSEMBLY.
IDOP
DUP FUNCTION COMPLETED
// DUP                                                                     IDOP 347
*STORECIM I UA    1 IDOP  IDOP                                             IDOP 348
*LOCALIDOP1,IDOP2,IDOP3,IDOP4                                             IDOP 349
*CCEND                                                                    IDOP 350
```

```
0000    091165F1            ENT     IDOP1                                   IDOP1002
                            ********************************************** IDOP1003
                            *       ADDRESS ASSIGNMENT FOR COMMON          IDOP1004
                            ********************************************** IDOP1005
DFFE                        SPEC    EQU     -8194                          IDOP1006
DFCE                        SCAL    EQU     -8242                          IDOP1007
DFBE                        IDEN    EQU     -8258                          IDOP1008
DFBC                        TABLE   EQU     -8260                          IDOP1009
DF9C                        WORDS   EQU     -8292                          IDOP1010
DF9A                        WCOUT   EQU     -8294                          IDOP1011
DD14                        BUF     EQU     -8940                          IDOP1012
BD14                        SPEC1   EQU     -17132                         IDOP1013
BCF4                        SCAL1   EQU     -17180                         IDOP1014
BCD4                        IDEN1   EQU     -17196                         IDOP1015
BCD2                        TABL1   EQU     -17198                         IDOP1016
                            ********************************************** IDOP1017
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                                                                                IDOP1019
0000 0  0000       IDOP1  DC      *-*                                           IDOP1020
0001 01 65800000          LDX   I1 IDOP1                                        IDOP1021
0003 0  C100              LD     1 0                                            IDOP1022
0004 0  D001              STO      *+1                                          IDOP1023
0005 00 66800000          LDX   I2 *-*          OP-CODE INTO XR2               IDOP1024
0007 00 C5800001          LD    I1 1                                            IDOP1025
0009 01 65000316          LDX   L1 X                                            IDOP1026
000B 0  D1A9              STO    1 BITNO-X      STORE BITNO                    IDOP1027
                   *-------------------------------------------------------     IDOP1028
000C 20 02255103          LIBF     BINDC                                        IDOP1029
000D 1  02B8              DC       OUTPT                                        IDOP1030
000E 20 085935D9          LIBF     HULPR                                        IDOP1031
000F 0  0000              DC       /0000                                        IDOP1032
0010 1  02BC              DC       OUTPT+4                                      IDOP1033
0011 1  02A1              DC       TM12                                         IDOP1034
0012 0  0002              DC       2                                            IDOP1035
                   *-------------------------------------------------------     IDOP1036
0013 01 4E8002D3          BSC   I2 PRG10-10     BRANCH TO DIFFER. OP-CODES     IDOP1037
                   *-------------------------------------------------------     IDOP1038
                   *                                                            IDOP1039
                   *                                                            IDOP1040
                   *                                                            IDOP1041
                   ************************************************************ IDOP1042
                   *      SPECIAL DELETE          OP.CODE 11                  *  IDOP1043
                   ************************************************************ IDOP1044
0015 0  1010       OPC11  SLA      16            SPECIAL DELETE                 IDOP1045
0016 0  D192              STO    1 DELET-X                                      IDOP1046
                   *-------------------------------------------------------     IDOP1047
                   *                                                            IDOP1048
                   *                                                            IDOP1049
                   *                                                            IDOP1050
                   ************************************************************ IDOP1051
                   *      DELETE SPECTRA          OP.CODE 14                  *  IDOP1052
                   ************************************************************ IDOP1053
0017 0  6200       OPC14  LDX     2 0            DELETE SPECTRA                 IDOP1054
                   *-------------------------------------------------------     IDOP1055
0018 01 7405001F   A200   MDX   L   A202,5                                      IDOP1056
001A 01 74FE001E          MDX   I   A201,-2                                     IDOP1057
001C 30 04143244   A203   CALL      DECID       CONVERSION OF ID TO            IDOP1058
001E 0  DFB4       A201   DC        WORDS+24    BINARY WORDS                   IDOP1059
001F 0  DFB9       A202   DC        IDEN-5                                     IDOP1060
0020 1  02A2              DC        ERIN                                       IDOP1061
                   *-------------------------------------------------------     IDOP1062
0021 01 740002A2          MDX   L   ERIN,0                                     IDOP1063
0023 0  700D              MDX       A204        INTER.NO.IN ERROR              IDOP1064
0024 0  7032              MDX       A205        NO ERROR                       IDOP1065
                   *-------------------------------------------------------     IDOP1066
0025 0  C1B1       A50    LD     1 ADTYP+4-X    PREPARE ERROR MESSAGE          IDOP1067
0026 01 D400027A          STO   L   A17         *CHECK INTER. NO.*             IDOP1068
0028 0  C1BD              LD     1 ADAPR+4-X                                    IDOP1069
0029 01 D4000285          STO   L   A18                                         IDOP1070
                   *-------------------------------------------------------     IDOP1071
002B 01 C40002A1          LD    L   TM12                                        IDOP1072
002D 01 D4000445          STO   L   TM91                                        IDOP1073
002F 01 4C000273          BSC   L   A13         INTERRUPT EXIT                 IDOP1074
                   *-------------------------------------------------------     IDOP1075
0031 0  C1D6       A204   LD     1 C12-X        RESET INTERFACE WORD TO 0      IDOP1076
0032 0  918D              S      1 ONE-X                                        IDOP1077
0033 0  1004              SLA      4                                            IDOP1078
0034 0  81D7              A      1 B4-X         PREPARE COMMAND *WRITE         IDOP1079
```

```
0035 0  81A9          A      1 BITNO-X     WORD*                          IDOP1080
0036 0  D19A          STO    1 AREA3+2-X                                  IDOP1081
*-------------------------------------------------------------------------IDOP1082
0037 0  1010          SLA      16                                         IDOP1083
0038 0  D196          STO    1 AREA2+2-X                                  IDOP1084
*-------------------------------------------------------------------------IDOP1085
0039 0  6102          LDX    1 2                                          IDOP1086
003A 20 040565C0 A206 LIBF     DAOP         WRITE-HALF WORD ON DIGITAL    IDOP1087
003B 0  1000          DC       /1000        OUTPT                         IDOP1088
003C 1  02AA          DC       AREA2                                      IDOP1089
003D 0  0000          DC       0                                          IDOP1090
*-------------------------------------------------------------------------IDOP1091
003E 01 44000296      BSI    L A310         COMMAND *WRITE HALF-WORD*     IDOP1092
*-------------------------------------------------------------------------IDOP1093
0040 0  71FF          MDX    1 -1                                         IDOP1094
0041 0  7001          MDX      A207                                       IDOP1095
0042 0  7005          MDX      A208                                       IDOP1096
0043 01 C40002EE A207 LD     L WORD1                                      IDOP1097
0045 01 D40002AC      STO    L AREA2+2                                    IDOP1098
0047 0  70F2          MDX      A206                                       IDOP1099
*-------------------------------------------------------------------------IDOP1100
0048 01 65000316 A208 LDX    L1 X           RESET 16-BIT DIG.REGISTER     IDOP1101
004A 0  1010          SLA      16           OUTPUT                        IDOP1102
004B 0  D196          STO    1 AREA2+2-X                                  IDOP1103
004C 20 040565C0      LIBF     DAOP                                       IDOP1104
004D 0  1000          DC       /1000                                      IDOP1105
004E 1  02AA          DC       AREA2                                      IDOP1106
004F 0  0000          DC       0                                          IDOP1107
*-------------------------------------------------------------------------IDOP1108
0050 01 74FF02EC      MDX  I C12,-1                                       IDOP1109
0052 0  70C7          MDX    A200+2        DECODE NEXT ID                IDOP1110
0053 0  1010          SLA    16                                           IDOP1111
0054 01 D480001F      STO  I A202                                         IDOP1112
0056 0  700D          MDX    A209          CONTINUE                      IDOP1113
*-------------------------------------------------------------------------IDOP1114
0057 01 740002A8 A205 MDX  L DELET,0                                      IDOP1115
0059 0  7001          MDX    A410          NORMAL DELETE                 IDOP1116
005A 0  7005          MDX    A411          SPECIAL DELETE                IDOP1117
*-------------------------------------------------------------------------IDOP1118
005B 01 C480001F A410 LD   I A202          GROUP NO.OF SPECTRUM MUST     IDOP1119
005D 0  B1A9          CMP    1 BITNO-X     BE EQUAL TO INTER. NO.        IDOP1120
005E 0  70D2          MDX    A204                                         IDOP1121
005F 0  70D1          MDX    A204                                         IDOP1122
*-------------------------------------------------------------------------IDOP1123
0060 0  7201 A411     MDX    2 1                                          IDOP1124
0061 01 74FF02EC      MDX  I C12,-1                                       IDOP1125
0063 0  70B4          MDX    A200          DECODE NEXT ID                IDOP1126
*-------------------------------------------------------------------------IDOP1127
0064 0  C1D9 A209     LD     1 B14-X       PREPARE COMMAND *PRINT        IDOP1128
0065 0  81A9          A      1 BITNO-X     WORDS*                        IDOP1129
0066 0  D19A          STO    1 AREA3+2-X                                  IDOP1130
*-------------------------------------------------------------------------IDOP1131
0067 01 44000296      BSI    L A310         COMMAND *PRINT WORDS*         IDOP1132
*-------------------------------------------------------------------------IDOP1133
0069 0  6328          LDX    3 40           WAIT 40*0.3SEC                IDOP1134
006A 00 65007530 A210 LDX    L1 30000       )WAIT 30000*10 MICROSEC       IDOP1135
006C 0  1010          SLA      16           ))                            IDOP1136
006D 0  71FF          MDX    1 -1           )))=10 MICROSEC               IDOP1137
006E 0  70FD          MDX      A210+2       ))                            IDOP1138
006F 0  73FF          MDX    3 -1                                         IDOP1139
0070 0  70F9          MDX      A210                                       IDOP1140
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0071 00 67800067          LDX   I3 103                                    IDOP1141
0073 01 65000316          LDX   L1 X                                      IDOP1142
                     *-------------------------------------------------- IDOP1143
0075 0  C1DB              LD     1 AD15-X      PREPARE COMMAND *READ 1ST. IDOP1144
0076 0  1004              SLA      4           HALF OF CW2*               IDOP1145
0077 0  81DA              A      1 B2-X                                   IDOP1146
0078 0  81A9              A      1 BITNO-X                                IDOP1147
0079 0  D19A              STO    1 AREA3+2-X                              IDOP1148
                     *-------------------------------------------------- IDOP1149
007A 01 44000296          BSI   L  A310         COMMAND *READ HALF-WORD* IDOP1150
                     *-------------------------------------------------- IDOP1151
007C 20 042555C0          LIBF     DINP         READ 1ST.HALF OF CW2,    IDOP1152
007D 0  3000              DC       /3000        SEQUENTIAL,DPC           IDOP1153
007E 0  0043              DC       67                                    IDOP1154
007F 0  0000         A211 DC       0                                     IDOP1155
                     *-------------------------------------------------- IDOP1156
0080 0  1888              SRT      8            UP-CODE MUST BE 24 IF    IDOP1157
0081 0  1010              SLA      16           *DELETE* IS CONFIRMED BY IDOP1158
0082 0  1088              SLT      8            OPERATOR OF INTERFACE UNIT IDOP1159
                     *-------------------------------------------------- IDOP1160
0083 01 740002A8          MDX   L  DELET,0                                IDOP1161
0085 0  7004              MDX      A409         NORMAL DELET             IDOP1162
0086 0  B193              CMP    1 C55-X        SPECIAL DELETE           IDOP1163
0087 0  7000              MDX      *                                     IDOP1164
0088 0  7017              MDX      A212                                  IDOP1165
0089 0  701E              MDX      A213         CONTINUE                 IDOP1166
                     *-------------------------------------------------- IDOP1167
008A 0  B1DC         A409 CMP    1 C24-X                                 IDOP1168
008B 0  7000              MDX      *                                     IDOP1169
008C 0  7001              MDX      A217                                  IDOP1170
008D 0  701A              MDX      A213         CONTINUE                 IDOP1171
                     *-------------------------------------------------- IDOP1172
008E 0  6110         A217 LDX    1 16                                    IDOP1173
008F 01 B5000348     A301 CMP   L1 STA00-1                               IDOP1174
0091 0  7000              MDX      *                                     IDOP1175
0092 0  7001              MDX      A300                                  IDOP1176
0093 0  7005              MDX      A304         UP.CODE = STATION NO.    IDOP1177
                     *-------------------------------------------------- IDOP1178
0094 0  71FF         A300 MDX    1 -1                                    IDOP1179
0095 0  70F9              MDX      A301                                  IDOP1180
0096 01 65000316          LDX   L1 X            UP.CODE UNEQUAL STAT. NO. IDOP1181
0098 0  7007              MDX      A212                                  IDOP1182
                     *-------------------------------------------------- IDOP1183
0099 01 65000316     A304 LDX   L1 X                                      IDOP1184
009B 0  1001              SLA      1                                     IDOP1185
009C 0  D143              STO    1 STAAD-X      SAVE(STATION ADDRESS * 2) IDOP1186
009D 0  1010              SLA      16                                    IDOP1187
009E 0  D144              STO    1 TRANS-X      INDICATOR FOR TRANSFER OF IDOP1188
                     *                          PLACES                   IDOP1189
009F 0  7008              MDX      A213                                  IDOP1190
                     *-------------------------------------------------- IDOP1191
00A0 0  C1B4         A212 LD     1 ADTYP+7-X    EXIT IN CASE OF NO CONFIR- IDOP1192
00A1 01 D400027A          STO   L  A17          MATION BY OPERATOR       IDOP1193
00A3 0  C1C0              LD     1 ADAPR+7-X                            IDOP1194
00A4 01 D4000285          STO   L  A18                                    IDOP1195
00A6 01 4C000273          BSC   L  A13                                    IDOP1196
                     *-------------------------------------------------- IDOP1197
00A8 01 740500AC     A213 MDX   L  A214,5       DELETE SPECTRA           IDOP1198
00AA 30 145A5140          CALL     MOVE                                  IDOP1199
00AC 0  DFB9         A214 DC       IDEN-5                                IDOP1200
00AD 1  02F3              DC       ID                                    IDOP1201
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00AF 0  0005          DC      5                                          IDOP1202
                *-------------------------------------------------------- IDOP1203
00AF 0  C18D          LD    1 ONE-X       INDI=1,SP.NOT FOUND          IDOP1204
00B0 0  D102          STO   1 INDI-X      INDI=0,SP.DELETED            IDOP1205
                *-------------------------------------------------------- IDOP1206
00B1 0  C18D          LD    1 ONE-X       DELETE ONE SPECTRUM          IDOP1207
00B2 0  D1ED          STO   1 TABNR-X                                    IDOP1208
00B3 01 440000C4      BSI   L A215        SPTBL                        IDOP1209
00B5 01 74010303      MDX   L TABNR,1                                    IDOP1210
00B7 01 440000C4      BSI   L A215        OVTBL                        IDOP1211
00B9 01 74010303      MDX   L TABNR,1                                    IDOP1212
                *-------------------------------------------------------- IDOP1213
00BB 01 74000318      MDX   L INDI,0                                     IDOP1214
00BD 0  7003          MDX     A219        CHECK SPTBL                  IDOP1215
00BE 01 74010374      MDX   L NOPL,1      COUNT DELETED SPECTRA        IDOP1216
00C0 0  701A          MDX     A221        PREPARE ID FOR INTER. PR.    IDOP1217
                *-------------------------------------------------------- IDOP1218
00C1 01 440000C4 A219 BSI   L A215        SPTBL,SMALL SPECTRA          IDOP1219
00C3 0  7010          MDX     A218                                       IDOP1220
                *-------------------------------------------------------- IDOP1221
00C4 0  0000     A215 DC      *-*         IF ID IS FOUND IN AT LEAST   IDOP1222
00C5 30 225E2643      CALL    SPSRC       ONE TABLE INDI IS SET TO 0   IDOP1223
00C7 1  02F3          DC      ID                                         IDOP1224
00C8 0  DD14          DC      BUF                                        IDOP1225
00C9 1  0303          DC      T BNR                                      IDOP1226
00CA 1  0304          DC      NRENT                                      IDOP1227
00CB 1  0311          DC      ERRSW                                      IDOP1228
00CC 1  0312          DC      SWITC                                      IDOP1229
00CD 01 74000311      MDX   L ERRSW,0                                    IDOP1230
00CF 0  7002          MDX     A216                                       IDOP1231
00D0 0  1010          SLA     16                                         IDOP1232
00D1 0  D102          STO   1 INDI-X                                     IDOP1233
00D2 01 4C8000C4 A216 BSC   I A215                                       IDOP1234
                *-------------------------------------------------------- IDOP1235
00D4 01 74000318 A218 MDX   L INDI,0                                     IDOP1236
00D6 0  7001          MDX     A220                                       IDOP1237
00D7 0  7003          MDX     A221        PREPARE ID FOR INTERF.PR.    IDOP1238
                *-------------------------------------------------------- IDOP1239
00D8 0  72FF     A220 MDX   2 -1                                         IDOP1240
00D9 0  70CE          MDX     A213        DELETE NEXT ID               IDOP1241
00DA 0  7019          MDX     A225                                       IDOP1242
                *-------------------------------------------------------- IDOP1243
00DB 01 74010315 A221 MDX   L CO,1                                      IDOP1244
00DD 30 03595244      CALL    CONID       CONVERSION OF 4-WORD ID TO   IDOP1245
00DF 1  02F3          DC      ID          CARD CODE XX.XXXX            IDOP1246
00E0 0  E3E6     A223 DC      SPEC+1000                                  IDOP1247
                *-------------------------------------------------------- IDOP1248
00E1 01 740700E0      MDX   L A223,7      CHECK FOR BLANC OR LINE-     IDOP1249
00E3 0  C1FF          LD    1 CO-X        FEED BEHIND XX.XXXX          IDOP1250
00E4 01 B4000330      CMP   L END                                        IDOP1251
00E6 0  7001          MDX     *+1                                        IDOP1252
00E7 0  7006          MDX     A222                                       IDOP1253
00E8 0  C119          LD    1 LIFE-X                                     IDOP1254
00E9 01 D48000E0      STO   I A223        LINEFEED                     IDOP1255
00EB 0  1010          SLA     16                                         IDOP1256
00EC 0  D1FF          STO   1 CO-X                                       IDOP1257
00ED 0  7003          MDX     A224                                       IDOP1258
00EE 0  1010     A222 SLA     16                                         IDOP1259
00EF 01 D48000E0      STO   I A223        BLANK                        IDOP1260
00F1 01 740100E0 A224 MDX   L A223,1                                    IDOP1261
00F3 0  70E4          MDX     A220                                       IDOP1262
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00F4 0  C0EB          *-------------------------------------------------- IDOP1263
00F5 0  B100  A225    LD      A223        CALCULATE WORD COUNT FOR      IDOP1264
00F6 0  7005          CMP   1 ASPEC-X                                   IDOP1265
00F7 0  7004          MDX     A228                                      IDOP1266
00F8 0  C1BB          MDX     A228                                      IDOP1267
00F9 01 D4000285      LD    1 ADAPR+2-X   MESSAGE*ID NOT ON DISK*       IDOP1268
00FB 0  704B          STO   L A18                                       IDOP1269
                      MDX     A229                                      IDOP1270
                      *-------------------------------------------------- IDOP1271
00FC 0  D00A  A228    STO     A226                                      IDOP1272
00FD 0  9100          S     1 ASPEC-X     INTERFACE MESSAGE ABOUT       IDOP1273
00FE 0  8101          A     1 WCOU-X      DELETED ID'S                  IDOP1274
00FF 00 D400E3E4      STO   L SPEC+998                                  IDOP1275
0101 0  C123          LD    1 MES1+1-X                                  IDOP1276
0102 00 D400E3E5      STO   L SPEC+999                                  IDOP1277
                      *-------------------------------------------------- IDOP1278
0104 30 145A5140      CALL    MOVE        ADD *DELETED* TO MESSAGE      IDOP1279
0106 1  02E5          DC      MES4        ABOUT DELETED ID'S            IDOP1280
0107 0  0000  A226    DC      *-*                                       IDOP1281
0108 0  0007          DC      7                                         IDOP1282
                      *-------------------------------------------------- IDOP1283
0109 01 7400035A      MDX   L TRANS,0                                   IDOP1284
010B 0  7038          MDX     A305                                      IDOP1285
                      *-------------------------------------------------- IDOP1286
010C 0  C946          LDD   1 ABC-X       STORE WCOUNT AND SECT.ADDR    IDOP1287
                      *                   FOR ERFIL                     IDOP1288
010D 00 DC00DFBC      STD   L TABLE                                     IDOP1289
                      *-------------------------------------------------- IDOP1290
010F 20 04262495      LIBF    DISKN       READ ERFIL                    IDOP1291
0110 0  1000          DC      /1000                                     IDOP1292
0111 0  DFBC          DC      TABLE                                     IDOP1293
0112 0  0000          DC      0                                         IDOP1294
                      *-------------------------------------------------- IDOP1295
0113 20 04262495  A306 LIBF   DISKN       TEST IF ERFIL IS READ         IDOP1296
0114 0  0100          DC      /0100                                     IDOP1297
0115 0  DFBC          DC      TABLE                                     IDOP1298
0116 0  70FC          MDX     A306                                      IDOP1299
                      *-------------------------------------------------- IDOP1300
0117 01 66800359      LDX   I2 STAAD       INCREASE NO.OF PLACES FOR     IDOP1301
0119 00 C600DFBE      LD    L2 IDEN       STATION TO WHICH PLACES       IDOP1302
011B 0  815E          A     1 NOPL-X      ARE TRANSFERRED               IDOP1303
011C 00 D600DFBE      STO   L2 IDEN                                     IDOP1304
                      *-------------------------------------------------- IDOP1305
011E 0  C1A9          LD    1 BITNO-X                                   IDOP1306
011F 0  1001          SLA     1                                         IDOP1307
0120 0  D001          STO     *+1                                       IDOP1308
0121 00 66000000      LDX   L2 *-*                                      IDOP1309
                      *-------------------------------------------------- IDOP1310
0123 00 C600DFBE      LD    L2 IDEN       DECREASE NO.OF PLACES FOR     IDOP1311
0125 0  915E          S     1 NOPL-X      STATION BITNO                 IDOP1312
0126 00 D600DFBE      STO   L2 IDEN                                     IDOP1313
                      *-------------------------------------------------- IDOP1314
0128 20 04262495      LIBF    DISKN       STORE ERFIL ON DISK           IDOP1315
0129 0  3000          DC      /3000                                     IDOP1316
012A 0  DFBC          DC      TABLE                                     IDOP1317
012B 0  0000          DC      0                                         IDOP1318
                      *-------------------------------------------------- IDOP1319
012C 30 02243040      CALL    BICA        CONVERT NOPL TO CARD CODE     IDOP1320
012E 1  0374          DC      NOPL        FOR INTERFACE MESSAGE         IDOP1321
012F 1  035F          DC      MES51                                     IDOP1322
0130 0  0002          DC      2                                         IDOP1323
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                                                                                IDOP1324
0131 0  C143          LD     1 STAAD-X                                          IDOP1325
0132 0  1801          SRA     1                                                 IDOP1326
0133 0  D143          STO    1 STAAD-X                                          IDOP1327
                      *-------------------------------------------------------- IDOP1328
0134 30 02243040      CALL     BICA         CONVERT NO.OF TRANSFERRED          IDOP1329
                      *                     PLACES TO CARD CODE FOR            IDOP1330
0136 1  0359          DC       STAAD        INTERFACE MESSAGE                  IDOP1331
0137 1  0372          DC       MES52                                           IDOP1332
0138 0  0002          DC       2                                               IDOP1333
                      *-------------------------------------------------------- IDOP1334
0139 01 74070107      MDX   L  A226,7                                          IDOP1335
013B 0  C0CB          LD       A226                                           IDOP1336
013C 0  D003          STO      A307                                           IDOP1337
                      *-------------------------------------------------------- IDOP1338
013D 30 145A5140      CALL     MOVE         ADD MESSAGE ABOUT TRANS-           IDOP1339
013F 1  035E          DC       MES5         FERRED PLACES                      IDOP1340
0140 0  0000          A307 DC  *-*                                             IDOP1341
0141 0  0016          DC       22                                              IDOP1342
                      *-------------------------------------------------------- IDOP1343
0142 00 7416E3E4      MDX   L  SPEC+998,22  CHANGE WORD COUNT FOR              IDOP1344
                      *                     ADDITIONAL MESSAGE                 IDOP1345
                      *-------------------------------------------------------- IDOP1346
0144 0  C1C1          A305 LD     1 ADAPR+8-X                                  IDOP1347
0145 01 D4000285      STO   L  A18                                             IDOP1348
0147 0  C1B5          A229 LD     1 ADTYP+8-X                                  IDOP1349
0148 01 D400027A      STO   L  A17                                             IDOP1350
014A 01 C40002A1      LD    L  TM12        BITNO INTO TYPEWRITER MES-         IDOP1351
014C 01 D40003FF      STO   L  TM171       SAGE                               IDOP1352
014E 01 4C000273      BSC   L  A13         INTERRUPT EXIT                     IDOP1353
                      *-------------------------------------------------------- IDOP1354
                      *                                                        IDOP1355
                      *                                                        IDOP1356
                      *                                                        IDOP1357
                      ********************************************************* IDOP1358
                      *     DISPLAY      OP.CODE 10                         *  IDOP1359
                      ********************************************************* IDOP1360
0150 30 04143244      OPC10 CALL     DECID      DISPLAY                        IDOP1361
0152 0  DF9C          DC       WORDS        CONVERSION OF ANALYSER ID          IDOP1362
0153 0  DFBE          DC       IDEN         TO BINARY WORDS IN IDEN            IDOP1363
0154 1  02A2          DC       ERIN                                            IDOP1364
                      *-------------------------------------------------------- IDOP1365
0155 01 740002A2      MDX   L  ERIN,0                                          IDOP1366
0157 0  7001          MDX      A275                                           IDOP1367
0158 0  7002          MDX      A276                                           IDOP1368
0159 01 4C000025      A275 BSC  L  A50                                         IDOP1369
015B 30 14645053      A276 CALL     MREAL      CONVERT MULTIPLIER TO STAN      IDOP1370
015D 0  DF9E          DC       WORDS+2      DARD FLOATING POINT NUMBER         IDOP1371
015E 1  03CC          DC       AM94         ANALYSER MESSAGE                   IDOP1372
                      *-------------------------------------------------------- IDOP1373
015F 0  C1A9          LD     1 BITNO-X      IS BITNO EQUAL TO NO. OF           IDOP1374
0160 0  B121          CMP    1 SPERN-X      SKIP ANALYSER                      IDOP1375
0161 0  700F          MDX      A405         NO                                 IDOP1376
0162 0  700E          MDX      A405         NO                                 IDOP1377
                      *-------------------------------------------------------- IDOP1378
0163 0  C11F          LD     1 M200-X       YES(MODIFY IDOP)                   IDOP1379
0164 0  D107          STO    1 M512-X                                          IDOP1380
0165 0  C11E          LD     1 M100-X                                          IDOP1381
0166 0  D109          STO    1 M256-X                                          IDOP1382
0167 0  C91C          LDD    1 ADD1-X                                          IDOP1383
0168 01 DC000214      STD   L  A402                                            IDOP1384
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016A 0  C120          LD    1 M202-X                                    IDOP1385
016B 0  D10F          STO   1 M514-X                                    IDOP1386
016C 0  C11F          LD    1 M200-X                                    IDOP1387
016D 01 D400022C      STO   L A268+1                                    IDOP1388
016F 0  818D          A     1 ONE-X                                     IDOP1389
0170 0  D10C          STO   1 WC-X                                      IDOP1390
                    *-------------------------------------------------- IDOP1391
0171 00 6600DF9A    A405  LDX   L2 Y           DECODE 1ST. BLOCK AND NO. IDOP1392
0173 0  C216          LD    2 WORDS+20-Y OF BLOCKS                      IDOP1393
0174 0  E1CD          AND   1 AND1-X                                    IDOP1394
0175 0  1888          SRT     8                                         IDOP1395
0176 0  D103          STO   1 BL1-X                                     IDOP1396
0177 0  1010          SLA     16                                        IDOP1397
0178 0  1084          SLT     4                                         IDOP1398
0179 0  D229          STO   2 IDEN+5-Y                                  IDOP1399
                    *-------------------------------------------------- IDOP1400
017A 0  C103          LD    1 BL1-X                                     IDOP1401
017B 0  A1AB          M     1 TEN-X                                     IDOP1402
017C 0  1090          SLT     16                                        IDOP1403
017D 0  8229          A     2 IDEN+5-Y                                  IDOP1404
017E 0  D104          STO   1 BLNO-X      NUMBER OF BLOCKS              IDOP1405
                    *-------------------------------------------------- IDOP1406
017F 0  C217          LD    2 WORDS+21-Y                                IDOP1407
0180 0  1888          SRT     8                                         IDOP1408
0181 0  1010          SLA     16                                        IDOP1409
0182 0  1084          SLT     4                                         IDOP1410
0183 0  D22C          STO   2 IDEN+8-Y    1ST.DIG.OF NO.OF 1ST.BLOCK    IDOP1411
0184 0  1010          SLA     16                                        IDOP1412
0185 0  1084          SLT     4                                         IDOP1413
0186 0  D22F          STO   2 IDEN+11-Y   2ND.DIG.OF NO.OF 1ST.BLOCK    IDOP1414
                    *-------------------------------------------------- IDOP1415
0187 0  C22C          LD    2 IDEN+8-Y                                  IDOP1416
0188 0  A1AB          M     1 TEN-X                                     IDOP1417
0189 0  1090          SLT     16                                        IDOP1418
018A 0  822F          A     2 IDEN+11-Y                                 IDOP1419
018B 0  918D          S     1 ONE-X                                     IDOP1420
018C 0  D103          STO   1 BL1-X       NO. OF 1ST. BLOCK             IDOP1421
                    *-------------------------------------------------- IDOP1422
018D 0  C219          LD    2 WORDS+23-Y DECODE ADDR. OF 1ST.BLOCK      IDOP1423
018E 0  1888          SRT     8          FOR STORAGE OF SPECTRUM IN      IDOP1424
018F 0  1010          SLA     16         ANALYSER                        IDOP1425
0190 0  1084          SLT     4                                          IDOP1426
0191 0  D22A          STO   2 IDEN+6-Y                                   IDOP1427
0192 0  1010          SLA     16                                         IDOP1428
0193 0  1084          SLT     4                                          IDOP1429
0194 0  D105          STO   1 BL1A-X                                     IDOP1430
0195 0  C22A          LD    2 IDEN+6-Y                                   IDOP1431
0196 0  A1AB          M     1 TEN-X                                      IDOP1432
0197 0  1090          SLT     16                                         IDOP1433
0198 0  8105          A     1 BL1A-X                                     IDOP1434
0199 0  918D          S     1 ONE-X                                      IDOP1435
019A 0  D105          STO   1 BL1A-X      1ST. BLOCK IN ANALYSER         IDOP1436
                    *-------------------------------------------------- IDOP1437
019B 0  B1DB          CMP   1 AD15-X      CHECK ADDR.OF 1ST. BLOCK       IDOP1438
019C 0  701E          MDX     A250        IN ANALYSER                    IDOP1439
019D 0  7000          MDX     *                                          IDOP1440
019E 0  B18E          CMP   1 ZERO-X                                     IDOP1441
019F 0  7001          MDX     *+1                                        IDOP1442
01A0 0  701A          MDX     A250                                       IDOP1443
                    *-------------------------------------------------- IDOP1444
01A1 0  C103          LD    1 BL1-X       CHECK OF ADDR. OF 1. BLOCK     IDOP1445
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01A2 0  B1DB          CMP   1 AD15-X      OF SPECTR. TO BE DISPLAYED  IDOP1446
01A3 0  7017          MDX     A250                                    IDOP1447
01A4 0  7000          MDX     *                                       IDOP1448
01A5 0  B18E          CMP   1 ZERO-X                                  IDOP1449
01A6 0  7001          MDX     *+1                                     IDOP1450
01A7 0  7013          MDX     A250                                    IDOP1451
*-------------------------------------------------------------------- IDOP1452
01A8 0  C104          LD    1 BLNO-X      CHECK NO. OF BLOCKS OF      IDOP1453
01A9 0  B18E          CMP   1 ZERO-X                                  IDOP1454
01AA 0  7002          MDX     *+2                                     IDOP1455
01AB 0  700F          MDX     A250                                    IDOP1456
01AC 0  700E          MDX     A250                                    IDOP1457
01AD 0  B106          CMP   1 HEXDE-X     SPECTRUM TO BE DISPLAYED    IDOP1458
01AE 0  700C          MDX     A250                                    IDOP1459
01AF 0  7000          MDX     *                                       IDOP1460
*-------------------------------------------------------------------- IDOP1461
01B0 0  C106          LD    1 HEXDE-X     CHECK NO.OF BLOCKS AND NO.  IDOP1462
01B1 0  9103          S     1 BL1-X       OF 1ST. BLOCK               IDOP1463
01B2 0  B104          CMP   1 BLNO-X                                  IDOP1464
01B3 0  7001          MDX     *+1         16-1ST.BL.GREATER NO.OF BL  IDOP1465
01B4 0  7006          MDX     A250        16-1ST.BL.SMALLER NO.OF BL  IDOP1466
*-------------------------------------------------------------------- IDOP1467
01B5 0  C106          LD    1 HEXDE-X                                 IDOP1468
01B6 0  9105          S     1 BL1A-X                                  IDOP1469
01B7 0  B104          CMP   1 B  0-X                                  IDOP1470
01B8 0  7001          MDX     *+1                                     IDOP1471
01B9 0  7001          MDX     A250                                    IDOP1472
01BA 0  700C          MDX     A251        CONTINUE                    IDOP1473
*-------------------------------------------------------------------- IDOP1474
01BB 0  C1B6  A250    LD    1 ADTYP+9-X   PREPARE MESSAGE *BLOCK      IDOP1475
01BC 01 D400027A      STO   L A17         NO. ERROR*                  IDOP1476
01BE 0  C1C2          LD    1 ADAPR+9-X                               IDOP1477
01BF 01 D4000285      STO   L A18                                     IDOP1478
01C1 01 C40002A1      LD    L TM12        BITNO INTO TYPEWRITER MES-  IDOP1479
01C3 01 D400040C      STO   L TM191       SAGE                        IDOP1480
01C5 01 4C000273      BSC   L A13                                     IDOP1481
*-------------------------------------------------------------------- IDOP1482
01C7 30 04262494  A251  CALL    DISKM       READ SPECTRUM FROM DISK   IDOP1483
01C9 0  DFBE          DC        IDEN                                  IDOP1484
01CA 1  0311          DC        ERRSW                                 IDOP1485
01CB 0  DD14          DC        BUF                                   IDOP1486
01CC 0  DFBE          DC        IDEN                                  IDOP1487
01CD 1  02A4          DC        ZERO        SPECTRUM NOT DELETED      IDOP1488
*-------------------------------------------------------------------- IDOP1489
01CE 01 74000311      MDX   L ERRSW,0                                 IDOP1490
01D0 0  7001          MDX     A255        SPECTRUM NOT FOUND          IDOP1491
01D1 0  700C          MDX     A252        SPECTRUM FOUND              IDOP1492
*-------------------------------------------------------------------- IDOP1493
01D2 0  C1B7  A255    LD    1 ADTYP+10-X  ERROR MESSAGE *ID NOT ON    IDOP1494
01D3 01 D400027A      STO   L A17         DISK*                       IDOP1495
01D5 0  C1BB          LD    1 ADAPR+2-X                               IDOP1496
01D6 01 D4000285      STO   L A18                                     IDOP1497
01D8 01 C40002A1      LD    L TM12        BITNO INTO TYPEWRITER       IDOP1498
01DA 01 D400041A      STO   L TM211       MESSAGE                     IDOP1499
01DC 01 4C000273      BSC   L A13                                     IDOP1500
*-------------------------------------------------------------------- IDOP1501
01DE 0  C103  A252    LD    1 BL1-X       CALCULATE STARTING CHANNEL  IDOP1502
01DF 0  A107          M     1 M512-X      AND NO.OF CHANNELS FOR      IDOP1503
01E0 0  1090          SLT     16          MULTIPLICATION              IDOP1504
01E1 0  8108          A     1 MULT-X                                  IDOP1505
01E2 0  D018          STO     A258        ADDR. OF 1ST. CHANNEL       IDOP1506
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01E3 0  D023          STO    A264                                    IDOP1507
01E4 0  D035          STO    A266                                    IDOP1508
01E5 0  91FD          S    1 TWO-X                                   IDOP1509
01E6 0  D017          STO    A262                                    IDOP1510
01E7 0  D01A          STO    A263                                    IDOP1511
01E8 0  D023          STO    A400+1                                  IDOP1512
01E9 0  D027          STO    A403+1                                  IDOP1513
01EA 0  C104          LD   1 BLNO-X                                  IDOP1514
01EB 0  A109          M    1 M256-X                                  IDOP1515
01EC 0  1090          SLT    16                                      IDOP1516
01ED 0  D02D          STO    A267        NO. OF CHANNELS             IDOP1517
01EE 0  1001          SLA    1                                       IDOP1518
01EF 0  D01A          STO    A257+1                                  IDOP1519
01F0 0  D001          STO    *+1                                     IDOP1520
01F1 00 65000000      LDX  L1 *-*         BLNO*516 INTO XR1           IDOP1521
*-------------------------------------------------------------------- IDOP1522
01F3 0  CA04          LDD  2 WORDS+2-Y                               IDOP1523
01F4 01 BC0002A6      DCM  L NULL                                    IDOP1524
01F6 0  7000          MDX    *                                       IDOP1525
01F7 0  7001          MDX    A256                                    IDOP1526
01F8 0  7010          MDX    A257        NO MULTIPLICATION           IDOP1527
*-------------------------------------------------------------------- IDOP1528
01F9 30 141938C0 A256 CALL   MFLT        CONVERSION OF CHANN. FROM   IDOP1529
01FB 0  0000     A258 DC     *-*         BINARY TO STANDARD FLOAT.   IDOP1530
01FC 1  021B     A259 DC     A267        POINT NUMBERS               IDOP1531
*-------------------------------------------------------------------- IDOP1532
01FD 20 064C49C0 A261 LIBF   FLDX        MULTIPLICATION OF CHANNELS  IDOP1533
01FE 0  0000     A262 DC     *-*                                     IDOP1534
01FF 20 06517A00      LIBF   FMPY                                    IDOP1535
0200 0  DF9E          DC     WORDS+2     MULTIPLIER                  IDOP1536
0201 20 068A35A7      LIBF   FSTOX                                   IDOP1537
0202 0  0000     A263 DC     *-*                                     IDOP1538
0203 0  71FE          MDX  1 -2                                      IDOP1539
0204 0  70F8          MDX    A261                                    IDOP1540
*-------------------------------------------------------------------- IDOP1541
0205 30 142558C0      CALL   MINT        CONVERSION OF CHANNELS      IDOP1542
0207 0  0000     A264 DC     *-*         FROM FLOATING POINT (STAN-  IDOP1543
0208 1  021B     A265 DC     A267        DARD) TO DOUBLE WORD BINA   IDOP1544
*-------------------------RY NUMBERS---------------------------------- IDOP1545
0209 00 65000000 A257 LDX  L1 *-*         NO. OF CHANNELS * 2         IDOP1546
020B 00 CD000000 A400 LDD  L1 *-*         ADDR. 1ST. CH. MINUS 2      IDOP1547
020D 0  4810          BSC    -           IF BINARY VALUE IS NEGAT.   IDOP1548
020E 0  7007          MDX    A401        100000 (1000000 FOR SKIP)   IDOP1549
020F 0  8804          AD     A402        IS ADDED                    IDOP1550
*-------------------------------------------------------------------- IDOP1551
0210 00 DD000000 A403 STD  L1 *-*         ADDR. 1ST. CH. MINUS 2      IDOP1552
0212 0  7003          MDX    A401                                    IDOP1553
*-------------------------------------------------------------------- IDOP1554
0214 00 000186A0 A402 DEC    100000                                  IDOP1555
*-------------------------------------------------------------------- IDOP1556
0216 0  71FE     A401 MDX  1 -2                                      IDOP1557
0217 0  70F3          MDX    A400                                    IDOP1558
*-------------------------------------------------------------------- IDOP1559
0218 30 06599523      CALL   FORMT       CONVERSION OF CHANNELS      IDOP1560
021A 0  0000     A266 DC     *-*         FROM DOUBLE WORD BINARY     IDOP1561
021B 0  0000     A267 DC     *-*         NOS. TO ANALYSER FORMAT     IDOP1562
*-------------------------------------------------------------------- IDOP1563
021C 01 65000316      LDX  L1 X                                      IDOP1564
021E 0  C104          LD   1 BLNO-X                                  IDOP1565
021F 0  D10E          STO  1 BLCOU-X                                 IDOP1566
*-------------------------------------------------------------------- IDOP1567
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0220 0  C105          LD     1 BL1A-X       PREPARE COMMAND *WRITE      IDOP1568
0221 0  918D          S      1 ONE-X        BLOCK*                      IDOP1569
0222 0  1004          SLA      4                                         IDOP1570
0223 0  81A9          A      1 BITNO-X                                   IDOP1571
0224 0  810A          A      1 B6-X                                      IDOP1572
0225 0  D19A          STO    1 AREA3+2-X                                 IDOP1573
                *-------------------------------------------------------- IDOP1574
0226 0  C0F3          LD       A266                                      IDOP1575
0227 0  910F          S      1 M514-X                                    IDOP1576
0228 0  D001          STO      *+1                                       IDOP1577
0229 00 66000000      LDX    L2 *-*                                      IDOP1578
                *-------------------------------------------------------- IDOP1579
022B 00 76000200 A268 MDX    L2 512         STORE WORD COUNT +DIG.OUTP  IDOP1580
022D 0  C90C          LDD    1 WC-X         ADDR. INTO SPEC-AREA        IDOP1581
022E 00 DE000000      STD    L2 0                                        IDOP1582
0230 0  6A07          STX    2 A269                                      IDOP1583
                *-------------------------------------------------------- IDOP1584
0231 0  C19A          LD     1 AREA3+2-X    STORE BLOCK ADDR.INTO COM-  IDOP1585
0232 0  810B          A      1 AD1-X        MAND *WRITE BLOCK*          IDOP1586
0233 0  D19A          STO    1 AREA3+2-X                                 IDOP1587
                *-------------------------------------------------------- IDOP1588
0234 01 44000296      BSI    L A310         COMMAND *WRITE BLOCK*       IDOP1589
                *-------------------------------------------------------- IDOP1590
0236 20 040565C0      LIBF     DAOP         OUTPUT OF BLOCK,SINGL.ADDR  IDOP1591
0237 0  1310          DC       /1310        EXTERN. SYNCH.              IDOP1592
0238 0  0000    A269  DC       *-*                                      IDOP1593
0239 0  0000          DC       0                                        IDOP1594
                *-------------------------------------------------------- IDOP1595
023A 00 67000BB8      LDX    L3 3000        WAIT 3000*10 MICROSEC       IDOP1596
023C 0  1010    A270  SLA      16           )                           IDOP1597
023D 0  73FF          MDX    3 -1           )=10 MICROSEC               IDOP1598
023E 0  70FD          MDX      A270         )                           IDOP1599
023F 00 67800067      LDX    I3 103                                      IDOP1600
                *-------------------------------------------------------- IDOP1601
0241 20 040565C0      LIBF     DAOP                                      IDOP1602
0242 0  0310          DC       /0310                                     IDOP1603
0243 0  7001          MDX      A271         BUSY                         IDOP1604
0244 0  700C          MDX      A272         NOT BUSY                     IDOP1605
                *-------------------------------------------------------- IDOP1606
0245 20 040565C0 A271 LIBF     DAOP         RESET DAOP                   IDOP1607
0246 0  4310          DC       /4310                                     IDOP1608
0247 01 C40002A1      LD     L TM12                                      IDOP1609
0249 01 D4000425      STO    L TM231                                     IDOP1610
                *-------------------------------------------------------- IDOP1611
024B 20 23A17155      LIBF     TYPEN                                     IDOP1612
024C 0  2001          DC       /2001                                     IDOP1613
024D 1  041B          DC       TM23-1                                    IDOP1614
024E 0  0000          DC       0                                         IDOP1615
024F 01 4C00028B      BSC    L A273         INTER. EXIT                  IDOP1616
                *-------------------------------------------------------- IDOP1617
0251 01 74FF0324 A272 MDX    I BLCOU,-1                                  IDOP1618
0253 0  70D7          MDX      A268                                      IDOP1619
0254 30 03595244      CALL     CONID        PREPARE MESSAGE FOR NORMAL   IDOP1620
0256 0  DFBE          DC       IDEN         INTER. EXIT                  IDOP1621
0257 1  03B4          DC       AM91         ID INTO MESSAGE              IDOP1622
                *-------------------------------------------------------- IDOP1623
0258 01 7401031B      MDX    L BL1A,1                                    IDOP1624
025A 30 02243040      CALL     BICA         NO. OF 1ST. BLOCK OF DISPL   IDOP1625
025C 1  031B          DC       BL1A         AYED SPECTRUM INTO MESSAGE   IDOP1626
025D 1  03C3          DC       AM92                                      IDOP1627
025E 0  0002          DC       2                                         IDOP1628
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                                *-------------------------------------------------- IDOP1629
025F 0  C105                          LD     1 BL1A-X       CALCULATE NO. OF LAST BL.  IDOP1630
0260 0  8104                          A      1 BLNO-X       OF DISPLAYED SPECTRUM      IDOP1631
0261 0  918D                          S      1 ONE-X                                   IDOP1632
0262 0  D103                          STO    1 BL1-X                                   IDOP1633
                                *-------------------------------------------------- IDOP1634
0263 30 02243040                      CALL     BICA         NO. OF LAST BLOCK INTO     IDOP1635
0265 1  0319                          DC       BL1          MESSAGE                    IDOP1636
0266 1  03C8                          DC       AM93                                    IDOP1637
0267 0  0002                          DC       2                                       IDOP1638
                                *-------------------------------------------------- IDOP1639
0268 0  C1B8                          LD     1 ADTYP+11-X                              IDOP1640
0269 01 D400027A                      STO  L   A17                                     IDOP1641
026B 0  C1C3                          LD     1 ADAPR+10-X                              IDOP1642
026C 01 D4000285                      STO  L   A18                                     IDOP1643
026E 01 C40002A1                      LD   L   TM12                                    IDOP1644
0270 01 D400042C                      STO  L   TM251                                   IDOP1645
0272 0  7000                          MDX      A13          INTER. EXIT               IDOP1646
                                *-------------------------------------------------- IDOP1647
0273 0  C1A8                  A13     LD     1 B1-X         PREPARE COMMAND *PRINT     IDOP1648
0274 0  81A9                          A      1 BITNO-X      ALPHAMERIC*                IDOP1649
0275 0  D19A                          STO    1 AREA3+2-X                               IDOP1650
                                *-------------------------------------------------- IDOP1651
0276 01 44000296                      BSI  L   A310         COMMAND *PRINT ALPHAMERIC* IDOP1652
                                *-------------------------------------------------- IDOP1653
0278 20 23A17155                      LIBF     TYPEN        TYPEWRITER ERROR MESSAGE   IDOP1654
0279 0  2001                          DC       /2001                                   IDOP1655
027A 0  0000                  A17     DC       *-*                                     IDOP1656
027B 0  0000                          DC       0                                       IDOP1657
                                *-------------------------------------------------- IDOP1658
027C 30 23243595                      CALL     TICON                                   IDOP1659
027E 1  0430                          DC       TM102                                   IDOP1660
                                *-------------------------------------------------- IDOP1661
027F 20 23A17155                      LIBF     TYPEN                                   IDOP1662
0280 0  2001                          DC       /2001                                   IDOP1663
0281 1  042D                          DC       TM100-1                                 IDOP1664
0282 0  0000                          DC       0                                       IDOP1665
                                *-------------------------------------------------- IDOP1666
0283 20 040565C0                      LIBF     DAOP         INTERFACE ERROR MESSAGE    IDOP1667
0284 0  1310                          DC       /1310        SINGLE ADDR.,EXTER.SYNCH.  IDOP1668
0285 0  0000                  A18     DC       *-*                                     IDOP1669
0286 0  0000                          DC       0                                       IDOP1670
                                *-------------------------------------------------- IDOP1671
0287 30 19162163                      CALL     RESET                                   IDOP1672
0289 1  02A1                          DC       TM12                                    IDOP1673
028A 1  028B                          DC       A273         GO TO A273                 IDOP1674
                                *-------------------------------------------------- IDOP1675
028B 0  C1AA                  A273    LD     1 B15-X        PREPARE COMMAND *END OF    IDOP1676
028C 0  81A9                          A      1 BITNO-X      INTERRUPT*                 IDOP1677
028D 0  D19A                          STO    1 AREA3+2-X                               IDOP1678
                                *-------------------------------------------------- IDOP1679
028E 01 44000296                      BSI  L   A310         COMMAND *END OF INTERRUPT* IDOP1680
                                *-------------------------------------------------- IDOP1681
0290 20 040565C0                      LIBF     DAOP                                    IDOP1682
0291 0  1000                          DC       /1000                                   IDOP1683
0292 1  02B5                          DC       RESET                                   IDOP1684
0293 0  0000                          DC       0                                       IDOP1685
                                *-------------------------------------------------- IDOP1686
0294 30 09563167                      CALL     INTEX                                   IDOP1687
                                *-------------------------------------------------- IDOP1688
0296 0  0000                  A310    DC       *-*                                     IDOP1689
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0297 20 040565C0          LIBF    DAOP        COMMAND RESET                IDOP1690
0298 0  1000              DC      /1000                                    IDOP1691
0299 1  02B5              DC      RESET                                    IDOP1692
029A 0  0000              DC      0                                        IDOP1693
                     *-------------------------------------------------    IDOP1694
029B 20 040565C0          LIBF    DAOP        INTERFACE COMMAND            IDOP1695
029C 0  1000              DC      /1000                                    IDOP1696
029D 1  02AE              DC      AREA3                                    IDOP1697
029E 0  0000              DC      0                                        IDOP1698
029F 01 4C800296          BSC  I  A310                                     IDOP1699
                     ************************************************     IDOP1700
02A1 0  0000         TM12 DC      *-*         BITNO                        IDOP1701
02A2 0  0000         ERIN DC      *-*                                      IDOP1702
02A3 0  0001         ONE  DC      1                                        IDOP1703
02A4 0  0000         ZERO DC      0                                        IDOP1704
02A6 00 00000000     NULL DEC     0.                                       IDOP1705
02A8 0  0001         DELET DC     1                                        IDOP1706
02A9 0  0073         C55  DC      /0073       OP-CODE CONFIRM. HOCO DEL.   IDOP1707
02AA 0  0002         AREA2 DC     2                                        IDOP1708
02AB 0  007B              DC      123                                      IDOP1709
02AC 0  0000              DC      0                                        IDOP1710
02AD 0  4200         B8   DC      /4200       READ WORDS ON DC             IDOP1711
02AE 0  0002         AREA3 DC     2           AREA FOR INTERFACE COMMAND   IDOP1712
02AF 0  007C              DC      124                                      IDOP1713
02B0 0  0000              DC      *-*         COMMAND                      IDOP1714
02B1 0  0003         MNPC DC      3           MAX.NO.OF PAR.CHECKS         IDOP1715
02B2 0  0000         NPC  DC      *-*         COUNTER NO.OF PAR.CHECKS     IDOP1716
02B3 0  0021         WC33 DC      33          WORD COUNT                   IDOP1717
02B4 0  0043         AD67 DC      67          ADDRESS OF DIGITAL INPUT     IDOP1718
02B5 0  0002         RESET DC     2           RESET COMMAND OUTPUT         IDOP1719
02B6 0  007C              DC      124                                      IDOP1720
02B7 0  0000              DC      0           COMMAND=0                    IDOP1721
02B8    0006         OUTPT BSS  E 6                                        IDOP1722
02BE 0  1400         B1   DC      /1400       PRINT ALPHAMERIC ON INTER-   IDOP1794
                     *                        FACE TYPEWRITER              IDOP1724
02BF 0  0000         BITNO DC     *-*         PISW BIT NUMBER              IDOP1725
02C0 0  B000         B15  DC      /B000       END OF INTERRUPT             IDOP1726
02C1 0  000A         TEN  DC      10                                       IDOP1727
02C2 0  000C         TWELF DC     12                                       IDOP1728
02C3 0  0000         ADTYP DC     0           ADDRESSES OF TYPEWRITER      IDOP1729
02C4 0  0000              DC      0           NOT USED                     IDOP1730
02C5 0  0000              DC      0           NOT USED                     IDOP1731
02C6 0  0000              DC      0           NOT USED                     IDOP1732
02C7 1  043B              DC      TM9-1                                    IDOP1733
02C8 0  0000              DC      0           NOT USED                     IDOP1734
02C9 0  0000              DC      0           NOT USED                     IDOP1735
02CA 1  0433              DC      TM15-1                                   IDOP1736
02CB 1  03F9              DC      TM17-1                                   IDOP1737
02CC 1  0400              DC      TM19-1                                   IDOP1738
02CD 1  040D              DC      TM21-1                                   IDOP1739
02CE 1  0426              DC      TM25-1                                   IDOP1740
02CF 0  0000         ADAPR DC     0           ADDRESSES OF INTERFACE       IDOP1741
02D0 0  0000              DC      0           MESSAGES                     IDOP1742
02D1 1  0375              DC      AM3                                      IDOP1743
02D2 0  0000              DC      0           NOT USED                     IDOP1744
02D3 1  0387              DC      AM5                                      IDOP1745
02D4 0  0000              DC      0           NOT USED                     IDOP1746
02D5 0  0000              DC      0           NOT USED                     IDOP1747
02D6 1  0398              DC      AM7                                      IDOP1748
02D7 0  E3E4              DC      SPEC+998                                 IDOP1749
02D8 1  03A0              DC      AM8                                      IDOP1750
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02D9 1  03B2                DC      AM9                                 IDOP1751
02DA 0  0000                DC      0           NOT USED                IDOP1752
02DB 1  03D8                DC      AM111                               IDOP1753
02DC 1  03EB                DC      AM12                                IDOP1754
                    *-------------------------------------------------- IDOP1755
02DD 1  0150        PRG10   DC      OPC10       DISPLAY                 IDOP1756
02DE 1  0015        PRG11   DC      OPC11       SPECIAL DELETE          IDOP1757
02DF 1  02E2        PRG12   DC      JUMP                                IDOP1758
02E0 1  02E2        PRG13   DC      JUMP                                IDOP1759
02E1 1  0017        PRG14   DC      OPC14       DELETE SPECTRA          IDOP1760
02E2 0  70A8        JUMP    MDX     A273                                IDOP1761
02E3 0  0FFF        AND1    DC      /0FFF                               IDOP1762
02E4 0  0013        C19     DC      19                                  IDOP1763
                    *-------------------------------------------------- IDOP1764
02E5 0  8200        MES4    DC      /8200       D                       IDOP1765
02E6 0  8100                DC      /8100       E                       IDOP1766
02E7 0  4400                DC      /4400       L                       IDOP1767
02E8 0  8100                DC      /8100       E                       IDOP1768
02E9 0  2400                DC      /2400       T                       IDOP1769
02EA 0  8100                DC      /8100       E                       IDOP1770
02EB 0  8200                DC      /8200       D                       IDOP1771
                    *-------------------------------------------------- IDOP1772
02EC 0  000C        C12     DC      12                                  IDOP1773
02ED 0  2400        B4      DC      /2400       WRITE WORD              IDOP1774
02EE 0  1000        WORD1   DC      /1000       FOR RESET OF INTERF. WORD IDOP1775
02EF 0  A000        B14     DC      /A000       PRINT WORDS             IDOP1776
02F0 0  2200        B2      DC      /2200       READ BIT 0-15 OF WORD   IDOP1777
02F1 0  000F        AD15    DC      15                                  IDOP1778
02F2 0  0024        C24     DC      /0024       OP-CODE CONFIRMING*DELETE* IDOP1779
02F3    0010        ID      BSS     16                                  IDOP1780
0303 0  0000        TABNR   DC      *-*                                 IDOP1781
0304    000C        NRENT   BSS     12                                  IDOP1782
0310 0  FFFF                DC      -1                                  IDOP1783
0311 0  0000        ERRSW   DC      *-*                                 IDOP1784
0312 0  0001        SWITC   DC      1           DELETE SPECTRUM         IDOP1785
0313 0  0002        TWO     DC      2                                   IDOP1786
0314 0  0003        THREE   DC      3                                   IDOP1787
0315 0  0000        CO      DC      0           COUNTER FOR ERASE       IDOP1788
0316 0  E3E6        ASPEC   DC      SPEC+1000                           IDOP1789
0317 0  0008        WCOU    DC      8           USED FOR MESSAGE ABOUT DE- IDOP1790
                    *                           LETED ID'S              IDOP1791
0318 0  0000        INDI    DC      *-*                                 IDOP1792
0319 0  0000        BL1     DC      *-*         NO. OF 1ST. BLOCK       IDOP1793
031A 0  0000        BLNO    DC      *-*         NO. OF BLOCKS           IDOP1794
031B 0  0000        BL1A    DC      *-*         1ST. BLOCK IN ANALYSER  IDOP1795
031C 0  0010        HEXDE   DC      16                                  IDOP1796
031D 0  0200        M512    DC      512                                 IDOP1797
031E 0  DFFE        MULT    DC      SPEC                                IDOP1798
031F 0  0100        M256    DC      256                                 IDOP1799
0320 0  3400        B6      DC      /3400       WRITE BLOCK             IDOP1800
0321 0  0010        AD1     DC      /0010       MODIFIC. OF BLOCK ADDR. IDOP1801
0322    0000                BSS  E  0                                   IDOP1802
0322 0  0201        WC      DC      513                                 IDOP1803
0323 0  007B                DC      123                                 IDOP1804
0324 0  0000        BLCOU   DC      *-*         COUNTER NO. OF BLOCKS   IDOP1805
0325 0  0202        M514    DC      514                                 IDOP1806
0326 0  0005        FIVE    DC      5                                   IDOP1807
0327 0  0000        IND2    DC      0                                   IDOP1808
0328    0000                BSS  E  0                                   IDOP1809
0328 00 9D00DD14    SUB     SD   L1 SPEC1+8192                          IDOP1810
032A 00 8D00DD14    ADD     AD   L1 SPEC1+8192                          IDOP1811
```

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032C 0  80A0          APLUS DC      /80A0       CARD CODE +SIGN                IDOP1812
032D 0  4000          AMIN  DC      /4000       CARD CODE -SIGN                IDOP1813
032E 0  00A0          EQUAL DC      /00A0       CARD CODE =SIGN                IDOP1814
032F 0  0300          LIFE  DC      /0300       LINE FEED                      IDOP1815
0330 0  000A          END   DC      10                                         IDOP1816
0332 00 000F4240      ADD1  DEC     1000000                                    IDOP1817
0334 0  0064          M100  DC      100                                        IDOP1818
0335 0  00C8          M200  DC      200                                        IDOP1819
0336 0  00CA          M202  DC      202                                        IDOP1820
0337 0  000C          SPERN DC      12                                         IDOP1821
                      *-------------------------------------------------       IDOP1822
0338 0  0000          MES1  DC      *-*                                        IDOP1823
0339 0  007B                DC      123                                        IDOP1824
033A 0  8010                DC      /8010       I                              IDOP1825
033B 0  8200                DC      /8200       D                              IDOP1826
033C 0  0000                DC      /0000                                      IDOP1827
033D 0  2400                DC      /2400       T                              IDOP1828
033E 0  9000                DC      /9000       A                              IDOP1829
033F 0  8800                DC      /8800       B                              IDOP1830
0340 0  4400                DC      /4400       L                              IDOP1831
0341 0  8100                DC      /8100       E                              IDOP1832
0342 0  0000                DC      /0000                                      IDOP1833
0343 0  8040                DC      /8040       G                              IDOP1834
0344 0  4010                DC      /4010       R                              IDOP1835
0345 0  8420                DC      /8420       .                              IDOP1836
0346 0  0000          MES11 DC      *-*                                        IDOP1837
0347 0  0000                DC      *-*                                        IDOP1838
0348 0  0300                DC      /0300       LINE FEED                      IDOP1839
0349 0  0001          STA00 DC      1           ADDRESSES OF STATIONS TO       IDOP1840
034A 0  0001          STA01 DC      1           WHICH DISK PLACES MAY BE       IDOP1841
034B 0  0002          STA02 DC      2           TRANSFERRED                    IDOP1842
034C 0  0002          STA03 DC      2                                          IDOP1843
034D 0  0004          STA04 DC      4                                          IDOP1844
034E 0  0005          STA05 DC      5                                          IDOP1845
034F 0  0005          STA06 DC      5                                          IDOP1846
0350 0  0007          STA07 DC      7                                          IDOP1847
0351 0  0007          STA08 DC      7                                          IDOP1848
0352 0  0009          STA09 DC      9                                          IDOP1849
0353 0  0010          STA10 DC      /0010                                      IDOP1850
0354 0  0010          STA11 DC      /0010                                      IDOP1851
0355 0  0012          STA12 DC      /0012                                      IDOP1852
0356 0  0012          STA13 DC      /0012                                      IDOP1853
0357 0  0012          STA14 DC      /0012       IF 14 IS USED UP.CODE FOR      IDOP1854
0358 0  0012          STA15 DC      /0012       DELETE MUST BE CHANGED.        IDOP1855
                      *-------------------------------------------------       IDOP1856
0359 0  0000          STAAD DC      *-*         ADDR.OF STATION TO WHICH       IDOP1857
                      *                         DISK PLACES WILL BE TRANS-     IDOP1858
                      *                         FERRED (MULTIPLIED BY 2)       IDOP1859
035A 0  0001          TRANS DC      1           1=NO TRANSFER OF PLACES        IDOP1860
                      *                         0=TRANSFER OF PLACES           IDOP1861
035C    0000                BSS   E 0                                          IDOP1862
035C 31 225C50D5      ABC   DSA     SPECN                                      IDOP1863
035F                        ORG     ABC                                        IDOP1864
035C 0  0020                DC      32                                         IDOP1865
035D                        ORG     ABC+2                                      IDOP1866
035E 0  0300          MES5  DC      /0300       LINE FEED                      IDOP1867
035F 0  0000          MES51 DC      *-*                                        IDOP1868
0360 0  0000                DC      *-*                                        IDOP1869
0361 0  0000                DC      /0000                                      IDOP1870
0362 0  4040                DC      /4040       P                              IDOP1871
0363 0  4400                DC      /4400       L                              IDOP1872
```

