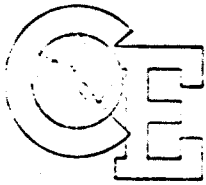


**Diagnostic Engineering Publication**

**1410/7010**

**Volume 6, 01**





Diagnostic Engineering Publication

IBM POUGHKEEPSIE  
December 3, 1963

1410 / 7010

Subject: Diagnostic Program DA01C, DA03C, DA04D, DA05C  
Sequence Number 313, 301, 309, 305  
Replaces Present versions of DA01C, DA03C,  
DA04D, DA05C

I. This package is an update of the existing "DA" series:

- DA01C
- DA03C
- DA04D
- DA05C

II. All programs have been altered so that they are compatible with the new "TC50."

III. All problems described in Advance CEM 75 have been corrected in this update.

IV. Additional modes have been added to DA01 to allow testing across one surface.

V. Description of card deck (punched from memory dump tape using UP51).

DA01	L1A Card Loader	7 cards 1-7
	Core Clear Card	1 card N/A
	System and Channel Cards	5 cards 001-005
	Data Cards	128 cards 006-133
	Execute Card	<u>1 card N/A</u>
	Program Total	142 cards

Enclosures: 290 Pages  
Card Deck for CARD ONLY SYSTEMS (as punched by UP51)  
Cards - Card Loader (1-7) and Core Clear  
Cards No. Data Cards  
Card Execute Card

Distribution: 1410  
7010  
Other 1410/7010 installations with 1301-7631.

V.	DA03	L1A Card Loader	7	cards 1-7
		Core Clear Card	1	card N/A
		Systems and Channel Cards	5	cards 001-005
		Data Cards	166	cards 006-171
		Execute Cards	<u>1</u>	card N/A
		Program Total	180	cards
	DA04	L1A Card Loader	7	cards 1-7
		Core Clear Card	1	card N/A
		Systems and Channel Cards	5	cards 001-005
		Data Cards	171	cards 006-176
		Execute Card	<u>1</u>	card N/A
		Program Total	185	cards
	DA05	L1A Card Loader	7	cards 1-7
		Core Clear Card	1	card N/A
		Systems and Channel Cards	5	cards 001-005
		Data Cards	113	cards 006-118
		Execute Card	<u>1</u>	card N/A
		Program Total	127	cards
		Total Cards in DA Series	634	

VI. The following EC's are required for correct operation of these programs.

1410/1410I - 253146

If this EC is not on the system, error 1 in routine 7 of DA03 will be indicated one time.

11000 Series 7631 - 251720

If this EC is not on the system, error 28 in routine 12 of DA04 will be indicated.

7631-1301

ADVANCED DISK FILE DIAGNOSTIC

PROGRAM PACKAGE

To be used with 1410/7010 Systems

November 27, 1963

Please read carefully

DA01C	Home Address and Surface Test
DA03C	1301-7631 Reliability
DA04D	Electronic Operation
DA05C	Mechanical Operation

NOTE: These programs use system and channel control cards.

## INDEX

Vol. Index	Title	Page
6.01	7631-1301 PACKAGE WRITE-UP	
6.01.01	DESCRIPTION	001
6.01.02	OPERATING PROCEDURES	004
	System and Channel Cards	004
	Standard TADS	004
	Special TADS	005
	Program Control Options	005
6.01.03	OPERATING HINTS	009
6.01.04	PROGRAM STOPS AND RESTARTS	009
	Error Halts	009
	Normal Halts	009
	Automatic Restart Procedure	009
	Manual Restart Procedure	009
	Loading Procedures	010
6.01.05	TYPEOUTS	011
	Title	011
	Error Typeouts Standard Format	011
	Summary Typeouts	012
	End of Test Message	013
6.01.06	FLOW CHARTS	013
	Monitor Routine	014
	Channel Alter Routine	016
	Status Check Routine	018
	Error Control Routine	020
	Program Control Routine	022
	Alter Routine Sequence	024
	Test Routine Using Control Routines	026
	General Flow Chart of Standard Control Routines	028

7682

INDEX (continued)

<u>Vol. Index</u>	<u>Title</u>	<u>Page</u>
6. 02	DA01 HOME ADDRESS AND SURFACE TEST	
6. 02. 00	DESCRIPTION	030
6. 02. 01	OPERATING PROCEDURE	030
	Switch Settings Previous to Running	030
	Special Requests	031
	Special TADS	032
	Special Options (Flag-A-Track)	032
	Standard Options Not Available	032
6. 02. 02	OPERATING HINTS	032
	Timing Considerations	032
	Cylinder Mode	033
	Entire Module Mode	033
	Alter Special TAD	033
6. 02. 03	PROGRAM STOPS	033
	Error Stops	033
	Normal Stops	033
6. 02. 04	TYPEOUTS	033
6. 02. 05	FLOW CHARTS	034
6. 02. 06	ROUTINE/ERROR INDEX DA01	036
6. 02. 07	DA01 PROGRAM LISTING AND COMMENTS	037
6. 03	DA03 RELIABILITY TEST	
6. 03. 00	DESCRIPTION	080A
6. 03. 01	OPERATING PROCEDURE	080A
	Switch Settings Previous to Running	080A
	Special Requests	081
	Special TADS	081
	Standard Options	081
	Manual Mode	081
	Summary Typeout	081

INDEX (continued)

<u>Vol. Index</u>	<u>Title</u>	<u>Page</u>
6. 03. 02	OPERATING HINTS	082
	Selecting Manual Mode	082
	Reliability Run	082
	Alter Routine Sequence	082
6. 03. 03	PROGRAM STOPS	082
	Error Stops	082
	Normal Stops	082
6. 03. 04	TYPEOUTS	082
6. 03. 05	FLOW CHARTS	083-084
6. 03. 06	ROUTINE/ERROR INDEX DA03	085
6. 03. 07	DA03 PROGRAM LISTING AND COMMENTS	087
6. 04	DA04 7631 ELECTRONIC TEST	
6. 04. 00	DESCRIPTION	149A
6. 04. 01	OPERATING PROCEDURE	149A
	Switch Settings Previous to Running	149A
	Special Requests	149A
	Special TADS	150
	Standard Options	150
	Manual Mode	150
	Summary Typeout	150
6. 04. 02	OPERATING HINTS	151
	Selecting Manual Mode	151
	Looping Routines	151
6. 04. 03	PROGRAM STOPS	151
	Error Stops	151
	Normal Stops	151
6. 04. 04	TYPEOUTS	152



INDEX (continued)

<u>Vol. Index</u>	<u>Title</u>	<u>Page</u>
6. 04. 05	FLOW CHARTS	152
6. 04. 06	ROUTINE/ERROR INDEX DA04	156
6. 04. 07	DA04 PROGRAM LISTING AND COMMENTS	159
6. 05	DA05 MECHANICAL AND HYDRAULIC TEST	
6. 05. 00	DESCRIPTION	224A
6. 05. 01	OPERATING PROCEDURE	224A
	Switch Settings Previous to Running	224A
	Special Requests	224A
	Special TADS	224B
	Standard Options	224B
	Manual Mode	224B
	Summary Typeout	224B
6. 05. 02	OPERATING HINTS	224B
	Selecting Manual Mode	224B
	Power On Warm-Up	224C
6. 05. 03	PROGRAM STOPS	224C
	Error Stops	224C
	Normal Stops	224C
6. 05. 04	TYPEOUTS	224D
6. 05. 05	FLOW CHARTS	225
6. 05. 06	ROUTINE/ERROR INDEX DA05	226
6. 05. 07	DA05 PROGRAM LISTING AND COMMENTS	227
6. 06	7631-1301 PACKAGE SUMMARY	269A
	Removable Summary Data	269C



7631-1301

PACKAGE WRITE-UP

6.01.00.0 DESCRIPTION

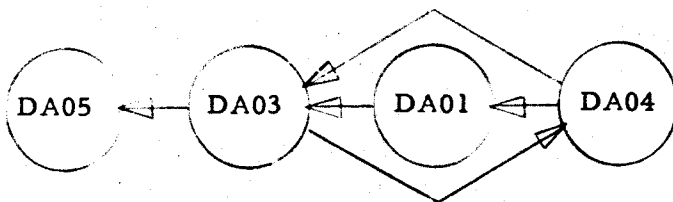
This package obsoletes the previous set of diagnostic programs used on the 7631-1301. The package makes use of control functions which are standard for all the programs in the set, making operation and utilization of the programs much easier.

The programs in this package are designed to test the 7631-1301 when attached to a 1410 or 7010 system. Each program tests a specific area and together the programs make up a diagnostic package.

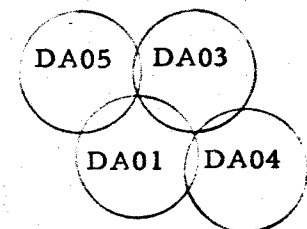
Program Functions

<u>New</u>	<u>Function</u>	<u>Old</u>
DA01C	Write HA1's	DA01B
	Analyze Surfaces	DA02B
DA03C	Reliability Test of 7631-1301	DA03B
DA04D	Electronic Operation Test (7631)	DA04C
DA05C	Mechanical Test (1301)	DA05B

It is important to realize that these programs do overlap in scope, and this overlapping should be used to aid in determining which program to run next. Figure 1 will help in showing how the programs are to a degree inter-dependent and overlapping.



Inter-Dependent



Overlapping

6.01.00.0 DESCRIPTION (continued)

Being inter-dependent means certain programs assume correct operation of an area that is tested by another program. In this case DA04 is the only independent program, all others are dependent. This all points out the fact that the programs constitute one overall test of the 1301-7631 and understanding the general test philosophy will aid in learning the individual programs.

The package can be divided into four areas - utility, mechanical-physical, reliability, and electronic.

Utility is covered by the portion of DA01 which prepares the 1301 for usage by writing the home addresses and insuring they are correct. This is generally only run upon installation and may never be used again unless the home addresses are destroyed.

Mechanical-Physical - This area takes into account the condition of the 1301 access mechanism and the physical condition of the disk surfaces on the 1301. DA05 performs the necessary tests on the access mechanism while DA01 analyzes the disk surface.

Reliability - This makes a general test of the 7631-1301 as an operating device attached to the 1410-7010. DA03 is a test which should tell of trouble areas, including areas of priority and overlap.

Electronic - This area is covered by DA04 which makes a stringent test of the logic in the 7631-1301 and the lines from the 1410-7010 to the 7631. This program attempts to isolate troubles to the smallest possible area, starting with the simplest operation it builds upon the tested logic in order to test other logic.

Within each program is a set of small routines, each routine is to a large degree independent of the other routines in the program, but together the routines test one of the four areas previously described. By using this technique of breaking each program into small parts, the purpose and methods of a test should be easier understood.

6.01.00.0 DESCRIPTION (continued)

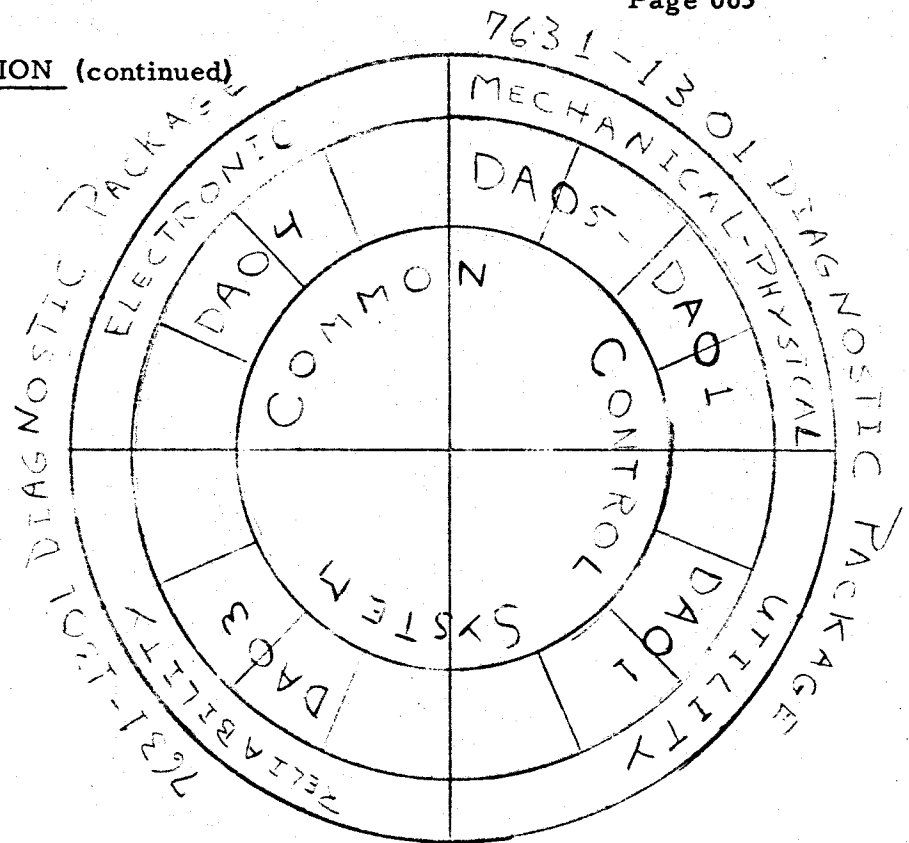


Figure 2 shows the overall package broken into the four areas of coverage, each area being tested by certain programs and each program broken into routines which test a part of the area. If memory space were available, the entire package could be written as one program, which would certainly simplify the operating procedures. Because this is impossible, a standard operating control system has been designed which is used by all the programs. This system encompasses the following areas, and the remainder of this write-up is devoted to it.

1. Loading Procedure
2. System and Channel Control Cards
3. Standard Pre-Set TAD's (1000-1003)
4. Standard Error Typeout Format
5. Standard Program Options
6. Standard Channel Alter Routine
7. Standard Looping Methods
8. Standard Type Routine
9. Standard Restart Procedures

The standard procedures outlined here will not be repeated in the individual program write-ups since these apply for every program.

6.01.02.0 OPERATING PROCEDURES

The following operating procedures apply to all programs in this package.

02.1 SYSTEM AND CHANNEL CARDS

All the "DA" series programs use system and channel control cards to provide information about--

- a. Overlap
- b. Priority
- c. Machine Type
- d. Channels Available
- e. Files Available
- f. Tapes Available

These cards must be pulled from the card decks and the proper data entered according to the procedure outlined in the 1410/7010 Introductory Material. The system and channel cards in each of these programs are numbered card 9, 10, 11, 12 and 13. Cards 12 and 13 apply only to a 7010 and may be discarded on a 1410.

02.2 STANDARD TADS (1000-1003)

The standard TAD's 1000-1003 are used by all the "DA" series programs. The TAD's are pre-set to "I" when the programs are initially loaded and are changed to a "1" setting only by manual intervention. Definition of standard TAD's is as follows:

	<u>Not 1</u>	<u>1</u>
01000 TAD 0	Allow error typeouts	Bypass error typeouts
01001 TAD 1	Do not Req loop after error	Req loop after error
01002 TAD 2	No error halts	No error halts
01003 TAD 3	Single program pass	Repeat program

Note: In the "DA" series programs TAD 1 = 1 does not mean unconditional looping; rather it means that after an error has occurred, the program will request if the CE wants to take action. At this point the CE may take any of the standard program options available. (These options are described later in the write-up.)

Also, TAD 2 = 1 has no meaning as there are no error halts in the "DA" series programs.

Methods for altering the TAD's are discussed later in this write-up under program options.

6. 01. 02. 0 OPERATING PROCEDURES (continued)

02. 3 SPECIAL TAD's (1004-1012)

Every effort has been made to keep the special TAD's required to a minimum. When special TAD's are required, they will be pre-set to a 1 condition and may be altered by the CE when so desired. Refer to the individual programs for the definition of the special TAD's that it uses.

02. 4 PROGRAM CONTROL OPTIONS

Each of the "DA" programs has a standard set of control options which are available to the CE through the I/O console printer. Using the Inquiry Request key the CE may interrupt the program and take any of the control options he desires. The following procedure is used to accomplish this.

- a. Press Inquiry Request key
- b. When the keyboard unlocks, enter
  - 1) Control option code desired
  - 2) Data required by the program to honor the request
- c. Press Inquiry Release key.

Providing a legal option has been requested, the program will immediately honor the request. If the option is illegal (it does not exist), the program returns to the read console operation, a legal option must be requested.

Table 1 shows the options available, and the code and data required to request the option. See control option definitions for details of each option.

Option	Code	Data Required-Enter
End of Test.	Blank	None
Alter TAD's (1000-1003)	1	Four new TAD settings desired (all 4 TAD's altered)
Alter Memory	2	Five-digit memory address to be altered
Alter Sequence of Routines	3	01, 03, 04, L Enter routine numbers separated by comma, last character is L or E
Loop a Routine	4	Five-digit starting address of routine to be looped
Loop an Instruction	5	Enter M or L, Ch code Char, Specific File Op, W or R, BOSIO Op Code, HA1, No. of Rec's, No. of Char's/Rec, Data Char, Rec Addr.
Restart	6	Five-Digit Memory Address to start at
Continue	7	None

TABLE 1

6.01.02.0 OPERATING PROCEDURES (continued)

Definition of Control Options

1. End Test - This option will terminate the test immediately unless TAD 3 = 1, in which case the program would restart from the beginning.
2. Alter TAD's - This option will alter the standard TAD's to those entered after the option code. This option will not alter any special TAD's.
3. Alter Memory - On this option the address to be altered is entered after the option code. After pressing release, the Inquiry Request is pressed again and the alteration is made. Special TAD's may be altered in this manner.
4. Alter Sequence of Routines - This option allows the CE to alter the sequence of the routines in a program. Each routine is numbered in the sequence in which they normally run, i. e., 01, 02, 03, etc., by selecting this option and entering 03, 01, 02, L, the program will run the routines in the requested sequence. A comma is entered between each routine number and the last character entered is an L or E.

L The program loops on routine sequence entered.

E The program returns to the program control option routine after one pass. CE now selects a new control option, i. e., continue.

Any group of routines or all of the routines may be selected in the sequence desired.

WARNING - Before using this option, one should be very familiar with the functions of the individual routines being selected.

5. Loop a Routine - This option causes the program to loop on the routine whose starting address was entered with the option code. When looping a routine, all error typeouts are bypassed and the loop is ended only by pressing Inquiry Request and selecting another option (probably the continue option).