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0364 0 9000          DC      /9000       A                          IDOP1873
0365 0 8400          DC      /8400       C                          IDOP1874
0366 0 8100          DC      /8100       E                          IDOP1875
0367 0 2800          DC      /2800       S                          IDOP1876
0368 0 0000          DC      /0000                                  IDOP1877
0369 0 2400          DC      /2400       T                          IDOP1878
036A 0 4080          DC      /4080       O                          IDOP1879
036B 0 0000          DC      /0000                                  IDOP1880
036C 0 8040          DC      /8040       G                          IDOP1881
036D 0 4010          DC      /4010       R                          IDOP1882
036E 0 4080          DC      /4080       O                          IDOP1883
036F 0 2200          DC      /2200       U                          IDOP1884
0370 0 4040          DC      /4040       P                          IDOP1885
0371 0 0000          DC      /0000                                  IDOP1886
0372 0 0000    MES52 DC      *-*                                    IDOP1887
0373 0 0000          DC      *-*                                    IDOP1888
                     *-------------------------------------------   IDOP1889
0374 0 0000    NOPL  DC      *-*         NO. OF PLACES TO BE TRANSF IDOP1890
                     *-------------------------------------------   IDOP1891
0316           X     EQU     ASPEC                                  IDOP1892
DF9A           Y     EQU     WCOUT                                  IDOP1893
               ********************************************         IDOP1894
0375 0 0011    AM3   DC      17                                     IDOP1895
0376 0 007B          DC      123                                    IDOP1896
0377 0 0900          DC      /0900       RED                        IDOP1897
0378 0 8010          DC      /8010       I                          IDOP1898
0379 0 8200          DC      /8200       D                          IDOP1899
037A 0 0000          DC      /0000                                  IDOP1900
037B 0 4100          DC      /4100       N                          IDOP1901
037C 0 4080          DC      /4080       O                          IDOP1902
037D 0 2400          DC      /2400       T                          IDOP1903
037E 0 0000          DC      /0000                                  IDOP1904
037F 0 4080          DC      /4080       O                          IDOP1905
0380 0 4100          DC      /4100       N                          IDOP1906
0381 0 0000          DC      /0000                                  IDOP1907
0382 0 8200          DC      /8200       D                          IDOP1908
0383 0 8010          DC      /8010       I                          IDOP1909
0384 0 2800          DC      /2800       S                          IDOP1910
0385 0 4800          DC      /4800       K                          IDOP1911
0386 0 0500          DC      /0500       BLACK                      IDOP1912
                     *-------------------------------------------   IDOP1913
0387 0 0010    AM5   DC      16                                     IDOP1914
0388 0 007B          DC      123                                    IDOP1915
0389 0 0900          DC      /0900       RED                        IDOP1916
038A 0 8400          DC      /8400       C                          IDOP1917
038B 0 8020          DC      /8020       H                          IDOP1918
038C 0 8100          DC      /8100       E                          IDOP1919
038D 0 8400          DC      /8400       C                          IDOP1920
038E 0 4800          DC      /4800       K                          IDOP1921
038F 0 0000          DC      /0000                                  IDOP1922
0390 0 8040          DC      /8040       G                          IDOP1923
0391 0 4010          DC      /4010       R                          IDOP1924
0392 0 8420          DC      /8420       .                          IDOP1925
0393 0 0000          DC      /0000                                  IDOP1926
0394 0 4100          DC      /4100       N                          IDOP1927
0395 0 4080          DC      /4080       O                          IDOP1928
0396 0 8420          DC      /8420       .                          IDOP1929
0397 0 0500          DC      /0500       BLACK                      IDOP1930
                     *-------------------------------------------   IDOP1931
0398 0 0007    AM7   DC      7                                      IDOP1932
0399 0 007B          DC      123                                    IDOP1933
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039A 0 4010          DC    /4010      R                    IDOP1934
039B 0 8100          DC    /8100      E                    IDOP1935
039C 0 4040          DC    /4040      P                    IDOP1936
039D 0 8100          DC    /8100      E                    IDOP1937
039E 0 9000          DC    /9000      A                    IDOP1938
039F 0 2400          DC    /2400      T                    IDOP1939
                     *-------------------------------------- IDOP1940
03A0 0 0011 AM8      DC    17                              IDOP1941
03A1 0 007B          DC    123                             IDOP1942
03A2 0 0900          DC    /0900      RED                  IDOP1943
03A3 0 8400          DC    /8400      C                    IDOP1944
03A4 0 8020          DC    /8020      H                    IDOP1945
03A5 0 8100          DC    /8100      E                    IDOP1946
03A6 0 8400          DC    /8400      C                    IDOP1947
03A7 0 4800          DC    /4800      K                    IDOP1948
03A8 0 0000          DC    /0000                           IDOP1949
03A9 0 8800          DC    /8800      B                    IDOP1950
03AA 0 4400          DC    /4400      L                    IDOP1951
03AB 0 8420          DC    /8420      •                    IDOP1952
03AC 0 0000          DC    /0000                           IDOP1953
03AD 0 4100          DC    /4100      N                    IDOP1954
03AE 0 4080          DC    /4080      O                    IDOP1955
03AF 0 8420          DC    /8420      •                    IDOP1956
03B0 0 2800          DC    /2800      S                    IDOP1957
03B1 0 0500          DC    / 500      BLACK                IDOP1958
                     *-------------------------------------- IDOP1959
03B2 0 0025 AM9      DC    37                              IDOP1960
03B3 0 007B          DC    123                             IDOP1961
03B4   0007 AM91     BSS   7                               IDOP1962
03B8 0 0000          DC    /0000                           IDOP1963
03BC 0 8010          DC    /8010      I                    IDOP1964
03BD 0 4100          DC    /4100      N                    IDOP1965
03BE 0 0000          DC    /0000                           IDOP1966
03BF 0 8800          DC    /8800      B                    IDOP1967
03C0 0 4400          DC    /4400      L                    IDOP1968
03C1 0 8420          DC    /8420      •                    IDOP1969
03C2 0 0000          DC    /0000                           IDOP1970
03C3 0 0000 AM92     DC    *-*                             IDOP1971
03C4 0 0000          DC    *-*                             IDOP1972
03C5 0 0000          DC    /0000                           IDOP1973
03C6 0 4000          DC    /4000      -                    IDOP1974
03C7 0 0000          DC    /0000                           IDOP1975
03C8 0 0000 AM93     DC    *-*                             IDOP1976
03C9 0 0000          DC    *-*                             IDOP1977
03CA 0 0000          DC    /0000                           IDOP1978
03CB 0 0000          DC    /0000                           IDOP1979
03CC   000C AM94     BSS   12                              IDOP1980
                     *-------------------------------------- IDOP1981
03D8 0 0012 AM111    DC    18                              IDOP1982
03D9 0 007B          DC    123                             IDOP1983
03DA 0 0900          DC    /0900      RED                  IDOP1984
03DB 0 8010          DC    /8010      I                    IDOP1985
03DC 0 8200          DC    /8200      D                    IDOP1986
03DD 0 0000          DC    /0000                           IDOP1987
03DE 0 9000          DC    /9000      A                    IDOP1988
03DF 0 4400          DC    /4400      L                    IDOP1989
03E0 0 4010          DC    /4010      R                    IDOP1990
03E1 0 8100          DC    /8100      E                    IDOP1991
03E2 0 9000          DC    /9000      A                    IDOP1992
03E3 0 8200          DC    /8200      D                    IDOP1993
03E4 0 2020          DC    /2020      Y                    IDOP1994
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03E5 0  0000          DC      /0000                                   IDOP1995
03E6 0  2200          DC      /2200       U                           IDOP1996
03E7 0  2800          DC      /2800       S                           IDOP1997
03E8 0  8100          DC      /8100       E                           IDOP1998
03E9 0  8200          DC      /8200       D                           IDOP1999
03EA 0  0500          DC      /0500       BLACK                       IDOP1000
                    *-------------------------------------------------- IDOP1001
03EB 0  000D  AM12    DC      13                                      IDOP1002
03EC 0  007B          DC      123                                     IDOP1003
03ED 0  0900          DC      /0900       RED                         IDOP1004
03EE 0  4100          DC      /4100       N                           IDOP1005
03EF 0  4080          DC      /4080       O                           IDOP1006
03F0 0  0000          DC      /0000                                   IDOP1007
03F1 0  2800          DC      /2800       S                           IDOP1008
03F2 0  2400          DC      /2400       T                           IDOP1009
03F3 0  4080          DC      /4080       O                           IDOP1010
03F4 0  4010          DC      /4010       R                           IDOP1011
03F5 0  9000          DC      /9000       A                           IDOP1012
03F6 0  8040          DC      /8040       G                           IDOP1013
03F7 0  8100          DC      /8100       E                           IDOP1014
03F8 0  0500          DC      /0500       BLACK                       IDOP1015
                    ********************************************** IDOP1016
03F9 0  0006          DC      TM18-TM17                               IDOP1017
03FA    000A  TM17    DMES    'R'BDELETE,A'E                          IDOP1018
03FF 0  0000  TM171   DC      *-*         BITNO                       IDOP1019
0400    0000  TM18    BES     0                                       IDOP1020
                    *-------------------------------------------------- IDOP1021
0400 0  000C          DC      TM20-TM19                               IDOP1022
0401    0016  TM19    DMES    'RBL. NO. ERR.,DISPL.,A'E               IDOP1023
040C 0  0000  TM191   DC      *-*         BITNO                       IDOP1024
040D    0000  TM20    BES     0                                       IDOP1025
                    *-------------------------------------------------- IDOP1026
040D 0  000D          DC      TM22-TM21                               IDOP1027
040E    0018  TM21    DMES    'RID NOT ON DISK,DISPL.,A'E             IDOP1028
041A 0  0000  TM211   DC      *-*         BITNO                       IDOP1029
041B    0000  TM22    BES     0                                       IDOP1030
                    *-------------------------------------------------- IDOP1031
041B 0  000A          DC      TM24-TM23                               IDOP1032
041C    0012  TM23    DMES    'RDC ERR.,DISPL.,A'E                    IDOP1033
0425 0  0000  TM231   DC      *-*         BITNO                       IDOP1034
0426    0000  TM24    BES     0                                       IDOP1035
                    *-------------------------------------------------- IDOP1036
0426 0  0006          DC      TM26-TM25                               IDOP1037
0427    000A  TM25    DMES    'RDISPL.,A'E                            IDOP1038
042C 0  0000  TM251   DC      *-*         BITNO                       IDOP1039
042D    0000  TM26    BES     0                                       IDOP1040
                    *-------------------------------------------------- IDOP1041
042D 0  0005          DC      TM101-TM100                             IDOP1042
042F    0004  TM100   DMES    'B'2X'E                                 IDOP1043
0430    0003  TM102   BSS     3           TIME                        IDOP1044
0433    0000  TM101   BES     0                                       IDOP1045
                    *-------------------------------------------------- IDOP1046
0433 0  0007          DC      TM16-TM15                               IDOP1047
0434    000E  TM15    DMES    'R'ANO CONFIRM.'E                       IDOP1048
043B    0000  TM16    BES     0                                       IDOP1049
                    *-------------------------------------------------- IDOP1050
043B 0  000A          DC      TM10-TM9                                IDOP1051
043C    0012  TM9     DMES    'R'AERR. INT. NO.,A'E                   IDOP1052
0445 0  0000  TM91    DC      *-*         BITNO                       IDOP1053
0446    0000  TM10    BES     0                                       IDOP1054
                    ********************************************** IDOP1055
```

```
                    END
0446
     NO ERRORS IN ABOVE ASSEMBLY.
IDOP1
DUP FUNCTION COMPLETED
```

```
0000    091165F2          ENT     IDOP2                                  IDOP2002
                          ***************************************************IDOP2003
                          *       ADDRESS ASSIGNMENT FOR COMMON             IDOP2004
                          ***************************************************IDOP2005
DFFE                      SPEC    EQU     -8194                          IDOP2006
DFCE                      SCAL    EQU     -8242                          IDOP2007
DFBE                      IDEN    EQU     -8258                          IDOP2008
DFBC                      TABLE   EQU     -8260                          IDOP2009
DF9C                      WORDS   EQU     -8292                          IDOP2010
DF9A                      WCOUT   EQU     -8294                          IDOP2011
DD14                      BUF     EQU     -8940                          IDOP2012
BD14                      SPEC1   EQU     -17132                         IDOP2013
BCE4                      SCAL1   EQU     -17180                         IDOP2014
BCD4                      IDEN1   EQU     -17196                         IDOP2015
BCD2                      TABL1   EQU     -17198                         IDOP2016
                          ***************************************************IDOP2017
```