6.01.02.0 OPERATING PROCEDURES (continued)

- 6. i. X Any data character desired to be used in the records
- j. XXXXXX Any six-digit record addr desired. This addr will be incremented by 1 for each record.

NOTE: When using this option the CE should be aware of the limitations on the number of records versus the number of characters. Knowledge of the existing format track or rewriting the format track (use this option) is necessary to insure valid operation. Once the program enters this loop, the Inquiry Request must be used to exit from the loop. Then another option must be selected, most likely the continue option would be selected. No errors are indicated while in this loop.

- 7. Restart at Desired Memory Location - This allows the CE to begin at any point in the program by entering the memory location at which the restart is desired. To restart a program from the beginning, always enter 02000.
- 8. Continue from Point Where Program was Interrupted - This allows the CE to cause the program to continue in a normal fashion after interrupting it for looping purposes or accidentally pressing the Inquiry Request.

The program control options described here are available at any time and should be used as much as possible for aids in troubleshooting.

The control option 'Alter Sequence of Routines' will not be available in programs which do not lend themselves to this option. Refer to individual program write-ups for this information.

In addition to the standard options, a program may have a special purpose option available; again refer to the individual program write-ups for this information.

When TAD 1 = 1 (request action after error), the CE may take any of the control options available by using the procedures outlined here after an error has occurred.

6.01.03.0 OPERATING HINTS

Read and understand the package write-up and program write-ups.

- 03.1 The alter memory option and loop a routine option could be used to alter a routine for some condition and then loop on the routine altered for troubleshooting the bug.
- 03.2 Several options may be selected sequentially by pressing Inquiry Request immediately after pressing Release for a selected option.
- 03.3 To restart a program from the beginning, use option 6 and a starting address of 02000.
- 03.4 The programs in this package require switch settings before the program is run. Be certain these switches are set. Refer to the program write-ups for details.
- 03.5 Any routine may be bypassed by altering the first instruction of the routine to an unconditional branch to the exit (or last instruction) of the routine.

---

6.01.04.0 PROGRAM STOPS AND RESTARTS

The following stops and restart procedures apply to all programs in this package.

04.1 ERROR HALTS

There are no program halts due to error results; TAD 2 = 1 has no meaning in this package of programs.

04.2 NORMAL HALTS

The programs may have normal halts to allow for switch settings; if so, they will be defined in the individual program write-ups.

04.3 AUTOMATIC RESTART PROCEDURE

By setting the check control switch on the console-CE-Test-Panel to Reset and Restart, the programs will automatically restart after a 1410/7010 alarm condition. This can be used to great advantage when looping a routine or instruction which is causing an alarm condition. Furthermore, this technique can be used to insure that once a program is started, it may be left unattended without fear of stopping because of alarms.

04.4 MANUAL RESTART PROCEDURE

If the check control switch is not used and an alarm condition is encountered, the program can be made to continue by pressing Computer Reset and Start.

6.01.04.0 LOADING PROCEDURES

04.1 FROM CARDS (Load Program LIA preceding Card Deck)

A. 7010-1410 without Load Button.

1. Display Memory Location 00000

2. Alter to

<sup>v v</sup>  
RL%1100011\$.<sup>v</sup>

<sup>v</sup>  
X  }  
Y ? }  
Z ! }

Enter according to channel location  
of the card reader.

3. Set to Run, Computer Reset and Start.

B. 7010 with Load Button

1. Computer Reset

2. Depress Load Button

04.2 FROM TAPE (80 Character Master or Memory Dump Tape)

A. 7010-1410 without Load Button

1. Display Memory Location 00000

2. Alter to

<sup>v v</sup>  
RL%B000011\$.<sup>v</sup>

<sup>v</sup>  
X  }  
Y ? }  
Z ! }

Enter according to channel location  
of the tape drive.

3. Set to Run, press Computer Reset.

B. 7010 with Load Button

1. Computer Reset

2. Depress Load Button

6.01.05.0 TYPEOUTS

The standard typeouts for all the "DA" series programs are as follows:

05.1 TITLE

The first typeout will be the five-digit program identification.

Example: DA01C

05.2 ERROR TYPEOUTS STANDARD FORMAT

- a. All errors will be preceded by "ROUTINE N00." This identifies the failing routine.
- b. All status errors, errors indicating status condition on the I/O device, will appear in this format:

\*Error 00000 M%F099999W 1248AB

1) 2) 3) 4)

- 1) Error Flag
- 2) Starting address of failing routine
- 3) Failing instruction
- 4) Status indicator that was on

1 Not ready  
2 Busy  
4 Data Check  
8 Ext. Cond.  
A No transfer  
B Wrong length record

- c. All program detected errors, errors for which the computer does not give an indication of error, will appear in the following format. Refer to program listing for explanation of error.

\*Error 01 02 00000

1) 2) 3)

- 1) Error Flag
- 2) Error(s) detected during routine
- 3) Starting address of failing routine

6.01.05.0 TYPEOUTS (continued)

- d. Combinations of status errors and program detected errors will appear in this format:

```
*Error 01 00000 M%F099999W 1248AB
```

- e. Any data which may be pertinent to the error, i. e., file address, may appear as the third line of the error message. This is not standard and will be given only as required. (See individual program write-ups.)
- f. If TAD 1 = 1 (request loop after error), the following will appear; it will be the last line of the error message.

```
REQ ERROR ACTION
```

- g. The maximum error message would look like this:

```
ROUTINE N00  
*Error 01 00000 M%F099999W 1248AB  
PERTINENT DATA  
REQ ERROR ACTION
```

05.3 SUMMARY TYPEOUTS

Programs which may be run in a reliability mode for long periods of time will give a summary of errors. This summary will be given when:

- a. A specific error has occurred ten times
- b. The test is terminated.
- a. In the case where a specific error has occurred ten times, the following is typed:

```
ERR00 COUNT 10'
```

The program continues automatically after this typeout.

6.01.05.0 TYPEOUTS (continued)

- b. When the program is terminated (manually or by the program itself), a complete summary of errors is typed.

"ERROR COUNT"

"00           6"

"01           4"

"07           3"

etc.

"NR BY DC EC NT WLR"

" 0 3 1 6 0 12 "

The first table indicates the number of times a program detected error occurred. This total should be added to the "10 COUNT" typeouts for any specific error.

The second table is the number of times any of the status indicators were found to be on.

NOTE: The summary is given whether or not TAD 0 is set to 1. This allows normal error typeouts to be bypassed without a loss of information. Refer to the individual programs for information on the availability of the summary typeout.

05.4 END OF TEST MESSAGE

When the program is complete or has been terminated, the word "PASS" is typed out before transferring to the load program.

NOTE: All messages are given on the typewriter.

6.01.06.0 FLOW CHARTS

The following pages contain flow charts of the control routines which are common to all the programs in this package. With each flow chart is a short description of the routine. By understanding these routines, a basic knowledge of the control for all the programs is gained.

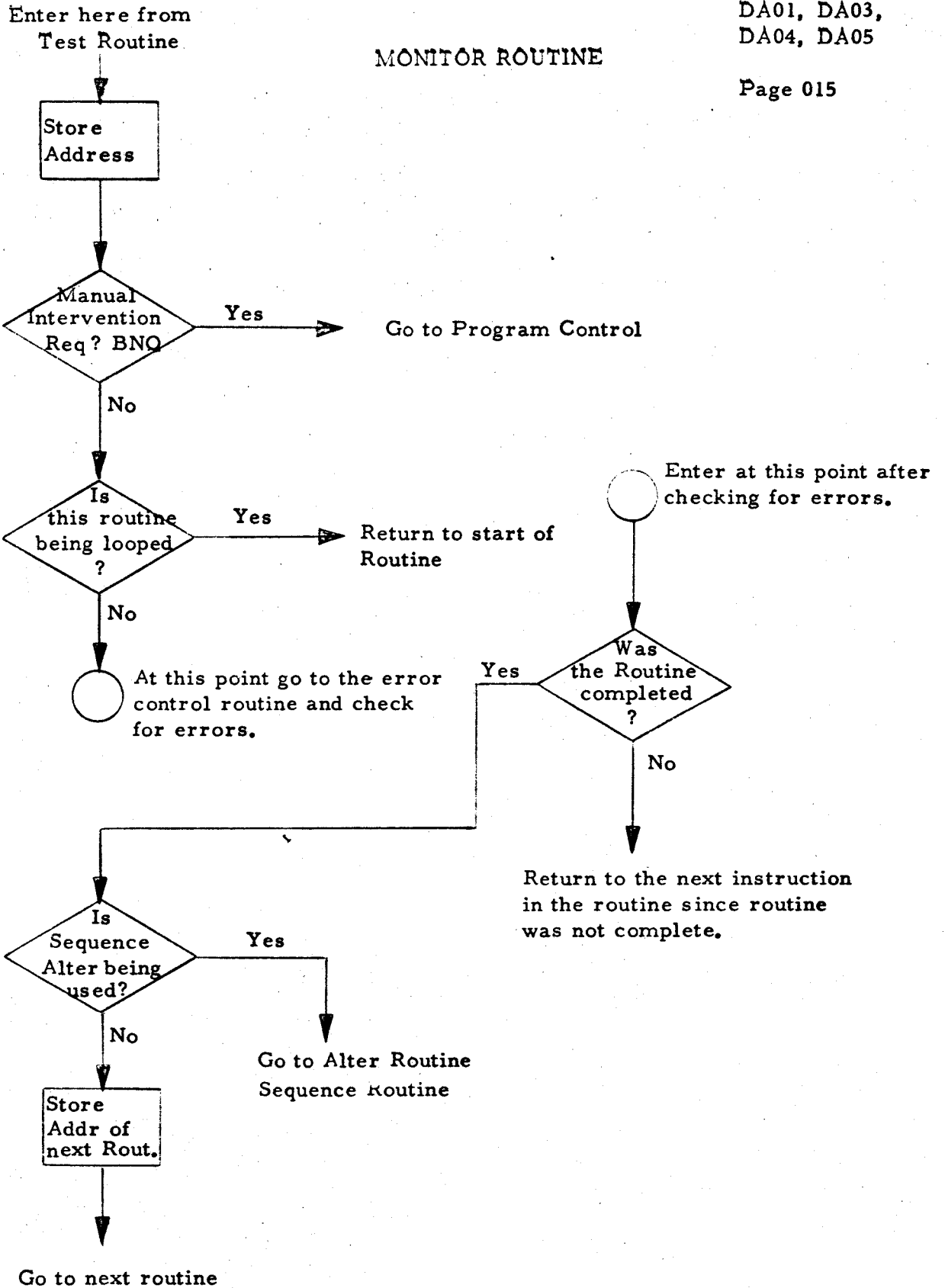
## 06.1 MONITOR ROUTINE

This routine is used by all programs and is entered after each test routine is completed. It serves the following functions:

- A. Checks for manual intervention requests.
- B. Checks for looping of a routine and returns to start of routine being looped.
- C. Allows the error routine to check for errors that may have occurred.
- D. Checks if the "alter sequence of routines" option has been selected. If it has, monitor gives control to the sequence control routine.
- E. Determines if test routine was completed or if test routine encountered an error which it requested be indicated immediately. After making this decision, it returns to the next instruction in the routine or goes to the start of the next routine.



MONITOR ROUTINE



19  
18  
17  
16  
15  
14  
13  
12  
11  
10  
9  
8  
7  
6  
5

## 06.2 CHANNEL ALTER ROUTINE

The channel alter is used by all the diagnostic programs in this package to initialize themselves for operation on channel 1, 2, 3 or 4.

The routine which needs to be initialized branches to the channel alter routine; immediately following the branch are constants which define the Hi and Low limits of memory to be altered and the characters required to alter for a given channel. This data is used by the alter routine which scans from the Hi limit to the Low limit in memory altering the following instruction according to the channel desired.

1. The branch-on-status indicator-on instructions are changed to

R	Ch 1	3	Ch 3
X	Ch 2	1	Ch 4

2. The Hi order position of the X-Ctl field is changed to

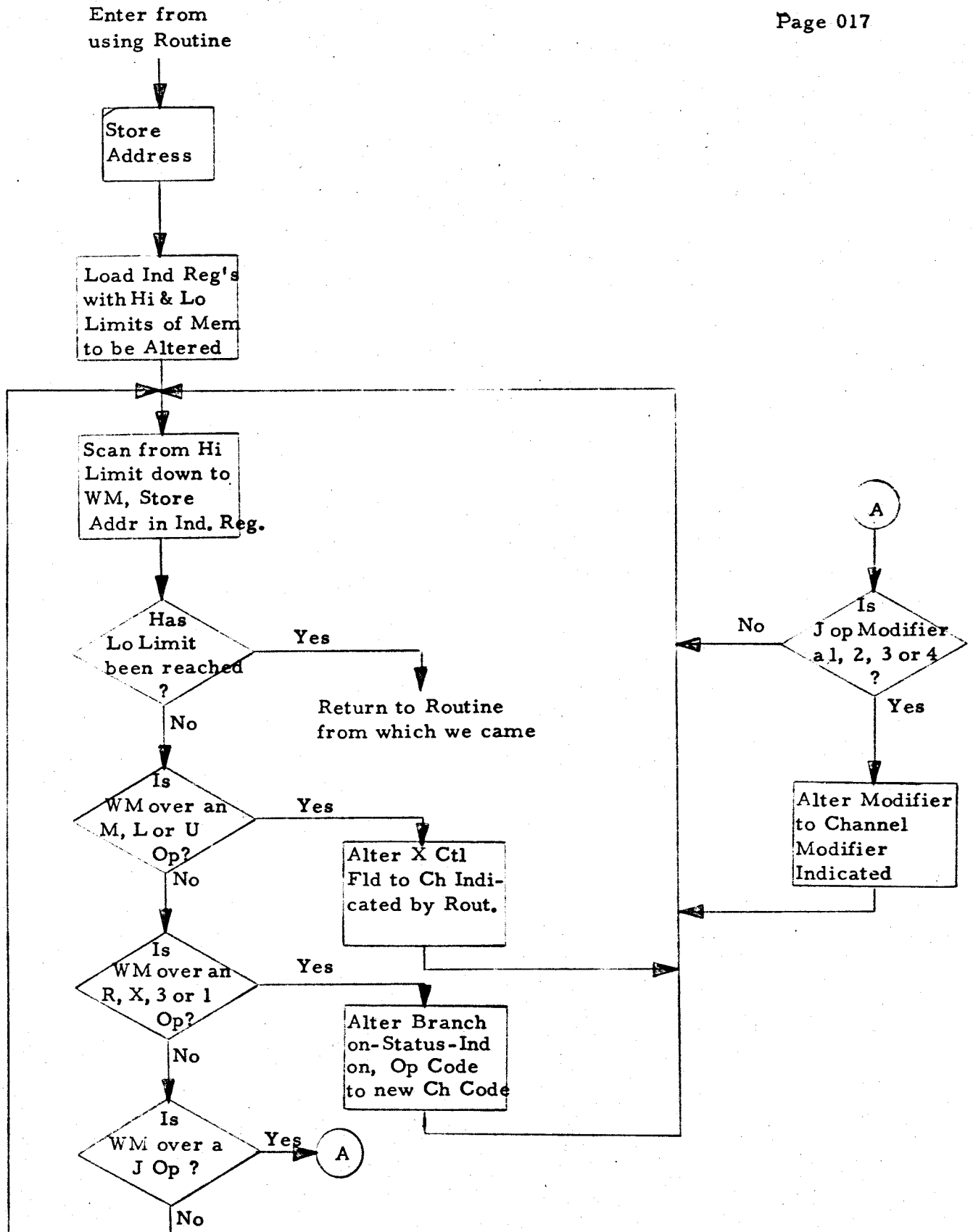
%	Ch 1		@	Ch 1	
□	Ch 2		*	Ch 2	
?	Ch 3	Unoverlap	\$	Ch 3	Overlap
!	Ch 4		#	Ch 4	

3. The branch on overlap in process modifier is changed to 1, 2, 3 or 4 according to the channel.

CHANNEL ALTER ROUTINE

DA01, DA03,  
DA04, DA05

Page 017



### 06.3 STATUS CHECK ROUTINE

All programs use this routine to determine which of the six indicators is on. When a test routine encounters an unexpected status error, it branches to the status check routine. Here each indicator is checked for the on condition and a total is kept for each time a specific indicator comes on. Coded characters are placed in the print field for each indicator found on, and the status check routine finally branches to the error control routine where the error will be typed out.

### STATUS CHECK ROUTINE

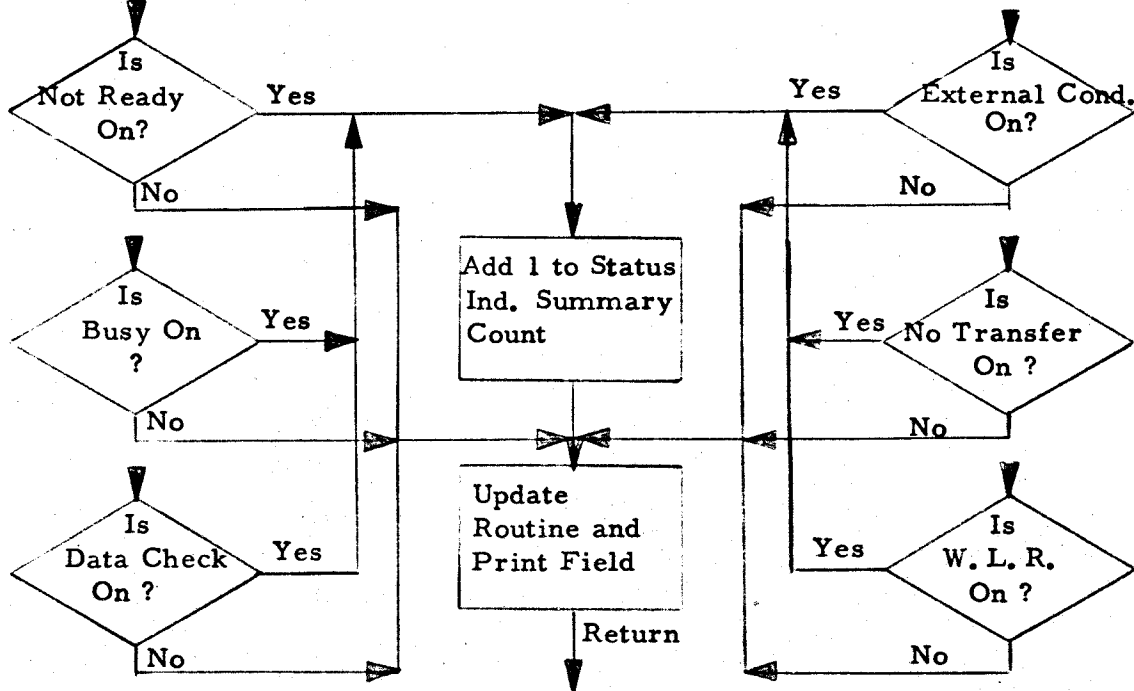
Enter here from  
Test Routine

Store Address  
Determine  
which Channel  
to Check

Load Ind Reg  
and Move Codes  
to Print Area  
Prepare for Char.