```
                                                                                IDOP2019
                *********************************************************       IDOP2020
IDOP2  DC       *-*                                                             IDOP2021
       LDX   I1 IDOP2                                                           IDOP2022
       LD     1 0                                                               IDOP2023
       STO      *+1                                                             IDOP2024
       LDX   I2 *-*          OP-CODE INTO XR2                                  IDOP2025
       LD    I1 1                                                              IDOP2026
       LDX   L1 X                                                              IDOP2027
       STO    1 BITNO-X      STORE BITNO                                       IDOP2028
*-------------------------------------------------------------------------      IDOP2029
       LIBF     BINDC                                                          IDOP2030
       DC       OUTPT                                                          IDOP2031
       LIBF     HOLPR                                                          IDOP2032
       DC       /0000                                                          IDOP2033
       DC       OUTPT+4                                                        IDOP2034
       DC       TM12                                                           IDOP2035
       DC       2                                                              IDOP2036
*-------------------------------------------------------------------------      IDOP2037
       BSC   I2 PRG15-15      BRANCH TO DIFFER. OP-CODES                       IDOP2038
*-------------------------------------------------------------------------      IDOP2039
*                                                                               IDOP2040
*                                                                               IDOP2041
*                                                                               IDOP2042
*********************************************************************           IDOP2043
*      SUM OF SPECTRA          OP.CODE 19                           *           IDOP2044
*      (SCALER INCLUDED)                                            *           IDOP2045
*********************************************************************           IDOP2046
OPC19  LD     1 AB1-X          PROGRAM CHANGE TO INCLUDE                        IDOP2047
       STO      A356+1         SUM OF SCALERS                                   IDOP2048
       LD     1 AB2-X                                                          IDOP2049
       STO      A410+1                                                         IDOP2050
       STO      A357+3                                                         IDOP2051
       LD     1 AB3-X                                                          IDOP2052
       STO      A357+1                                                         IDOP2053
       MDX      OPC16                                                          IDOP2054
*********************************************************************           IDOP2055
*      SUM OF SPECTRA          OP.CODE 16                           *           IDOP2056
*      (SCALER EXCLUDED)                                            *           IDOP2057
*********************************************************************           IDOP2058
OPC16  LDX   L2 Y              SUM OF SPECTRA                                   IDOP2059
       LIBF     BLANK          ZERO SUM AREA                                    IDOP2060
       DC       IDEN                                                           IDOP2061
       DC       8256                                                           IDOP2062
*-------------------------------------------------------------------------      IDOP2063
       CALL     DECID          CONVERSION OF ID OF SUM                          IDOP2064
       DC       WORDS                                                          IDOP2065
       DC       IDEN                                                           IDOP2066
       DC       ERIN                                                           IDOP2067
*-------------------------------------------------------------------------      IDOP2068
       MDX   L  ERIN,0                                                         IDOP2069
       MDX      A350                                                           IDOP2070
       MDX      A351                                                           IDOP2071
*-------------------------------------------------------------------------      IDOP2072
A350   BSC   L  A50            GROUP NO. IN ERROR                               IDOP2073
A351   LDX    2 11                                                             IDOP2074
A352   MDX   L  A353,2                                                         IDOP2075
       LD    I  A353                                                          IDOP2076
       BSC      -                                                              IDOP2077
       MDX      A354                                                           IDOP2078
       SLA      16                                                             IDOP2079
       STO    1 IND2-X                                                         IDOP2080
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0036 0  7002                MDX     A400                                    IDDP2080
0037 01 74010335    A354    MDX  L  IND2,1      IND3=1 IF SPECTR.TO BE ADD  IDDP2081
0039 30 04143244    A400    CALL    DECID       DECODE ID OF SPECTRUM TO    IDDP2082
003B 0  DF9C        A353    DC      WORDS       BE ADDED OR SUBTRACTED      IDDP2083
003C 1  0308                DC      OUTPT                                   IDDP2084
003D 1  02BA                DC      ERIN                                    IDDP2085
*-------------------------------------------------------------------------- IDDP2086
003E 01 740002BA            MDX  L  ERIN,0                                  IDDP2087
0040 0  7039                MDX     A359        GO TO NEXT ID               IDDP2088
*-------------------------------------------------------------------------- IDDP2089
0041 30 04262494            CALL    DISKM       READ SPECTRUM FROM DISK     IDDP2090
0043 0  BCD4                DC      IDEN1                                   IDDP2091
0044 1  0333                DC      ERRSW                                   IDDP2092
0045 0  DD14                DC      BUF                                     IDDP2093
0046 1  0308                DC      OUTPT                                   IDDP2094
0047 1  0313                DC      ZERO        SPECTRUM NOT DELETED        IDDP2095
*-------------------------------------------------------------------------- IDDP2096
0048 00 C400BCD9            LD   L  IDEN1+5     STORE LARGEST NO.OF         IDDP2097
004A 00 B400DFC3            CMP  L  IDEN+5      BLOCKS INTO IDEN+5          IDDP2098
004C 0  7002                MDX     A500                                    IDDP2099
004D 0  7000                MDX     *                                       IDDP2100
004E 0  7002                MDX     A501                                    IDDP2101
004F 00 D400DFC3    A500    STO  L  IDEN+5                                  IDDP2102
*-------------------------------------------------------------------------- IDDP2103
0051 0  C12E        A501    LD    1 ONE-X       NO OF 1.BLOCK=1             IDDP2104
0052 00 D400DFC4            STO  L  IDEN+6                                  IDDP2105
*-------------------------------------------------------------------------- IDDP2106
0054 01 74000333            MDX  L  ERRSW,0                                 IDDP2107
0056 0  7023                MDX     A359        GO TO NEXT ID               IDDP2108
*-------------------------------------------------------------------------- IDDP2109
0057 01 74000335            MDX  L  IND2,0                                  IDDP2110
0059 0  7006                MDX     A355        ADDITION                    IDDP2111
005A 0  C15E                LD    1 SUB-X       SUBTRACTION                 IDDP2112
005B 0  D00E                STO     A357                                    IDDP2113
005C 0  C162                LD    1 AMIN-X                                  IDDP2114
005D 01 D4800077            STO  I  A358                                    IDDP2115
005F 0  7006                MDX     A356                                    IDDP2116
*-------------------------------------------------------------------------- IDDP2117
0060 0  C161        A355    LD    1 APLUS-X                                 IDDP2118
0061 01 D4800077            STO  I  A358                                    IDDP2119
0063 0  C160                LD    1 ADD-X                                   IDDP2120
0064 0  D005                STO     A357                                    IDDP2121
0065 0  7000                MDX     A356                                    IDDP2122
*-------------------------------------------------------------------------- IDDP2123
0066 00 6500E000    A356    LDX  L1 -8192                                   IDDP2124
0068 00 CD00FFFE    A410    LDD  L1 SPEC+8192                               IDDP2125
006A 00 8D00DD14    A357    AD   L1 SPEC1+8192                              IDDP2126
006C 00 DD00FFFE            STD  L1 SPEC+8192                               IDDP2127
006E 0  7102                MDX   1 2                                       IDDP2128
006F 0  70F8                MDX     A410                                    IDDP2129
*-------------------------------------------------------------------------- IDDP2130
0070 01 650002D7            LDX  L1 X                                       IDDP2131
0072 01 74010077            MDX  L  A358,1      CONVERSION OF ID            IDDP2132
0074 30 03595244            CALL    CONID                                   IDDP2133
0076 0  BCD4                DC      IDEN1                                   IDDP2134
0077 1  033F        A358    DC      AM141                                   IDDP2135
0078 01 74070077            MDX  L  A358,7                                  IDDP2136
*-------------------------------------------------------------------------- IDDP2137
007A 0  72FF        A359    MDX   2 -1                                      IDDP2138
007B 0  70B2                MDX     A352        GO TO NEXT ID               IDDP2139
*-------------------------------------------------------------------------- IDDP2140
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007C 0  C0FA          LD     A358                                    IDOP2141
007D 0  B165          CMP  1 AM014-X                                 IDOP2142
007E 0  7003          MDX    A425                                    IDOP2143
007F 0  7002          MDX    A425                                    IDOP2144
0080 01 4C00015F      BSC  L A26          ID NOT ON DISK             IDOP2145
*-------------------------------------------------------------------- IDOP2146
0082 00 6600DF9A A425 LDX  L2 Y                                      IDOP2147
0084 0  C229          LD     2 IDEN+5-Y                              IDOP2148
0085 0  B164          CMP    1 HEXD-X                                IDOP2149
0086 0  7000          MDX    *                                       IDOP2150
0087 0  7001          MDX    A427                                    IDOP2151
0088 0  7002          MDX    A426                                    IDOP2152
*-------------------------------------------------------------------- IDOP2153
0089 0  1010          A427   SLA    16           GROUP NO. = 0 FOR SMALL IDOP2154
008A 0  D228          STO    2 IDEN+4-Y   SPECTRA                    IDOP2155
*-------------------------------------------------------------------- IDOP2156
008B 30 14109892      A426   CALL   MDISK       STORE SUM ON DISK     IDOP2157
008D 0  DFBE                 DC     IDEN                            IDOP2158
008E 1  0333                 DC     ERRSW                           IDOP2159
008F 0  DD14                 DC     BUF                             IDOP2160
0090 1  0308                 DC     OUTPT                           IDOP2161
*-------------------------------------------------------------------- IDOP2162
0091 01 74000333             MDX  L ERRSW,0                         IDOP2163
0093 0  7001                 MDX    A360         SPECTRUM NOT STORED IDOP2164
0094 0  7014                 MDX    A361         SPECTRUM STORED     IDOP2165
*-------------------------------------------------------------------- IDOP2166
0095 0  C15C          A360   LD     1 ERRSW-X                       IDOP2167
0096 0  B15D                 CMP    1 FIVE-X                        IDOP2168
0097 0  7005                 MDX    A365                            IDOP2169
0098 0  7004                 MDX    A365                            IDOP2170
0099 0  C14D                 LD     1 ADAPR+2-X  ID ALREADY USED    IDOP2171
009A 01 D400014E             STO  L A18                             IDOP2172
009C 0  7003                 MDX    A363                            IDOP2173
*-------------------------------------------------------------------- IDOP2174
009D 0  C14E          A365   LD     1 ADAPR+3-X  NO MORE STORAGE    IDOP2175
009E 01 D400014E             STO  L A18                             IDOP2176
00A0 0  C145          A363   LD     1 ADTYP+2-X                     IDOP2177
00A1 01 D4000143             STO  L A17                             IDOP2178
00A3 01 C400030F             LD   L TM12                            IDOP2179
00A5 01 D4000433             STO  L TM311                           IDOP2180
00A7 01 4C00013C             BSC  L A13          INTERRUPT EXIT     IDOP2181
*-------------------------------------------------------------------- IDOP2182
00A9 0  C163          A361   LD     1 EQUAL-X                       IDOP2183
00AA 01 D4800077             STO  I A358                            IDOP2184
00AC 0  C0CA                 LD     A358                            IDOP2185
00AD 0  812E                 A      1 ONE-X                         IDOP2186
00AF 0  D003                 STO    A362                            IDOP2187
*-------------------------------------------------------------------- IDOP2188
00AF 30 03595244             CALL   CONID        CONVERSION OF ID FOR SUM IDOP2189
00B1 0  DFBE                 DC     IDEN                            IDOP2190
00B2 0  0000          A362   DC     *-*                             IDOP2191
*-------------------------------------------------------------------- IDOP2192
00B3 01 740600B2             MDX  L A362,6       PREPARE RESULT MESSAGE IDOP2193
00B5 0  C0FC                 LD     A362                            IDOP2194
00B6 0  9166                 S      1 AM14-X                        IDOP2195
00B7 0  D166                 STO    1 AM14-X                        IDOP2196
*-------------------------------------------------------------------- IDOP2197
00B8 0  C14F                 LD     1 ADAPR+4-X                     IDOP2198
00B9 01 D400014E             STO  L A18                             IDOP2199
00BB 0  C146                 LD     1 ADTYP+3-X                     IDOP2200
00BC 01 D4000143             STO  L A17                             IDOP2201
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00BE 01 C400030F        LD   L  TM12                                    IDOP2202
00C0 01 D4000438        STO  L  TM331                                   IDOP2203
00C2 01 4C00013C        BSC  L  A13          INTERRUPT EXIT             IDOP2204
                     *-------------------------------------------------- IDOP2205
                     *                                                  IDOP2206
                     *                                                  IDOP2207
                     *                                                  IDOP2208
                     ****************************************************IDOP2209
                     *     MULTIPLICATION     OP.CODE 17                *IDOP2210
                     ****************************************************IDOP2211
00C4 00 6600DF9A     OPC17 LDX  L2 Y                                    IDOP2212
00C6 30 04143244             CALL   DECID       CONVERSION OF ID OF SPECTR IDOP2213
00C8 0  DF9C                 DC     WORDS       UM TO BE MULTIPLIED    IDOP2214
00C9 0  DFBE                 DC     IDEN                               IDOP2215
00CA 1  02BA                 DC     ERIN                               IDOP2216
                     *-------------------------------------------------- IDOP2217
00CB 01 740002BA             MDX  L ERIN,0                             IDOP2218
00CD 0  7001                 MDX    A300                               IDOP2219
00CE 0  7002                 MDX    A301                               IDOP2220
                     *-------------------------------------------------- IDOP2221
00CF 01 4C00016B     A300    BSC  L A50          INTER. NO. IN ERROR    IDOP2222
00D1 30 14645053     A301    CALL   MREAL       CONVERT MULTIPLIER TO  IDOP2223
00D3 0  DF9E                 DC     WORDS+2     FLOATING POINT NUMBER  IDOP2224
00D4 1  03EF                 DC     AM102                              IDOP2225
                     *-------------------------------------------------- IDOP2226
00D5 30 04143244             CALL   DECID       CONVERSION OF ID FOR MULTI IDOP2227
00D7 0  DFB2                 DC     WORDS+22    PLIED SPECTRUM         IDOP2228
00D8 1  0308                 DC     OUTPT                              IDOP2229
00D9 1  02BA                 DC     ERIN                               IDOP2230
                     *-------------------------------------------------- IDOP2231
00DA 0  C131                 LD     1 OUTPT-X   INTER.NO OF ORIGINAL AND IDOP2232
00DB 0  B224                 CMP    2 IDEN-Y    MULTIPLIED SPECTRUM MUST IDOP2233
00DC 0  7000                 MDX    *           BE EQUAL               IDOP2234
00DD 0  70F1                 MDX    A300                               IDOP2235
                     *-------------------------------------------------- IDOP2236
00DE 30 04262494     A304    CALL   DISKM       READ SPECTRUM FROM DISK IDOP2237
00E0 0  DFBE                 DC     IDEN                               IDOP2238
00E1 1  0333                 DC     ERRSW                              IDOP2239
00E2 0  DD14                 DC     BUF                                IDOP2240
00E3 0  DFBE                 DC     IDEN                               IDOP2241
00E4 1  0313                 DC     ZERO        SPECTRUM NOT DELETED   IDOP2242
                     *-------------------------------------------------- IDOP2243
00E5 01 74000333             MDX  L ERRSW,0                            IDOP2244
00E7 0  7001                 MDX    A302        SPECTRUM NOT FOUND     IDOP2245
00E8 0  7002                 MDX    A303        SPECTRUM FOUND         IDOP2246
                     *-------------------------------------------------- IDOP2247
00E9 01 4C00015F     A302    BSC  L A26          ID NOT ON DISK         IDOP2248
                     *-------------------------------------------------- IDOP2249
00EB 0  CA04         A303    LDD    2 WORDS+2-Y                        IDOP2250
00EC 0  B941                 DCM    1 NULL-X                           IDOP2251
00ED 0  7000                 MDX    *                                  IDOP2252
00EE 0  7002                 MDX    A305                               IDOP2253
00EF 0  7015                 MDX    A306        NO MULTIPLICATION      IDOP2254
00F0 0  1000         A315    DC     4096                               IDOP2255
                     *-------------------------------------------------- IDOP2256
00F1 30 141938C0     A305    CALL   MFLT       CONVERSION OF SPECTRUM IDOP2257
00F3 0  DFFE                 DC     SPEC        FROM BINARY TO FLOATING IDOP2258
00F4 1  00F0                 DC     A315        POINT NUMBERS          IDOP2259
                     *-------------------------------------------------- IDOP2260
00F5 00 6500E000             LDX  L1 -8192      MULTIPLICATION OF CHANNELS IDOP2261
00F7 20 064C49C0     A307    LIBF   FLDX                               IDOP2262
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00F8 0  FFFE                DC      SPEC+8192                                   IDOP2263
00F9 20 06517A00            LIBF    FMPY                                        IDOP2264
00FA 0  DF9E                DC      WORDS+2     MULTIPLIER                      IDOP2265
00FB 20 068A35A7            LIBF    FSTOX                                       IDOP2266
00FC 0  FFFE                DC      SPEC+8192                                   IDOP2267
00FD 0  7102                MDX   1 2                                           IDOP2268
00FE 0  70F8                MDX     A307                                        IDOP2269
00FF 01 650002D7            LDX   L1 X                                          IDOP2270
                    *-------------------------------------------------------    IDOP2271
0101 30 142558C0            CALL    MINT        CONVERSION OF SPECTRUM          IDOP2272
0103 0  DFFE                DC      SPEC        FROM FLOATING POINT TO          IDOP2273
0104 1  00F0                DC      A315        BINARY NUMBERS                  IDOP2274
                    *-------------------------------------------------------    IDOP2275
0105 30 03595244    A306    CALL    CONID       CONVERSION OF ORIGINAL ID       IDOP2276
0107 0  DFBE                DC      IDEN        TO CARD CODE                    IDOP2277
0108 1  03E5                DC      AM101                                       IDOP2278
                    *-------------------------------------------------------    IDOP2279
0109 30 145A5140            CALL    MOVE        NEW ID INTO IDEN                IDOP2280
010B 1  0308                DC      OUTPT                                       IDOP2281
010C 0  DFBE                DC      IDEN                                        IDOP2282
010D 0  0004                DC      4                                           IDOP2283
                    *-------------------------------------------------------    IDOP2284
010E 30 14109892            CALL    MDISK       STORE MULTIPLIED SPECTRUM       IDOP2285
0110 0  DFBE                DC      IDEN        ON DISK                         IDOP2286
0111 1  0333                DC      E   SW                                      IDOP2287
0112 0  DD14                DC      BUF                                         IDOP2288
0113 1  0308                DC      OUTPT                                       IDOP2289
                    *-------------------------------------------------------    IDOP2290
0114 01 74000333            MDX   L ERRSW,0                                     IDOP2291
0116 0  7001                MDX     A308                                        IDOP2292
0117 0  7014                MDX     A311        NO ERRORS                       IDOP2293
                    *-------------------------------------------------------    IDOP2294
0118 0  C15C        A308    LD    1 ERRSW-X                                     IDOP2295
0119 0  B15D                CMP   1 FIVE-X                                      IDOP2296
011A 0  7000                MDX     *                                           IDOP2297
011B 0  7004                MDX     A309        NO STORAGE                      IDOP2298
011C 0  C140                LD    1 ADAPR+2-X   MESSAGE *SAME ID ALREADY        IDOP2299
011D 01 D400014E            STO   L A18         USED*                           IDOP2300
011F 0  7003                MDX     A310                                        IDOP2301
                    *-------------------------------------------------------    IDOP2302
0120 0  C14E        A309    LD    1 ADAPR+3-X   MESSAGE *NO MORE STORAGE*       IDOP2303
0121 01 D400014E            STO   L A18                                         IDOP2304
0123 0  C147        A310    LD    1 ADTYP+4-X                                   IDOP2305
0124 01 D4000143            STO   L A17                                         IDOP2306
0126 01 C400030F            LD    L TM12                                        IDOP2307
0128 01 D4000463            STO   L TM271                                       IDOP2308
012A 01 4C00013C            BSC   L A13         INTER. EXIT                     IDOP2309
                    *-------------------------------------------------------    IDOP2310
012C 30 03595244    A311    CALL    CONID       CONVERSION OF NEW ID TO         IDOP2311
012E 0  DFBE                DC      IDEN        CARD CODE                       IDOP2312
012F 1  03FE                DC      AM103                                       IDOP2313
                    *-------------------------------------------------------    IDOP2314
0130 0  C148                LD    1 ADTYP+5-X                                   IDOP2315
0131 01 D4000143            STO   L A17                                         IDOP2316
0133 0  C150                LD    1 ADAPR+5-X                                   IDOP2317
0134 01 D400014E            STO   L A18                                         IDOP2318
0136 01 C400030F            LD    L TM12                                        IDOP2319
0138 01 D4000469            STO   L TM291                                       IDOP2320
013A 01 4C00013C            BSC   L A13         NORMAL EXIT                     IDOP2321
                    *-------------------------------------------------------    IDOP2322
013C 0  C137        A13     LD    1 B1-X        PREPARE COMMAND *PRINT          IDOP2323
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0130 0  81E4          A     1 BITNO-X     ALPHAMERIC*                  IDOP2324
013E 0  D123          STO   1 AREA3+2-X                                IDOP2325
*-------------------------------------------------------------------- IDOP2326
013F 01 4400029A      BSI   L A600       COMMAND *PRINT ALPHAMERIC*   IDOP2327
*-------------------------------------------------------------------- IDOP2328
0141 20 23A17155      LIBF  TYPEN        TYPEWRITER ERROR MESSAGE     IDOP2329
0142 0  2001          DC    /2001                                      IDOP2330
0143 0  0000    A17   DC    *-*                                        IDOP2331
0144 0  0000          DC    0                                          IDOP2332
*-------------------------------------------------------------------- IDOP2333
0145 30 23243595      CALL  TICON                                      IDOP2334
0147 1  0480          DC    TM102                                      IDOP2335
*-------------------------------------------------------------------- IDOP2336
0148 20 23A17155      LIBF  TYPEN                                      IDOP2337
0149 0  2001          DC    /2001                                      IDOP2338
014A 1  047D          DC    TM100-1                                    IDOP2339
014B 0  0000          DC    0                                          IDOP2340
*-------------------------------------------------------------------- IDOP2341
014C 20 040565C0      LIBF  DAOP         INTERFACE ERROR MESSAGE      IDOP2342
014D 0  1310          DC    /1310        SINGLE ADDR.,EXTER.SYNCH.    IDOP2343
014E 0  0000    A18   DC    *-*                                        IDOP2344
014F 0  0000          DC    0                                          IDOP2345
*-------------------------------------------------------------------- IDOP2346
0150 30 19162163      CALL  RESET                                      IDOP2347
0152 1  030F          DC    TM12                                       IDOP2348
0153 1  0154          DC    A273         GO TO A273                    IDOP2349
*-------------------------------------------------------------------- IDOP2350
0154 0  C139    A273  LD    1 B15-X      PREPARE COMMAND *END OF      IDOP2351
0155 0  81E4          A     1 BITNO-X    INTERRUPT*                   IDOP2352
0156 0  D123          STO   1 AREA3+2-X                                IDOP2353
*-------------------------------------------------------------------- IDOP2354
0157 01 4400029A      BSI   L A600       COMMAND *END OF INTERRUPT*   IDOP2355
*-------------------------------------------------------------------- IDOP2356
0159 20 040565C0      LIBF  DAOP                                       IDOP2357
015A 0  1000          DC    /1000                                      IDOP2358
015B 1  0302          DC    RESET                                      IDOP2359
015C 0  0000          DC    0                                          IDOP2360
*-------------------------------------------------------------------- IDOP2361
015D 30 09563167      CALL  INTEX                                      IDOP2362
*-------------------------------------------------------------------- IDOP2363
015F 0  C143    A26   LD    1 ADTYP-X    PREPARE ERROR MESSAGE *ID    IDOP2364
0160 01 D4000143      STO   L A17        NOT ON DISK*                 IDOP2365
0162 0  C14B          LD    1 ADAPR-X                                  IDOP2366
0163 01 D400014E      STO   L A18                                      IDOP2367
*-------------------------------------------------------------------- IDOP2368
0165 01 C400030F      LD    L TM12                                     IDOP2369
0167 01 D4000447      STO   L TM51                                     IDOP2370
0169 01 4C00013C      BSC   L A13        INTERRUPT EXIT               IDOP2371
*-------------------------------------------------------------------- IDOP2372
016B 0  C144    A50   LD    1 ADTYP+1-X  PREPARE ERROR MESSAGE        IDOP2373
016C 01 D4000143      STO   L A17        *CHECK INTER. NO.*           IDOP2374
016E 0  C14C          LD    1 ADAPR+1-X                                IDOP2375
016F 01 D400014E      STO   L A18                                      IDOP2376
*-------------------------------------------------------------------- IDOP2377
0171 01 C400030F      LD    L TM12                                     IDOP2378
0173 01 D4000453      STO   L TM91                                     IDOP2379
0175 01 4C00013C      BSC   L A13        INTERRUPT EXIT               IDOP2380
*-------------------------------------------------------------------- IDOP2381
*                                                                     IDOP2382
*                                                                     IDOP2383
*                                                                     IDOP2384
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                                                                                IDOP2385
*       ID TABLE     OP.CODE 15                                              *  IDOP2386
*****************************************************************************  IDOP2387
0177 30 04143244  OPC15 CALL     DECID       ID TABLE                           IDOP2388
0179 0  DF9C            DC       WORDS       CONVERSION OF ANALYSER ID          IDOP2389
017A 0  DFBE            DC       IDEN        TO 5 BINARY WORDS                  IDOP2390
017B 1  02BA            DC       ERIN                                           IDOP2391
*-------------------------------------------------------------------------------IDOP2392
017C 01 740002BA        MDX   L  ERIN,0                                         IDOP2393
017E 0  7001            MDX      A62                                            IDOP2394
017F 0  7002            MDX      A63                                            IDOP2395
*-------------------------------------------------------------------------------IDOP2396
0180 01 4C00016B  A62   BSC   L  A50         ERROR EXIT                         IDOP2397
*-------------------------------------------------------------------------------IDOP2398
0182 01 650002D7  A63   LDX   L1 X                                             IDOP2399
0184 00 6600DF9A        LDX   L2 Y                                             IDOP2400
*-------------------------------------------------------------------------------IDOP2401
0186 0  C224            LD    2  IDEN-Y     GROUP NO. FOR MESSAGE              IDOP2402
0187 20 02255103        LIBF     BINDC      *ID TABLE GR.XX*                   IDOP2403
0188 1  0308            DC       OUTPT                                          IDOP2404
0189 0  C935            LDD   1  OUTPT+4-X                                     IDOP2405
018A 01 D40002D4        STO   L  MES11                                         IDOP2406
018C 0  1090            SLT      16                                            IDOP2407
018D 01 D40002D5        STO   L  MES11+1                                       IDOP2408
*-------------------------------------------------------------------------------IDOP2409
018F 0  C07C            LD       A66        RPEPARE ADDR. FOR STORAGE          IDOP2410
0190 0  81ED            A     1  TH992-X     OF CARD CODE ID IN SPEC+           IDOP2411
0191 01 D4000252        STO   L  A69         1000                               IDOP2412
*-------------------------------------------------------------------------------IDOP2413
0193 0  C1E6            LD    1  FILE1+1-X                                      IDOP2414
0194 0  D263            STO   2  SPEC-1-Y                                      IDOP2415
0195 0  C1EB            LD    1  WC320-X                                        IDOP2416
0196 0  D262            STO   2  SPEC-2-Y                                      IDOP2417
0197 01 440001F4        BSI   L  A60         SPTBL                              IDOP2418
*-------------------------------------------------------------------------------IDOP2419
0199 0  C1E8            LD    1  FILE2+1-X                                      IDOP2420
019A 0  D263            STO   2  SPEC-1-Y                                      IDOP2421
019B 01 440001F4        BSI   L  A60         SPT3L                              IDOP2422
*-------------------------------------------------------------------------------IDOP2423
019D 01 74070252        MDX   L  A69,7                                         IDOP2424
019F 0  C1EC            LD    1  LIFE-X                                        IDOP2425
01A0 01 D4800252        STO   I  A69                                           IDOP2426
01A2 01 74010252        MDX   L  A69,1                                         IDOP2427
01A4 01 C4000252        LD    L  A69                                           IDOP2428
01A6 0  D003            STO      A70                                           IDOP2429
*-------------------------------------------------------------------------------IDOP2430
01A7 30 145A5140        CALL     MOVE                                          IDOP2431
01A9 1  02D7            DC       MES2                                          IDOP2432
01AA 0  0000      A70   DC       *-*                                           IDOP2433
01AB 0  000F            DC       15                                            IDOP2434
*-------------------------------------------------------------------------------IDOP2435
01AC 01 74030252        MDX   L  A69,3                                         IDOP2436
01AE 01 C4000252        LD    L  A69                                           IDOP2437
01B0 0  D1EE            STO   1  COMP-X                                        IDOP2438
*-------------------------------------------------------------------------------IDOP2439
01B1 0  C1EA            LD    1  FILE3+1-X                                      IDOP2440
01B2 0  D263            STO   2  SPEC-1-Y                                      IDOP2441
01B3 0  C13F            LD    1  TWELF-X                                        IDOP2442
01B4 01 D4000253        STO   L  A69+1                                         IDOP2443
01B6 0  1010            SLA      16                                            IDOP2444
01B7 0  D056            STO      COUNT                                         IDOP2445
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01B8 01 7401020F          MDX  L  A68,1                                  IDDP2446
01BA 01 74010232          MDX  L  A112,1                                 IDDP2447
01BC 01 440001F4          BSI  L  A60          SPTB1                     IDDP2448
                     *-------------------------------------------------- IDDP2449
01BE 01 C4000252          LD   L  A69                                    IDDP2450
01C0 0  B1EE              CMP   1 COMP-X                                 IDDP2451
01C1 0  7002              MDX     A71                                    IDDP2452
01C2 0  7000              MDX     *                                      IDDP2453
01C3 0  7003              MDX     A72          CONTINUE                  IDDP2454
                     *-------------------------------------------------- IDDP2455
01C4 01 740C0252     A71  MDX  L  A69,12                                 IDDP2456
01C6 0  700F              MDX     A110                                   IDDP2457
01C7 01 74FD0252     A72  MDX  I  A69,-3                                 IDDP2458
01C9 01 C4000252          LD   L  A69                                    IDDP2459
01CB 0  B041              CMP     A66+1                                  IDDP2460
01CC 0  7000              MDX     *                                      IDDP2461
01CD 0  7008              MDX     A110                                   IDDP2462
                     *-------------------------------------------------- IDDP2463
01CE 01 741E02C6          MDX  L  MES1,30                                IDDP2464
01D0 30 145A5140          CALL    MOVE                                   IDDP2465
01D2 1  02E6              DC      MES3                                   IDDP2466
01D3 0  E3E6              DC      SPEC+1000                              IDDP2467
01D4 0  000E              DC      14                                     IDDP2468
01D5 0  7004              MDX     A111                                   IDDP2469
                     *-------------------------------------------------- IDDP2470
01D6 0  C07B         A110 LD      A69                                    IDDP2471
01D7 0  9034              S       A66                                    IDDP2472
01D8 0  91E2              S     1 TH984-X                                IDDP2473
01D9 0  D1EF              STO   1 MES1-X                                 IDDP2474
                     *-------------------------------------------------- IDDP2475
01DA 30 145A5140     A111 CALL    MOVE         END OF MESSAGE PREPARATION IDDP2476
01DC 1  02C6              DC      MES1         FOR ANALYSER              IDDP2477
01DD 0  E3D5              DC      SPEC+983                               IDDP2478
01DE 0  0011              DC      17                                     IDDP2479
                     *-------------------------------------------------- IDDP2480
01DF 0  C149              LD    1 ADTYP+6-X    PREPARE INTERRUPT EXIT    IDDP2481
01E0 01 D4000143          STO  L  A17                                    IDDP2482
01E2 0  C151              LD    1 ADAPR+6-X                              IDDP2483
01E3 01 D400014E          STO  L  A18                                    IDDP2484
                     *-------------------------------------------------- IDDP2485
01E5 01 C400030F          LD   L  TM12         PREPARE GROUP NO.AND BITNO IDDP2486
01E7 01 D4000474          STO  L  TM132        FOR TYPEWRITER MESSAGE    IDDP2487
01E9 00 C400DFBE          LD   L  IDEN                                   IDDP2488
01EB 20 02255103          LIBF    BINDC                                  IDDP2489
01EC 1  0308              DC      OUTPT                                  IDDP2490
01ED 20 085935D9          LIBF    HOLPR                                  IDDP2491
01EE 0  0000              DC      /0000                                  IDDP2492
01EF 1  030C              DC      OUTPT+4                                IDDP2493
01F0 1  0472              DC      TM131                                  IDDP2494
01F1 0  0002              DC      2                                      IDDP2495
                     *-------------------------------------------------- IDDP2496
01F2 01 4C00013C          BSC  L  A13          INTERRUPT EXIT            IDDP2497
                     *-------------------------------------------------- IDDP2498
01F4 0  0000         A60  DC      *-*                                    IDDP2499
01F5 20 04262495          LIBF    DISKN        READ TABLE                IDDP2500
01F6 0  1000              DC      /1000                                  IDDP2501
01F7 0  DFFC              DC      SPEC-2                                 IDDP2502
01F8 0  0000              DC      0                                      IDDP2503
                     *-------------------------------------------------- IDDP2504
01F9 20 04262495     A61  LIBF    DISKN        TEST IF TABLE IS READ     IDDP2505
01FA 0  0100              DC      /0100                                  IDDP2506
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01FB 0  DFEC          DC      SPEC-2                                  IDUP2507
01FC 0  70EC          MDX     A61                                     IDUP2508
                *-------------------------------------------------    IDUP2509
01FD 00 6500FEC0      LDX   L1 -320                                   IDUP2510
01FF 00 C500E13E A81  LD    L1 SPEC+320                               IDUP2511
0201 0  180C          SRA     12                                      IDUP2512
0202 0  B224          CMP   2 IDEN-Y                                  IDUP2513
0203 0  7000          MDX     *                                       IDUP2514
0204 0  7001          MDX     A80                                     IDUP2515
0205 0  700B          MDX     A65       INTER.NO. AGREES WITH ID      IDUP2516
                *-------------------------------------------------    IDUP2517
0206 0  7102  A80     MDX   1 2                                       IDUP2518
0207 0  70F7          MDX     A81                                     IDUP2519
0208 01 650002D7      LDX   L1 X                                      IDUP2520
020A 01 4C800IF4      BSC   I  A60                                    IDUP2521
                *-------------------------------------------------    IDUP2522
020C 0  DFFE  A66     DC      SPEC                                    IDUP2523
020D 0  E3E6          DC      SPEC+1000                               IDUP2524
020E 0  0000  COUNT   DC      0         COUNTER FOR LINE FEED         IDUP2525
020F 0  0000  A68     DC      0         INDICATOR(1 FOR SPTB1,OTHER   IDUP2526
0210 0  000A  END     DC      10        WISE 0)                       IDUP2527
                *-------------------------------------------------    IDUP2528
0211 0  C224  A65     LD    2 IDEN-Y    EXPAND PACKED ID              IDUP2529
0212 0  D234          STO   2 SCAL-Y    INTER.NO                      IDUP2530
0213 00 CD00E13E      LDD   L1 SPEC+320                               IDUP2531
0215 00 BD00E13C      DCM   L1 SPEC+318                               IDUP2532
0217 0  7002          MDX     *+2                                     IDUP2533
0218 0  7001          MDX     *+1                                     IDUP2534
0219 0  70EC          MDX     A80                                     IDUP2535
021A 0  188C          SRT     12                                      IDUP2536
021B 0  1010          SLA     16                                      IDUP2537
021C 0  1084          SLT     4                                       IDUP2538
021D 0  D235          STO   2 SCAL+1-Y  1ST.EXPER. NO.                IDUP2539
021E 0  1010          SLA     16                                      IDUP2540
021F 0  1084          SLT     4                                       IDUP2541
0220 0  D236          STO   2 SCAL+2-Y  2ND.EXPER. NO.                IDUP2542
0221 0  1010          SLA     16                                      IDUP2543
0222 0  1088          SLT     8                                       IDUP2544
0223 0  D237          STO   2 SCAL+3-Y  SERIAL NUMBER                 IDUP2545
0224 00 CD00E13E      LDD   L1 SPEC+320                               IDUP2546
0226 0  1084          SLT     4                                       IDUP2547
0227 0  1010          SLA     16                                      IDUP2548
0228 0  1084          SLT     4                                       IDUP2549
0229 0  D238          STO   2 SCAL+4-Y  GROUP NO.4K OR 1.BLOCK        IDUP2550
022A 0  1084          SLT     4                                       IDUP2551
022B 0  1010          SLA     16                                      IDUP2552
022C 0  1084          SLT     4                                       IDUP2553
022D 0  D239          STO   2 SCAL+5-Y  NO.OF BLOCKS                 IDUP2554
                *-------------------------------------------------    IDUP2555
022E 30 03595271      CALL    CONI1     CONVERSION OF EXPANDED ID     IDUP2556
0230 0  DFCE          DC      SCAL      TO CARD CODE IN BUF           IDUP2557
0231 0  DD14          DC      BUF                                     IDUP2558
0232 0  0000  A112    DC      0                                       IDUP2559
0233 01 7401020E      MDX   L COUNT,1                                 IDUP2560
0235 0  C0D8          LD      COUNT                                   IDUP2561
0236 0  B0D9          CMP     END                                     IDUP2562
0237 0  7001          MDX     *+1                                     IDUP2563
0238 0  700E          MDX     A101      NO LINE FEED                  IDUP2564
                *-------------------------------------------------    IDUP2565
0239 0  1010          SLA     16        LINE FEED                     IDUP2566
023A 0  D0D3          STO     COUNT                                   IDUP2567
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023B 01 7400020F          MDX   L   A68,0                                  IDOP2568
023D 0  7005              MDX       A102                                   IDOP2569
023E 01 C40002C3          LD    L   LIFE                                   IDOP2570
0240 00 D400DD1B          STO   L   BUF+7                                  IDOP2571
0242 0  7004              MDX       A101                                   IDOP2572
                        *-------------------------------------------------- IDOP2573
0243 01 C40002C3  A102    LD    L   LIFE                                   IDOP2574
0245 00 D400DD1F          STO   L   BUF+11                                 IDOP2575
                        *-------------------------------------------------- IDOP2576
0247 01 7400020F  A101    MDX   L   A68,0                                  IDOP2577
0249 0  7003              MDX       A103        SMALL SPECTRUM             IDOP2578
024A 01 74080252          MDX   L   A69,8       4K SPECTRUM                IDOP2579
024C 0  7002              MDX       A104                                   IDOP2580
024D 01 740C0252  A103    MDX   L   A69,12                                 IDOP2581
                        *-------------------------------------------------- IDOP2582
024F 30 145A5140  A104    CALL      MOVE        STORE CARD CODE ID INTO    IDOP2583
0251 0  DD14              DC        BUF         SPEC+1000                  IDOP2584
0252 0  0000      A69     DC        *-*                                    IDOP2585
0253 0  0008              DC        8           = 12 FOR SPTB1             IDOP2586
0254 01 4C000206          BSC   L   A80         GO TO NEXT ID IN TABLE     IDOP2587
                        *-------------------------------------------------- IDOP2588
                        *                                                  IDOP2589
                        *                                                  IDOP2590
                        *                                                  IDOP2591
                        ************************************************** IDOP2592
                        *     MESSAGE DISK ROOM     OP.CODE 18           * IDOP2593
                        ************************************************** IDOP2594
0256 00 6600DF9A  OPC18 LDX   L2  Y           MESSAGE ABOUT AVAILABLE    IDOP2595
0258 30 145A5140          CALL      MOVE        DISK ROOM                  IDOP2596
025A 1  02A5              DC        ORIGI                                  IDOP2597
025B 0  DFBE              DC        IDEN                                   IDOP2598
025C 0  0007              DC        7                                      IDOP2599
                        *-------------------------------------------------- IDOP2600
025D 20 024C1552          LIBF      BLANK                                  IDOP2601
025E 0  DFCE              DC        SCAL                                   IDOP2602
025F 0  2030              DC        8240                                   IDOP2603
                        *-------------------------------------------------- IDOP2604
0260 0  C0F5              LD        OPC18       CREATE 1 OVERFLOW CHANNEL  IDOP2605
0261 00 D400E022          STO   L   IDEN+100                               IDOP2606
                        *-------------------------------------------------- IDOP2607
0263 30 14109892          CALL      MDISK       STORE SCRATCH SPECTRUM ON  IDOP2608
0265 0  DFBE              DC        IDEN        DISK                       IDOP2609
0266 1  0333              DC        ERRSW                                  IDOP2610
0267 0  DD14              DC        BUF                                    IDOP2611
0268 1  0308              DC        OUTPT                                  IDOP2612
                        *-------------------------------------------------- IDOP2613
0269 01 74000333          MDX   L   ERRSW                                  IDOP2614
026B 0  7012              MDX       A560                                   IDOP2615
026C 01 74010308          MDX   L   OUTPT,1                                IDOP2616
026E 01 7401030A          MDX   L   OUTPT+2,1                              IDOP2617
                        *-------------------------------------------------- IDOP2618
0270 0  6202              LDX   2   2                                      IDOP2619
0271 30 225E2643  A552    CALL      SPSRC       DELETE SCRATCH SPECTRUM    IDOP2620
0273 0  DFBE              DC        IDEN                                   IDOP2621
0274 0  DD14              DC        BUF                                    IDOP2622
0275 1  0305      A551    DC        ONE                                    IDOP2623
0276 1  02AC              DC        NRENT                                  IDOP2624
0277 1  0333              DC        ERRSW                                  IDOP2625
0278 1  0305              DC        ONE                                    IDOP2626
                        *-------------------------------------------------- IDOP2627
0279 0  C130              LD    1   AD3-X                                  IDOP2628
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027A 0  00FA          STO     A551                                    IDOP2629
027B 0  72FF          MDX   2 -1                                      IDOP2630
027C 0  70F4          MDX     A552                                    IDOP2631
027D 0  7002          MDX     A550                                    IDOP2632
                    *-------------------------------------------------IDOP2633
027E 0  1010  A560    SLA     16                                      IDOP2634
027F 0  0131          STO   1 OUTPT-X                                 IDOP2635
                    *-------------------------------------------------IDOP2636
0280 30 02243040  A550 CALL   BICA                                    IDOP2637
0282 1  0308          DC      OUTPT                                   IDOP2638
0283 1  0407          DC      AM21                                    IDOP2639
0284 0  0003          DC      3                                       IDOP2640
                    *-------------------------------------------------IDOP2641
0285 30 02243040      CALL    BICA                                    IDOP2642
0287 1  0309          DC      OUTPT+1                                 IDOP2643
0288 1  0410          DC      AM22                                    IDOP2644
0289 0  0003          DC      3                                       IDOP2645
                    *-------------------------------------------------IDOP2646
028A 30 02243040      CALL    BICA                                    IDOP2647
028C 1  030A          DC      OUTPT+2                                 IDOP2648
028D 1  041C          DC      AM23                                    IDOP2649
028E 0  0003          DC      3                                       IDOP2650
                    *-------------------------------------------------IDOP2651
028F 0  C14A          LD    1 ADTYP+7-X                               IDOP2652
0290 01 D4000143      STO   L A17                                     IDOP2653
0292 0  C152          LD    1 ADAPR+7-X                               IDOP2654
0293 01 D400014E      STO   L A18                                     IDOP2655
0295 0  C138          LD    1 TM12-X                                  IDOP2656
0296 01 D400047C      STO   L TM71                                    IDOP2657
0298 01 4C00013C      BSC   L A13           INT. EXIT                 IDOP2658
                    *-------------------------------------------------IDOP2659
029A 0  0000  A600    DC      *-*                                     IDOP2660
029B 20 040565C0      LIBF    DAOP          COMMAND RESET             IDOP2661
029C 0  1000          DC      /1000                                   IDOP2662
029D 1  0302          DC      RESET                                   IDOP2663
029E 0  0000          DC      0                                       IDOP2664
                    *-------------------------------------------------IDOP2665
029F 20 040565C0      LIBF    DAOP          INTERFACE COMMAND         IDOP2666
02A0 0  1000          DC      /1000                                   IDOP2667
02A1 1  02F8          DC      AREA3                                   IDOP2668
02A2 0  0000          DC      0                                       IDOP2669
02A3 01 4C80029A      BSC   I A600                                    IDOP2670
                    ***************************************************IDOP2671
02A5 0  000F  ORIGI   DC      15                                      IDOP2672
02A6 0  0009          DC      9                                       IDOP2673
02A7 0  0009          DC      9                                       IDOP2674
02A8 0  0063          DC      99                                      IDOP2675
02A9 0  0001          DC      1                                       IDOP2676
02AA 0  0010          DC      16                                      IDOP2677
02AB 0  0001          DC      1                                       IDOP2678
02AC    000C  NRENT   BSS     12                                      IDOP2679
02B8 0  FFFF          DC      -1                                      IDOP2680
02B9 0  0308  TH984   DC      984                                     IDOP2681
02BA 0  0000  ERIN    DC      *-*                                     IDOP2682
02BB 0  0000  BITNO   DC      *-*           INTERRUPT NO.             IDOP2683
02BC 31 225E3093  FILE1 DSA   SPTBL         4K-SPECTRA, 1.TABLE       IDOP2684
02BE            ORG     FILE1+2                                       IDOP2685
02BE 31 225E3CD3  FILE2 DSA   SPT3L         4K-SPECTRA, 2.TABLE       IDOP2686
02C1            ORG     FILE2+2                                       IDOP2687
02C0 31 225E30B1  FILE3 DSA   SPTB1         SMALL SPECTRA             IDOP2688
02C3            ORG     FILE3+2                                       IDOP2689
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02C2 0 0140  WC320 DC   320                                        IDOP2690
02C3 0 0300  LIFE  DC   /0300      LINE FEED                       IDOP2691
02C4 0 03E0  TH992 DC   992                                        IDOP2692
02C5 0 0000  COMP  DC   *-*                                        IDOP2693
             *-------------------------------------------------    IDOP2694
02C6 0 0000  MES1  DC   *-*                                        IDOP2695
02C7 0 007B        DC   123                                        IDOP2696
02C8 0 8010        DC   /8010      I                               IDOP2697
02C9 0 8200        DC   /8200      D                               IDOP2698
02CA 0 0000        DC   /0000                                      IDOP2699
02CB 0 2400        DC   /2400      T                               IDOP2700
02CC 0 9000        DC   /9000      A                               IDOP2701
02CD 0 8800        DC   /8800      B                               IDOP2702
02CE 0 4400        DC   /4400      L                               IDOP2703
02CF 0 8100        DC   /8100      E                               IDOP2704
02D0 0 0000        DC   /0000                                      IDOP2705
02D1 0 8040        DC   /8040      G                               IDOP2706
02D2 0 4010        DC   /4010      R                               IDOP2707
02D3 0 8420        DC   /8420      .                               IDOP2708
02D4 0 0000  MES11 DC   *-*                                        IDOP2709
02D5 0 0000        DC   *-*                                        IDOP2710
02D6 0 0300        DC   /0300      LINE FEED                       IDOP2711
             *-------------------------------------------------    IDOP2712
02D7 0 2800  MES2  DC   /2800      S                               IDOP2713
02D8 0 4200        DC   /4200      M                               IDOP2714
02D9 0 9000        DC   /9000      A                               IDOP2715
02DA 0 4400        DC   /4400      L                               IDOP2716
02DB 0 4400        DC   /4400      L                               IDOP2717
02DC 0 0000        DC   /0000                                      IDOP2718
02DD 0 2800        DC   /2800      S                               IDOP2719
02DE 0 4040        DC   /4040      P                               IDOP2720
02DF 0 8100        DC   /8100      E                               IDOP2721
02E0 0 8400        DC   /8400      C                               IDOP2722
02E1 0 2400        DC   /2400      T                               IDOP2723
02E2 0 4010        DC   /4010      R                               IDOP2724
02E3 0 9000        DC   /9000      A                               IDOP2725
02E4 0 0000        DC   /0000                                      IDOP2726
02E5 0 0300        DC   /0300      LINE FEED                       IDOP2727
             *-------------------------------------------------    IDOP2728
02E6 0 4100  MES3  DC   /4100      N                               IDOP2729
02E7 0 4080        DC   /4080      O                               IDOP2730
02E8 0 0000        DC   /0000                                      IDOP2731
02E9 0 8010        DC   /8010      I                               IDOP2732
02EA 0 8200        DC   /8200      D                               IDOP2733
02EB 0 0000        DC   /0000                                      IDOP2734
02EC 0 4080        DC   /4080      O                               IDOP2735
02ED 0 4100        DC   /4100      N                               IDOP2736
02EE 0 0000        DC   /0000                                      IDOP2737
02EF 0 8200        DC   /8200      D                               IDOP2738
02F0 0 8010        DC   /8010      I                               IDOP2739
02F1 0 2800        DC   /2800      S                               IDOP2740
02F2 0 4800        DC   /4800      K                               IDOP2741
02F3 0 0300        DC   /0300      LINE FEED                       IDOP2742
             *-------------------------------------------------    IDOP2743
02F4 0 0002  AREA2 DC   2                                          IDOP2744
02F5 0 007B        DC   123                                        IDOP2745
02F6 0 0000        DC   0                                          IDOP2746
02F7 0 4200  B8    DC   /4200      READ WORDS ON DC                IDOP2747
02F8 0 0002  AREA3 DC   2          AREA FOR INTERFACE COMMAND      IDOP2748
02F9 0 007C        DC   124                                        IDOP2749
02FA 0 0000        DC   *-*        COMMAND                         IDOP2750
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02FB  0  DFD0          AB1    DC       -8240                                    IDOP2751
02FC  0  002E          AB2    DC       SPEC+8240                                IDOP2752
02FD  0  DD44          AB3    DC       SPEC1+8240                               IDOP2753
02FE  0  0003          MNPC   DC       3          MAX.NO.OF PAR.CHECKS          IDOP2754
02FF  0  0000          NPC    DC       *-*        COUNTER NO.OF PAR.CHECKS      IDOP2755
0300  0  0021          WC33   DC       33         WORD COUNT                    IDOP2756
0301  0  0043          AD67   DC       67         ADDRESS OF DIGITAL INPUT      IDOP2757
0302  0  0002          RESET  DC       2          RESET COMMAND OUTPUT          IDOP2758
0303  0  007C                 DC       124                                      IDOP2759
0304  0  0000                 DC       0          COMMAND=0                     IDOP2760
0305  0  0001          ONE    DC       1                                        IDOP2761
0306  0  0002          TWO    DC       2                                        IDOP2762
0307  1  0306          AD3    DC       TWO                                      IDOP2763
0308     0006          OUTPT  BSS   E   6                                        IDOP2764
030E  0  1400          B1     DC       /1400      PRINT ALPHAMERIC ON INTER-    IDOP2765
                       *                          FACE TYPEWRITER               IDOP2766
030F  0  0000          TM12   DC       *-*                                      IDOP2767
0310  0  B000          B15    DC       /B000      END OF INTERRUPT              IDOP2768
0311  0  000A          TEN    DC       10                                       IDOP2769
0312  0  0FFF          LIMIT  DC       4095                                     IDOP2770
0313  0  0000          ZERO   DC       0                                        IDOP2771
0314  0  0000          LCN    DC       *-*        LOWER CHANNEL NUMBER          IDOP2772
0315  0  0000          UCN    DC       *-*        UPPER CHANNEL NUMBER          IDOP2773
0316  0  000C          TWELF  DC       12                                       IDOP2774
0318  00 00000000      NULL   DEC      0                                        IDOP2775
031A  1  0439          ADTYP  DC       TM5-1      ADDRESSES OF TYPEWRITER       IDOP2776
031B  1  0448                 DC       TM9-1                                    IDOP2777
031C  1  0426                 DC       TM310-1                                  IDOP2778
031D  1  0434                 DC       TM33-1                                   IDOP2779
031E  1  0454                 DC       TM27-1                                   IDOP2780
031F  1  0464                 DC       TM29-1                                   IDOP2781
0320  1  046A                 DC       TM13-1                                   IDOP2782
0321  1  0475                 DC       TM7-1                                    IDOP2783
0322  1  03C0          ADAPR  DC       AM3        ADDRESSES OF INTERFACE        IDOP2784
0323  1  03D2                 DC       AM5                                      IDOP2785
0324  1  039F                 DC       AM111                                    IDOP2786
0325  1  03B2                 DC       AM12                                     IDOP2787
0326  1  033D                 DC       AM14                                     IDOP2788
0327  1  03E3                 DC       AM10                                     IDOP2789
0328  0  E3D5                 DC       SPEC+983                                 IDOP2790
0329  1  0405                 DC       AM2                                      IDOP2791
032A  1  0177          PRG15  DC       OPC15      DISK  MAP                     IDOP2792
032B  1  001D          PRG16  DC       OPC16      SUM OF SPECTRA                IDOP2793
032C  1  00C4          PRG17  DC       OPC17      MULTIPLICATION                IDOP2794
032D  1  0256          PRG18  DC       OPC18      MESSAGE DISK ROOM             IDOP2795
032E  1  0015          PRG19  DC       OPC19      SUM OF SPECTRA                IDOP2796
032F  1  0331          PRG20  DC       OPC20      NOT USED                      IDOP2797
0330  0  0FFF          AND1   DC       /0FFF                                    IDOP2798
0331  01 4C000154      OPC20  BSC   L   A273                                     IDOP2799
0333  0  0000          ERRSW  DC       *-*                                      IDOP2800
0334  0  0005          FIVE   DC       5                                        IDOP2801
0335  0  0000          IND2   DC       0                                        IDOP2802
0336  0  9D00          SUB    DC       /9D00                                    IDOP2803
0337  0  8D00          ADD    DC       /8D00                                    IDOP2804
0338  0  80A0          APLUS  DC       /80A0      CARD CODE +SIGN               IDOP2805
0339  0  4000          AMIN   DC       /4000      CARD CODE -SIGN               IDOP2806
033A  0  00A0          EQUAL  DC       /00A0      CARD CODE =SIGN               IDOP2807
033B  0  0010          HEXD   DC       16                                       IDOP2808
DF9A                   Y      EQU      WCOUT                                    IDOP2809
02D7                   X      EQU      MES2                                     IDOP2810
033C  1  033F          AM014  DC       AM141                                    IDOP2811
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033D 1 033D AM14   DC    AM14                                    IDOP2812
033E 0 007B        DC    123                                     IDOP2813
033F   0060 AM141  BSS   96                                      IDOP2814
*****************************************************************IDOP2815
039F 0 0012 AM111  DC    18                                      IDOP2816
03A0 0 007B        DC    123                                     IDOP2817
03A1 0 0900        DC    /0900     RED                           IDOP2818
03A2 0 8010        DC    /8010     I                             IDOP2819
03A3 0 8200        DC    /8200     D                             IDOP2820
03A4 0 0000        DC    /0000                                   IDOP2821
03A5 0 9000        DC    /9000     A                             IDOP2822
03A6 0 4400        DC    /4400     L                             IDOP2823
03A7 0 4010        DC    /4010     R                             IDOP2824
03A8 0 8100        DC    /8100     E                             IDOP2825
03A9 0 9000        DC    /9000     A                             IDOP2826
03AA 0 8200        DC    /8200     D                             IDOP2827
03AB 0 2020        DC    /2020     Y                             IDOP2828
03AC 0 0000        DC    /0000                                   IDOP2829
03AD 0 2200        DC    /2200     U                             IDOP2830
03AE 0 2800        DC    /2800     S                             IDOP2831
03AF 0 8100        DC    /8100     E                             IDOP2832
03B0 0 8200        DC    /8200     D                             IDOP2833
03B1 0 0500        DC    /0500     BLACK                         IDOP2834
*---------------------------------------------------------------IDOP2835
03B2 0 000D AM12   DC    13                                      IDOP2836
03B3 0 007B        DC    123                                     IDOP2837
03B4 0 0900        DC    /0900     RED                           IDOP2838
03B5 0 4100        DC    /4100     N                             IDOP2839
03B6 0 4080        DC    /4080     O                             IDOP2840
03B7 0 0000        DC    /0000                                   IDOP2841
03B8 0 2800        DC    /2800     S                             IDOP2842
03B9 0 2400        DC    /2400     T                             IDOP2843
03BA 0 4080        DC    /4080     O                             IDOP2844
03BB 0 4010        DC    /4010     R                             IDOP2845
03BC 0 9000        DC    /9000     A                             IDOP2846
03BD 0 8040        DC    /8040     G                             IDOP2847
03BE 0 8100        DC    /8100     E                             IDOP2848
03BF 0 0500        DC    /0500     BLACK                         IDOP2849
*---------------------------------------------------------------IDOP2850
03C0 0 0011 AM3    DC    17                                      IDOP2851
03C1 0 007B        DC    123                                     IDOP2852
03C2 0 0900        DC    /0900     RED                           IDOP2853
03C3 0 8010        DC    /8010     I                             IDOP2854
03C4 0 8200        DC    /8200     D                             IDOP2855
03C5 0 0000        DC    /0000                                   IDOP2856
03C6 0 4100        DC    /4100     N                             IDOP2857
03C7 0 4080        DC    /4080     O                             IDOP2858
03C8 0 2400        DC    /2400     T                             IDOP2859
03C9 0 0000        DC    /0000                                   IDOP2860
03CA 0 4080        DC    /4080     O                             IDOP2861
03CB 0 4100        DC    /4100     N                             IDOP2862
03CC 0 0000        DC    /0000                                   IDOP2863
03CD 0 8200        DC    /8200     D                             IDOP2864
03CE 0 8010        DC    /8010     I                             IDOP2865
03CF 0 2800        DC    /2800     S                             IDOP2866
03D0 0 4800        DC    /4800     K                             IDOP2867
03D1 0 0500        DC    /0500     BLACK                         IDOP2868
*---------------------------------------------------------------IDOP2869
03D2 0 0010 AM5    DC    16                                      IDOP2870
03D3 0 007B        DC    123                                     IDOP2871
03D4 0 0900        DC    /0900     RED                           IDOP2872
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03D5 0  8400          DC      /8400       C                    IDOP2873
03D6 0  8020          DC      /8020       H                    IDOP2874
03D7 0  8100          DC      /8100       E                    IDOP2875
03D8 0  8400          DC      /8400       C                    IDOP2876
03D9 0  4800          DC      /4800       K                    IDOP2877
03DA 0  0000          DC      /0000                            IDOP2878
03DB 0  8040          DC      /8040       G                    IDOP2879
03DC 0  4010          DC      /4010       R                    IDOP2880
03DD 0  8420          DC      /8420       .                    IDOP2881
03DE 0  0000          DC      /0000                            IDOP2882
03DF 0  4100          DC      /4100       N                    IDOP2883
03E0 0  4080          DC      /4080       O                    IDOP2884
03E1 0  8420          DC      /8420       .                    IDOP2885
03E2 0  0500          DC      /0500       BLACK                IDOP2886
                    *-------------------------------------------IDOP2887
03E3 0  0021  AM10    DC      33                               IDOP2888
03E4 0  007B          DC      123                              IDOP2889
03E5    0007  AM101   BSS     7           OLD ID               IDOP2890
03EC 0  0000          DC      /0000                            IDOP2891
03ED 0  4220          DC      /4220       *                    IDOP2892
03EE 0  0000          DC      /0000                            IDOP2893
03EF    000C  AM102   BSS     12          MULTIPLIER           IDOP2894
03FB 0  0000          DC      /0000                            IDOP2895
03FC 0  00AD          DC      /00AD       =                    IDOP2896
03FD 0  0000          DC      /0000                            IDOP2897
03FE    0007  AM103   BSS     7           NEW ID               IDOP2898
                    *-------------------------------------------IDOP2899
0405 0  0020  AM2     DC      32                               IDOP2900
0406 0  007B          DC      123                              IDOP2901
0407 0  0000  AM21    DC      *-*         NO. OF 4K-SPECTRA    IDOP2902
0408 0  0000          DC      *-*                              IDOP2903
0409 0  0000          DC      *-*                              IDOP2904
040A 0  0000          DC      /0000                            IDOP2905
040B 0  0000          DC      /0000                            IDOP2906
040C 0  0200          DC      /0200       4                    IDOP2907
040D 0  4800          DC      /4800       K                    IDOP2908
040E 0  2420          DC      /2420       COMMA                IDOP2909
040F 0  0000          DC      /0000                            IDOP2910
0410 0  0000  AM22    DC      *-*         NO. OF SECTORS       IDOP2911
0411 0  0000          DC      *-*         FOR SMALL SPECTRA    IDOP2912
0412 0  0000          DC      *-*                              IDOP2913
0413 0  0000          DC      /0000                            IDOP2914
0414 0  2800          DC      /2800       S                    IDOP2915
0415 0  4200          DC      /4200       M                    IDOP2916
0416 0  8420          DC      /8420       .                    IDOP2917
0417 0  2800          DC      /2800       S                    IDOP2918
0418 0  4040          DC      /4040       P                    IDOP2919
0419 0  8420          DC      /8420       .                    IDOP2920
041A 0  2420          DC      /2420       COMMA                IDOP2921
041B 0  0000          DC      /0000                            IDOP2922
041C 0  0000  AM23    DC      *-*         NO. OF SECTORS FOR OVER- IDOP2923
041D 0  0000          DC      *-*         FLOW CHANNELS        IDOP2924
041E 0  0000          DC      *-*                              IDOP2925
041F 0  0000          DC      /0000                            IDOP2926
0420 0  4080          DC      /4080       U                    IDOP2927
0421 0  2100          DC      /2100       V                    IDOP2928
0422 0  8420          DC      /8420       .                    IDOP2929
0423 0  8400          DC      /8400       C                    IDOP2930
0424 0  8020          DC      /8020       H                    IDOP2931
0425 0  8420          DC      /8420       .                    IDOP2932
                    ********************************************IDOP2933
```

```
0426 0  0000          DC      TM32-TM310                                      IDOP2934
0427    0018  TM310    DMES    'R'ASUM NOT STORED ,SUM,A'E                     IDOP2935
0433 0  0000  TM311    DC      *-*             BITNO                           IDOP2936
0434    0000  TM32     BES     0                                               IDOP2937
              *-------------------------------------------------------------- IDOP2938
0434 0  0004          DC      TM34-TM33                                       IDOP2939
0435    0006  TM33     DMES    'RSUM,A'E                                       IDOP2940
0438 0  0000  TM331    DC      *-*             BITNO                           IDOP2941
0439    0000  TM34     BES     0                                               IDOP2942
              *-------------------------------------------------------------- IDOP2943
0439 0  000E          DC      TM6-TM5                                         IDOP2944
043A    001A  TM5      DMES    'R'AID NOT ON DISK,INTEG.,A'E                   IDOP2945
0447 0  0000  TM51     DC      *-*             BITNO                           IDOP2946
0448    0000  TM6      BES     0                                               IDOP2947
              *-------------------------------------------------------------- IDOP2948
0448 0  000B          DC      TM10-TM9                                        IDOP2949
0449    0014  TM9      DMES    'R'AERROR GROUP NO.,A'E                         IDOP2950
0453 0  0000  TM91     DC      *-*             BITNO                           IDOP2951
0454    0000  TM10     BES     0                                               IDOP2952
              *-------------------------------------------------------------- IDOP2953
0454 0  000F          DC      TM28-TM27                                       IDOP2954
0455    001C  TM27     DMES    'R'ASPECTR. NOT STORED,MULT.,A'E                IDOP2955
0463 0  0000  TM271    DC      *-*             BITNO                           IDOP2956
0464    0000  TM28     BES     0                                               IDOP2957
              *-------------------------------------------------------------- IDOP2958
0464 0  0005          DC      TM30-TM29                                       IDOP2959
0465    0008  TM29     DMES    'RMULT.,A'E                                     IDOP2960
0469 0  0000  TM291    DC      *-*             BITNO                           IDOP2961
046A    0000  TM30     BES     0                                               IDOP2962
              *-------------------------------------------------------------- IDOP2963
046A 0  000A          DC      TM14-TM13                                       IDOP2964
046B    000E  TM13     DMES     'RID'S FOR GR. 'E                              IDOP2965
0472 0  0000  TM131    DC      *-*             GROUP NO.(INTER.NO.OF ID)       IDOP2966
0473    0002          DMES    ,A'E                                            IDOP2967
0474 0  0000  TM132    DC      *-*             BITNO                           IDOP2968
0475    0000  TM14     BES     0                                               IDOP2969
              *-------------------------------------------------------------- IDOP2970
0475 0  0007          DC      TM8-TM7                                         IDOP2971
0476    000C  TM7      DMES    'RDISK ROOM,A'E                                 IDOP2972
047C 0  0000  TM71     DC      *-*             BITNO                           IDOP2973
047D    0000  TM8      BES     0                                               IDOP2974
              *-------------------------------------------------------------- IDOP2975
0470 0  0005          DC      TM101-TM100                                     IDOP2976
047E    0004  TM100    DMES    'B'2X'E                                         IDOP2977
0480    0003  TM102    BSS     3               TIME                            IDOP2978
0483    0000  TM101    BES     0                                               IDOP2979
              ********************************************************** IDOP2980
0484                  END                                                     IDOP2981
```

NO ERRORS IN ABOVE ASSEMBLY.
IDOP2
DUP FUNCTION COMPLETED

```
0000    091165F3          ENT     IDDP3                                  IDDP3002
                          ***************************************************IDDP3003
                          *     ADDRESS ASSIGNMENT FOR COMMON               IDDP3004
                          ***************************************************IDDP3005
DFFE                      SPEC  EQU     -8194                              IDDP3006
DFCE                      SCAL  EQU     -8242                              IDDP3007
DFBE                      IDEN  EQU     -8258                              IDDP3008
DFBC                      TABLE EQU     -8260                              IDDP3009
DF9C                      WORDS EQU     -8292                              IDDP3010
DF9A                      WCOUT EQU     -8294                              IDDP3011
DD14                      BUF   EQU     -8940                              IDDP3012
                          ***************************************************IDDP3013
```

```
                                                                                IDOP3015
0000 0  0000        IDOP3 DC      *-*                                           IDOP3016
0001 01 65800000          LDX   I1 IDOP3                                        IDOP3017
0003 0  C100              LD     1 0                                            IDOP3018
0004 0  0001              STO      *+1                                          IDOP3019
0005 00 66800000          LDX   I2 *-*          OP-CODE INTO XR2               IDOP3020
0007 00 C5800001          LD    I1 1                                            IDOP3021
0009 01 650002AA          LDX   L1 X                                            IDOP3022
000B 0  D1D4              STO    1 BITNO-X      STORE BITNO                    IDOP3023
                    *-------------------------------------------------------- IDOP3024
000C 20 02255103          LIBF     BINDC                                        IDOP3025
000D 1  02A4              DC       OUTPT                                        IDOP3026
000E 20 0859350D          LIBF     HOLPR                                        IDOP3027
000F 0  0000              DC       /0000                                        IDOP3028
0010 1  02A8              DC       OUTPT+4                                      IDOP3029
0011 1  0283              DC       TM12                                         IDOP3030
0012 0  0002              DC       2                                            IDOP3031
                    *-------------------------------------------------------- IDOP3032
0013 01 4E800289          BSC   I2 PRG21-21     BRANCH TO DIFFER. OP-CODES     IDOP3033
                    *-------------------------------------------------------- IDOP3034
                    *                                                         IDOP3035
                    *                                                         IDOP3036
                    *                                                         IDOP3037
                    ********************************************************* IDOP3038
                    *     ACCORDEON      OP.CODE 24                         * IDOP3039
                    ********************************************************* IDOP3040
0015 00 6600DF9A    OPC24 LDX   L2 Y              COMPRESS OR EXTEND SPECTR.  IDOP3041
0017 30 04143244          CALL     DECID          CONVERSION OF ID            IDOP3042
0019 0  DF9C              DC       WORDS                                        IDOP3043
001A 0  DFBE              DC       IDEN                                         IDOP3044
001B 1  02B0              DC       ERIN                                         IDOP3045
                    *-------------------------------------------------------- IDOP3046
001C 01 740002B0          MDX   L  ERIN,0                                       IDOP3047
001E 0  7001              MDX      A700                                         IDOP3048
001F 0  7002              MDX      A701                                         IDOP3049
                    *-------------------------------------------------------- IDOP3050
0020 01 4C000242    A700  BSC   L  A50            GROUP NO. IN ERROR          IDOP3051
0022 0  C218        A701  LD     2 WORDS+22-Y     SET INDICATOR FOR COMPRESS  IDOP3052
0023 0  4810              BSC      -              ION OR EXTENSION            IDOP3053
0024 0  7002              MDX      A702           EXTENSION                   IDOP3054
0025 01 740102B4          MDX   L  IND2,1         COMPRESSION                 IDOP3055
                    *-------------------------------------------------------- IDOP3056
0027 30 041430A8    A702  CALL     DECBY          BCD-BINARY CONVERSION OF    IDOP3057
0029 0  DFB2              DC       WORDS+22       FACTOR FOR COMPRESSION OR   IDOP3058
002A 0  0001              DC       1              EXTENSION                   IDOP3059
                    *-------------------------------------------------------- IDOP3060
002B 30 02243040          CALL     BICA           CONVERT FACTOR TO CARD      IDOP3061
002D 0  DFB3              DC       WORDS+23       CODE                        IDOP3062
002E 1  037C              DC       AM92                                       IDOP3063
002F 0  0001              DC       1                                          IDOP3064
                    *-------------------------------------------------------- IDOP3065
0030 0  C219              LD     2 WORDS+23-Y     CHECK FACTOR                IDOP3066
0031 0  B11E              CMP    1 FOUR-X                                     IDOP3067
0032 0  7006              MDX      A703           ERROR FACTOR                IDOP3068
0033 0  7001              MDX      A704                                       IDOP3069
0034 0  700F              MDX      A705                                       IDOP3070
0035 0  B105        A704  CMP    1 TWO-X                                      IDOP3071
0036 0  7002              MDX      A703                                       IDOP3072
0037 0  7001              MDX      A703                                       IDOP3073
0038 0  700B              MDX      A705           FACTOR EQUAL 2 OR 4         IDOP3074
                    *-------------------------------------------------------- IDOP3075
```

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0039 0  C1E0      A703  LD    1 ADAPR+6-X  MESSAGE *CHECK PRESET*      IDOP3076
003A 01 D400025F        STO   L A18                                    IDOP3077
003C 0  C1EA      A706  LD    1 ADTYP+6-X                              IDOP3078
003D 01 D4000254        STO   L A17                                    IDOP3079
003F 0  C1D9            LD    1 TM12-X                                 IDOP3080
0040 01 D4000403        STO   L TM131                                  IDOP3081
0042 01 4C00024E        BSC   L A13                                    IDOP3082
                  *-------------------------------------------------- IDOP3083
0044 30 04262494  A705  CALL    DISKM      READ SPECTRUM FROM DISK     IDOP3084
0046 0  DFBE            DC      IDEN                                   IDOP3085
0047 1  02B0            DC      ERIN                                   IDOP3086
0048 0  DD14            DC      BUF                                    IDOP3087
0049 0  DFBE            DC      IDEN                                   IDOP3088
004A 1  02B3            DC      ZERO       SPECTRUM SAVED              IDOP3089
                  *-------------------------------------------------- IDOP3090
004B 01 740002B0        MDX   L ERIN,0                                 IDOP3091
004D 0  7001            MDX     A707       SPECTRUM NOT FOUND          IDOP3092
004E 0  7002            MDX     A708       SPECTRUM FOUND              IDOP3093
                  *-------------------------------------------------- IDOP3094
004F 01 4C0001D8  A707  BSC   L A604                                   IDOP3095
                  *-------------------------------------------------- IDOP3096
0051 01 740002B4  A708  MDX   L IND2,0                                 IDOP3097
0053 0  7001            MDX     A710       COMPRESSION                 IDOP3098
0054 0  7026            MDX     A720       EXTENSION                   IDOP3099
                  *-------------------------------------------------- IDOP3100
0055 00 74FEDFB3  A710  MDX   I WORDS+23,-2                            IDOP3101
0057 0  700A            MDX     A712       FACTOR = 4                  IDOP3102
                  *-------------------------------------------------- IDOP3103
0058 0  C11F      A711  LD    1 C2048-X    MODIFY PROGRAM FOR          IDOP3104
0059 0  D009            STO     A712+1     FACTOR = 2                  IDOP3105
005A 0  C01D            LD      MDX                                    IDOP3106
005B 0  D012            STO     A713                                   IDOP3107
005C 0  C01C            LD      MDXX                                   IDOP3108
005D 0  D00C            STO     A715                                   IDOP3109
005E 0  C126            LD    1 BSPEC-X                                IDOP3110
005F 0  D015            STO     A735                                   IDOP3111
0060 0  C108            LD    1 C4096-X                                IDOP3112
0061 0  D014            STO     A736                                   IDOP3113
                  *-------------------------------------------------- IDOP3114
0062 00 66000400  A712  LDX   L2 1024                                  IDOP3115
0064 00 6500DFFE        LDX   L1 SPEC                                  IDOP3116
0066 00 6700DFFE        LDX   L3 SPEC                                  IDOP3117
                  *-------------------------------------------------- IDOP3118
0068 0  C900      A716  LDD   1 0                                      IDOP3119
0069 0  8902            AD    1 2                                      IDOP3120
006A 0  7000      A715  MDX     *                                      IDOP3121
006B 0  8904            AD    1 4                                      IDOP3122
006C 0  8906            AD    1 6                                      IDOP3123
006D 0  DB00      A714  STD   3 0                                      IDOP3124
                  *-------------------------------------------------- IDOP3125
006E 0  7108      A713  MDX   1 8                                      IDOP3126
006F 0  7302            MDX   3 2                                      IDOP3127
0070 0  72FF            MDX   2 -1                                     IDOP3128
0071 0  70F6            MDX     A716                                   IDOP3129
0072 00 67800067        LDX   I3 103                                   IDOP3130
0074 20 024C1552        LIBF    BLANK                                  IDOP3131
0075 0  E7FE      A735  DC      SPEC+2048                              IDOP3132
0076 0  1800      A736  DC      6144                                   IDOP3133
0077 0  7034            MDX     A750       STORE MODIFIED SPECTRUM     IDOP3134
                  *-------------------------------------------------- IDOP3135
0078 0  7104      MDX   MDX   1 4                                      IDOP3136
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0079 0  7002          MDXX  MDX      *+2                                        IDOP3137
007A 0  73FC          MDXXX MDX    3 -4                                       IDOP3138
                      *-------------------------------------------------------- IDOP3139
007B 00 74FEDFB3      A720  MDX  I  WORDS+23,-2                                 IDOP3140
007D 0  700A                MDX     A722          FACTOR = 4                   IDOP3141
                      *-------------------------------------------------------- IDOP3142
007E 0  C11F          A721  LD     1 C2048-X       MODIFY PROGRAM FOR           IDOP3143
007F 0  D00D                STO      A723+1        FACTOR = 2                   IDOP3144
0080 0  C125                LD     1 ASPEC-X                                   IDOP3145
0081 0  D00D                STO      A728+1                                     IDOP3146
0082 0  C0F6                LD       MDXX                                       IDOP3147
0083 0  D01D                STO      A729                                       IDOP3148
0084 0  C124                LD     1 ADFLO-X                                   IDOP3149
0085 0  D013                STO      A730                                       IDOP3150
0086 0  C0F3                LD       MDXXX                                      IDOP3151
0087 0  D01D                STO      A725                                       IDOP3152
                      *-------------------------------------------------------- IDOP3153
0088 30 141938C0      A722  CALL     MFLT          CONVERSION OF CHANNELS       IDOP3154
008A 0  DFFE                DC       SPEC          FROM BINARY TO FLOATING      IDOP3155
008B 1  02C9                DC       C2048         POINT                        IDOP3156
                      *-------------------------------------------------------- IDOP3157
008C 00 66000400      A723  LDX  L2 1024                                        IDOP3158
008E 00 6500E7FC      A728  LDX  L1 SPEC+2046                                   IDOP3159
0090 00 6700FFFC            LDX  L3 SPEC+8190                                   IDOP3160
                      *-------------------------------------------------------- IDOP3161
0092 01 6F00009D      A726  STX  L3 A731+1                                      IDOP3162
0094 00 67800067            LDX  I3 103                                         IDOP3163
0096 20 064C49C0            LIBF    FLDX          DIVIDE CHANNEL CONTENTS      IDOP3164
0097 0  0000                DC      0             BY 2 OR 4                    IDOP3165
0098 20 06109940            LIBF    FDIV                                       IDOP3166
0099 1  02CA          A730  DC      FLOA1                                      IDOP3167
009A 20 068A35A7            LIBF    FSTOX                                      IDOP3168
009B 0  0000                DC      0                                          IDOP3169
009C 00 67000000      A731  LDX  L3 *-*                                        IDOP3170
                      *-------------------------------------------------------- IDOP3171
009E 0  C900                LDD  1 0                                           IDOP3172
009F 0  DB00                STD  3 0                                           IDOP3173
00A0 0  DBFE                STD  3 -2                                          IDOP3174
00A1 0  7000          A729  MDX    *                                          IDOP3175
00A2 0  DBFC                STD  3 -4                                          IDOP3176
00A3 0  DBFA                STD  3 -6                                          IDOP3177
00A4 0  71FE          A724  MDX  1 -2                                          IDOP3178
00A5 0  73F8          A725  MDX  3 -8                                          IDOP3179
00A6 0  72FF                MDX  2 -1                                          IDOP3180
00A7 0  70EA                MDX     A726                                       IDOP3181
                      *-------------------------------------------------------- IDOP3182
00A8 30 142558C0      A727  CALL     MINT          CONVERSION OF CHANNELS       IDOP3183
00AA 0  DFFE                DC       SPEC          FROM FLOATING POINT TO       IDOP3184
00AB 1  02B2                DC       C4096         DOUBLE WORD BINARY           IDOP3185
                      *-------------------------------------------------------- IDOP3186
00AC 00 67800067      A750  LDX  I3 103           RESTORE INDEX REGISTERS      IDOP3187
00AE 01 650002AA            LDX  L1 X                                          IDOP3188
00B0 00 6600DF9A            LDX  L2 Y                                          IDOP3189
                      *-------------------------------------------------------- IDOP3190
00B2 30 04143244            CALL    DECID         CONVERSION OF ID FOR MO-     IDOP3191
00B4 0  DFB0                DC      WORDS+20      DIFIED SPECTRUM              IDOP3192
00B5 0  DD14                DC      BUF                                        IDOP3193
00B6 1  02B0                DC      ERIN                                       IDOP3194
                      *-------------------------------------------------------- IDOP3195
00B7 30 03595244            CALL    CONID         CONVERSION OF OLD ID TO      IDOP3196
00B9 0  DFBE                DC      IDEN          CARD CODE                    IDOP3197
```