Go to the channel alter routine and  
alter this routine to the proper channel.

Return here after  
Channel Alter.



Return to next  
Branch-on-Status-  
Ind-on Instruction

Go to error  
control routine  
and type out the  
error.

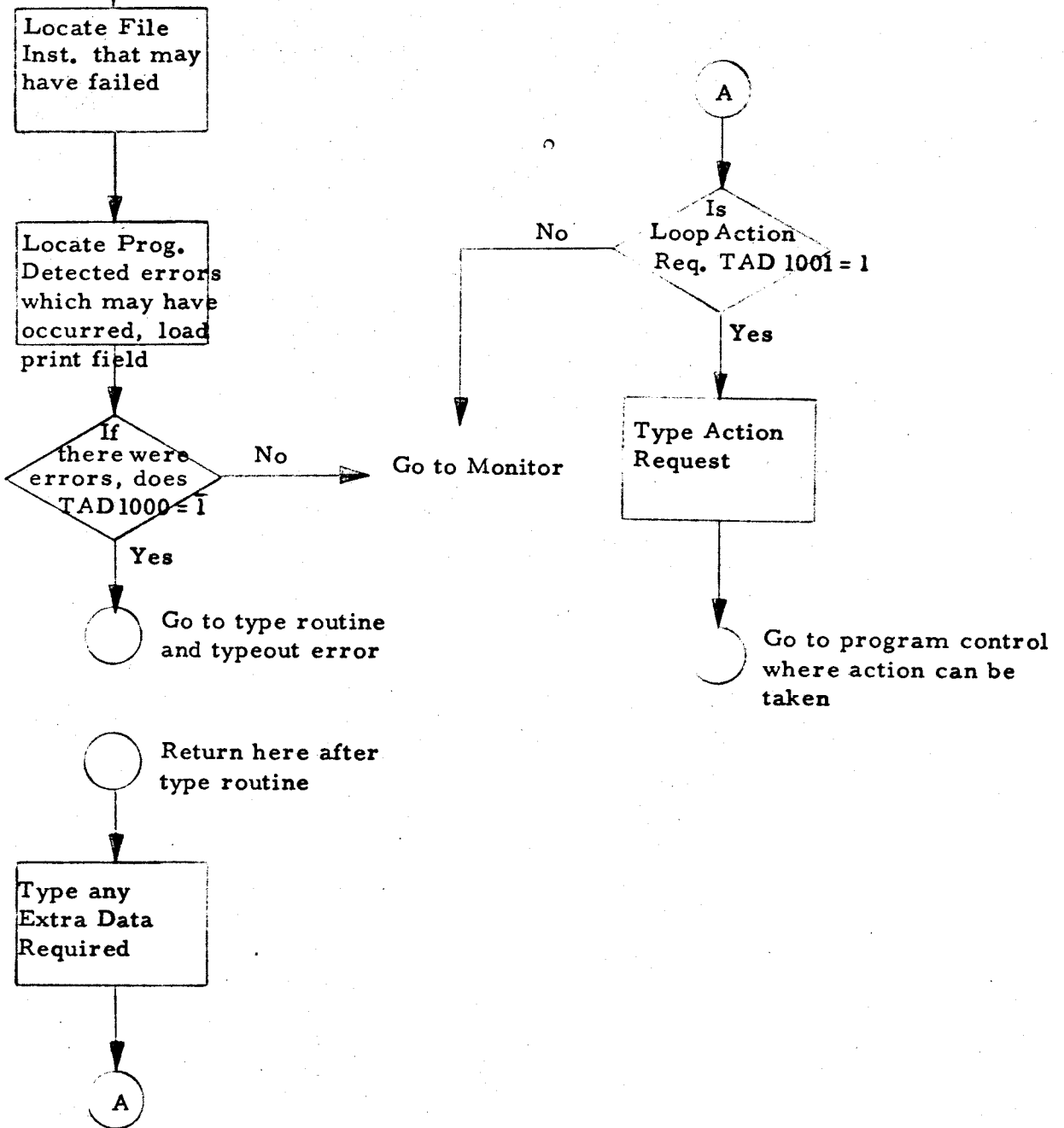
#### 06.4 ERROR CONTROL ROUTINE

This routine locates the file instruction in the test routine that may have caused the error, determines if any program detected errors occurred, prepares the print field, checks TAD 1000 and types the standard error message plus any extra data specified by the using program.

Error control is entered from the status check routine or from monitor. It exits to monitor or to the program control routine if TAD 1001 = 1.

ERROR CONTROL ROUTINE

Enter from Monitor  
or Status Check Routine



## 06.5 PROGRAM CONTROL ROUTINE

This routine allows the operator to interrupt the program at any time and take any one of eight standard options which are available.

There are two ways to enter this routine, by pressing Inquiry Request or by setting TAD 1001 to a 1. By using inquiry the monitor will give control to program control, with TAD 1001=1 error control will branch to program control after requesting action. In either case, once program control is entered the operator may take any option available. In certain programs special options will be available, and in some cases a standard option may not be available.