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00BA 1  036D                    DC      AM91                                    IDDP3198
                        *-------------------------------------------------------IDDP3199
00BB 30 145A5140                CALL    MOVE                                    IDDP3200
00BD 0  DD15                    DC      BUF+1                                   IDDP3201
00BE 0  DFBF                    DC      IDEN+1                                  IDDP3202
00BF 0  0003                    DC      3                                       IDDP3203
                        *-------------------------------------------------------IDDP3204
00C0 30 03595244                CALL    CONID           CONVERSION OF NEW ID TO IDDP3205
00C2 0  DFBE                    DC      IDEN            CARD CODE               IDDP3206
00C3 1  037F                    DC      AM93                                    IDDP3207
                        *-------------------------------------------------------IDDP3208
00C4 30 14109892                CALL    MDISK                                   IDDP3209
00C6 0  DFBE                    DC      IDEN                                    IDDP3210
00C7 1  02B0                    DC      ERIN                                    IDDP3211
00C8 0  DD14                    DC      BUF                                     IDDP3212
00C9 1  02A4                    DC      OUTPT                                   IDDP3213
                        *-------------------------------------------------------IDDP3214
00CA 01 740002B0                MDX   L ERIN,0                                  IDDP3215
00CC 0  7001                    MDX     A751                                    IDDP3216
00CD 0  700E                    MDX     A755            NO ERRORS               IDDP3217
                        *-------------------------------------------------------IDDP3218
00CE 0  C106            A751    LD    1 ERIN-X                                  IDDP3219
00CF 0  B11D                    CMP   1 FIVE-X                                  IDDP3220
00D0 0  7000                    MDX     *                                       IDDP3221
00D1 0  7005                    MDX     A752                                    IDDP3222
00D2 0  C1E2                    LD    1 ADAPR+8-X       MESSAGE *SAME ID ALREADYIDDP3223
00D3 01 D400025F                STO   L A18             USED*                   IDDP3224
00D5 01 4C00003C                BSC   L A706            INTERRUPT EXIT          IDDP3225
                        *-------------------------------------------------------IDDP3226
00D7 0  C1E3            A752    LD    1 ADAPR+9-X       MESSAGE *NO MORE STORAGE*IDDP3227
00D8 01 D400025F                STO   L A18                                     IDDP3228
00DA 01 4C00003C                BSC   L A706            INTERRUPT EXIT          IDDP3229
                        *-------------------------------------------------------IDDP3230
00DC 01 740002B4        A755    MDX   L IND2,0                                  IDDP3231
00DE 0  7005                    MDX     A756            COMPRESSION             IDDP3232
00DF 30 145A5140                CALL    MOVE            EXTENSION               IDDP3233
00E1 1  02D1                    DC      AM94                                    IDDP3234
00E2 1  0375                    DC      AM95                                    IDDP3235
00E3 0  0006                    DC      6                                       IDDP3236
                        *-------------------------------------------------------IDDP3237
00E4 0  C1E1            A756    LD    1 ADAPR+7-X                               IDDP3238
00E5 01 D400025F                STO   L A18                                     IDDP3239
00E7 01 4C00003C                BSC   L A706            INTERRUPT EXIT          IDDP3240
                        *-------------------------------------------------------IDDP3241
                        *                                                       IDDP3242
                        *                                                       IDDP3243
                        *                                                       IDDP3244
                        *********************************************************IDDP3245
                        *       DELETE ORDERS       OP.CODE 25                *IDDP3246
                        *********************************************************IDDP3247
00E9 30 04143244        OPC25   CALL    DECID           CONVERSION OF ANALYSER IDIDDP3248
00EB 0  DF9C                    DC      WORDS           TO BINARY WORDS         IDDP3249
00EC 1  02B5                    DC      ID1                                     IDDP3250
00ED 1  02B0                    DC      ERIN                                    IDDP3251
                        *-------------------------------------------------------IDDP3252
00EE 0  C91A                    LDD   1 FILE-X          READ ORDER FILE FROM DISKIDDP3253
00EF 00 DC00DFBC                STD   L TABLE                                   IDDP3254
                        *-------------------------------------------------------IDDP3255
00F1 20 04262495                LIBF    DISKN                                   IDDP3256
00F2 0  1000                    DC      /1000                                   IDDP3257
00F3 0  DFBC                    DC      TABLE                                   IDDP3258
```

```
00F4 0  0000                DC      0                                                   IDOP3259
                    *-------------------------------------------------------------------- IDOP3260
00F5 20 04262495    A100    LIBF    DISKN       TEST IF ORDER FILE IS READ              IDOP3261
00F6 0  0100                DC      /0100                                               IDOP3262
00F7 0  DFBC                DC      TABLE                                               IDOP3263
00F8 0  70FC                MDX     A100                                                IDOP3264
                    *-------------------------------------------------------------------- IDOP3265
00F9 00 6680E0F4            LDX   I2 IDEN+310     NO.OF ORDERS INTO XR2                 IDOP3266
00FB 30 145A5140    A101    CALL    MOVE        READ ONE ID FROM ORDER                  IDOP3267
00FD 0  DFBE        A102    DC      IDEN        FILE INTO ID2                           IDOP3268
00FE 1  02BA                DC      ID2                                                 IDOP3269
00FF 0  000A                DC      10                                                  IDOP3270
                    *-------------------------------------------------------------------- IDOP3271
0100 0  C110                LD    1 ID2-X         FIND ID IN ORDER FILE                 IDOP3272
0101 0  B10B                CMP   1 ID1-X                                               IDOP3273
0102 0  7000                MDX     *                                                   IDOP3274
0103 0  7016                MDX     A200                                                IDOP3275
0104 0  C111                LD    1 ID2+1-X                                             IDOP3276
0105 0  B10C                CMP   1 ID1+1-X                                             IDOP3277
0106 0  7000                MDX     *                                                   IDOP3278
0107 0  7012                MDX     A200                                                IDOP3279
0108 0  C112                LD    1 ID2+2-X                                             IDOP3280
0109 0  B10D                CMP   1 ID1+2-X                                             IDOP3281
010A 0  7000                MDX     *                                                   IDOP3282
010B 0  700E                MDX     A200                                                IDOP3283
010C 0  C113                LD    1 ID2+3-X                                             IDOP3284
010D 0  B10E                CMP   1 ID1+3-X                                             IDOP3285
010E 0  7000                MDX     *                                                   IDOP3286
010F 0  700A                MDX     A200                                                IDOP3287
                    *-------------------------------------------------------------------- IDOP3288
0110 01 740400FD            MDX   L A102,4      DELETE ORDERS FOR THIS ID               IDOP3289
0112 0  1010                SLA     16                                                  IDOP3290
0113 01 D48000FD            STO   I A102                                                IDOP3291
0115 01 740102C6            MDX   L NODEL,1     COUNT NO. OF DELETED IDS                IDOP3292
0117 01 740600FD            MDX   L A102,6                                             IDOP3293
0119 0  7002                MDX     A201                                                IDOP3294
                    *-------------------------------------------------------------------- IDOP3295
011A 01 740A00FD    A200    MDX   L A102,10                                            IDOP3296
011C 0  72FF        A201    MDX   2 -1                                                  IDOP3297
011D 0  70DD                MDX     A101                                                IDOP3298
                    *-------------------------------------------------------------------- IDOP3299
011E 01 740002C6            MDX   L NODEL,0                                           IDOP3300
0120 0  700B                MDX     A203                                                IDOP3301
                    *-------------------------------------------------------------------- IDOP3302
0121 0  C1DD                LD    1 ADAPR+3-X   MESSAGE *ID NOT ON DISK*                IDOP3303
0122 01 D400025F            STO   L A18                                                 IDOP3304
0124 0  C1E9        A202    LD    1 ADTYP+5-X                                           IDOP3305
0125 01 D4000254            STO   L A17                                                 IDOP3306
0127 0  C1D9                LD    1 TM12-X                                              IDOP3307
0128 01 D40003FC            STO   L TM111                                               IDOP3308
012A 01 4C00024E            BSC   L A13           INTERRUPT EXIT                        IDOP3309
                    *-------------------------------------------------------------------- IDOP3310
012C 20 04262495    A203    LIBF    DISKN       STORE ORDER FILE ON DISK                IDOP3311
012D 0  3000                DC      /3000                                               IDOP3312
012E 0  DFBC                DC      TABLE                                               IDOP3313
012F 0  0000                DC      0                                                   IDOP3314
                    *-------------------------------------------------------------------- IDOP3315
0130 30 03595244            CALL    CONID       CONVERT ID FOR MESSAGE ON               IDOP3316
0132 1  02B5                DC      ID1         INTERFACE TYPEWRITER                    IDOP3317
0133 1  035C                DC      AM81                                                IDOP3318
                    *-------------------------------------------------------------------- IDOP3319
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0134 0  C1DF          LD    1 ADAPR+5-X  MESSAGE * ORDERS DELETED*   IDOP3320
0135 01 D400025F      STO   L A18                                    IDOP3321
0137 0  70EC          MDX     A202                                   IDOP3322
                     *-------------------------------------------    IDOP3323
                     *                                              IDOP3324
                     *                                              IDOP3325
                     *                                              IDOP3326
                     ************************************************IDOP3327
                     *     PRINT IN/OUT CHECK VALUES      UP.CODE 21  *IDOP3328
                     ************************************************IDOP3329
0138 00 6603DF9A     OPC21 LDX   L2 Y                               IDOP3330
                     *-------------------------------------------    IDOP3331
013A 0  C1D4          LD    1 BITNO-X                                IDOP3332
013B 0  B1D5          CMP   1 TWO-X                                  IDOP3333
013C 0  7015          MDX     A570          NO ACTION                IDOP3334
013D 0  7003          MDX     A571                                   IDOP3335
                     *-------------------------------------------    IDOP3336
013E 0  C9D2          LDD   1 CONSE-X       BITNO=2                  IDOP3337
013F 0  DA22          STD   2 TABLE-Y                                IDOP3338
0140 0  7005          MDX     A572                                   IDOP3339
                     *-------------------------------------------    IDOP3340
0141 0  B1F1 A571     CMP   1 ONE-X         BITNO=1                  IDOP3341
0142 0  700F          MDX     A570                                   IDOP3342
0143 0  700E          MDX     A570                                   IDOP3343
0144 0  C9D0          LDD   1 CONSEC-X                               IDOP3344
0145 0  DA22          STD   2 TABLE-Y                                IDOP3345
                     *-------------------------------------------    IDOP3346
0146 20 04262495 A572 LIBF    DISKN         READ CONTROL SECTOR      IDOP3347
0147 0  1000          DC      /1000                                  IDOP3348
0148 0  DFBC          DC      TABLE                                  IDOP3349
0149 0  0000          DC      0                                      IDOP3350
                     *-------------------------------------------    IDOP3351
014A 20 04262495 A560 LIBF    DISKN         CHECK IF CONTROL SECTOR  IDOP3352
014B 0  0100          DC      /0100         IS READ                  IDOP3353
014C 0  DFBC          DC      TABLE                                  IDOP3354
014D 0  70FC          MDX     A560                                   IDOP3355
                     *-------------------------------------------    IDOP3356
014E 01 74000282      MDX   L IND,0                                  IDOP3357
0150 0  7003          MDX     A564          CHANGE AND PRINT         IDOP3358
0151 0  700A          MDX     A565          PRINT ONLY               IDOP3359
                     *-------------------------------------------    IDOP3360
0152 01 4C000265 A570 BSC   L A273          END OF INTERRUPT         IDOP3361
                     *-------------------------------------------    IDOP3362
0154 0  C217 A564     LD    2 WORDS+21-Y                             IDOP3363
0155 0  D245          STO   2 IDEN+33-Y     (LIRAS)                  IDOP3364
0156 0  C219          LD    2 WORDS+23-Y                             IDOP3365
0157 0  D244          STO   2 IDEN+32-Y     (TWENT)                  IDOP3366
                     *-------------------------------------------    IDOP3367
0158 20 04262495      LIBF    DISKN         STORE CONTROL SECTOR     IDOP3368
0159 0  3000          DC      /3000                                  IDOP3369
015A 0  DFBC          DC      TABLE                                  IDOP3370
015B 0  0000          DC      0                                      IDOP3371
                     *-------------------------------------------    IDOP3372
015C 30 02243040 A565 CALL    BICA          STORE O/O INTO MESSAGE   IDOP3373
015E 0  DFDF          DC      IDEN+33       (LIRAS)                  IDOP3374
015F 1  02FC          DC      AM41                                   IDOP3375
0160 0  0002          DC      2                                      IDOP3376
                     *-------------------------------------------    IDOP3377
0161 30 02243040      CALL    BICA          STORE NO.OF SEQ.INTO MESS.IDOP3378
0163 0  DFDE          DC      IDEN+32       (TWENT)                  IDOP3379
0164 1  0304          DC      AM42                                   IDOP3380
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0165 0  0004          DC      4                                          IDOP3381
                    *-------------------------------------------------- IDOP3382
0166 0  C239          LD    2 IDEN+21-Y  CALCULATE MEAN VALUE            IDOP3383
0167 0  1890          SRT     16         (IDEN+21=C)                     IDOP3384
0168 0  D9D6          STD   1 CFLOA-X                                    IDOP3385
                    *-------------------------------------------------- IDOP3386
0169 30 141938C0      CALL    MFLT       CONVERT C TO REAL               IDOP3387
016B 1  0280          DC      CFLOA                                      IDOP3388
016C 1  029B          DC      ONE                                        IDOP3389
                    *-------------------------------------------------- IDOP3390
016D 0  C237          LD    2 IDEN+19-Y  STORE INOUT AT                  IDOP3391
016E 0  D1FA          STO   1 OUTPT-X    EVEN ADDRESS                    IDOP3392
016F 0  C238          LD    2 IDEN+20-Y                                  IDOP3393
0170 0  D1FB          STO   1 OUTPT+1-X                                  IDOP3394
                    *-------------------------------------------------- IDOP3395
0171 20 064C4000      LIBF    FLD                                        IDOP3396
0172 1  02A4          DC      OUTPT      (INOUT)                         IDOP3397
                    *-------------------------------------------------- IDOP3398
0173 20 06109940      LIBF    FDIV                                       IDOP3399
0174 1  0280          DC      CFLOA      MEAN VALUE IN FLOA              IDOP3400
                    *-------------------------------------------------- IDOP3401
0175 30 060A3100      CALL    FBTD       CONVERSION OF MEAN VALUE        IDOP3402
0177 0  DD14          DC      BUF        TO CARD CODE                    IDOP3403
                    *-------------------------------------------------- IDOP3404
0178 0  61F8          LDX   1 -8                                         IDOP3405
0179 0  6200          LDX   2 0                                          IDOP3406
                    *-------------------------------------------------- IDOP3407
017A 00 C600DD15  A561 LD   L2 BUF+1                                    IDOP3408
017C 0  1888          SRT     8                                          IDOP3409
017D 00 C600DD14      LD    L2 BUF                                       IDOP3410
017F 0  1088          SLT     8                                          IDOP3411
0180 00 D500DD1C      STO   L1 BUF+8                                     IDOP3412
                    *-------------------------------------------------- IDOP3413
0182 0  7202          MDX   2 2                                          IDOP3414
0183 0  7101          MDX   1 1                                          IDOP3415
0184 0  70F5          MDX     A561                                       IDOP3416
                    *-------------------------------------------------- IDOP3417
0185 01 650002AA      LDX   L1 X                                         IDOP3418
0187 20 08593142      LIBF    HOLEB                                      IDOP3419
0188 0  0001          DC      /0001                                      IDOP3420
0189 0  DD14          DC      BUF                                        IDOP3421
018A 1  030F          DC      AM43       MEAN VALUE INTO MESSAGE         IDOP3422
018B 0  0010          DC      16                                         IDOP3423
018C 0  C1E4          LD    1 ADTYP-X                                    IDOP3424
018D 01 D4000254      STO   L A17                                        IDOP3425
018F 0  C1DA          LD    1 ADAPR-X                                    IDOP3426
0190 01 D400025F      STO   L A18                                        IDOP3427
0192 0  C1D9          LD    1 TM12-X                                     IDOP3428
0193 01 D40003E2      STO   L TM31                                       IDOP3429
0195 01 4C00024E      BSC   L A13        INTER. EXIT                     IDOP3430
                    *-------------------------------------------------- IDOP3431
                    *                                                  IDOP3432
                    *                                                  IDOP3433
                    *                                                  IDOP3434
                    ************************************************** IDOP3435
                    *     CHANGE IN/OUT CHECK VALUES     OP.CODE 22  * IDOP3436
                    ************************************************** IDOP3437
0197 01 74010282  OPC22 MDX  L  IND,1                                   IDOP3438
                    *-------------------------------------------------- IDOP3439
0199 30 041430A8      CALL    DECBY      BCD-BINARY CONVERSION OF        IDOP3440
019B 0  DFB0          DC      WORDS+20   O/O AND SEQ.NO.                 IDOP3441
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019C 0  0002          DC      2                                          IDDP3442
                     *-------------------------------------------------- IDDP3443
019D 0  709A          MDX     OPC21                                      IDDP3444
                     *-------------------------------------------------- IDDP3445
                     *                                                  IDDP3446
                     *                                                  IDDP3447
                     *                                                  IDDP3448
                     ************************************************** IDDP3449
                     *     SHIFT LEFT OR RIGHT SPECTRUM     OP.CODE 23 * IDDP3450
                     ************************************************** IDDP3451
019E 00 6600DF9A OPC23 LDX   L2 Y          SHIFT LEFT OR RIGHT SPECT.  IDDP3452
01A0 30 04143244      CALL    DECID        CONVERSION OF ID            IDDP3453
01A2 0  DF9C          DC      WORDS                                    IDDP3454
01A3 0  DFBE          DC      IDEN                                     IDDP3455
01A4 1  02B0          DC      ERIN                                     IDDP3456
                     *-------------------------------------------------- IDDP3457
01A5 01 740002B0      MDX  L  ERIN,0                                   IDDP3458
01A7 0  7001          MDX     A600                                     IDDP3459
01A8 0  7002          MDX     A601                                     IDDP3460
                     *-------------------------------------------------- IDDP3461
01A9 01 4C000242 A600 BSC  L  A50          GROUP NO. IN ERROR          IDDP3462
01AB 0  C218    A601  LD     2 WORDS+22-Y  SET INDICATOR FOR SHIFT     IDDP3463
01AC 0  4810          BSC     -            LEFT OR RIGHT               IDDP3464
01AD 0  7002          MDX     A602         SHIFT RIGHT                 IDDP3465
01AF 01 740102B4      MDX  L  I 02,1       SHIFT LEFT                  IDDP3466
                     *-------------------------------------------------- IDDP3467
01B0 30 041430A8 A602 CALL    DECBY        BCD-BINARY CONVERSION OF    IDDP3468
01B2 0  DFB2          DC      WORDS+22     SHIFT COUNT                 IDDP3469
01B3 0  0001          DC      1                                        IDDP3470
                     *-------------------------------------------------- IDDP3471
01B4 30 02243040      CALL    BICA                                     IDDP3472
01B6 0  DFB3          DC      WORDS+23                                 IDDP3473
01B7 1  033A          DC      A73                                      IDDP3474
01B8 0  0004          DC      4                                        IDDP3475
                     *-------------------------------------------------- IDDP3476
01B9 0  C219          LD      2 WORDS+23-Y CHECK SHIFT COUNT (0-4096)  IDDP3477
01BA 0  B107          CMP     1 LIMIT-X                                IDDP3478
01BB 0  7005          MDX     A14          ERROR EXIT                  IDDP3479
01BC 0  7000          MDX     A15                                      IDDP3480
01BD 0  B109    A15   CMP     1 ZERO-X                                 IDDP3481
01BE 0  700E          MDX     A603                                     IDDP3482
01BF 0  7001          MDX     A14          ERROR EXIT                  IDDP3483
01C0 0  700C          MDX     A603                                     IDDP3484
                     *-------------------------------------------------- IDDP3485
01C1 0  C1E6    A14   LD      1 ADTYP+2-X  PREPARE ERROR MESSAGE       IDDP3486
01C2 01 D4000254      STO  L  A17          *SHIFT COUNT IN ERROR*      IDDP3487
01C4 0  C1DC          LD      1 ADAPR+2-X                              IDDP3488
01C5 01 D400025F      STO  L  A18                                      IDDP3489
                     *-------------------------------------------------- IDDP3490
01C7 01 C4000283      LD   L  TM12                                     IDDP3491
01C9 01 D4000300      STO  L  TM311                                    IDDP3492
01CB 01 4C00024E      BSC  L  A13                                      IDDP3493
                     *-------------------------------------------------- IDDP3494
01CD 30 04262494 A603 CALL    DISKM        READ SPECTRUM FROM DISK     IDDP3495
01CF 0  DFBE          DC      IDEN                                     IDDP3496
01D0 1  02B0          DC      ERIN                                     IDDP3497
01D1 0  DD14          DC      BUF                                      IDDP3498
01D2 0  DFBE          DC      IDEN                                     IDDP3499
01D3 1  029B          DC      ONE          SPECTRUM DELETED            IDDP3500
                     *-------------------------------------------------- IDDP3501
01D4 01 740002B0      MDX  L  ERIN,0                                   IDDP3502
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01D6 0  7001          MDX     A604        SPECTRUM NOT FOUND          IDDP3503
01D7 0  700C          MDX     A605        SPECTRUM FOUND              IDDP3504
*-------------------------------------------------------------------- IDDP3505
01D8 0  C1E7  A604    LD    1 ADTYP+3-X   PREPARE ERROR MESSAGE *ID   IDDP3506
01D9 01 D4000254      STO   L A17         NOT ON DISK                 IDDP3507
01DB 0  C1DD          LD    1 ADAPR+3-X                               IDDP3508
01DC 01 D400025F      STO   L A18                                     IDDP3509
*-------------------------------------------------------------------- IDDP3510
01DE 01 C4000283      LD    L TM12                                    IDDP3511
01E0 01 D40003C3      STO   L TM51                                    IDDP3512
01E2 01 4C00024E      BSC   L A13         INTERRUPT EXIT              IDDP3513
*-------------------------------------------------------------------- IDDP3514
01E4 0  C219  A605    LD    2 WORDS+23-Y  SHIFT COUNT * 2 INTO XR2    IDDP3515
01E5 0  1001          SLA     1                                       IDDP3516
01E6 0  D001          STO     *+1                                     IDDP3517
01E7 00 66000000      LDX   L2 *-*                                    IDDP3518
*-------------------------------------------------------------------- IDDP3519
01E9 0  C108          LD    1 C4096-X                                 IDDP3520
01EA 00 9400DFB3      S     L WORDS+23                                IDDP3521
01EC 0  D001          STO     *+1                                     IDDP3522
01ED 00 65000000      LDX   L1 *-*        (4096-SHIFT COUNT)INTO XR1  IDDP3523
*-------------------------------------------------------------------- IDDP3524
01EF 01 740002B4      MDX   L IND2,0                                  IDDP3525
01F1 0  7001          MDX     A606        SHIFT LEFT                  IDDP3526
01F2 0  7012          MDX     A607        SHIFT RIGHT                 IDDP3527
*-------------------------------------------------------------------- IDDP3528
01F3 00 670CE000 A606 LDX   L3 -8192      SHIFT LEFT                  IDDP3529
01F5 00 CE00DFFE A608 LDD   L2 SPEC                                   IDDP3530
01F7 00 DF00FFFE      STD   L3 SPEC+8192                              IDDP3531
01F9 0  7202          MDX     2 2                                     IDDP3532
01FA 0  7302          MDX     3 2                                     IDDP3533
01FB 0  7001          MDX     A609                                    IDDP3534
01FC 0  7022          MDX     A610        END SHIFT LEFT              IDDP3535
01FD 0  71FF  A609    MDX   1 -1                                      IDDP3536
01FE 0  70F6          MDX     A608                                    IDDP3537
*-------------------------------------------------------------------- IDDP3538
01FF 0  10A0  A611    SLT     32          FILL IN ZEROS               IDDP3539
0200 00 DF00FFFE A620 STD   L3 SPEC+8192                              IDDP3540
0202 0  7302          MDX     3 2                                     IDDP3541
0203 0  70FC          MDX     A620                                    IDDP3542
0204 0  701A          MDX     A610        END SHIFT LEFT              IDDP3543
*-------------------------------------------------------------------- IDDP3544
0205 01 6D0002B0 A607 STX   L1 ERIN       SHIFT RIGHT                 IDDP3545
0207 01 C40002B0      LD    L ERIN                                    IDDP3546
0209 0  1001          SLA     1           (4096-SHIFT COUNT)*2 INTO   IDDP3547
020A 0  D001          STO     *+1         XR1                         IDDP3548
020B 00 65000000      LDX   L1 *-*                                    IDDP3549
020D 00 67002000      LDX   L3 8192                                   IDDP3550
*-------------------------------------------------------------------- IDDP3551
020F 00 CD00DFFC A612 LDD   L1 SPEC-2                                 IDDP3552
0211 00 DF00DFFC      STD   L3 SPEC-2                                 IDDP3553
0213 0  71FE          MDX     1 -2                                    IDDP3554
0214 0  7001          MDX     A613                                    IDDP3555
0215 0  7003          MDX     A614                                    IDDP3556
*-------------------------------------------------------------------- IDDP3557
0216 0  73FE  A613    MDX     3 -2                                    IDDP3558
0217 0  70F7          MDX     A612                                    IDDP3559
0218 0  7006          MDX     A610        END SHIFT RIGHT             IDDP3560
*-------------------------------------------------------------------- IDDP3561
0219 0  10A0  A614    SLT     32                                      IDDP3562
021A 00 DF00DFFC A621 STD   L3 SPEC-2                                 IDDP3563
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021C 0  73FE          MDX   3 -2                                        IDOP3564
021D 0  70FC          MDX     A621                                      IDOP3565
021F 0  7000          MDX     A610        END SHIFT RIGHT               IDOP3566
                     *-------------------------------------------------- IDOP3567
021F 01 650002AA A610 LDX   L1 X          RESTORE INDEX REGISTERS       IDOP3568
0221 00 6600DF9A      LDX   L2 Y                                        IDOP3569
0223 00 67800067      LDX   I3 103                                      IDOP3570
                     *-------------------------------------------------- IDOP3571
0225 30 14109892      CALL    MDISK       STORE SHIFTED SPECTRUM ON     IDOP3572
0227 0  DFBE            DC    IDEN        DISK                          IDOP3573
0228 1  02B0            DC    ERIN        NO CHECK IF SPECTRUM IS       IDOP3574
0229 0  DD14            DC    BUF         STORED                        IDOP3575
022A 1  02A4            DC    OUTPT                                     IDOP3576
                     *-------------------------------------------------- IDOP3577
022B 30 03595244      CALL    CONID       CONVERSION OF ID FOR INTER    IDOP3578
022D 0  DFBE            DC    IDEN        FACE MESSAGE                  IDOP3579
022E 1  0326            DC    AM71                                      IDOP3580
                     *-------------------------------------------------- IDOP3581
022F 01 740002B4      MDX   L IND2,0                                    IDOP3582
0231 0  7001            MDX     A615                                    IDOP3583
0232 0  7005            MDX     A616                                    IDOP3584
                     *-------------------------------------------------- IDOP3585
0233 30 145A5140 A615 CALL    MOVE        INSERT *LEFT* IN INTERFACE    IDOP3586
0235 1  02AA            DC    MESS        MESSAGE                       IDOP3587
0236 1  0334            DC    AM72                                      IDOP3588
0237 0  0005            DC    5                                         IDOP3589
                     *-------------------------------------------------- IDOP3590
0238 0  C1DE      A616  LD     1 ADAPR+4-X                              IDOP3591
0239 01 D400025F        STO   L A18                                     IDOP3592
023B 0  C1E8            LD     1 ADTYP+4-X                              IDOP3593
023C 01 D4000254        STO   L A17                                     IDOP3594
023E 0  C1D9            LD     1 TM12-X                                 IDOP3595
023F 01 D40003D6        STO   L TM71                                    IDOP3596
0241 0  700C            MDX     A13         INTERRUPT EXIT              IDOP3597
                     *-------------------------------------------------- IDOP3598
0242 0  C1E5      A50   LD     1 ADTYP+1-X  PREPARE ERROR MESSAGE       IDOP3599
0243 01 D4000254        STO   L A17        *CHECK INTER. NO.*           IDOP3600
0245 0  C1DB            LD     1 ADAPR+1-X                              IDOP3601
0246 01 D400025F        STO   L A18                                     IDOP3602
0248 01 C4000283        LD    L TM12                                    IDOP3603
024A 01 D40003F4        STO   L TM91                                    IDOP3604
024C 01 4C00024E        BSC   L A13        INTERRUPT EXIT               IDOP3605
                     *-------------------------------------------------- IDOP3606
024E 0  C1F2      A13   LD     1 B1-X       PREPARE COMMAND *PRINT       IDOP3607
024F 0  81D4            A      1 BITNO-X    ALPHAMERIC*                  IDOP3608
0250 0  D1ED            STO    1 AREA3+2-X                              IDOP3609
                     *-------------------------------------------------- IDOP3610
0251 0  401D            BSI     A310        COMMAND *PRINT ALPHAMERIC*    IDOP3611
                     *-------------------------------------------------- IDOP3612
0252 20 23A17155        LIBF    TYPEN       TYPEWRITER ERROR MESSAGE      IDOP3613
0253 0  2001            DC      /2001                                     IDOP3614
0254 0  0000      A17   DC      *-*                                       IDOP3615
0255 0  0000            DC      0                                         IDOP3616
                     *-------------------------------------------------- IDOP3617
0256 30 23243595        CALL    TICON                                     IDOP3618
0258 1  03E6            DC      TM102                                     IDOP3619
                     *-------------------------------------------------- IDOP3620
0259 20 23A17155        LIBF    TYPEN                                     IDOP3621
025A 0  2001            DC      /2001                                     IDOP3622
025B 1  03E3            DC      TM100-1                                   IDOP3623
025C 0  0000            DC      0                                         IDOP3624
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025D 20 040565C0          *-------------------------------------------------- IDDP3625
                          LIBF     DAOP          INTERFACE ERROR MESSAGE     IDDP3626
025E 0  1310              DC       /1310         SINGLE ADDR.,EXTER.SYNCH.   IDDP3627
025F 0  0000        A18   DC       *-*                                       IDDP3628
0260 0  0000              DC       0                                         IDDP3629
                          *-------------------------------------------------- IDDP3630
0261 30 19162163          CALL     RESET                                     IDDP3631
0263 1  0283              DC       TM12                                      IDDP3632
0264 1  0265              DC       A273          GO TO A273                  IDDP3633
                          *-------------------------------------------------- IDDP3634
0265 0  C1F3        A273  LD     1 B15-X         PREPARE COMMAND *END OF     IDDP3635
0266 0  81D4              A      1 BITNO-X       INTERRUPT*                  IDDP3636
0267 0  D1ED              STO    1 AREA3+2-X                                 IDDP3637
                          *-------------------------------------------------- IDDP3638
0268 0  4006              BSI      A310          COMMAND *END OF INTERRUPT*  IDDP3639
                          *-------------------------------------------------- IDDP3640
0269 20 040565C0          LIBF     DAOP                                      IDDP3641
026A 0  1000              DC       /1000                                     IDDP3642
026B 1  0298              DC       RESET                                     IDDP3643
026C 0  0000              DC       0                                         IDDP3644
                          *-------------------------------------------------- IDDP3645
026D 30 09563167          CALL     INTEX                                     IDDP3646
                          *-------------------------------------------------- IDDP3647
026F 0  0000        A310  DC       *-*                                       IDDP3648
0270 20 040565C0          LIBF     DAOP          COMMAND RESET               IDDP3649
0271 0  1000              DC       /1000                                     IDDP3650
0272 1  0298              DC       RESET                                     IDDP3651
0273 0  0000              DC       0                                         IDDP3652
                          *-------------------------------------------------- IDDP3653
0274 20 040565C0          LIBF     DAOP          INTERFACE COMMAND           IDDP3654
0275 0  1000              DC       /1000                                     IDDP3655
0276 1  0295              DC       AREA3                                     IDDP3656
0277 0  0000              DC       0                                         IDDP3657
0278 01 4C80026F          BSC  I   A310                                      IDDP3658
                          ********************************************************* IDDP3659
027A    0000              BSS  E   0                                         IDDP3660
027A 31 03595883    COSEC DSA      CONSC         DEFINE SECTOR ADDR.FOR      IDDP3661
027D                      ORG      COSEC         CONTROL SECTOR CONSC        IDDP3662
027A 0  0023              DC       35            WORD COUNT FOR CONSC        IDDP3663
027B                      ORG      COSEC+2                                   IDDP3664
                          *-------------------------------------------------- IDDP3665
027C    0000              BSS  E   0                                         IDDP3666
027C 31 035958B1    CONSE DSA      CONS1                                     IDDP3667
027F                      ORG      CONSE                                     IDDP3668
027C 0  0023              DC       35                                        IDDP3669
027D                      ORG      CONSE+2                                   IDDP3670
                          *-------------------------------------------------- IDDP3671
027E 0  0000        BITNO DC       *-*           INTERRUPT NO.               IDDP3672
027F 00 00000000    CFLOA DEC      0                                         IDDP3673
0282 0  0000        IND   DC       0             0=PRINT,1=CHANGE+PRINT      IDDP3674
0283 0  0000        TM12  DC       *-*                                       IDDP3675
0284 1  02FA        ADAPR DC       AM4                                       IDDP3676
0285 1  02E9              DC       AM5                                       IDDP3677
0286 1  033E              DC       AM6                                       IDDP3678
0287 1  02D7              DC       AM3                                       IDDP3679
0288 1  0324              DC       AM7                                       IDDP3680
0289 1  0353              DC       AM8                                       IDDP3681
028A 1  0386              DC       AM10                                      IDDP3682
028B 1  036B              DC       AM9                                       IDDP3683
028C 1  0395              DC       AM11                                      IDDP3684
028D 1  03A8              DC       AM12                                      IDDP3685
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028E  1  0307          ADTYP  DC     TM3-1                                    IDDP3686
028F  1  03E9                 DC     TM9-1                                    IDDP3687
0290  1  03C4                 DC     TM312-1                                  IDDP3688
0291  1  03B6                 DC     TM5-1                                    IDDP3689
0292  1  03D1                 DC     TM7-1                                    IDDP3690
0293  1  03F5                 DC     TM11-1                                   IDDP3691
0294  1  03FD                 DC     TM13-1                                   IDDP3692
0295  0  0002          AREA3  DC     2              AREA FOR INTERFACE COMMAND IDDP3693
0296  0  007C                 DC     124                                      IDDP3694
0297  0  0000                 DC     *-*            COMMAND                   IDDP3695
0298  0  0002          RESET  DC     2              RESET COMMAND OUTPUT      IDDP3696
0299  0  007C                 DC     124                                      IDDP3697
029A  0  0000                 DC     0              COMMAND=0                 IDDP3698
029B  0  0001          ONE    DC     1                                        IDDP3699
029C  0  1400          B1     DC     /1400          PRINT ALPHAMERIC ON INTER-IDDP3700
                      *                            FACE TYPEWRITER           IDDP3701
0290  0  8000          B15    DC     /8000          END OF INTERRUPT          IDDP3702
029E  1  0138          PRG21  DC     OPC21          PRINT IN/OUT CHECK VALUES IDDP3703
029F  1  0197          PRG22  DC     OPC22          CHANGE IN/OUT CHECK VALUES IDDP3704
02A0  1  019E          PRG23  DC     OPC23          SHIFT LEFT OR RIGHT SPECT.IDDP3705
02A1  1  0015          PRG24  DC     OPC24          ACCORDEON                 IDDP3706
02A2  1  00E9          PRG25  DC     OPC25          DELETE ORDERS             IDDP3707
02A4     0006          OUTPT  BSS  E  6                                        IDDP3708
02AA  0  4400          MESS   DC     /4400          L                         IDDP3709
02AB  0  8100                 DC     /8100          E                         IDDP3710
02AC  0  8080                 DC     /8080          F                         IDDP3711
02AD  0  2400                 DC     /2400          T                         IDDP3712
02AE  0  0000                 DC     /0000                                    IDDP3713
02AF  0  0002          TWO    DC     2                                        IDDP3714
02B0  0  0000          ERIN   DC     0                                        IDDP3715
02B1  0  0FFF          LIMIT  DC     4095                                     IDDP3716
02B2  0  1000          C4096  DC     4096                                     IDDP3717
02B3  0  0000          ZERO   DC     0                                        IDDP3718
02B4  0  0000          IND2   DC     0              INDICATOR SHIFT LEFT,RIGHT IDDP3719
02B5     0005          ID1    BSS    5              ID TO BE DELETED          IDDP3720
02BA     000A          ID2    BSS    10             ORDER FILE ID             IDDP3721
02C4     0000                 BSS  E  0                                        IDDP3722
02C4 31  16644C40      FILE   DSA    ORD1                                     IDDP3723
02C7                          ORG    FILE                                     IDDP3724
02C4  0  0140                 DC     320                                      IDDP3725
02C5                          ORG    FILE+2                                   IDDP3726
02C6  0  0000          MODEL  DC     0              COUNTER FOR DELETED IDS   IDDP3727
02C7  0  0005          FIVE   DC     5                                        IDDP3728
02C8  0  0004          FOUR   DC     4                                        IDDP3729
02C9  0  0800          C2048  DC     2048                                     IDDP3730
02CA 00  40000083      FLOA1  DEC    4.                                       IDDP3731
02CC 00  40000082      FLOA2  DEC    2.                                       IDDP3732
02CE  1  02CC          ADFLO  DC     FLOA2                                    IDDP3733
02CF  0  EFFC          ASPEC  DC     SPEC+4094                                IDDP3734
02D0  0  EFFE          BSPEC  DC     SPEC+4096                                IDDP3735
                      *-------------------------------------------------------IDDP3736
02D1  0  8100          AM94   DC     /8100          E                         IDDP3737
02D2  0  2040                 DC     /2040          X                         IDDP3738
02D3  0  2400                 DC     /2400          T                         IDDP3739
02D4  0  8100                 DC     /8100          E                         IDDP3740
02D5  0  4100                 DC     /4100          N                         IDDP3741
02D6  0  8420                 DC     /8420          .                         IDDP3742
                      *-------------------------------------------------------IDDP3743
DF9A                  Y      EQU    WCOUT                                    IDDP3744
02AA                  X      EQU    MESS                                     IDDP3745
**********************************************************************IDDP3746
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02D7 0 0011        AM3   DC    17                                  IDOP3747
02D8 0 007B              DC    123                                 IDOP3748
02D9 0 0900              DC    /0900      RED                      IDOP3749
02DA 0 8010              DC    /8010      I                        IDOP3750
02DB 0 8200              DC    /8200      D                        IDOP3751
02DC 0 0000              DC    /0000                               IDOP3752
02DD 0 4100              DC    /4100      N                        IDOP3753
02DE 0 4080              DC    /4080      U                        IDOP3754
02DF 0 2400              DC    /2400      T                        IDOP3755
02E0 0 0000              DC    /0000                               IDOP3756
02E1 0 4080              DC    /4080      U                        IDOP3757
02E2 0 4100              DC    /4100      N                        IDOP3758
02E3 0 0000              DC    /0000                               IDOP3759
02E4 0 8200              DC    /8200      D                        IDOP3760
02E5 0 8010              DC    /8010      I                        IDOP3761
02E6 0 2800              DC    /2800      S                        IDOP3762
02E7 0 4800              DC    /4800      K                        IDOP3763
02E8 0 0500              DC    /0500      BLACK                    IDOP3764
                   *-------------------------------------------------IDOP3765
02E9 0 0010        AM5   DC    16                                  IDOP3766
02EA 0 007B              DC    123                                 IDOP3767
02EB 0 0900              DC    /0900      RED                      IDOP3768
02EC 0 8400              DC    /8400      C                        IDOP3769
02ED 0 8020              DC    /8020      H                        IDOP3770
02EE 0 8100              DC    /8100      E                        IDOP3771
02EF 0 8400              DC    /8400      C                        IDOP3772
02F0 0 4800              DC    /4800      K                        IDOP3773
02F1 0 0000              DC    /0000                               IDOP3774
02F2 0 8040              DC    /8040      G                        IDOP3775
02F3 0 4010              DC    /4010      R                        IDOP3776
02F4 0 8420              DC    /8420      .                        IDOP3777
02F5 0 0000              DC    /0000                               IDOP3778
02F6 0 4100              DC    /4100      N                        IDOP3779
02F7 0 4080              DC    /4080      U                        IDOP3780
02F8 0 8420              DC    /8420      .                        IDOP3781
02F9 0 0500              DC    /0500      BLACK                    IDOP3782
                   *-------------------------------------------------IDOP3783
02FA 0 0029        AM4   DC    41                                  IDOP3784
02FB 0 007B              DC    123                                 IDOP3785
02FC 0 0000        AM41  DC    *-*        PERCENT VALUE            IDOP3786
02FD 0 0000              DC    *-*                                 IDOP3787
02FE 0 0000              DC    /0000                               IDOP3788
02FF 0 2000              DC    /2000      0                        IDOP3789
0300 0 3000              DC    /3000      /                        IDOP3790
0301 0 2000              DC    /2000      0                        IDOP3791
0302 0 2420              DC    /2420      COMMA                    IDOP3792
0303 0 0000              DC    /0000                               IDOP3793
0304 0 0000        AM42  DC    *-*        NO. OF SEQUENCES         IDOP3794
0305 0 0000              DC    *-*                                 IDOP3795
0306 0 0000              DC    *-*                                 IDOP3796
0307 0 0000              DC    *-*                                 IDOP3797
0308 0 0000              DC    /0000                               IDOP3798
0309 0 2800              DC    /2800      S                        IDOP3799
030A 0 8100              DC    /8100      E                        IDOP3800
030B 0 4020              DC    /4020      U                        IDOP3801
030C 0 8420              DC    /8420      .                        IDOP3802
030D 0 2420              DC    /2420      COMMA                    IDOP3803
030E 0 0000              DC    /0000                               IDOP3804
030F   0010        AM43  BSS   16         MEAN VALUE               IDOP3805
031F 0 0000              DC    /0000                               IDOP3806
0320 0 4200              DC    /4200      M                        IDOP3807
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0321 0  8420          DC      /8420       •                    IDDP3808
0322 0  2100          DC      /2100       V                    IDDP3809
0323 0  8420          DC      /8420       •                    IDDP3810
                *-------------------------------------------   IDDP3811
0324 0  0019  AM7     DC      25                               IDDP3812
0325 0  007B          DC      123                              IDDP3813
0326    0007  AM71    BSS     7           ID                   IDDP3814
032D 0  0000          DC      /0000                            IDDP3815
032E 0  2800          DC      /2800       S                    IDDP3816
032F 0  8020          DC      /8020       H                    IDDP3817
0330 0  8010          DC      /8010       I                    IDDP3818
0331 0  8080          DC      /8080       F                    IDDP3819
0332 0  2400          DC      /2400       T                    IDDP3820
0333 0  0000          DC      /0000                            IDDP3821
0334 0  4010  AM72    DC      /4010       R   (L)              IDDP3822
0335 0  8010          DC      /8010       I   (E)              IDDP3823
0336 0  8040          DC      /8040       G   (F)              IDDP3824
0337 0  8020          DC      /8020       H   (T)              IDDP3825
0338 0  2400          DC      /2400       T   ( )              IDDP3826
0339 0  0000          DC      /0000                            IDDP3827
033A    0004  AM73    BSS     4                                IDDP3828
                *-------------------------------------------   IDDP3829
033E 0  0014  AM6     DC      20                               IDDP3830
033F 0  007B          DC      123                              IDDP3831
0340 0  0900          DC      /0900       RED                  IDDP3832
0341 0  2800          DC      /2800       S                    IDDP3833
0342 0  8020          DC      /8020       H                    IDDP3834
0343 0  8010          DC      /8010       I                    IDDP3835
0344 0  8080          DC      /8080       F                    IDDP3836
0345 0  2400          DC      /2400       T                    IDDP3837
0346 0  0000          DC      /0000                            IDDP3838
0347 0  8400          DC      /8400       C                    IDDP3839
0348 0  4080          DC      /4080       O                    IDDP3840
0349 0  2200          DC      /2200       U                    IDDP3841
034A 0  4100          DC      /4100       N                    IDDP3842
034B 0  2400          DC      /2400       T                    IDDP3843
034C 0  0000          DC      /0000                            IDDP3844
034D 0  8100          DC      /8100       E                    IDDP3845
034E 0  4010          DC      /4010       R                    IDDP3846
034F 0  4010          DC      /4010       R                    IDDP3847
0350 0  4080          DC      /4080       O                    IDDP3848
0351 0  4010          DC      /4010       R                    IDDP3849
0352 0  0500          DC      /0500       BLACK                IDDP3850
                *-------------------------------------------   IDDP3851
0353 0  0017  AM8     DC      23                               IDDP3852
0354 0  007B          DC      123                              IDDP3853
0355 0  4080          DC      /4080       O                    IDDP3854
0356 0  4010          DC      /4010       R                    IDDP3855
0357 0  8200          DC      /8200       D                    IDDP3856
0358 0  8100          DC      /8100       E                    IDDP3857
0359 0  4010          DC      /4010       R                    IDDP3858
035A 0  2800          DC      /2800       S                    IDDP3859
035B 0  0000          DC      /0000                            IDDP3860
035C    0007  AM81    BSS     7                                IDDP3861
0363 0  0000          DC      /0000                            IDDP3862
0364 0  8200          DC      /8200       D                    IDDP3863
0365 0  8100          DC      /8100       E                    IDDP3864
0366 0  4400          DC      /4400       L                    IDDP3865
0367 0  8100          DC      /8100       E                    IDDP3866
0368 0  2400          DC      /2400       T                    IDDP3867
0369 0  8100          DC      /8100       E                    IDDP3868
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036A 0 8200          DC      /8200       D                          IDOP3869
                     *-------------------------------------------- IDOP3870
036B 0 001A    AM9   DC      26                                     IDOP3871
036C 0 007B          DC      123                                    IDOP3872
036D   0007    AM91  BSS     7           ID OLD                     IDOP3873
0374 0 0000          DC      /0000                                  IDOP3874
0375 0 8400    AM95  DC      /8400       C (E)                      IDOP3875
0376 0 4080          DC      /4080       O (X)                      IDOP3876
0377 0 4200          DC      /4200       M (T)                      IDOP3877
0378 0 4040          DC      /4040       P (E)                      IDOP3878
0379 0 4010          DC      /4010       R (N)                      IDOP3879
037A 0 8420          DC      /8420       • •                        IDOP3880
037B 0 0000          DC      /0000                                  IDOP3881
037C 0 0000    AM92  DC      *-*                                    IDOP3882
037D 0 0000          DC      /0000                                  IDOP3883
037E 0 0000          DC      /0000                                  IDOP3884
037F   0007    AM93  BSS     7           ID NEW                     IDOP3885
                     *-------------------------------------------- IDOP3886
0386 0 000E    AM10  DC      14                                     IDOP3887
0387 0 007B          DC      123                                    IDOP3888
0388 0 0900          DC      /0900       RED                        IDOP3889
0389 0 8400          DC      /8400       C                          IDOP3890
038A 0 8020          DC      /8020       H                          IDOP3891
038B 0 8100          DC      /8100       E                          IDOP3892
038C 0 8400          DC      /8400       C                          IDOP3893
038D 0 4800          DC      /4800       K                          IDOP3894
038E 0 0000          DC      /0000                                  IDOP3895
038F 0 4040          DC      /4040       P                          IDOP3896
0390 0 4010          DC      /4010       R                          IDOP3897
0391 0 8100          DC      /8100       E                          IDOP3898
0392 0 2800          DC      /2800       S                          IDOP3899
0393 0 8100          DC      /8100       E                          IDOP3900
0394 0 2400          DC      /2400       T                          IDOP3901
                     *-------------------------------------------- IDOP3902
0395 0 0012    AM11  DC      18                                     IDOP3903
0396 0 007B          DC      123                                    IDOP3904
0397 0 0900          DC      /0900       RED                        IDOP3905
0398 0 8010          DC      /8010       I                          IDOP3906
0399 0 8200          DC      /8200       D                          IDOP3907
039A 0 0000          DC      /0000                                  IDOP3908
039B 0 9000          DC      /9000       A                          IDOP3909
039C 0 4400          DC      /4400       L                          IDOP3910
039D 0 4010          DC      /4010       R                          IDOP3911
039E 0 8100          DC      /8100       E                          IDOP3912
039F 0 9000          DC      /9000       A                          IDOP3913
03A0 0 8200          DC      /8200       D                          IDOP3914
03A1 0 2020          DC      /2020       Y                          IDOP3915
03A2 0 0000          DC      /0000                                  IDOP3916
03A3 0 2200          DC      /2200       U                          IDOP3917
03A4 0 2800          DC      /2800       S                          IDOP3918
03A5 0 8100          DC      /8100       E                          IDOP3919
03A6 0 8200          DC      /8200       D                          IDOP3920
03A7 0 0500          DC      /0500       BLACK                      IDOP3921
                     *-------------------------------------------- IDOP3922
03A8 0 000D    AM12  DC      13                                     IDOP3923
03A9 0 007B          DC      123                                    IDOP3924
03AA 0 0900          DC      /0900       RED                        IDOP3925
03AB 0 4100          DC      /4100       N                          IDOP3926
03AC 0 4080          DC      /4080       O                          IDOP3927
03AD 0 0000          DC      /0000                                  IDOP3928
03AE 0 2800          DC      /2800       S                          IDOP3929
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03AF 0  2400          DC      /2400       T                          IDDP3930
03B0 0  4080          DC      /4080       U                          IDDP3931
03B1 0  4010          DC      /4010       R                          IDDP3932
03B2 0  9000          DC      /9000       A                          IDDP3933
03B3 0  8040          DC      /8040       G                          IDDP3934
03B4 0  8100          DC      /8100       E                          IDDP3935
03B5 0  0500          DC      /0500       BLACK                      IDDP3936
                ********************************************************IDDP3937
                      DC      TM6-TM5                                    IDDP3938
03B6 0  000D  TM5     DMES    'R'AID NOT ON DISK,SHIFT,A'E               IDDP3939
03B7    0018  TM51    DC      *-*         BITNO                          IDDP3940
03C3 0  0000  TM6     BES     0                                          IDDP3941
                *-------------------------------------------------------IDDP3942
03C4 0  000C          DC      TM41-TM312                                 IDDP3943
03C5    0016  TM312   DMES    'R'ASHIFT COUNT ERROR ,A'E                 IDDP3944
03D0 0  0000  TM311   DC      *-*         BITNO                          IDDP3945
03D1    0000  TM41    BES     0                                          IDDP3946
                *-------------------------------------------------------IDDP3947
03D1 0  0005          DC      TM8-TM7                                    IDDP3948
03D2    0008  TM7     DMES    'RSHIFT,A'E                                IDDP3949
03D6 0  0000  TM71    DC      *-*     BITNO                              IDDP3950
03D7    0000  TM8     BES     0                                          IDDP3951
                *-------------------------------------------------------IDDP3952
03D7 0  000B          DC      TM4-TM3                                    IDDP3953
03D8    0014  TM3     DMES    '  IST IN/OUT CHECK,A'E                    IDDP3954
03E2 0  0000  TM31    DC      *-*         BITNO                          IDDP3955
03E3    0000  TM4     BES     0                                          IDDP3956
                *-------------------------------------------------------IDDP3957
03E3 0  0005          DC      TM101-TM100                                IDDP3958
03E4    0004  TM100   DMES    'B'2X'E                                    IDDP3959
03E6    0003  TM102   BSS     3           TIME                           IDDP3960
03E9    0000  TM101   BES     0                                          IDDP3961
                *-------------------------------------------------------IDDP3962
03E9 0  000B          DC      TM10-TM9                                   IDDP3963
03EA    0014  TM9     DMES    'R'AERROR GROUP NO.,A'E                    IDDP3964
03F4 0  0000  TM91    DC      *-*         BITNO                          IDDP3965
03F5    0000  TM10    BES     0                                          IDDP3966
                *-------------------------------------------------------IDDP3967
03F5 0  0007          DC      TM122-TM11                                 IDDP3968
03F6    000C  TM11    DMES    'RORD. DEL.,A'E                            IDDP3969
03FC 0  0000  TM111   DC      *-*         BITNO                          IDDP3970
03FD    0000  TM122   BES     0                                          IDDP3971
                *-------------------------------------------------------IDDP3972
03FD 0  0006          DC      TM14-TM13                                  IDDP3973
03FE    000A  TM13    DMES    'RACCORD.,A'E                              IDDP3974
0403 0  0000  TM131   DC      *-*         BITNO                          IDDP3975
0404    0000  TM14    BES     0                                          IDDP3976
                ********************************************************IDDP3977
0404                  END                                                IDDP3978
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NO ERRORS IN ABOVE ASSEMBLY.
IDDP3
DUP FUNCTION COMPLETED

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0000    591165F4          ENT     IDOP4                                          IDOP4002
                          ********************************************************* IDOP4003
                          *       ADDRESS ASSIGNMENT FOR COMMON                   * IDOP4004
                          ********************************************************* IDOP4005
DFFE                      SPEC    EQU     -8194                                  IDOP4006
DFCE                      SCAL    EQU     -8242                                  IDOP4007
DFBE                      IDEM    EQU     -8258                                  IDOP4008
DFBC                      TABLE   EQU     -8260                                  IDOP4009
DF9C                      WORDS   EQU     -8292                                  IDOP4010
DF9A                      WCOUT   EQU     -8294                                  IDOP4011
DD14                      BUF     EQU     -8940                                  IDOP4012
BD14                      SPEC1   EQU     -17132                                 IDOP4013
BCE4                      SCAL1   EQU     -17180                                 IDOP4014
BCD4                      IDEM1   EQU     -17196                                 IDOP4015
BCD2                      TABL1   EQU     -17198                                 IDOP4016
                          ********************************************************* IDOP4017
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                                                                                IDOP4019
0000 0  0000       IDOP4 DC      *-*                                            IDOP4020
0001 01 65800000         LDX   I1 IDOP4                                        IDOP4021
0003 0  C100             LD     1 0                                            IDOP4022
0004 0  D001             STO      *+1                                          IDOP4023
0005 00 66800000         LDX   I2 *-*          OP-CODE INTO XR2                IDOP4024
0007 00 C5800001         LD    I1 1                                            IDOP4025
0009 01 65000242         LDX   L1 X                                            IDOP4026
000B 0  D1FD             STO    1 BITNO-X      STORE BITNO                     IDOP4027
                   *-------------------------------------------------------    IDOP4028
000C 20 02255103         LIBF     BINDC                                        IDOP4029
000D 1  0238             DC       OUTPT                                        IDOP4030
000E 20 085935D9         LIBF     HOLPR                                        IDOP4031
000F 0  0000             DC       /0000                                        IDOP4032
0010 1  023C             DC       OUTPT+4                                      IDOP4033
0011 1  0265             DC       TM12                                         IDOP4034
0012 0  0002             DC       2                                            IDOP4035
                   *-------------------------------------------------------    IDOP4036
0013 01 4E80024D         BSC   I2 PRG26-26      BRANCH TO DIFFER. OP-CODES      IDOP4037
                   *-------------------------------------------------------    IDOP4038
                   *                                                            IDOP4039
                   *                                                            IDOP4040
                   *                                                            IDOP4041
                   ************************************************************ IDOP4042
                   *      INTEGRATION      OP.CODE 12 (CHANGED TO 30    *      IDOP4043
                   *                       BY PROGRAM )                 *      IDOP4044
                   ************************************************************ IDOP4045
0015 00 6600DFBE   OPC30 LDX   L2 Y            INTEGRATION BETW.CHANNELS       IDOP4046
0017 30 041430A8         CALL     DECBY        BCD-BINARY CONVERSION OF        IDOP4047
0019 0  DFB0             DC       WORDS+20     CHANNEL LIMITS FOR INTEGRA      IDOP4048
001A 0  0002             DC       2            TION                            IDOP4049
                   *-------------------------------------------------------    IDOP4050
001B 0  6202             LDX    2 2                                            IDOP4051
001C 00 C400DFB1   A16   LD    L  WORDS+21     CHECK CHANNEL NUMBERS           IDOP4052
001E 0  B106             CMP    1 LIMIT-X                                      IDOP4053
001F 0  701B             MDX      A14          ERROR EXIT                      IDOP4054
0020 0  7000             MDX      A15                                          IDOP4055
0021 0  B107       A15   CMP    1 ZERO-X                                       IDOP4056
0022 0  7001             MDX      A19                                          IDOP4057
0023 0  7017             MDX      A14          ERROR EXIT                      IDOP4058
0024 0  72FF       A19   MDX    2 -1                                           IDOP4059
0025 0  7001             MDX      A20                                          IDOP4060
0026 0  7003             MDX      A21          CONTINUE                        IDOP4061
0027 01 74020010   A20   MDX   L  A16+1,2                                      IDOP4062
0029 0  70F2             MDX      A16                                          IDOP4063
                   *-------------------------------------------------------    IDOP4064
002A 00 6600DFBE   A21   LDX   L2 Y                                           IDOP4065
002C 0  C2F3             LD     2 WORDS+21-Y                                   IDOP4066
002D 0  B2F5             CMP    2 WORDS+23-Y                                   IDOP4067
002E 0  7002             MDX      A22                                          IDOP4068
002F 0  7006             MDX      A23                                          IDOP4069
0030 0  700A             MDX      A14          ERROR EXIT                      IDOP4070
                   *-------------------------------------------------------    IDOP4071
0031 0  C2F3       A22   LD     2 WORDS+21-Y   STORE CHANNEL NUMBERS IN        IDOP4072
0032 0  D109             STO    1 UCN-X        INCREASING ORDER                IDOP4073
0033 0  C2F5             LD     2 WORDS+23-Y                                   IDOP4074
0034 0  D108             STO    1 LCN-X                                        IDOP4075
0035 0  7011             MDX      A24          CONTINUE                        IDOP4076
                   *-------------------------------------------------------    IDOP4077
0036 0  C2F3       A23   LD     2 WORDS+21-Y                                   IDOP4078
0037 0  D108             STO    1 LCN-X                                        IDOP4079
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0038 0  C2F5          LD    2 WORDS+23-Y                              IDOP4080
0039 0  D109          STO   1 UCN-X                                   IDOP4081
003A 0  700C          MDX     A24           CONTINUE                  IDOP4082
                *-------------------------------------------------    IDOP4083
003B 0  C110    A14   LD    1 ADTYP+1-X     PREPARE ERROR MESSAGE     IDOP4084
003C 01 D400020B      STO   L A17           *CHANNEL NUMBERS IN ERROR* IDOP4085
003E 0  C11A          LD    1 ADAPR+1-X                               IDOP4086
003F 01 D4000216      STO   L A18                                     IDOP4087
                *-------------------------------------------------    IDOP4088
0041 01 C4000265      LD    L TM12                                    IDOP4089
0043 01 D40003EF      STO   L TM31                                    IDOP4090
0045 01 4C000205      BSC   L A13           INTERRUPT EXIT            IDOP4091
                *-------------------------------------------------    IDOP4092
0047 30 04143244    A24 CALL    DECID       CONVERSION OF ANALYSER ID IDOP4093
0049 0  DF9C          DC      WORDS         TO BINARY WORDS           IDOP4094
004A 0  DFBE          DC      IDEN                                    IDOP4095
004B 1  0250          DC      ERIN                                    IDOP4096
                *-------------------------------------------------    IDOP4097
004C 01 74000250      MDX   L ERIN,0                                  IDOP4098
004E 0  7001          MDX     A50                                     IDOP4099
004F 0  700C          MDX     A52                                     IDOP4100
                *-------------------------------------------------    IDOP4101
0050 0  C113    A50   LD    1 ADTYP+4-X     PREPARE ERROR MESSAGE     IDOP4102
0051 01 D400020B      STO   L A17           *CHECK INTER. NO.*        IDOP4103
0053 0  C11D          LD    1 ADAPR+4-X                               IDOP4104
0054 01 D4000216      STO   L A18                                     IDOP4105
                *-------------------------------------------------    IDOP4106
0056 01 C4000265      LD    L TM12                                    IDOP4107
0058 01 D4000410      STO   L TM91                                    IDOP4108
005A 01 4C000205      BSC   L A13           INTERRUPT EXIT            IDOP4109
                *-------------------------------------------------    IDOP4110
005C 30 04262494    A52 CALL    DISKM       READ SPECTRUM FROM DISK   IDOP4111
005E 0  DFBE          DC      IDEN                                    IDOP4112
005F 1  0250          DC      ERIN                                    IDOP4113
0060 0  DD14          DC      BUF                                     IDOP4114
0061 0  DFBE          DC      IDEN                                    IDOP4115
0062 1  0249          DC      ZERO          SPECTRUM NOT DELETED      IDOP4116
                *-------------------------------------------------    IDOP4117
0063 01 74000250      MDX   L ERIN,0                                  IDOP4118
0065 0  7001          MDX     A26           SPECTRUM NOT FOUND        IDOP4119
0066 0  700C          MDX     A27           SPECTRUM FOUND            IDOP4120
                *-------------------------------------------------    IDOP4121
0067 0  C111    A26   LD    1 ADTYP+2-X     PREPARE ERROR MESSAGE *ID IDOP4122
0068 01 D400020B      STO   L A17           NOT ON DISK*              IDOP4123
006A 0  C11B          LD    1 ADAPR+2-X                               IDOP4124
006B 01 D4000216      STO   L A18                                     IDOP4125
                *-------------------------------------------------    IDOP4126
006D 01 C4000265      LD    L TM12                                    IDOP4127
006F 01 D40003FE      STO   L TM51                                    IDOP4128
0071 01 4C000205      BSC   L A13           INTERRUPT EXIT            IDOP4129
                *-------------------------------------------------    IDOP4130
0073 0  C109    A27   LD    1 UCN-X                                   IDOP4131
0074 0  9108          S     1 LCN-X                                   IDOP4132
0075 0  8105          A     1 ONE-X                                   IDOP4133
0076 0  D001          STO     *+1                                     IDOP4134
0077 00 65000000      LDX   L1 *-*          (UCN-LCN+1)  INTO XR1     IDOP4135
                *-------------------------------------------------    IDOP4136
0079 01 C400024A      LD    L LCN                                     IDOP4137
007B 0  1001          SLA     1                                       IDOP4138
007C 0  D001          STO     *+1                                     IDOP4139
007D 00 66000000      LDX   L2 *-*          LCN*2 INTO XR2            IDOP4140
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                                                                                IDOP4141
007F 0  10A0            SLT     32                                              IDOP4142
0080 00 8E00DFFE  A28   AD   L2 SPEC    SUMMING OF CHANNELS                     IDOP4143
0082 0  7202            MDX     2 2     BETWEEN LCN AND UCN                     IDOP4144
0083 0  71FF            MDX     1 -1                                            IDOP4145
0084 0  70FB            MDX     A28                                             IDOP4146
0085 01 65000242        LDX   L1 X                                              IDOP4147
0087 0  D90A            STD     1 SUM-X         RESULT INTO SUM                 IDOP4148
*-------------------------------------------------------------------------------IDOP4149
0088 30 02243040        CALL    BICA            CONVERSION OF LCN TO            IDOP4150
008A 1  024A            DC      LCN             CARD CODE                       IDOP4151
008B 1  02BC            DC      AM42                                            IDOP4152
008C 0  0004            DC      4                                               IDOP4153
*-------------------------------------------------------------------------------IDOP4154
008D 30 02243040        CALL    BICA            CONVERSION OF UCN TO            IDOP4155
008F 1  024B            DC      UCN             CARD CODE                       IDOP4156
0090 1  02C6            DC      AM43                                            IDOP4157
0091 0  0004            DC      4                                               IDOP4158
*-------------------------------------------------------------------------------IDOP4159
0092 30 03595244        CALL    CONID           CONVERSION OF ID TO CARD        IDOP4160
0094 0  DFBE            DC      IDEN            CODE                            IDOP4161
0095 1  02AF            DC      AM41                                            IDOP4162
*-------------------------------------------------------------------------------IDOP4163
0096 0  6209            LDX     2 9                                             IDOP4164
0097 30 14645053  A300  CALL    FSAL            CONVERT FACTORS TO FLOA-        IDOP4165
0099 0  DF9E      A301  DC      WORDS+2         TING POINT NUMBERS              IDOP4166
009A 1  02EF      A302  DC      AM45+12                                         IDOP4167
009B 01 74020099        MDX   L A301,+2                                         IDOP4168
009D 01 740C009A        MDX   L A302,12                                         IDOP4169
009F 0  72FF            MDX     2 -1                                            IDOP4170
00A0 0  70F6            MDX     A300                                            IDOP4171
*-------------------------------------------------------------------------------IDOP4172
00A1 0  62EE            LDX     2 -18           CALCULATE ONE FACTOR FROM       IDOP4173
00A2 00 CE00DFB0  A305  LDD   L2 WORDS+20       SCALER VALUES                   IDOP4174
00A4 0  B90C            DCM     1 NULL-X                                        IDOP4175
00A5 0  7002            MDX     A303                                            IDOP4176
00A6 0  7000            MDX     *                                               IDOP4177
00A7 0  7010            MDX     A304            SKIP MULTIPLICATION OR          IDOP4178
00A8 20 064C4000  A303  LIBF    FLD             DIVISION                        IDOP4179
00A9 1  0242            DC      FACT                                            IDOP4180
*-------------------------------------------------------------------------------IDOP4181
00AA 01 6E000244        STX   L2 INDEX                                          IDOP4182
00AC 0  C102            LD      1 INDEX-X                                       IDOP4183
00AD 0  B104            CMP     1 MTEN-X                                        IDOP4184
00AE 0  7002            MDX     A306                                            IDOP4185
00AF 0  7000            MDX     *                                               IDOP4186
00B0 0  7003            MDX     A307                                            IDOP4187
*-------------------------------------------------------------------------------IDOP4188
00B1 20 06109940  A306  LIBF    FDIV            DIVISION                        IDOP4189
00B2 0  DF9E      A308  DC      WORDS+2                                         IDOP4190
00B3 0  7002            MDX     A309                                            IDOP4191
*-------------------------------------------------------------------------------IDOP4192
00B4 20 06517A00  A307  LIBF    FMPY            MULTIPLICATION                  IDOP4193
00B5 0  DF9E      A310  DC      WORDS+2                                         IDOP4194
*-------------------------------------------------------------------------------IDOP4195
00B6 20 068A3580  A309  LIBF    FSTO                                            IDOP4196
00B7 1  0242            DC      FACT                                            IDOP4197
*-------------------------------------------------------------------------------IDOP4198
00B8 01 740200B2  A304  MDX   L A308,+2                                         IDOP4199
00BA 01 740200B5        MDX   L A310,+2                                         IDOP4200
*-------------------------------------------------------------------------------IDOP4201
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00BC 0  7202                    MDX   2 2                                    IDOP4202
00BD 0  70E4                    MDX     A305                                 IDOP4203
00BE 30 141938C0                CALL    MFLT        CONVERT SUM TO REAL      IDOP4204
00C0 1  024C                    DC      SUM                                  IDOP4205
00C1 1  0247                    DC      ONE                                  IDOP4206
*-------------------------------------------------------------------------- IDOP4207
00C2 20 064C4000                LIBF    FLD         MULTIPLY SUM BY FACTOR   IDOP4208
00C3 1  024C                    DC      SUM                                  IDOP4209
*-------------------------------------------------------------------------- IDOP4210
00C4 20 06517A00                LIBF    FMPY                                 IDOP4211
00C5 1  0242                    DC      FACT        RESULT IN FAC            IDOP4212
*-------------------------------------------------------------------------- IDOP4213
00C6 30 060A3100                CALL    FBTD        CONVERT REAL SUM TO EBCDIC IDOP4214
00C8 0  DFCE                    DC      SCAL        CHARACTERS               IDOP4215
*-------------------------------------------------------------------------- IDOP4216
00C9 0  61F8                    LDX   1 -8          PACK EBCDIC CHARACTERS   IDOP4217
00CA 0  6200                    LDX   2 0           TWO PER WORD             IDOP4218
*-------------------------------------------------------------------------- IDOP4219
00CB 00 C600DFCF        A311    LD    L2 SCAL+1                              IDOP4220
00CD 0  1888                    SRT     8                                    IDOP4221
00CE 00 C600DFCE                LD    L2 SCAL                                IDOP4222
00D0 0  1088                    SLT     8                                    IDOP4223
00D1 00 D500DFD6                STO   L1 SCAL+8                              IDOP4224
*-------------------------------------------------------------------------- IDOP4225
00D3 0  7202                    MDX   2 2                                    IDOP4226
00D4 0  7101                    MDX   1 1                                    IDOP4227
00D5 0  70F5                    MDX     A311                                 IDOP4228
*-------------------------------------------------------------------------- IDOP4229
00D6 01 65000242                LDX   L1 X                                   IDOP4230
00D8 20 08593142                LIBF    HOLEB       CONVERT EBCDIC CHARACTERS IDOP4231
00D9 0  0001                    DC      /0001       TO CARD CODE FOR MESSAGE IDOP4232
00DA 0  DFCE                    DC      SCAL                                 IDOP4233
00DB 1  02D2                    DC      AM44                                 IDOP4234
00DC 0  0010                    DC      16                                   IDOP4235
*-------------------------------------------------------------------------- IDOP4236
00DD 0  62EE                    LDX   2 -18         PREPARE MESSAGE FOR MULTI- IDOP4237
00DE 00 CE00DFB0        A317    LDD   L2 WORDS+20   PLIERS AND DIVISORS      IDOP4238
00E0 0  B90C                    DCM   1 NULL-X                               IDOP4239
00E1 0  7002                    MDX     A312                                 IDOP4240
00E2 0  7000                    MDX     *                                    IDOP4241
00E3 0  7009                    MDX     A313                                 IDOP4242
*-------------------------------------------------------------------------- IDOP4243
00E4 30 145A5140        A312    CALL    MOVE                                 IDOP4244
00E6 1  02EF            A314    DC      AM45+12                              IDOP4245
00E7 1  02E3            A315    DC      AM45                                 IDOP4246
00E8 0  000C                    DC      12                                   IDOP4247
*-------------------------------------------------------------------------- IDOP4248
00E9 01 740C02AA                MDX   L AM4,12                               IDOP4249
00EB 01 740C00E7                MDX   L A315,12                              IDOP4250
*-------------------------------------------------------------------------- IDOP4251
00ED 01 740C00F6        A313    MDX   L A314,12                              IDOP4252
00EF 01 6E000244                STX   L2 INDEX                               IDOP4253
00F1 0  C102                    LD      1 INDEX-X                            IDOP4254
00F2 0  B104                    CMP     1 MTEN-X                             IDOP4255
00F3 0  7000                    MDX     *                                    IDOP4256
00F4 0  7007                    MDX     A316                                 IDOP4257
*-------------------------------------------------------------------------- IDOP4258
00F5 01 74FF00E7                MDX   I A315,-1     LINE FEED TO SEPARATE MUL- IDOP4259
00F7 0  C1FF                    LD      1 LIFE-X    TIPLIERS AND DIVISORS IN IDOP4260
00F8 01 D48000E7                STO   I A315        MESSAGE                  IDOP4261
00FA 01 740100E7                MDX   L A315,+1                              IDOP4262
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                        *-------------------------------------------------- IDOP4263
00FC 0  7202    A316    MDX   2 2                                          IDOP4264
00FD 0  70E0            MDX     A317                                       IDOP4265
                        *-------------------------------------------------- IDOP4266
00FE 0  C112            LD    1 ADTYP+3-X   PREPARE MESSAGES FOR NOR-      IDOP4267
00FF 01 D400020B        STO   L A17         MAL INTERRUPT EXIT             IDOP4268
0101 0  C11C            LD    1 ADAPR+3-X                                  IDOP4269
0102 01 D4000216        STO   L A18                                        IDOP4270
                        *-------------------------------------------------- IDOP4271
0104 01 C4000265        LD    L TM12                                       IDOP4272
0106 01 D4000405        STO   L TM71                                       IDOP4273
0108 01 4C000205        BSC   L A13         INTERRUPT EXIT                 IDOP4274
                        *-------------------------------------------------- IDOP4275
                        *                                                  IDOP4276
                        *                                                  IDOP4277
                        *                                                  IDOP4278
                        ****************************************************IDOP4279
                        *     ORDERS      OP.CODE 26                     *IDOP4280
                        ****************************************************IDOP4281
010A 00 6600DFBE OPC26  LDX   L2 Y                                         IDOP4282
010C 30 04143244        CALL     DECID      CONVERSION OF ANALYSER ID      IDOP4283
010E 0  DF9C             DC      WORDS      TO BINARY WORDS                IDOP4284
010F 1  026E             DC      ORDER                                     IDOP4285
0110 1  0250             DC      ERIN                                      IDOP4286
                        *-------------------------------------------------- IDOP4287
0111 01 74000250        MDX   L ERIN,0                                     IDOP4288
0113 0  7001            MDX     A700                                       IDOP4289
0114 0  7002            MDX     A701                                       IDOP4290
0115 01 4C000050 A700   BSC   L A50                                        IDOP4291
                        *-------------------------------------------------- IDOP4292
0117 0  C2F2    A701    LD    2 WORDS+20-Y  DECODE 1.BLOCK AND NO.OF       IDOP4293
0118 0  E136            AND   1 AND1-X      BLOCKS                         IDOP4294
0119 0  1888            SRT     8                                          IDOP4295
011A 0  D130            STO   1 ORDER+4-X                                  IDOP4296
011B 0  1010            SLA     16                                         IDOP4297
011C 0  1084            SLT     4                                          IDOP4298
011D 0  D131            STO   1 ORDER+5-X                                  IDOP4299
                        *-------------------------------------------------- IDOP4300
011E 0  C130            LD    1 ORDER+4-X                                  IDOP4301
011F 0  A137            M     1 TEN-X                                      IDOP4302
0120 0  1090            SLT     16                                         IDOP4303
0121 0  8131            A     1 ORDER+5-X                                  IDOP4304
0122 0  D130            STO   1 ORDER+4-X   NUMBER OF BLOCKS               IDOP4305
                        *-------------------------------------------------- IDOP4306
0123 30 02243040        CALL      BICA      CONVERT NO.OF BLOCKS TO        IDOP4307
0125 1  0272             DC      ORDER+4     CARD CODE                      IDOP4308
0126 1  03B8             DC      AM129                                      IDOP4309
0127 0  0002             DC      2                                          IDOP4310
                        *-------------------------------------------------- IDOP4311
0128 0  C2F3            LD    2 WORDS+21-Y                                 IDOP4312
0129 0  1888            SRT     8                                          IDOP4313
012A 0  1010            SLA     16                                         IDOP4314
012B 0  1084            SLT     4                                          IDOP4315
012C 0  D131            STO   1 ORDER+5-X   1ST.DIG.OF NO.OF 1ST.BLOCK     IDOP4316
012D 0  1010            SLA     16                                         IDOP4317
012E 0  1084            SLT     4                                          IDOP4318
012F 0  D132            STO   1 ORDER+6-X   2ND.DIG.OF NO.OF 1ST.BLOCK     IDOP4319
                        *-------------------------------------------------- IDOP4320
0130 0  C131            LD    1 ORDER+5-X                                  IDOP4321
0131 0  A137            M     1 TEN-X                                      IDOP4322
0132 0  1090            SLT     16                                         IDOP4323
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0133 0  8132          A     1 ORDER+6-X                                  IDOP4324
0134 0  D131          STO   1 ORDER+5-X  NO.OF 1ST.BLOCK                 IDOP4325
                    *-------------------------------------------------- IDOP4326
0135 30 02243040      CALL    BICA       CONVERT NO.OF 1ST. BLOCK        IDOP4327
0137 1  0273          DC      ORDER+5    TO CARD CODE                    IDOP4328
0138 1  03BB          DC      AM130                                      IDOP4329
0139 0  0002          DC      2                                          IDOP4330
                    *-------------------------------------------------- IDOP4331
013A 0  C130          LD    1 ORDER+4-X  CHECK OF BLOCK NUMBERS          IDOP4332
013B 0  B142          CMP   1 HEXDE-X                                  IDOP4333
013C 0  700F          MDX     A500       NO.OF BL. GREATER 16          IDOP4334
013D 0  7000          MDX     A601       NO.OF BL. SMALLER 16          IDOP4335
013E 01 74000273 A601 MDX   L ORDER+5,0  NO.OF BL. EQUAL   16          IDOP4336
0140 0  7001          MDX     A602       1ST. BL. UNEQUAL 0            IDOP4337
0141 0  700A          MDX     A500       1ST. BL. EQUAL   0            IDOP4338
                    *-------------------------------------------------- IDOP4339
0142 01 74000272 A602 MDX   L ORDER+4,0                                 IDOP4340
0144 0  7001          MDX     A603       NO.OF BL. UNEQUAL  0          IDOP4341
0145 0  7006          MDX     A500       NO.OF BL. EQUAL    0          IDOP4342
                    *-------------------------------------------------- IDOP4343
0146 0  C138 A603     LD    1 C17-X                                    IDOP4344
0147 0  9131          S     1 ORDER+5-X                                IDOP4345
0148 0  B130          CMP   1 ORDER+4-X                                IDOP4346
0149 0  700D          MDX     A502       17-1ST.BL.GREATER NO.OF BL    IDOP4347
014A 0  7001          MDX     A500       17-1ST.BL.SMALLER NO.OF BL    IDOP4348
014B 0  700B          MDX     A502       17.-1ST.BL.EQUAL  NO.OF BL    IDOP4349
                    *-------------------------------------------------- IDOP4350
014C 0  C114 A500     LD    1 ADTYP+5-X  MESSAGE *BLOCK NO.ERROR*       IDOP4351
014D 01 D400020B      STO   L A17                                      IDOP4352
014F 0  C11E          LD    1 ADAPR+5-X                                IDOP4353
0150 01 D4000216      STO   L A18                                      IDOP4354
0152 0  C123          LD    1 TM12-X                                   IDOP4355
0153 01 D4000423      STO   L TM111                                    IDOP4356
0155 01 4C000205      BSC   L A13                                      IDOP4357
                    *-------------------------------------------------- IDOP4358
0157 0  C130 A502     LD    1 ORDER+4-X  CALCULATE NO.OF LAST BLOCK     IDOP4359
0158 0  8131          A     1 ORDER+5-X                                IDOP4360
0159 0  9105          S     1 ONE-X                                    IDOP4361
015A 0  D130          STO   1 ORDER+4-X                                IDOP4362
                    *-------------------------------------------------- IDOP4363
015B 0  C131          LD    1 ORDER+5-X                                IDOP4364
015C 0  1008          SLA     8          SL8 NO. OF 1ST.BL.             IDOP4365
015D 0  8130          A     1 ORDER+4-X                                IDOP4366
015E 0  D131          STO   1 ORDER+5-X  1ST.BL.AND LAST BL.           IDOP4367
                    *-------------------------------------------------- IDOP4368
015F 30 041430A8      CALL    DECBY      CONVERT SCALER 1,2,3 TO       IDOP4369
0161 0  DF9E          DC      WORDS+2    BINARY                        IDOP4370
0162 0  0003          DC      3                                        IDOP4371
                    *-------------------------------------------------- IDOP4372
0163 0  C2E1          LD    2 WORDS+3-Y  TEST FOR MAX. LENGTH OF X-    IDOP4373
0164 0  B139          CMP   1 C320-X     AXIS                          IDOP4374
0165 0  7010          MDX     A503       ERROR X-AXIS                  IDOP4375
0166 0  7000          MDX     A504                                     IDOP4376
                    *-------------------------------------------------- IDOP4377
0167 0  B107 A504     CMP   1 ZERO-X     TEST IF 0 IS SPECIFIED FOR    IDOP4378
0168 0  7003          MDX     A505       LENGTH OF X-AXIS              IDOP4379
0169 0  7000          MDX     *                                        IDOP4380
016A 0  C13C          LD    1 C512-X     STANDARD LENGTH IS USED       IDOP4381
016B 0  D2E1          STO   2 WORDS+3-Y  FOR X-AXIS                    IDOP4382
                    *-------------------------------------------------- IDOP4383
016C 0  C2E3 A505     LD    2 WORDS+5-Y  TEST FOR MAX. LENGTH OF Y-    IDOP4384
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016D 0  B13A              CMP   1 C70-X       AXIS                                IDOP4385
016E 0  7007              MDX     A503        ERROR Y-AXIS                        IDOP4386
016F 0  7000              MDX     A506                                            IDOP4387
                  *-------------------------------------------------------------- IDOP4388
0170 0  B107      A506    CMP   1 ZERO-X      TEST IF 0 IS SPECIFIED FOR          IDOP4389
0171 0  700F              MDX     A507        LENGTH OF Y-AXIS                    IDOP4390
0172 0  7000              MDX     *                                               IDOP4391
0173 0  C13D              LD    1 C250-X      STANDARD LENGTH IS USED             IDOP4392
0174 0  D2E3              STO   2 WORDS+5-Y   FOR Y-AXIS                          IDOP4393
0175 0  700B              MDX     A507                                            IDOP4394
                  *-------------------------------------------------------------- IDOP4395
0176 0  C115      A503    LD    1 ADTYP+6-X   MESSAGE *ERROR AXIS LENGTH          IDOP4396
0177 01 D400020B          STO   L A17         PLOT*                               IDOP4397
0179 0  C11F              LD    1 ADAPR+6-X                                       IDOP4398
017A 01 D4000216          STO   L A18                                             IDOP4399
017C 0  C123              LD    1 TM12-X                                          IDOP4400
017D 01 D4000430          STO   L TM131                                           IDOP4401
017F 01 4C000205          BSC   L A13                                             IDOP4402
                  *-------------------------------------------------------------- IDOP4403
0181 0  C2E1      A507    LD    2 WORDS+3-Y   STORE AXIS LENGTHS AND               IDOP4404
0182 0  D132              STO   1 ORDER+6-X   TOTAL COUNT                         IDOP4405
0183 0  C2E3              LD    2 WORDS+5-Y                                       IDOP4406
0184 0  D133              STO   1 ORDER+7-X                                       IDOP4407
0185 0  CAE4              LDD   2 WORDS+6-Y                                       IDOP4408
0186 0  D934              STD   1 ORDER+8-X                                       IDOP4409
0187 0  1010              SLA     16                                              IDOP4410
0188 0  D130              STO   1 ORDER+4-X                                       IDOP4411
                  *-------------------------------------------------------------- IDOP4412
0189 0  C2F4              LD    2 WORDS+22-Y  DECODE OP.CODES FOR PLOT,           IDOP4413
018A 0  1884              SRT     4           INT.LIST,CARDS,LIST.                IDOP4414
018B 0  1010              SLA     16                                              IDOP4415
018C 0  1084              SLT     4                                               IDOP4416
018D 0  400C              BSI     A510                                            IDOP4417
                  *-------------------------------------------------------------- IDOP4418
018E 0  C2F5              LD    2 WORDS+23-Y                                      IDOP4419
018F 0  188C              SRT     12                                              IDOP4420
0190 0  1010              SLA     16                                              IDOP4421
0191 0  1084              SLT     4                                               IDOP4422
0192 0  4007              BSI     A510                                            IDOP4423
0193 0  1010              SLA     16                                              IDOP4424
0194 0  1084              SLT     4                                               IDOP4425
0195 0  4004              BSI     A510                                            IDOP4426
0196 0  1010              SLA     16                                              IDOP4427
0197 0  1084              SLT     4                                               IDOP4428
0198 0  4001              BSI     A510                                            IDOP4429
0199 0  7011              MDX     A515                                            IDOP4430
                  *-------------------------------------------------------------- IDOP4431
019A 0  0000      A510    DC      *-*         PREPARE OP.CODES FOR ORDER          IDOP4432
019B 01 74020266          MDX   L ADDR,2       FILE                              IDOP4433
019D 0  B105              CMP   1 ONE-X                                           IDOP4434
019E 0  7004              MDX     A511        LOCATION ORDER+4 =00000000          IDOP4435
019F 0  7003              MDX     A511        0000LCIP                            IDOP4436
01A0 0  C130              LD    1 ORDER+4-X   1 FOR L,C,I,P =LIST,CARDS,          IDOP4437
01A1 0  8105              A     1 ONE-X       INTEGRAL LIST,PLOT RESP.            IDOP4438
01A2 0  7004              MDX     A512        L,C,I,P=0 NO OPERATION              IDOP4439
01A3 0  1010      A511    SLA     16                                              IDOP4440
01A4 01 D4800266          STO   I ADDR                                            IDOP4441
01A6 0  C130              LD    1 ORDER+4-X                                       IDOP4442
01A7 0  1001      A512    SLA     1                                               IDOP4443
01A8 0  D130              STO   1 ORDER+4-X                                       IDOP4444
01A9 01 4C80019A          BSC   I A510                                            IDOP4445
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01AB 0  C130          *-------------------------------------------------- IDOP4446
01AC 0  1801  A515    LD     1 ORDER+4-X                                  IDOP4447
01AD 0  D130          SRA    1                                            IDOP4448
                      STO    1 ORDER+4-X                                  IDOP4449
                      *-------------------------------------------------- IDOP4450