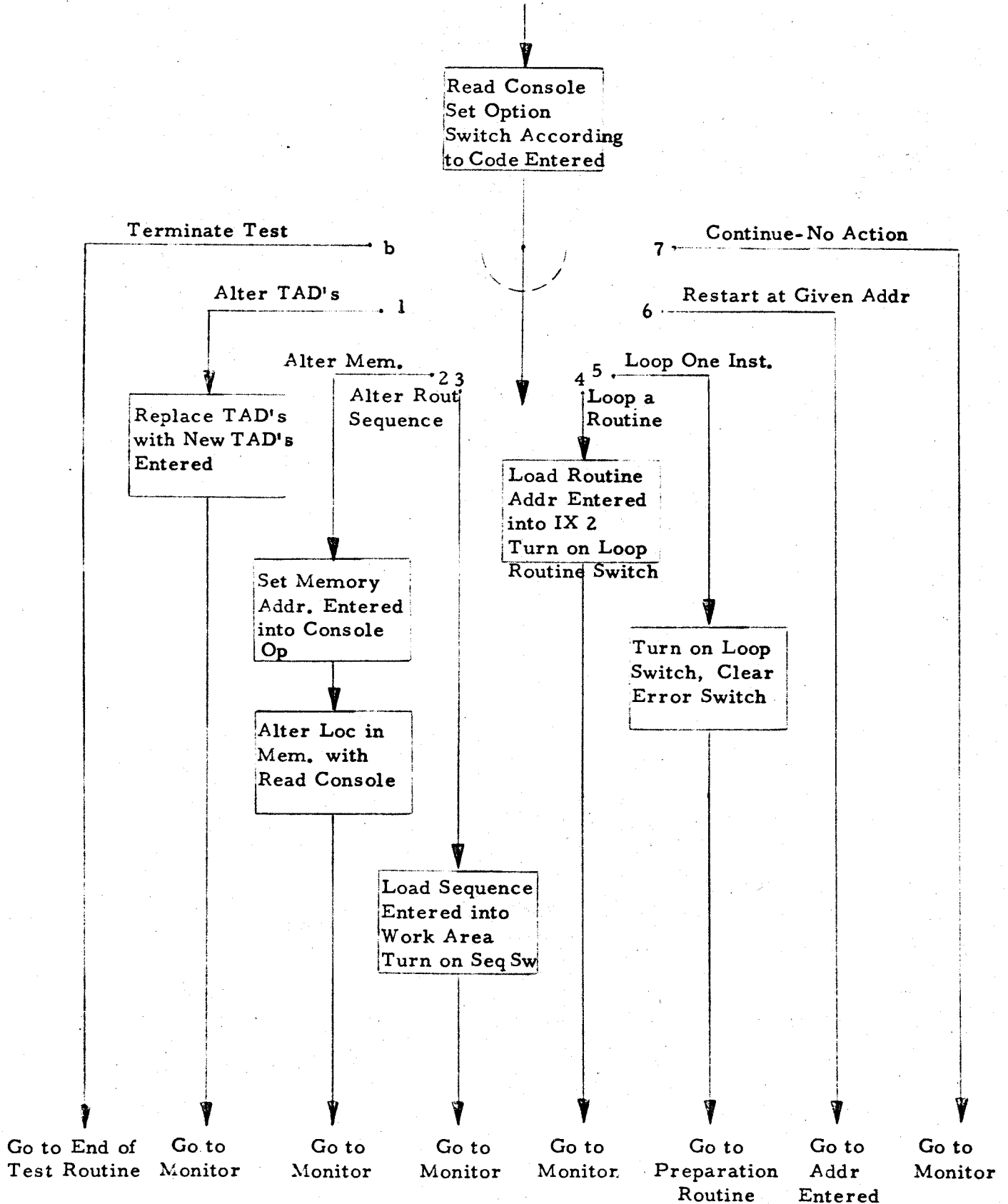


PROGRAM CONTROL

DA01, DA03,  
DA04, DA05

Page 023

Enter here from  
Monitor or Error  
Control



## 06.6 ALTER ROUTINE SEQUENCE

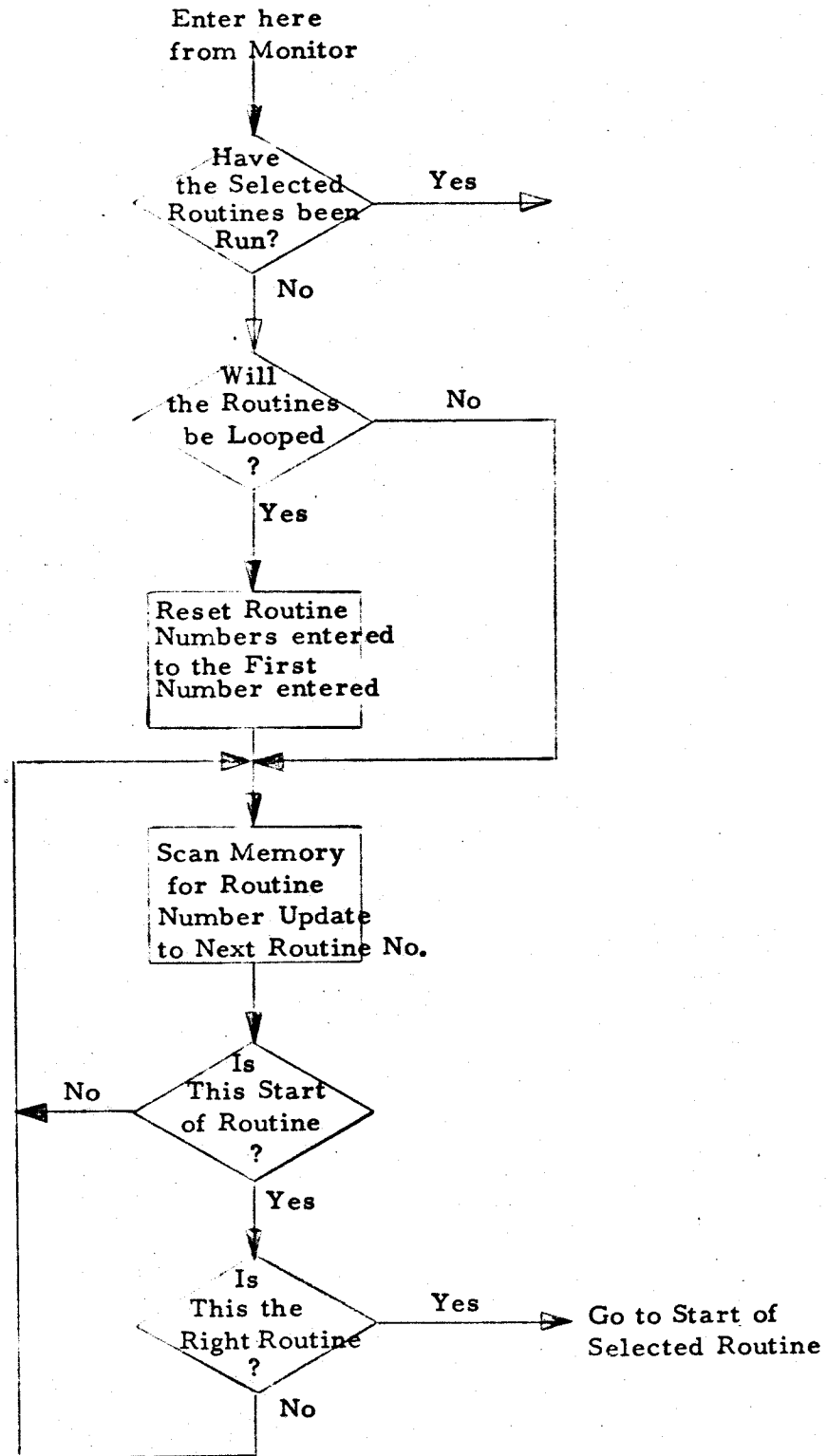
This routine is entered from the monitor routine only after the CE has selected the option through program control.

When the CE selects this option, he enters a list of routine numbers in the sequence he wants them run. Up to 25 routine numbers may be entered, and any routine number may be repeated.

Once the alter routine sequence option is selected, the routines listed by the CE are run one time or looped according to the last character entered by the CE. If it is 'L' the routines are repeated, if it is 'E' the routines are run only once.

When monitor recognizes that this option is selected, it does not go to the next sequential routine, but rather goes to the "alter routine sequence" routine. Here the routine numbers entered are searched for one at a time and the routines are executed in the sequence selected by the CE.

ALTER ROUTINE SEQUENCE



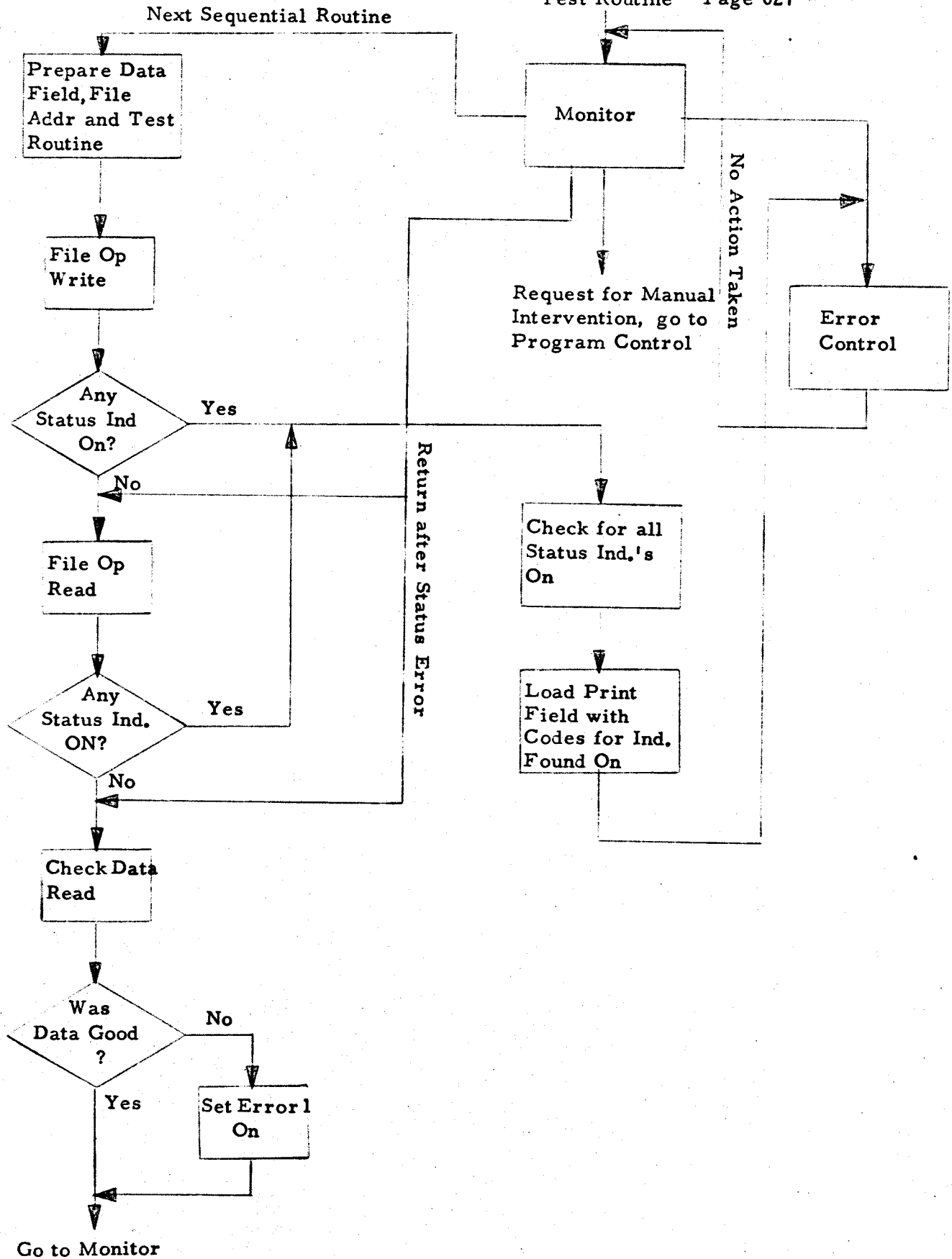
### TEST ROUTINE USING CONTROL ROUTINES

This flow chart shows a typical test routine and how it is linked to the control routines. Note how the routine is entered from the monitor control routine and when it is completed returns to the monitor routine. It is also important to understand that when a status error occurs, the test routine exits directly to the status check control routine. After the status error has been indicated, the monitor control routine returns to the test routine one instruction after the point where the status error was detected. The program detected error, read data was no good, is stored until the test routine is complete and goes to monitor. Monitor allows the error control routine to check for these program detected errors, if any are found to be on an error message is given.

Example of Test Routine using Control Routines

DA01, DA03,  
DA04, DA05

Previous Test Routine Page 027



GENERAL FLOW CHART OF STANDARD CONTROL ROUTINES  
AS USED WITH A PROGRAM

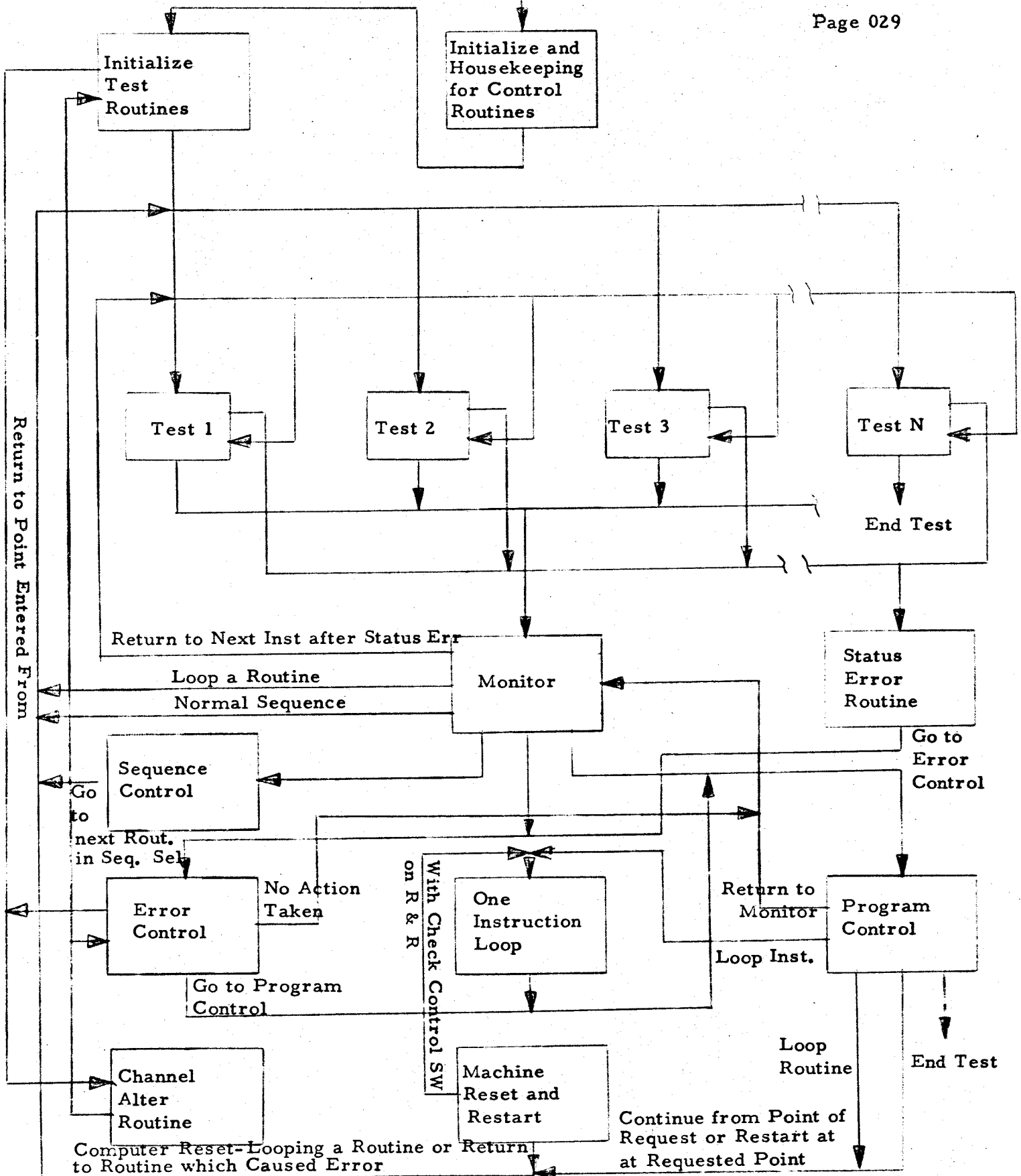
This flow chart shows the relationship of the standard control routines to the diagnostic test routines and to one another. Since these control routines apply to all the programs in the "DA" series, this flow chart can be used as a block diagram of all the "DA" programs. Note that each test sub-routine is entered from and exits to a standard control routine. This is true of all sub-routines used in the "DA" series.

Standard Control Routines  
as Used with a Program

DA01, DA03,  
DA04, DA05

Page 029

2000



Computer Reset-Looping a Routine or Return to Routine which Caused Error

Continue from Point of Request or Restart at at Requested Point

6.02.00.0 DA01 HOME ADDRESS AND SURFACE TEST DESCRIPTION

This test performs the functions previously performed by DA01B and DA02B, the program is made up of 5 tests which may be run in 1 of 4 modes, giving a total of 20 variations. The tests which may be run are:

- a. Write home addresses and verify addresses
- b. Verify addresses
- c. Analyze surfaces
- d. Write addr, verify addresses, and analyze surfaces
- e. Analyze surfaces and verify addresses

The modes in which these tests may be run are:

- a. Entire module
- b. One cylinder
- c. One surface
- d. One track

There is actually one other selection which may be made, this is for flagging a defective track. The flagging routine is available as a program option and would usually be selected only when the surface analysis test has determined that a track is defective.

It is important to remember that the surface analysis and write home address tests will destroy any data on the tracks being tested. This also includes the format track for the cylinder in which the tested tracks are located. The verify addresses test does not destroy any data that may be on the file.

6.02.01.0 OPERATING PROCEDURE

The standard procedures outlined in the package description apply to this program, in addition the following procedures are used to run this program.

## 01.1 SWITCH SETTINGS PREVIOUS TO RUNNING PROG.

- a. Write Format Switch ON (on every 1301 to be tested)
- b. HAO Switch ON
- c. All 1301 modules not to be tested are set inoperative.
- d. All other 7631-1301 switches OFF.

CAUTION: THIS PROGRAM CAN DESTROY CUSTOMER DATA AND/OR FORMATS.

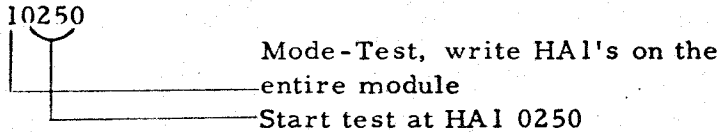


6.02.01.0 OPERATING PROCEDURE (continued)

## 01.2 SPECIAL REQUESTS

- a. "Sel Mode" (CE enters on the typewriter one of 15 mode-test variations plus the four digit HAI at which the program should start operating.)

ex. 10250



The codes for the 15 Mode-Test variations

Test	MODE			One Track Surface
	Entire Mod.	One Cyl.		
Write HAI's and verify addr's	1	A	J	/
Verify addr's	2	B	K	S
Analyze surfaces	3	C	L	T
Write HAI's, analyze surfaces and verify addr.	4	D	M	U
Analyze surfaces and verify addr.	5	E	N	V

- b. "Testing Mod Ch " (If the module number and channel are correct, the CE should enter a 1. If it is not a module which is to be tested, a 1 (any character other than 1) is entered and another module is selected.)
- c. "CE-HAO ON"  
This request is followed by a halt so that the switch on the 7631 may be turned on. Press start to continue.
- d. "CE-HAO OFF"  
This request is followed by a halt so that the switch on the 7631 may be turned off. Press start to continue.
- e. "TRCK FLGD OK"  
This typeout occurs after a successful flagging operation. The CE must now select any one of the standard program options.

Note: Reference Operating Hints for rules of selecting modes and starting HAI address.

6.02.01.0 OPERATING PROCEDURE (continued)

## 01.3 SPECIAL TADS

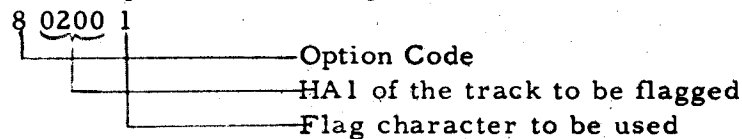
There is one special TAD for this program (Memory Location 01004).

If this TAD is set to a 1, the verify address test will cause all failing addresses to be read from the file and displayed on the typewriter. This TAD is set to 1 when the program is loaded.

## 01.4 SPECIAL OPTIONS FLAG-A-TRACK

In addition to the standard options available in all DA series programs, this program has a Flag Track option. The flag track option may be selected in the same manner as any option and its option code is "8". The format track data for the cylinder where the track is flagged is destroyed.

The data required with the option is:



## 01.5 STANDARD OPTIONS NOT AVAILABLE IN THIS PROGRAM

Alter routine sequence - Code 3.

6.02.02.0 OPERATING HINTS

## 02.1 TIMING CONSIDERATIONS

When operating in the "entire module" mode, the program requires rather large amounts of time. The following were timed on a 1410, with accelerator feature, running the entire module:

a. Write addresses	29 Min.
b. Verify addresses	11 Min.
c. Analyze surfaces	87 Min.
d. Write address, analyze surfaces and verify addr.	109 Min.
e. Analyze surfaces and verify addresses	91 Min.