01AE 0  B107          CMP    1 ZERO-X                                     IDOP4451
01AF 0  700C          MDX      A516        ORDER WILL BE STORED           IDOP4452
01B0 0  7000          MDX      A514        ORDER WILL NOT BE STORED       IDOP4453
                      *-------------------------------------------------- IDOP4454
01B1 0  C116  A514    LD     1 ADTYP+7-X   MESSAGE *NO ORDER STORED.*      IDOP4455
01B2 01 D400020B      STO    L A17                                        IDOP4456
01B4 0  C120          LD     1 ADAPR+7-X                                  IDOP4457
01B5 01 D4000216      STO    L A18                                        IDOP4458
01B7 0  C123          LD     1 TM12-X                                     IDOP4459
01B8 01 D400043C      STO    L TM151                                      IDOP4460
01BA 01 4C000205      BSC    L A13                                        IDOP4461
                      *-------------------------------------------------- IDOP4462
01BC 0  C940  A516    LDD    1 FILE-X                                     IDOP4463
01BD 00 DC00DFBC      STD    L TABLE                                      IDOP4464
                      *-------------------------------------------------- IDOP4465
01BF 20 04262495      LIBF     DISKN       READ ORDER FILE FROM DISK      IDOP4466
01C0 0  1000          DC       /1000                                      IDOP4467
01C1 0  DFBC          DC       TABLE                                      IDOP4468
01C2 0  0000          DC       0                                          IDOP4469
                      *-------------------------------------------------- IDOP4470
01C3 20 04262495  A517 LIBF    DISKN       TEST IF ORDER FILE IS READ     IDOP4471
01C4 0  0100          DC       /0100                                      IDOP4472
01C5 0  DFBC          DC       TABLE                                      IDOP4473
01C6 0  70FC          MDX      A517                                       IDOP4474
                      *-------------------------------------------------- IDOP4475
01C7 00 C400E0F4      LD     L IDEN+310                                   IDOP4476
01C9 0  B13B          CMP    1 C31-X                                      IDOP4477
01CA 0  7032          MDX      A518        ORDER FILE FILLED UP           IDOP4478
01CB 0  7001          MDX      A519        ORDER FILE NOT FILLED UP       IDOP4479
01CC 0  7030          MDX      A518        ORDER FILE FILLED UP           IDOP4480
                      *-------------------------------------------------- IDOP4481
01CD 0  A137  A519    M      1 TEN-X       CALCULATE ADDRESS IN ORDER     IDOP4482
01CE 0  1090          SLT      16          FILE                           IDOP4483
01CF 0  813E          A      1 ADRID-X                                    IDOP4484
01D0 0  D003          STO      A520                                       IDOP4485
                      *-------------------------------------------------- IDOP4486
01D1 30 145A5140      CALL     MOVE        STORE ORDER IN ORDER FILE      IDOP4487
01D3 1  026E          DC       ORDER                                      IDOP4488
01D4 0  0000  A520    DC       *-*                                        IDOP4489
01D5 0  000A          DC       10                                         IDOP4490
                      *-------------------------------------------------- IDOP4491
01D6 00 7401E0F4      MDX    L IDEN+310,1  COUNT NO. OF ORDERS            IDOP4492
                      *-------------------------------------------------- IDOP4493
01D8 20 04262495      LIBF     DISKN       STORE ORDER FILE ON DISK       IDOP4494
01D9 0  3000          DC       /3000                                      IDOP4495
01DA 0  DFBC          DC       TABLE                                      IDOP4496
01DB 0  0000          DC       0                                          IDOP4497
                      *-------------------------------------------------- IDOP4498
01DC 30 03595244      CALL     CONID       CONVERT ID FOR MESSAGE ON      IDOP4499
01DE 1  026E          DC       ORDER       INTERFACE TYPEWRITER           IDOP4500
01DF 1  03A8          DC       AM121                                      IDOP4501
                      *-------------------------------------------------- IDOP4502
01E0 01 740003B6      MDX    L AM125,0     CHECK IF PLOT ORDERED          IDOP4503
01E2 0  7001          MDX      A521                                       IDOP4504
01E3 0  700E          MDX      A522                                       IDOP4505
                      *-------------------------------------------------- IDOP4506
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01E4 30 02243040  A521  CALL     BICA         CONVERT LENGTH OF X-AXIS    IDOP4507
01E6 1  0274            DC       ORDER+6      TO CARD CODE                IDOP4508
01E7 1  03BE            DC       AM126                                    IDOP4509
01E8 0  0004            DC       4                                        IDOP4510
                *-------------------------------------------------------- IDOP4511
01E9 30 02243040        CALL     BICA         CONVERT LENGTH OF Y-AXIS    IDOP4512
01EB 1  0275            DC       ORDER+7      TO CARD CODE                IDOP4513
01EC 1  03C3            DC       AM127                                    IDOP4514
01ED 0  0003            DC       3                                        IDOP4515
                *-------------------------------------------------------- IDOP4516
01EE 30 035950C1        CALL     CONCA        CONVERT MAX.COUNT TO        IDOP4517
01F0 1  0276            DC       ORDER+8      CARD CODE                   IDOP4518
01F1 1  03C7            DC       AM128                                    IDOP4519
                *-------------------------------------------------------- IDOP4520
01F2 0  C117    A522    LD     1 ADTYP+8-X                                IDOP4521
01F3 01 D400020B        STO    L A17                                      IDOP4522
01F5 0  C121            LD     1 ADAPR+8-X                                IDOP4523
01F6 01 D4000216        STO    L A18                                      IDOP4524
01F8 0  C123            LD     1 TM12-X                                   IDOP4525
01F9 01 D4000442        STO    L TM171                                    IDOP4526
01FB 01 4C000205        BSC    L A13        NORMAL EXIT                   IDOP4527
                *-------------------------------------------------------- IDOP4528
01FD 0  C118    A518    LD     1 ADTYP+9-X  MESSAGE *REPEAT LATER*        IDOP4529
01FE 01 D400020B        STO    L A17                                      IDOP4530
0200 0  C122            LD     1 ADAPR+9-X                                IDOP4531
0201 01 D4000216        STO    L A18                                      IDOP4532
0203 01 4C000205        BSC    L A13                                      IDOP4533
                *-------------------------------------------------------- IDOP4534
0205 0  C1FC    A13     LD     1 B1-X       PREPARE COMMAND *PRINT        IDOP4535
0206 0  81FD            A      1 BITNO-X    ALPHAMERIC*                   IDOP4536
0207 0  D1F1            STO    1 AREA3+2-X                                IDOP4537
                *-------------------------------------------------------- IDOP4538
0208 0  401D            BSI      A400       COMMAND *PRINT ALPHAMERIC*    IDOP4539
                *-------------------------------------------------------- IDOP4540
0209 20 23A17155        LIBF     TYPEN        TYPEWRITER ERROR MESSAGE    IDOP4541
020A 0  2001            DC       /2001                                    IDOP4542
020B 0  0000    A17     DC       *-*                                      IDOP4543
020C 0  0000            DC       0                                        IDOP4544
                *-------------------------------------------------------- IDOP4545
020D 30 23243595        CALL     TICON                                    IDOP4546
020F 1  0414            DC       TM102                                    IDOP4547
                *-------------------------------------------------------- IDOP4548
0210 20 23A17155        LIBF     TYPEN                                    IDOP4549
0211 0  2001            DC       /2001                                    IDOP4550
0212 1  0411            DC       TM100-1                                  IDOP4551
0213 0  0000            DC       0                                        IDOP4552
                *-------------------------------------------------------- IDOP4553
0214 20 040565C0        LIBF     DAOP         INTERFACE ERROR MESSAGE     IDOP4554
0215 0  1310            DC       /1310        SINGLE ADDR.,EXTER.SYNCH.   IDOP4555
0216 0  0000    A18     DC       *-*                                      IDOP4556
0217 0  0000            DC       0                                        IDOP4557
                *-------------------------------------------------------- IDOP4558
0218 30 19162163        CALL     RESET                                    IDOP4559
021A 1  0265            DC       TM12                                     IDOP4560
021B 1  021C            DC       A273         GO TO A273                  IDOP4561
                *-------------------------------------------------------- IDOP4562
021C 0  C1FE    A273    LD     1 B15-X      PREPARE COMMAND *END OF       IDOP4563
021D 0  81FD            A      1 BITNO-X    INTERRUPT*                    IDOP4564
021E 0  D1F1            STO    1 AREA3+2-X                                IDOP4565
                *-------------------------------------------------------- IDOP4566
021F 0  4006            BSI      A400       COMMAND *END OF INTERRUPT*    IDOP4567
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                        *-------------------------------------------------- IDOP4568
0220 20 040565C0        LIBF    DAOP                                       IDOP4569
0221 0  1000            DC      /1000                                      IDOP4570
0222 1  0234            DC      RESET                                      IDOP4571
0223 0  0000            DC      0                                          IDOP4572
                        *-------------------------------------------------- IDOP4573
0224 30 09563167        CALL    INTEX                                      IDOP4574
                        *-------------------------------------------------- IDOP4575
0226 0  0000  A400      DC      *-*                                        IDOP4576
0227 20 040565C0        LIBF    DAOP        COMMAND RESET                  IDOP4577
0228 0  1000            DC      /1000                                      IDOP4578
0229 1  0234            DC      RESET                                      IDOP4579
022A 0  0000            DC      0                                          IDOP4580
                        *-------------------------------------------------- IDOP4581
022B 20 040565C0        LIBF    DAOP        INTERFACE COMMAND              IDOP4582
022C 0  1000            DC      /1000                                      IDOP4583
022D 1  0231            DC      AREA3                                      IDOP4584
022E 0  0000            DC      0                                          IDOP4585
022F 01 4C800226        BSC  I  A400                                       IDOP4586
                        ********************************************** IDOP4587
0231 0  0002  AREA3     DC      2           AREA FOR INTERFACE COMMAND     IDOP4588
0232 0  007C            DC      124                                        IDOP4589
0233 0  0000            DC      *-*         COMMAND                        IDOP4590
0234 0  0002  RESET     DC      2           RESET COMMAND OUTPUT           IDOP4591
0235 0  007C            DC      124                                        IDOP4592
0236 0  0000            DC      0           COMMAND=0                      IDOP4593
0238    0006  OUTPT     BSS  E  6                                          IDOP4594
023E 0  1400  B1        DC      /1400       PRINT ALPHAMERIC ON INTER-     IDOP4595
                        *                   FACE TYPEWRITER                IDOP4596
023F 0  0000  BITNO     DC      *-*         PISW BIT NUMBER                IDOP4597
0240 0  B000  B15       DC      /B000       END OF INTERRUPT               IDOP4598
0241 0  0300  LIFE      DC      /0300       LINE FEED                      IDOP4599
0242 00 40000081  FACT  DEC     1.0                                        IDOP4600
0244 0  0000  INDEX     DC      *-*                                        IDOP4601
0245 1  02E3  MESCA     DC      AM45                                       IDOP4602
0246 0  FFF6  MTEN      DC      -10                                        IDOP4603
0247 0  0001  ONE       DC      1                                          IDOP4604
0248 0  0FFF  LIMIT     DC      4095                                       IDOP4605
0249 0  0000  ZERO      DC      0                                          IDOP4606
024A 0  0000  LCN       DC      *-*         LOWER CHANNEL NUMBER           IDOP4607
024B 0  0000  UCN       DC      *-*         UPPER CHANNEL NUMBER           IDOP4608
024C 00 00000000  SUM   DEC     0                                          IDOP4609
024E 00 00000000  NULL  DEC     0.                                         IDOP4610
0250 0  0000  ERIN      DC      *-*                                        IDOP4611
0251 0  0000  ADTYP     DC      0           ADDRESSES OF TYPEWRITER        IDOP4612
0252 1  03E2            DC      TM3-1       MESSAGES                       IDOP4613
0253 1  03F0            DC      TM5-1                                      IDOP4614
0254 1  03FF            DC      TM7-1                                      IDOP4615
0255 1  0406            DC      TM9-1                                      IDOP4616
0256 1  0417            DC      TM11-1                                     IDOP4617
0257 1  0424            DC      TM13-1                                     IDOP4618
0258 1  0431            DC      TM15-1                                     IDOP4619
0259 1  043D            DC      TM17-1                                     IDOP4620
025A 1  0443            DC      TM19-1                                     IDOP4621
025B 0  0000  ADAPR     DC      0           ADDRESSES OF INTERFACE         IDOP4622
025C 1  0285            DC      AM2         MESSAGES                       IDOP4623
025D 1  0298            DC      AM3                                        IDOP4624
025E 1  02AA            DC      AM4                                        IDOP4625
025F 1  035B            DC      AM5                                        IDOP4626
0260 1  036C            DC      AM8                                        IDOP4627
0261 1  037E            DC      AM10                                       IDOP4628
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0262 1  0393          DC      AM11                                    IDOP4629
0263 1  03A6          DC      AM12                                    IDOP4630
0264 1  03D2          DC      AM13                                    IDOP4631
0265 0  0000  TM12    DC      *-*             BITNO                   IDOP4632
0266 1  03AE  ADDR    DC      AM122-2                                 IDOP4633
              *-------------------------------------------------------IDOP4634
0267 1  010A  PRG26   DC      OPC26           ORDERS                  IDOP4635
0268 1  026C  PRG27   DC      JUMP                                    IDOP4636
0269 1  026C  PRG28   DC      JUMP                                    IDOP4637
026A 1  026C  PRG29   DC      JUMP                                    IDOP4638
026B 1  0015  PRG30   DC      OPC30           INTEGRATION             IDOP4639
026C 0  70AF  JUMP    MDX     A273                                    IDOP4640
              *-------------------------------------------------------IDOP4641
026E    0000          BSS   E 0                                       IDOP4642
026E 0  0000  ORDER   DC      *-*             ID                      IDOP4643
026F 0  0000          DC      *-*             ID                      IDOP4644
0270 0  0000          DC      *-*             ID                      IDOP4645
0271 0  0000          DC      *-*             ID                      IDOP4646
0272 0  0000          DC      *-*             ORDER 000000000000LCIP  IDOP4647
0273 0  0000          DC      *-*             1.BLOCK, NO.OF BLOCKS   IDOP4648
0274 0  0000          DC      *-*             X-AXIS,LENGTH IN CM     IDOP4649
0275 0  0000          DC      *-*             Y-AXIS,LENGTH IN CM     IDOP4650
0276 0  0000          DC      *-*             TOTAL COUNT             IDOP4651
0277 0  0000          DC      *-*                                     IDOP4652
              *-------------  -------------------------------------- IDOP4653
0278 0  0FFF  AND1    DC      /0FFF                                   IDOP4654
0279 0  000A  TEN     DC      10                                      IDOP4655
027A 0  0011  C17     DC      17                                      IDOP4656
027B 0  0C80  C320    DC      3200            MAX. LENGTH X-AXIS(MM)  IDOP4657
027C 0  02BC  C70     DC      700             MAX. LENGTH Y-AXIS(MM)  IDOP4658
027D 0  001F  C31     DC      31                                      IDOP4659
027E 0  0200  C512    DC      512             STAND.LENGTH X-AXIS(MM) IDOP4660
027F 0  00FA  C250    DC      250             STAND.LENGTH Y-AXIS(MM) IDOP4661
0280 0  0FBE  ADRID   DC      IDEN                                    IDOP4662
0282    0000          BES   E 0                                       IDOP4663
0282 31 16644C40      FILE    DSA     ORD1                            IDOP4664
0285                  ORG     FILE                                    IDOP4665
0282 0  0140          DC      320                                     IDOP4666
0283                  ORG     FILE+2                                  IDOP4667
0284 0  0010  HEXDE   DC      16                                      IDOP4668
0242          X       EQU     FACT                                    IDOP4669
0FBE          Y       EQU     IDEN                                    IDOP4670
              ********************************************************IDOP4671
0285 0  0012  AM2     DC      18                                      IDOP4672
0286 0  007B          DC      123                                     IDOP4673
0287 0  0900          DC      /0900           RED                     IDOP4674
0288 0  8400          DC      /8400           C                       IDOP4675
0289 0  8020          DC      /8020           H                       IDOP4676
028A 0  8100          DC      /8100           E                       IDOP4677
028B 0  8400          DC      /8400           C                       IDOP4678
028C 0  4800          DC      /4800           K                       IDOP4679
028D 0  0000          DC      /0000                                   IDOP4680
028E 0  8400          DC      /8400           C                       IDOP4681
028F 0  8020          DC      /8020           H                       IDOP4682
0290 0  9000          DC      /9000           A                       IDOP4683
0291 0  4100          DC      /4100           N                       IDOP4684
0292 0  8420          DC      /8420           .                       IDOP4685
0293 0  0000          DC      /0000                                   IDOP4686
0294 0  4100          DC      /4100           N                       IDOP4687
0295 0  4080          DC      /4080           O                       IDOP4688
0296 0  8420          DC      /8420           .                       IDOP4689
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0297 0  0500                DC      /0500       BLACK                    IDOP4690
                    *-------------------------------------------------- IDOP4691
0298 0  0011        AM3     DC      17                                   IDOP4692
0299 0  007B                DC      123                                  IDOP4693
029A 0  0900                DC      /0900       RED                      IDOP4694
029B 0  8010                DC      /8010       I                        IDOP4695
029C 0  8200                DC      /8200       D                        IDOP4696
029D 0  0000                DC      /0000                                IDOP4697
029E 0  4100                DC      /4100       N                        IDOP4698
029F 0  4080                DC      /4080       O                        IDOP4699
02A0 0  2400                DC      /2400       T                        IDOP4700
02A1 0  0000                DC      /0000                                IDOP4701
02A2 0  4080                DC      /4080       O                        IDOP4702
02A3 0  4100                DC      /4100       N                        IDOP4703
02A4 0  0000                DC      /0000                                IDOP4704
02A5 0  8200                DC      /8200       D                        IDOP4705
02A6 0  8010                DC      /8010       I                        IDOP4706
02A7 0  2800                DC      /2800       S                        IDOP4707
02A8 0  4800                DC      /4800       K                        IDOP4708
02A9 0  0500                DC      /0500       BLACK                    IDOP4709
                    *-------------------------------------------------- IDOP4710
02AA 0  0038        AM4     DC      56                                   IDOP4711
02AB 0  007B                DC      123                                  IDOP4712
02AC 0  8010                DC      /8010       I                        IDOP4713
02AD 0  8200                DC      /8200       D                        IDOP4714
02AE 0  00A0                DC      /00A0       =                        IDOP4715
02AF    0007        AM41    BSS     7                                    IDOP4716
02B6 0  0000                DC      /0000                                IDOP4717
02B7 0  0000                DC      /0000                                IDOP4718
02B8 0  4400                DC      /4400       L                        IDOP4719
02B9 0  8400                DC      /8400       C                        IDOP4720
02BA 0  4100                DC      /4100       N                        IDOP4721
02BB 0  00A0                DC      /00A0       =                        IDOP4722
02BC    0004        AM42    BSS     4                                    IDOP4723
02C0 0  0000                DC      /0000                                IDOP4724
02C1 0  0000                DC      /0000                                IDOP4725
02C2 0  2200                DC      /2200       U                        IDOP4726
02C3 0  8400                DC      /8400       C                        IDOP4727
02C4 0  4100                DC      /4100       N                        IDOP4728
02C5 0  00A0                DC      /00A0       =                        IDOP4729
02C6    0004        AM43    BSS     4                                    IDOP4730
02CA 0  0000                DC      /0000                                IDOP4731
02CB 0  0000                DC      /0000                                IDOP4732
02CC 0  0000                DC      /0000                                IDOP4733
02CD 0  4010                DC      /4010       R                        IDOP4734
02CE 0  8100                DC      /8100       E                        IDOP4735
02CF 0  2800                DC      /2800       S                        IDOP4736
02D0 0  00A0                DC      /00A0       =                        IDOP4737
02D1 0  0000                DC      /0000                                IDOP4738
02D2    0010        AM44    BSS     16                                   IDOP4739
02E2 0  0300                DC      /0300       LINE FEED                IDOP4740
02E3    0078        AM45    BSS     120                                  IDOP4741
                    *-------------------------------------------------- IDOP4742
035B 0  0010        AM5     DC      16                                   IDOP4743
035C 0  007B                DC      123                                  IDOP4744
035D 0  0900                DC      /0900       RED                      IDOP4745
035E 0  8400                DC      /8400       C                        IDOP4746
035F 0  8020                DC      /8020       H                        IDOP4747
0360 0  8100                DC      /8100       E                        IDOP4748
0361 0  8400                DC      /8400       C                        IDOP4749
0362 0  4800                DC      /4800       K                        IDOP4750
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0363 0 0000          DC      /0000                                  IDOP4751
0364 0 8040          DC      /8040       G                          IDOP4752
0365 0 4010          DC      /4010       K                          IDOP4753
0366 0 8420          DC      /8420       •                          IDOP4754
0367 0 0000          DC      /0000                                  IDOP4755
0368 0 4100          DC      /4100       N                          IDOP4756
0369 0 4080          DC      /4080       O                          IDOP4757
036A 0 8420          DC      /8420       •                          IDOP4758
036B 0 0500          DC      /0500       BLACK                      IDOP4759
                     *-------------------------------------------   IDOP4760
036C 0 0011 AM8      DC      17                                     IDOP4761
036D 0 007B          DC      123                                    IDOP4762
036E 0 0900          DC      /0900       RED                        IDOP4763
036F 0 8400          DC      /8400       C                          IDOP4764
0370 0 8020          DC      /8020       H                          IDOP4765
0371 0 8100          DC      /8100       E                          IDOP4766
0372 0 8400          DC      /8400       C                          IDOP4767
0373 0 4800          DC      /4800       K                          IDOP4768
0374 0 0000          DC      /0000                                  IDOP4769
0375 0 8800          DC      /8800       B                          IDOP4770
0376 0 4400          DC      /4400       L                          IDOP4771
0377 0 8420          DC      /8420       •                          IDOP4772
0378 0 0000          DC      /0000                                  IDOP4773
0379 0 4100          DC      /4100       N                          IDOP4774
037A 0 4080          DC      /4080       O                          IDOP4775
037B 0 8420          DC      /8420       •                          IDOP4776
037C 0 2800          DC      /2800       S                          IDOP4777
037D 0 0500          DC      /0500       BLACK                      IDOP4778
                     *-------------------------------------------   IDOP4779
037E 0 0014 AM10     DC      20                                     IDOP4780
037F 0 007B          DC      123                                    IDOP4781
0380 0 0900          DC      /0900       RED                        IDOP4782
0381 0 8100          DC      /8100       E                          IDOP4783
0382 0 4010          DC      /4010       R                          IDOP4784
0383 0 4010          DC      /4010       R                          IDOP4785
0384 0 4080          DC      /4080       U                          IDOP4786
0385 0 4010          DC      /4010       R                          IDOP4787
0386 0 0000          DC      /0000                                  IDOP4788
0387 0 9000          DC      /9000       A                          IDOP4789
0388 0 2040          DC      /2040       X                          IDOP4790
0389 0 8010          DC      /8010       I                          IDOP4791
038A 0 2800          DC      /2800       S                          IDOP4792
038B 0 0000          DC      /0000                                  IDOP4793
038C 0 4400          DC      /4400       L                          IDOP4794
038D 0 8100          DC      /8100       E                          IDOP4795
038E 0 4100          DC      /4100       N                          IDOP4796
038F 0 8040          DC      /8040       G                          IDOP4797
0390 0 2400          DC      /2400       T                          IDOP4798
0391 0 8020          DC      /8020       H                          IDOP4799
0392 0 0500          DC      /0500       BLACK                      IDOP4800
                     *-------------------------------------------   IDOP4801
0393 0 0012 AM11     DC      18                                     IDOP4802
0394 0 007B          DC      123                                    IDOP4803
0395 0 0900          DC      /0900       RED                        IDOP4804
0396 0 4100          DC      /4100       N                          IDOP4805
0397 0 4080          DC      /4080       O                          IDOP4806
0398 0 0000          DC      /0000                                  IDOP4807
0399 0 4080          DC      /4080       U                          IDOP4808
039A 0 4010          DC      /4010       R                          IDOP4809
039B 0 8200          DC      /8200       D                          IDOP4810
039C 0 8100          DC      /8100       E                          IDOP4811
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0390 0  4010          DC      /4010       R                    IDOP4812
039E 0  0000          DC      /0000                            IDOP4813
039F 0  2800          DC      /2800       S                    IDOP4814
03A0 0  2400          DC      /2400       T                    IDOP4815
03A1 0  4080          DC      /4080       U                    IDOP4816
03A2 0  4010          DC      /4010       R                    IDOP4817
03A3 0  8100          DC      /8100       E                    IDOP4818
03A4 0  8200          DC      /8200       D                    IDOP4819
03A5 0  0500          DC      /0500       BLACK                IDOP4820
                      *-------------------------------------------IDOP4821
03A6 0  002B  AM12    DC      43                               IDOP4822
03A7 0  007B          DC      123                              IDOP4823
03A8    0007  AM121   BSS     7           ID                   IDOP4824
03AF 0  0000          DC      /0000                            IDOP4825
03B0 0  4400  AM122   DC      /4400       L                    IDOP4826
03B1 0  0000          DC      /0000                            IDOP4827
03B2 0  8400  AM123   DC      /8400       C                    IDOP4828
03B3 0  0000          DC      /0000                            IDOP4829
03B4 0  8010  AM124   DC      /8010       I                    IDOP4830
03B5 0  0000          DC      /0000                            IDOP4831
03B6 0  4040  AM125   DC      /4040       P                    IDOP4832
03B7 0  0000          DC      /0000                            IDOP4833
03B8 0  0000  AM129   DC      /0000       NO. OF BLOCKS        IDOP4834
03B9 0  0000          DC      /0000                            IDOP4835
03BA 0  0000          DC      /0000                            IDOP4836
03BB 0  0000  AM130   DC      /0000       NO.OF 1ST. BLOCK     IDOP4837
03BC 0  0000          DC      /0000                            IDOP4838
03BD 0  0000          DC      /0000                            IDOP4839
03BE 0  0000  AM126   DC      /0000       LENGTH X-AXIS (MM)   IDOP4840
03BF 0  0000          DC      /0000                            IDOP4841
03C0 0  0000          DC      /0000                            IDOP4842
03C1 0  0000          DC      /0000                            IDOP4843
03C2 0  0000          DC      /0000                            IDOP4844
03C3 0  0000  AM127   DC      /0000       LENGTH Y-AXIS (MM)   IDOP4845
03C4 0  0000          DC      /0000                            IDOP4846
03C5 0  0000          DC      /0000                            IDOP4847
03C6 0  0000          DC      /0000                            IDOP4848
03C7 0  0000  AM128   DC      /0000       MAXIMUM COUNT        IDOP4849
03C8 0  0000          DC      /0000                            IDOP4850
03C9 0  0000          DC      /0000                            IDOP4851
03CA 0  0000          DC      /0000                            IDOP4852
03CB 0  0000          DC      /0000                            IDOP4853
03CC 0  0000          DC      /0000                            IDOP4854
03CD 0  0000          DC      /0000                            IDOP4855
03CE 0  0000          DC      /0000                            IDOP4856
03CF 0  0000          DC      /0000                            IDOP4857
03D0 0  0000          DC      /0000                            IDOP4858
03D1 0  0000          DC      /0000                            IDOP4859
                      *-------------------------------------------IDOP4860
03D2 0  000F  AM13    DC      15                               IDOP4861
03D3 0  007B          DC      123                              IDOP4862
03D4 0  0900          DC      /0900       RED                  IDOP4863
03D5 0  4010          DC      /4010       R                    IDOP4864
03D6 0  8100          DC      /8100       E                    IDOP4865
03D7 0  4040          DC      /4040       P                    IDOP4866
03D8 0  8100          DC      /8100       E                    IDOP4867
03D9 0  9000          DC      /9000       A                    IDOP4868
03DA 0  2400          DC      /2400       T                    IDOP4869
03DB 0  0000          DC      /0000                            IDOP4870
03DC 0  4400          DC      /4400       L                    IDOP4871
03DD 0  9000          DC      /9000       A                    IDOP4872
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03DE 0  2400          DC      /2400       T                                IDOP4873
03DF 0  8100          DC      /8100       E                                IDOP4874
03E0 0  4010          DC      /4010       R                                IDOP4875
03F1 0  0500          DC      /0500       BLACK                            IDOP4876
                  ********************************************************** IDOP4877
03E2 0  0000          DC      TM4-TM3                                      IDOP4878
03F3    0018  TM3    DMES    'R'ACH. NO. ERR.,INTEG.,A'E                  IDOP4879
03FF 0  0000  TM31   DC      *-*         BITNO                            IDOP4880
03F0    0000  TM4    BES     0                                            IDOP4881
                  *---------------------------------------------------------- IDOP4882
03F0 0  000E          DC      TM6-TM5                                      IDOP4883
03F1    001A  TM5    DMES    'R'AID NOT UN DISK,INTEG.,A'E                IDOP4884
03FE 0  0000  TM51   DC      *-*         BITNO                            IDOP4885
03FF    0000  TM6    BES     0                                            IDOP4886
                  *---------------------------------------------------------- IDOP4887
03FF 0  0006          DC      TM8-TM7                                      IDOP4888
0400    000A  TM7    DMES    'R'BINTEG A'E                                IDOP4889
0405 0  0000  TM71   DC      *-*         BITNO                            IDOP4890
0406    0000  TM8    BES     0                                            IDOP4891
                  *---------------------------------------------------------- IDOP4892
0406 0  000A          DC      TM10-TM9                                     IDOP4893
0407    0012  TM9    DMES    'R'AERR. INT. NO.,A'E                        IDOP4894
0410 0  0000  TM91   DC      *-*         BITNO                            IDOP4895
0411    0000  TM10   BES     0                                            IDOP4896
                  *---------- ----------------------------------------------- IDOP4897
0411 0  0005          DC      TM101-TM100                                  IDOP4898
0412    0004  TM100  DMES    'B'2X'E                                      IDOP4899
0414    0003  TM102  BSS     3           TIME                             IDOP4900
0417    0000  TM101  BES     0                                            IDOP4901
                  *---------------------------------------------------------- IDOP4902
0417 0  000C          DC      TM121-TM11                                   IDOP4903
0418    0016  TM11   DMES    'RBL. NO. ERR.,ORDER, A'E                    IDOP4904
0423 0  0000  TM111  DC      *-*         BITNO                            IDOP4905
0424    0000  TM121  BES     0                                            IDOP4906
                  *---------------------------------------------------------- IDOP4907
0424 0  000C          DC      TM14-TM13                                    IDOP4908
0425    0016  TM13   DMES    'RERR. PLOT SPECIF., A'E                     IDOP4909
0430 0  0000  TM131  DC      *-*         BITNO                            IDOP4910
0431    0000  TM14   BES     0                                            IDOP4911
                  *---------------------------------------------------------- IDOP4912
0431 0  000B          DC      TM16-TM15                                    IDOP4913
0432    0014  TM15   DMES    'RNO ORDER SPECIF.,A'E                       IDOP4914
043C 0  0000  TM151  DC      *-*         BITNO                            IDOP4915
043D    0000  TM16   BES     0                                            IDOP4916
                  *---------------------------------------------------------- IDOP4917
0430 0  0005          DC      TM18-TM17                                    IDOP4918
043E    0008  TM17   DMES    'RORDER,A'E                                  IDOP4919
0442 0  0000  TM171  DC      *-*         BITNO                            IDOP4920
0443    0000  TM18   BES     0                                            IDOP4921
                  *---------------------------------------------------------- IDOP4922
0443 0  0014          DC      TM20-TM19                                    IDOP4923
0444    0028  TM19   DMES    '5R'10XSTART ANALYSER WORK'5R'E               IDOP4924
0458    0000  TM20   BES     0                                            IDOP4925
                  ********************************************************** IDOP4926
0458                  END                                                  IDOP4927
```

NO ERRORS IN ABOVE ASSEMBLY.

```
IDOP4
DUP FUNCTION COMPLETED
// END OF ALL JOBS
```

```
                         ************************************************* BICA 002
                         *                                               * BICA 003
                         *     CONVERSION OF A SINGLE WORD BINARY NUMBER  * BICA 004
                         *     TO CARD CODE DIGITS                       * BICA 005
                         *                                               * BICA 006
                         *     CALL    BICA                              * BICA 007
                         *     DC      ADDR. OF BINARY NUMBER            * BICA 008
                         *     DC      ADDR. OF CARD CODE DIGITS,N POS.  * BICA 009
                         *     DC      N,NUMBER OF LEAST SIGNIFICANT CARD* BICA 010
                         *             CODE DIGITS TO BE USED            * BICA 011
                         *                                               * BICA 012
                         ************************************************* BICA 013
0000     02243040        BICA    ENT     BICA                              BICA 014
0000 0   0000            BICA    DC      *-*                               BICA 015
0001 01  6D0000022               STX   L1 XR1+1       SAVE INDEX REGISTERS BICA 016
0003 01  6E000024                STX   L2 XR2+1                            BICA 017
0005 01  6F000026                STX   L3 XR3+1                            BICA 018
0007 00  67800067                LDX   I3 103                              BICA 019
                         *-------------------------------------------------BICA 020
0009 01  65800000                LDX   I1 BICA                             BICA 021
000B 0   C102                    LD     1 2                                BICA 022
000C 0   A01E                    M       MONE                              BICA 023
000D 0   1090                    SLT     16                                BICA 024
000E 0   D001                    STO     *+1                               BICA 025
000F 00  66000000                LDX   L2 *-*         -N IN XR2            BICA 026
                         *-------------------------------------------------BICA 027
0011 0   C100                    LD     1 0                                BICA 028
0012 0   D005                    STO     A1+1        ADDR. OF BINARY NO.TO A1+1 BICA 029
                         *-------------------------------------------------BICA 030
0013 0   C101                    LD     1 1                                BICA 031
0014 0   D001                    STO     *+1                               BICA 032
0015 00  65000000                LDX   L1 *-*         ADDR.OF CARD CODE DIGITS BICA 033
                         *-------------------------------------------------BICA 034
0017 00  C4000000        A1      LD    L  *-*                              BICA 035
0019 20  02255103                LIBF    BINDC                             BICA 036
001A 1   002C                    DC      OUTPT                             BICA 037
001B 01  C6000032        A2      LD    L2 OUTPT+6                          BICA 038
001D 0   D100                    STO    1 0                                BICA 039
001E 0   7101                    MDX    1 1                                BICA 040
001F 0   7201                    MDX    2 1                                BICA 041
0020 0   70FA                    MDX      A2                               BICA 042
                         *-------------------------------------------------BICA 043
0021 00  65000000        XR1     LDX   L1 *-*                              BICA 044
0023 00  66000000        XR2     LDX   L2 *-*                              BICA 045
0025 00  67000000        XR3     LDX   L3 *-*                              BICA 046
                         *-------------------------------------------------BICA 047
0027 01  74030000                MDX   L  BICA,3                           BICA 048
0029 01  4C800000                BSC   I  BICA                             BICA 049
                         *-------------------------------------------------BICA 050
002B 0   FFFF            MONE    DC      -1                                BICA 051
002C     0006            OUTPT   BSS     6                                 BICA 052
                         ************************************************* BICA 053
0032                             END                                       BICA 054
```

NO ERRORS IN ABOVE ASSEMBLY.

BICA
DUP FUNCTION COMPLETED

```
                                                                      CONCA002
*                                                                     CONCA003
*     CONVERSION OF ONE DOUBLE BINARY WORD TO TEN                     CONCA004
*     DECIMAL DIGITS AND SIGN IN CARD CODE                            CONCA005
*                                                                     CONCA006
*     CALL    CONCA                                                   CONCA007
*     DC      ADDR. OF DOUBLE BINARY WORD (EVEN)                      CONCA008
*     DC      ADDR. OF BSS 11 TO STORE THE TEN CRD                    CONCA009
*             CODE DIGITS AND THE CARD CODE SIGN.                     CONCA010
*             LEADING ZEROS ARE SUPPRESSED. THE                       CONCA011
*             SIGN IS IN THE MEMORY LOCAT.BEFORE                      CONCA012
*             THE FIRST NON-ZERO DIGIT. IN CASE OF                    CONCA013
*             NO NON-ZERO DIGITS ONLY ONE ZERO IS                     CONCA014
*             PUT INTO THE LAST LOCATION OF THE                       CONCA015
*             BSS-11-ZONE.ALL OTHER LOCATIONS                         CONCA016
*             CONTAIN CARD CODE BLANKS.                               CONCA017
*                                                                     CONCA018
                                                                      CONCA019
0000    035950C1      ENT     CONCA                                   CONCA020
0000 0  0000  CONCA   DC      *-*                                     CONCA021
0001 01 6D000051      STX  L1 XR1+1       SAVE INDEX REGISTERS        CONCA022
0003 01 6E000053      STX  L2 XR2+1                                   CONCA023
0005 01 6F000055      STX  L3 XR3+1                                   CONCA024
0007 00 67800067      LDX  I3 103                                     CONCA025
*-------------------------------------------------------------------- CONCA026
0009 01 65800000      LDX  I1 CONCA                                   CONCA027
000B 0  C100          LD   1  0                                       CONCA028
000C 0  D008          STO     A27                                     CONCA029
000D 0  C101          LD   1  1           ADDR.OF BSS 11              CONCA030
000E 0  D007          STO     A28                                     CONCA031
000F 0  D023          STO     A36+2                                   CONCA032
0010 0  D01D          STO     A31+2                                   CONCA033
0011 0  8051          A       ONE                                     CONCA034
0012 0  D01C          STO     A31+3                                   CONCA035
*-------------------------------------------------------------------- CONCA036
0013 30 02244143      CALL    BIDEC                                   CONCA037
0015 0  0000  A27     DC      *-*         ADDR.OF DOUBLE BIN. WORD    CONCA038
0016 0  0000  A28     DC      *-*         ADDR.OF BSS 11              CONCA039
*-------------------------------------------------------------------- CONCA040
0017 0  620A  A29     LDX  2  10                                      CONCA041
0018 01 65800016      LDX  I1 A28                                     CONCA042
001A 0  C109  A101    LD   1  9           CONVERSION OF TEN BCD'S     CONCA043
001B 20 02255103      LIBF    BINDC       TO TEN CARD CODE DIGITS     CONCA044
001C 1  005A          DC      OUTPT                                   CONCA045
001D 0  C041          LD      OUTPT+5                                 CONCA046
001E 0  D109          STO  1  9                                       CONCA047
001F 0  71FF          MDX  1  -1                                      CONCA048
0020 0  72FF          MDX  2  -1                                      CONCA049
0021 0  70F8          MDX     A101                                    CONCA050
*-------------------------------------------------------------------- CONCA051
0022 01 65800016      LDX  I1 A28         CARD CODE SIGN TO FIRST     CONCA052
0024 0  C10A          LD   1  10          LOCATION OF BSS 11          CONCA053
0025 0  4820          BSC     Z                                       CONCA054
0026 0  7003          MDX     A30                                     CONCA055
0027 0  C039          LD      POS                                     CONCA056
0028 0  D039          STO     SIGN                                    CONCA057
0029 0  7002          MDX     A31                                     CONCA058
002A 0  C035  A30     LD      NEG                                     CONCA059
002B 0  D036          STO     SIGN                                    CONCA060
*-------------------------------------------------------------------- CONCA061
002C 30 145A5140  A31 CALL    MOVE                                    CONCA062
```

```
002E 0  0000              DC      *-*          ADDR.OF BSS 11                CONCA063
002F 0  0000              DC      *-*          ADDR.OF BSS 11 PLUS 1         CONCA064
0030 0  000A              DC      10                                         CONCA065
0031 0  C030       A36    LD      SIGN                                       CONCA066
0032 00 D4000000          STO  L  *-*          ADDR.OF BSS 11                CONCA067
                   *-------------------------------------------------------- CONCA068
0034 0  620A              LDX  2  10           SUPPRESS LEADING ZEROS        CONCA069
0035 0  C101       A34    LD   1  1                                          CONCA070
0036 0  B02F              CMP     ZERO                                       CONCA071
0037 0  7007              MDX     A32                                        CONCA072
0038 0  7006              MDX     A32                                        CONCA073
0039 0  C02A              LD      BLANC                                      CONCA074
003A 0  D101              STO  1  1                                          CONCA075
003B 0  7101              MDX  1  1                                          CONCA076
003C 0  72FF              MDX  2  -1                                         CONCA077
003D 0  70F7              MDX     A34                                        CONCA078
003E 0  700D              MDX     A33          ALL DIGITS ZERO               CONCA079
                   *-------------------------------------------------------- CONCA080
003F 0  6A1A       A32    STX  2  OUTPT                                      CONCA081
0040 0  C019              LD      OUTPT                                      CONCA082
0041 0  B023              CMP     TEN                                        CONCA083
0042 0  7002              MDX     A35                                        CONCA084
0043 0  7001              MDX     A35                                        CONCA085
0044 0  700B              MDX     XR1          EXIT                          CONCA086
0045 0  C01C       A35    LD      SIGN                                       CONCA087
0046 0  D100              STO  1  0                                          CONCA088
0047 01 65800016   A37    LDX  I1 A28                                        CONCA089
0049 0  C01A              LD      BLANC                                      CONCA090
004A 0  D100              STO  1  0                                          CONCA091
004B 0  7004              MDX     XR1          EXIT                          CONCA092
004C 0  C019       A33    LD      ZERO                                       CONCA093
004D 0  71FF              MDX  1  -1                                         CONCA094
004E 0  D101              STO  1  1                                          CONCA095
004F 0  70F7              MDX     A37                                        CONCA096
                   *-------------------------------------------------------- CONCA097
0050 00 65000000   XR1    LDX  L1 *-*                                        CONCA098
0052 00 66000000   XR2    LDX  L2 *-*                                        CONCA099
0054 00 67000000   XR3    LDX  L3 *-*                                        CONCA100
                   *-------------------------------------------------------- CONCA101
0056 01 74020000          MDX  L  CONCA,+2                                   CONCA102
0058 01 4C800000          BSC  I  CONCA                                      CONCA103
                   *-------------------------------------------------------- CONCA104
005A    0006       OUTPT  BSS  E  6                                          CONCA105
0060 0  4000       NEG    DC      /4000        NEG.SIGN IN CARD CODE         CONCA106
0061 0  80A0       POS    DC      /80A0        POS.SIGN IN CARD CODE         CONCA107
0062 0  0000       SIGN   DC      *-*                                        CONCA108
0063 0  0001       ONE    DC      1                                          CONCA109
0064 0  0000       BLANC  DC      /0000        CARD CODE BLANC               CONCA110
0065 0  000A       TEN    DC      10                                         CONCA111
0066 0  2000       ZERO   DC      /2000        CARD CODE ZERO                CONCA112
                   ********************************************************* CONCA113
0068               END                                                       CONCA114
```

NO ERRORS IN ABOVE ASSEMBLY.
CONCA
DUP FUNCTION COMPLETED

```
                                                                                CONID002
                *****************************************************           CONID002
                *                                                   *           CONID003
                *     CONVERSION OF FOUR-WORD IDENTIFICATION NO.    *           CONID004
                *     TO CARD CODE DIGITS (XX.XXXX)                 *           CONID005
                *                                                   *           CONID006
                *     CALL    CONID                                 *           CONID007
                *     DC      ADDR. OF ID (4 WORDS)                 *           CONID008
                *     DC      ADDR. OF BSS 7 FOR 6 CARD CODE DIGIT  *           CONID009
                *             WITH PERIOD (XX.XXXX)                 *           CONID010
                *                                                   *           CONID011
                *****************************************************           CONID012
0000     03595244       ENT     CONID                                           CONID013
0000 0   0000   CONID DC      *-*                                               CONID014
0001 01  6D000023       STX   L1 XR1+1       SAVE INDEX REGISTER               CONID015
                *-------------------------------------------------------------- CONID016
0003 01  65800000       LDX   I1 CONID                                          CONID017
0005 0   C100           LD     1 0                                              CONID018
0006 0   D024           STO      A10                                            CONID019
0007 0   C101           LD     1 1                                              CONID020
0008 0   D023           STO      A11                                            CONID021
0009 0   C027           LD       TWO                                            CONID022
000A 0   D022           STO      A12                                            CONID023
000B 0   401C           BSI      CONV        CONVERT INTER.NO.                  CONID024
                *-------------------------------------------------------------- CONID025
000C 01  7402002C       MDX   L    1,2                                          CONID026
000E 0   C023           LD       PERID                                          CONID027
000F 01  D480002C       STO   I  A11         CARD CODE PERIOD                   CONID028
                *-------------------------------------------------------------- CONID029
0011 01  7403002C       MDX   L  A11,3                                          CONID030
0013 01  7403002B       MDX   L  A10,3                                          CONID031
0015 0   4012           BSI      CONV        CONVERT SERIAL NO.                 CONID032
                *-------------------------------------------------------------- CONID033
0016 01  74FF002C       MDX   I  A11,-1                                         CONID034
0018 01  74FF002B       MDX   I  A10,-1                                         CONID035
001A 0   C015           LD       ONE                                            CONID036
001B 0   D011           STO      A12                                            CONID037
001C 0   400B           BSI      CONV        2ND. EXPER. NO.                    CONID038
                *-------------------------------------------------------------- CONID039
001D 01  74FF002C       MDX   I  A11,-1                                         CONID040
001F 01  74FF002B       MDX   I  A10,-1                                         CONID041
0021 0   4006           BSI      CONV        1ST. EXPER. NO.                    CONID042
                *-------------------------------------------------------------- CONID043
0022 00  65000000   XR1 LDX   L1 *-*                                            CONID044
0024 01  74020000       MDX   L  CONID,2                                        CONID045
0026 01  4C800000       BSC   I  CONID                                          CONID046
                *-------------------------------------------------------------- CONID047
0028 0   0000       CONV DC      *-*                                            CONID048
0029 30  02243040       CALL     BICA                                           CONID049
002B 0   0000       A10  DC      *-*         ADDR.OF BINARY NO.                 CONID050
002C 0   0000       A11  DC      *-*         ADDR.OF CARD CODE DIGITS           CONID051
002D 0   0000       A12  DC      *-*         NO.OF CARD CODE DIGITS             CONID052
002E 01  4C800028       BSC   I  CONV                                           CONID053
                *-------------------------------------------------------------- CONID054
0030 0   0001       ONE  DC      1                                              CONID055
0031 0   0002       TWO  DC      2                                              CONID056
0032 0   8420       PERID DC     /8420       CARD CODE PERIOD                   CONID057
                *****************************************************           CONID058
0034                    END                                                     CONID059

     NO ERRORS IN ABOVE ASSEMBLY.
CONID
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```
                *************************************************** CON1 002
                *                                                 * CON1 003
                *     CONVERSION OF SIX-WORD IDENTIFICATION NO.   * CON1 004
                *     TO CARD CODE DIGITS                         * CON1 005
                *                                                 * CON1 006
                *     CALL    CONI1                               * CON1 007
                *     DC      ADDR. OF ID (6 WORDS)               * CON1 008
                *     DC      ADDR.OF BSS 12 FOR CARD CODE DIGITS * CON1 009
                *     DC      0 OR 1     0= XXXXBBBB, B=BLANK     * CON1 010
                *                        1= XXXXBXXBXXBB          * CON1 011
                *                                                 * CON1 012
                *************************************************** CON1 013
0000    03595271        ENT     CONI1                               CON1 014
0000 0  0000    CONI1   DC      *-*                                 CON1 015
0001 01 6D00004F        STX  L1 XR1+1       SAVE INDEX REGISTER     CON1 016
                *-------------------------------------------------- CON1 017
0003 01 65800000        LDX  I1 CONI1                               CON1 018
0005 0  C100            LD    1 0                                   CON1 019
0006 0  D050            STO     A10                                 CON1 020
0007 0  C101            LD    1 1                                   CON1 021
0008 0  D04F            STO     A11                                 CON1 022
0009 0  C102            LD    1 2                                   CON1 023
000A 0  D053            STO     IND                                 CON1 024
000B 0  C051            LD      TWO                                 CON1 025
000C 0  D04C            STO     A12                                 CON1 026
                *-------------------------------------------------- CON1 027
000D 01 74020058        MDX  L  A11,2                               CON1 028
000F 01 74030057        MDX  L  A10,3                               CON1 029
0011 0  4042            BSI     CONV        CONVERT SERIAL NO.      CON1 030
                *-------------------------------------------------- CON1 031
0012 01 74FF0058        MDX  I  A11,-1                              CON1 032
0014 01 74FF0057        MDX  I  A10,-1                              CON1 033
0016 0  C045            LD      ONE                                 CON1 034
0017 0  D041            STO     A12                                 CON1 035
0018 0  403B            BSI     CONV        2ND. EXPER. NO.         CON1 036
                *-------------------------------------------------- CON1 037
0019 01 74FF0058        MDX  I  A11,-1                              CON1 038
001B 01 74FF0057        MDX  I  A10,-1                              CON1 039
001D 0  4036            BSI     CONV        1ST. EXPER. NO.         CON1 040
                *-------------------------------------------------- CON1 041
001E 01 74040058        MDX  L  A11,4                               CON1 042
0020 0  1010            SLA     16                                  CON1 043
0021 01 D4800058        STO  I  A11                                 CON1 044
                *-------------------------------------------------- CON1 045
0023 01 7400005E        MDX  L  IND,0                               CON1 046
0025 0  700E            MDX     A13                                 CON1 047
                *-------------------------------------------------- CON1 048
0026 01 74010058        MDX  L  A11,1                               CON1 049
0028 0  1010            SLA     16                                  CON1 050
0029 01 D4800058        STO  I  A11                                 CON1 051
002B 01 74010058        MDX  L  A11,1                               CON1 052
002D 01 D4800058        STO  I  A11                                 CON1 053
002F 01 74010058        MDX  L  A11,1                               CON1 054
0031 01 D4800058        STO  I  A11                                 CON1 055
0033 0  701A            MDX     XR1                                 CON1 056
                *-------------------------------------------------- CON1 057
0034 0  C028    A13     LD      TWO                                 CON1 058
0035 0  D023            STO     A12                                 CON1 059
                *-------------------------------------------------- CON1 060
0036 01 74010058        MDX  L  A11,1                               CON1 061
0038 01 74030057        MDX  L  A10,3                               CON1 062
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003A 0  4019          BSI     CONV        1.BLOCK                          CONI 063
                    *-------------------------------------------------------- CONI 064
003B 01 74020058      MDX  L  A11,2                                          CONI 065
003D 0  1010          SLA     16                                             CONI 066
003E 01 D4800058      STO  I  A11                                            CONI 067
0040 01 74010058      MDX  L  A11,1                                          CONI 068
0042 01 74010057      MDX  L  A10,1                                          CONI 069
0044 0  400F          BSI     CONV        NO.OF BLOCKS                       CONI 070
                    *-------------------------------------------------------- CONI 071
0045 01 74020058      MDX  L  A11,2                                          CONI 072
0047 0  1010          SLA     16                                             CONI 073
0048 01 D4800058      STO  I  A11                                            CONI 074
004A 01 74010058      MDX  L  A11,1                                          CONI 075
004C 01 D4800058      STO  I  A11                                            CONI 076
                    *-------------------------------------------------------- CONI 077
004E 00 65000000    XR1   LDX  L1 *-*                                        CONI 078
0050 01 74030000      MDX  L  CONI1,3                                        CONI 079
0052 01 4C800000      BSC  I  CONI1                                          CONI 080
                    *-------------------------------------------------------- CONI 081
0054 0  0000        CONV  DC      *-*                                        CONI 082
0055 30 02243040          CALL    BICA                                       CONI 083
0057 0  0000        A10   DC      *-*         ADDR.OF BINARY NO.             CONI 084
0058 0  0000        A11   DC      *-*         ADDR.OF CARD CODE DIGITS       CONI 085
0059 0  0000        A12   DC      *-*         NO.OF CARD CODE DIGITS         CONI 086
005A 01 4C800054      BSC  I  CONV                                           CONI 087
                    *-------------------------------------------------------- CONI 088
005C 0  0001        ONE   DC      1                                          CONI 089
005D 0  0002        TWO   DC      2                                          CONI 090
005E 0  0000        IND   DC      *-*                                        CONI 091
                    *-------------------------------------------------------- CONI 092
0060                      END                                              CONI 093
```

NO ERRORS IN ABOVE ASSEMBLY.
CONI1
DUP FUNCTION COMPLETED

```
                                                                                
                *************************************************** DECID002
                *                                                   * DECID003
                *     CONVERSION OF ANALYSER ID TO 5 BINARY COMPU-* DECID004
                *     TER WORDS (GROUP NO.OF 4K IS SET TO 1)        * DECID005
                *                                                   * DECID006
                *     CALL    DECID                                 * DECID007
                *     DC      ADDR. OF ANALYSER ID                  * DECID008
                *     DC      ADDR. OF BSS 5 FOR BINARY ID          * DECID009
                *     DC      ADDR. OF ERROR INDICATOR WHICH IS 1   * DECID010
                *             IF INTER.NO. NOT 1-15,OTHERWISE 0.    * DECID011
                *                                                   * DECID012
                *************************************************** DECID013
0000     04143244       ENT     DECID                                 DECID014
0000 0   0000   DECID DC      *-*                                     DECID015
0001 01  6D000045       STX   L1 XR1+1                                DECID016
0003 01  6E000047       STX   L2 XR2+1                                DECID017
                *-------------------------------------------------------DECID018
0005 01  65800000       LDX   I1 DECID                                DECID019
0007 0   C101           LD     1 1                                    DECID020
0008 0   D001           STO      *+1                                  DECID021
0009 00  66000000       LDX   L2 *-*        ADDR. OF BSS5 IN XR2      DECID022
000B 0   C100           LD     1 0                                    DECID023
000C 0   D001           STO      *+1                                  DECID024
000D 00  65000000       LDX   L1 *-*        ADDR.OF ANALYSER ID IN XR1DECID025
                *-------------------------------------------------------DECID026
000F 0   C100           LD     1 0                                    DECID027
0010 0   E039           AND      AND1                                 DECID028
0011 0   1888           SRT      8                                    DECID029
0012 0   D202           STO    2 2                                    DECID030
0013 0   1010           SLA      16                                   DECID031
0014 0   1084           SLT      4                                    DECID032
                *-------------------------------------------------------DECID033
0015 0   D200           STO    2 0                                    DECID034
0016 0   1010           SLA      16                                   DECID035
0017 0   1084           SLT      4                                    DECID036
0018 0   D201           STO    2 1          1ST. EXPER. NO.           DECID037
                *-------------------------------------------------------DECID038
0019 0   C202           LD     2 2                                    DECID039
001A 0   A030           M        TEN                                  DECID040
001B 0   1090           SLT      16                                   DECID041
001C 0   8200           A      2 0                                    DECID042
001D 0   D200           STO    2 0          INTERRUPT NO. (PISW-BIT)  DECID043
                *-------------------------------------------------------DECID044
001E 0   C101           LD     1 1                                    DECID045
001F 0   E02A           AND      AND1                                 DECID046
0020 0   1888           SRT      8                                    DECID047
0021 0   D202           STO    2 2          2ND. EXPER. NO.           DECID048
0022 0   1010           SLA      16                                   DECID049
0023 0   1084           SLT      4                                    DECID050
0024 0   D204           STO    2 4                                    DECID051
0025 0   1010           SLA      16                                   DECID052
0026 0   1084           SLT      4                                    DECID053
0027 0   D203           STO    2 3                                    DECID054
                *-------------------------------------------------------DECID055
0028 0   C204           LD     2 4                                    DECID056
0029 0   A021           M        TEN                                  DECID057
002A 0   1090           SLT      16                                   DECID058
002B 0   8203           A      2 3                                    DECID059
002C 0   D203           STO    2 3          SERIAL NO.                DECID060
                *-------------------------------------------------------DECID061
002D 0   C01E           LD       ONE        GROUP NO. OF 4K IS 1      DECID062
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002E 0  D204            STO   2 4                                          DECID063
                *-------------------------------------------------------- DECID064
002F 01 65800000        LDX   I1 DECID                                     DECID065
0031 0  C102            LD     1 2                                         DECID066
0032 0  D001            STO     *+1                                        DECID067
0033 00 65000000        LDX   L1 *-*          ADDR.OF ERROR IND. IN XR1    DECID068
                *-------------------------------------------------------- DECID069
0035 0  C018            LD      ZERO          RESET ERROR INDICATOR        DECID070
0036 0  D100            STO    1 0                                         DECID071
                *-------------------------------------------------------- DECID072
0037 0  C200            LD     2 0                                         DECID073
0038 0  B014            CMP     C15                                        DECID074
0039 0  7006            MDX     A1            SET ERROR INDICATOR TO 1     DECID075
003A 0  7001            MDX     A2                                         DECID076
003B 0  7006            MDX     A3            ERROR INDICATOR = 0          DECID077
003C 0  B00F    A2      CMP     ONE                                        DECID078
003D 0  7004            MDX     A3                                         DECID079
003E 0  7001            MDX     A1                                         DECID080
003F 0  7002            MDX     A3                                         DECID081
                *-------------------------------------------------------- DECID082
0040 0  C00B    A1      LD      ONE                                        DECID083
0041 0  D100            STO    1 0                                         DECID084
                *-------------------------------------------------------- DECID085
0042 01 74030000 A3     MDX   L  DFCID,3                                   DECID086
0044 00 65000000 XR1    LDX   L1 * *                                       DECID087
0046 00 66000000 XR2    LDX   L2 *-*                                       DECID088
                *-------------------------------------------------------- DECID089
0048 01 4C800000        BSC   I  DECID                                     DECID090
                *-------------------------------------------------------- DECID091
004A 0  0FFF    AND1    DC      /0FFF                                      DECID092
004B 0  000A    TEN     DC      10                                         DECID093
004C 0  0001    ONE     DC      1                                          DECID094
004D 0  000F    C15     DC      15                                         DECID095
004E 0  0000    ZERO    DC      0                                          DECID096
                *-------------------------------------------------------- DECID097
0050            END                                                        DECID098
```

NO ERRORS IN ABOVE ASSEMBLY.

DECID
DUP FUNCTION COMPLETED

```
                ************************************************** MREAL002
                *                                                * MREAL003
                *     CONVERSION OF ANALYSER WORD (+-XXXXXY,X=MAN * MREAL004
                *     TISSA,Y=EXPONENT OF BASE 10,SIGN BELONGING * MREAL005
                *     TO EXPONENT) TO STANDARD PRECISION FLOATING * MREAL006
                *     POINT NUMBER.ANALYSER WORD IS ALSO CONVERTED* MREAL007
                *     TO CARD CODE (+.XXXXXE+-0Y)                * MREAL008
                *                                                * MREAL009
                *     CALL    MREAL                              * MREAL010
                *     DC      EVEN ADDRESS OF ANALYSER WORD      * MREAL011
                *             (FLOATING POINT NUMBER IS STORED   * MREAL012
                *             AT SAME LOCATION)                  * MREAL013
                *     DC      ADDR.OF CARD CODE CHARACTERS(BSS12) * MREAL014
                *                                                * MREAL015
                ************************************************** MREAL016
0000    14645053        ENT     MREAL                              MREAL017
0000 0  0000    MREAL   DC      *-*                                MREAL018
0001 01 6D000051        STX   L1 XR1+1                             MREAL019
0003 01 6E000053        STX   L2 XR2+1                             MREAL020
0005 30 145A5140        CALL    MOVE                               MREAL021
0007 1  0065            DC      AB                                 MREAL022
0008 1  0058            DC      EBCDC                              MREAL023
0009 0  000D            DC      13                                 MREAL024
000A 01 C4800000        LD    I MREAL                              MREAL025
000C 0  D003            STO     A0+1                               MREAL026
000D 0  D018            STO     A3+1                               MREAL027
000E 0  D029            STO     A4                                 MREAL028
000F 00 C4000000 A0     LD    L *-*                                MREAL029
                *------------------------------------------------- MREAL030
0011 0  4810            BSC     -           SIGN OF EXPONENT       MREAL031
0012 0  7001            MDX     A1                                 MREAL032
0013 0  7002            MDX     A2                                 MREAL033
0014 0  C043    A1      LD      EBCDC                              MREAL034
0015 0  D04A            STO     EBCDC+8                            MREAL035
                *------------------------------------------------- MREAL036
0016 01 C4800010 A2     LD    I A0+1                               MREAL037
0018 0  188C            SRT     12          1ST. HALF WORD         MREAL038
0019 0  1010            SLA     16                                 MREAL039
001A 0  1084            SLT     4                                  MREAL040
001B 0  8048            A       AD                                 MREAL041
001C 0  D03D            STO     EBCDC+2                            MREAL042
001D 0  1010            SLA     16                                 MREAL043
001E 0  1084            SLT     4                                  MREAL044
001F 0  8044            A       AD                                 MREAL045
0020 0  D03A            STO     EBCDC+3                            MREAL046
0021 0  1010            SLA     16                                 MREAL047
0022 0  1084            SLT     4                                  MREAL048
0023 0  8040            A       AD                                 MREAL049
0024 0  D037            STO     EBCDC+4                            MREAL050
                *------------------------------------------------- MREAL051
0025 00 CC000000 A3     LDD   L *-*         2ND. HALF WORD         MREAL052
0027 0  1084            SLT     4                                  MREAL053
0028 0  1010            SLA     16                                 MREAL054
0029 0  1084            SLT     4                                  MREAL055
002A 0  8039            A       AD                                 MREAL056
002B 0  D031            STO     EBCDC+5                            MREAL057
002C 0  1010            SLA     16                                 MREAL058
002D 0  1084            SLT     4                                  MREAL059
002E 0  8035            A       AD                                 MREAL060
002F 0  D02E            STO     EBCDC+6                            MREAL061
0030 0  1010            SLA     16                                 MREAL062
```

```
0031 0  1084          SLT     4                                       MREAL063
0032 0  8031          A       AD                                      MREAL064
0033 0  D02E          STO     EBCDC+10                                MREAL065
0034 30 06123080      CALL    FDTB        REAL DECIMAL TO BINARY      MREAL066
0036 1  0058          DC      EBCDC                                   MREAL067
                *-------------------------------------------------    MREAL068
0037 20 068A3580      LIBF    FSTO        STORE REAL NUMBER IN LOCA   MREAL069
0038 0  0000    A4    DC      *-*         TION OF ANALYSER WORD       MREAL070
                *-------------------------------------------------    MREAL071
0039 01 74010000      MDX  L  MREAL,1                                 MREAL072
003B 0  61FA          LDX   1 -6                                      MREAL073
003C 0  6200          LDX   2 0                                       MREAL074
                *-------------------------------------------------    MREAL075
003D 01 C6000059  A6  LD   L2 EBCDC+1                                 MREAL076
003F 0  1888          SRT     8                                       MREAL077
0040 01 C6000058      LD   L2 EBCDC                                   MREAL078
0042 0  1088          SLT     8                                       MREAL079
0043 01 D500005E      STO  L1 EBCDC+6                                 MREAL080
                *-------------------------------------------------    MREAL081
0045 0  7202          MDX   2 2                                       MREAL082
0046 0  7101          MDX   1 1                                       MREAL083
0047 0  70F5          MDX     A6                                      MREAL084
                *-------------------------------------------------    MREAL085
0048 01 C4800000      LD   I  MREAL                                   MREAL086
004A 0  D003          STO     A5                                      MREAL087
                *-------------------------------------------------    MREAL088
004B 20 08593142      LIBF    HOLEB       CONVERSION OF EBCDIC TO     MREAL089
004C 0  0001          DC      /0001       CARD CODE                   MREAL090
004D 1  0058          DC      EBCDC                                   MREAL091
004E 0  0000    A5    DC      *-*                                     MREAL092
004F 0  000C          DC      12                                      MREAL093
                *-------------------------------------------------    MREAL094
0050 00 65000000  XR1 LDX  L1 *-*                                     MREAL095
0052 00 66000000  XR2 LDX  L2 *-*                                     MREAL096
                *-------------------------------------------------    MREAL097
0054 01 74010000      MDX  L  MREAL,1                                 MREAL098
0056 01 4C800000      BSC  I  MREAL                                   MREAL099
                *-------------------------------------------------    MREAL100
0058 0  004E    EBCDC DC      /004E       PLUS                        MREAL101
0059 0  004B          DC      /004B       PERIOD                      MREAL102
005A 0  0000          DC      *-*         )                           MREAL103
005B 0  0000          DC      *-*         )                           MREAL104
005C 0  0000          DC      *-*         ) MANTISSA                  MREAL105
005D 0  0000          DC      *-*         )                           MREAL106
005E 0  0000          DC      *-*         )                           MREAL107
005F 0  00C5          DC      /00C5       E                           MREAL108
0060 0  0060          DC      /0060       MINUS                       MREAL109
0061 0  00F0          DC      /00F0       0                           MREAL110
0062 0  0000          DC      *-*         EXPONENT                    MREAL111
0063 0  0040          DC      /0040       BLANK                       MREAL112
0064 0  00F0    AD    DC      /00F0                                   MREAL113
                *-------------------------------------------------    MREAL114
0065 0  004E    AB    DC      /004E       PLUS                        MREAL115
0066 0  004B          DC      /004B       PERIOD                      MREAL116
0067 0  0000          DC      *-*         )                           MREAL117
0068 0  0000          DC      *-*         )                           MREAL118
0069 0  0000          DC      *-*         ) MANTISSA                  MREAL119
006A 0  0000          DC      *-*         )                           MREAL120
006B 0  0000          DC      *-*         )                           MREAL121
006C 0  00C5          DC      /00C5       E                           MREAL122
006D 0  0060          DC      /0060       MINUS                       MREAL123
```

```
006E 0  00F0                DC      /00F0       0                    MREAL124
006F 0  0000                DC      *-*         EXPONENT             MREAL125
0070 0  0040                DC      /0040       BLANK                MREAL126
0071 0  00F0                DC      /00F0                            MREAL127
*************************************************************** MREAL128
0072                        END                                      MREAL129
```

NO ERRORS IN ABOVE ASSEMBLY.

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MREAL
DUP FUNCTION COMPLETED
// END OF ALL JOBS
```

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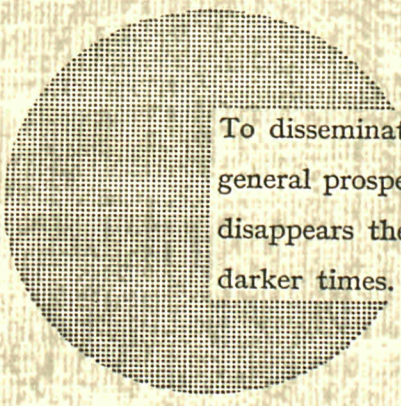

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Alfred Nobel

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