6.02.02.0 OPERATING HINTS (continued)

## 02.2 CYLINDER MODE

When running in the cylinder mode, the HAl entered must be for the lowest track in the cylinder to be tested.

## 02.3 ONE SURFACE

When this mode is selected, the HAl of the outermost track of the surface to be tested is entered. If the fourth surface is to be tested, HAl 0004 would be entered.

## 02.4 ENTIRE MODULE MODE

When this mode is selected, the first HAl in the first cylinder to be tested is entered. The program need not start at cylinder 000, it may start at any cylinder.

## 02.5 ALTER SPECIAL TAD

Use program option code 2 (alter memory) to alter the special TAD to a 1 or 1. Special TAD location is 01004.

6.02.03.0 PROGRAM STOPS

## 03.1 ERROR STOPS

None

## 03.2 NORMAL STOPS

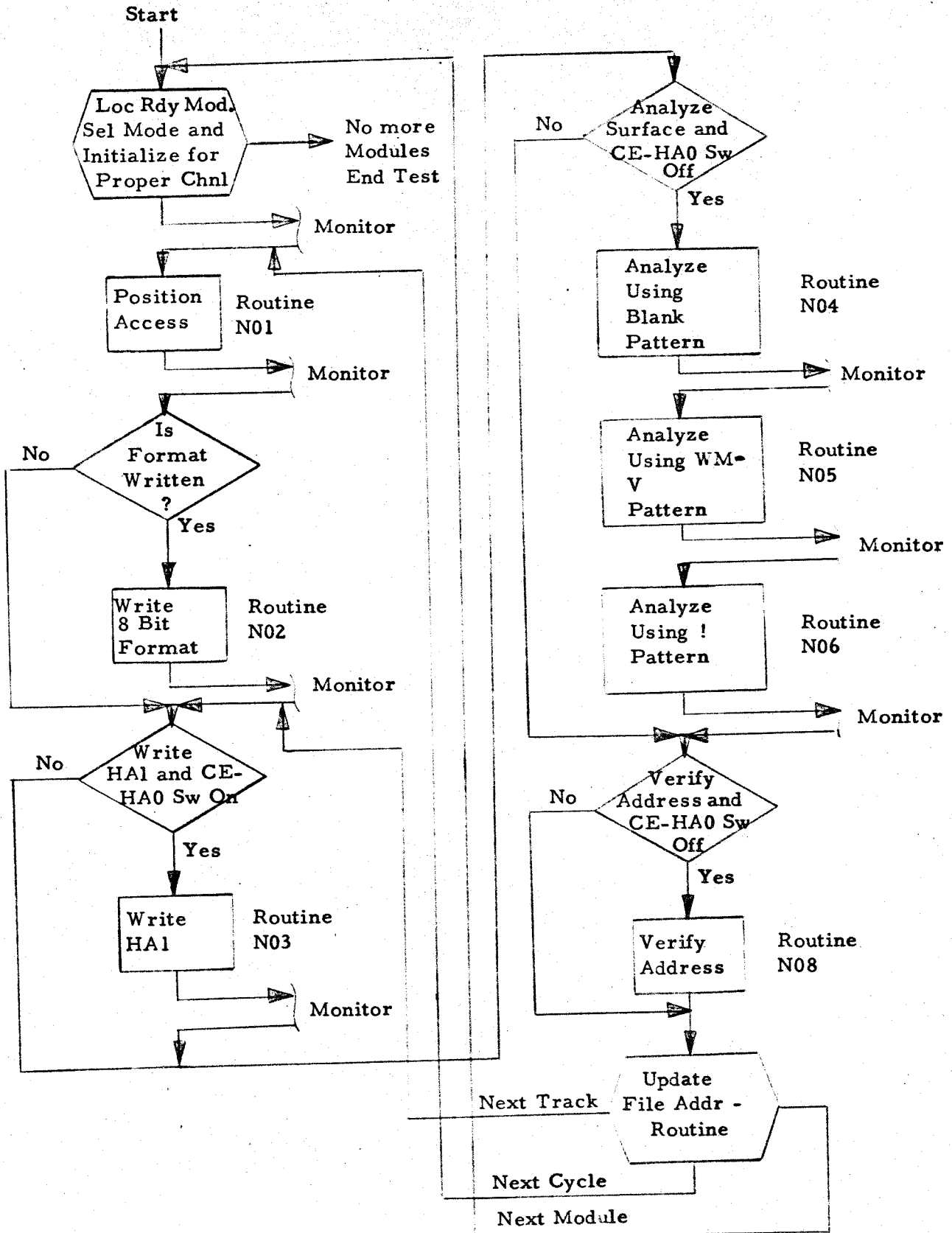
<u>Mem Loc</u>	<u>Reason</u>
5923	Wait for CE-HAO to be turned off, press Start.
5961	Wait for CE-HAO to be turned on, press Start.
7471	Test is completed, press Start to go to loader.

6.02.04.0 TYPEOUTS (Other than Request or Standard Typeouts)

Following the standard error message will be the eight-digit file address being used at the time of the error. This will be the third line of the error message.

6.02.05.0 FLOW CHART

The following flow chart is designed to give a general picture of the test routine's relationship to one another.



6.02.06.0 ROUTINE/ERROR INDEX DA01

To locate routines and errors in the program listing.-

<u>Routine Number</u>	<u>Error Number</u>	<u>Page</u>
N01	01	56
N02	02	57
N03	03	59
N04	04	61, 62
	05	62
N05	06	63, 64
	07	64
N06	08	65, 66
	09	66
N08	10	67
N09		68
N10	11	72
	12	73
	13	73

CT ADDR INSTRUCTION

I/O DICOST DEFINE TADS

OPCOD OPERAND

PGLIN LABEL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1002		CTL	2			
1003						
1004						
1005						
1006		ORG	1000		01000	
1007	TAD0	DCW	2 2	1	01000	
1008	TAD1		2 2	1	01001	
1009	TAD2		2 2	1	01002	
1010	TAD3			1	01003	
1011						
1012						
1013						
1014	SPTAD0	DCW	2 2	1	01004	
1015	SPTAD1		2 2	1	01005	
1016	SPTAD2		2 2	1	01006	
1017	SPTAD3		2 2	1	01007	
1018	SPTAD4		2 2	1	01008	
1019	SPTAD5		2 2	1	01009	
1020	SPTAD7		2 2	1	01010	
1021	SPTAD8		2 2	1	01011	
1022	SPTAD9		2 2	1	01012	
1023						

\*\*

\*\*

\*\*

\*\*

DEFINE STANDARD TADS

DEFINE SPECIAL TADS

I/O DICOST ONE INSTRUCTION LOOP

CT ADDR INSTRUCTION

LABEL

PGLLN

OPCOD OPERAND

```

1025      *** I/O DICOST PROGRAM ***
1026      *** ONE INSTRUCTION LOOP ROUTINE ***
1027      WHEN THE CE SELECTS A ONE INSTRUCTION LOOP THE I/O INSTRUCTION
1028      IN THIS ROUTINE IS ALTERED AND THE LOOP IS ENTERED. NOTE THAT THE
1029      BRANCH ON INQUIRY INSTRUCTION IS THE ONLY EXIT FROM THE LOOP.
1030      LOOP      M%      %11,0,R      I/O INST BEING LUP D
1031      BAI      *%1
1032      BNQ      PRGCL      BRCH ON INQ TO PRGCL
1033      B      LOOP      CONTINUE TO LOOP
1034      H
1035
10      01013      M      %11 00000 R
7      01023      R      01030 M
7      01030      J      02238 Q
7      01037      J      01013
1      01044      .

```



I/O DICOST CHANNEL ALTER

CT ADDR INSTRUCTION

PGLIN LABEL

OPCOD OPERAND

1037 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1038 \*\*\* CHANNEL ALTER ROUTINE \*\*\*  
 1039 THIS ROUTINE ALTERS ALL I/O INSTRUCTIONS, BRANCH-ON-STATUS-  
 1040 INDICATOR-ON INSTRUCTIONS, AND BRANCH ON CHANNEL OVERLAP IN PRO-  
 1041 CESS INSTRUCTIONS ACCORDING TO THE CHANNEL INDICATED. THIS IS DONE  
 1042 BY SCANNING A DEFINED AREA OF MEMORY AND ALTERING THESE INSTRU-  
 1043 TIONS.  
 1044

PGLIN	LABEL	OPCOD	OPERAND	SBR	X5	STORE ADDR	CT	ADDR	INSTRUCTION
1045	CHALTR	MLCA	9&X5,X7		LOAD IX6 & IX7	7	01045	G 00049 B	
1046	SCAN	SCNLA	0&X6,0&X6		SCAN FOR WM	12	01052	D 00*#9 00059 I S	
1047		SAR	X6		STORE ADDR OF OPER	12	01064	D 00*#0 00*#0 B	
1048		C	X6,X7		HAS ALL OF FLD BEEN	7	01076	G 00054 A	
1049		BH	13&X5		SEARCHED IF SO BRCH	11	01083	C 00054 00059	
1050		MLCS	1&X6,*&12		STORE OP CODE	7	01094	J 00*#3 U	
1051		BCE	MLORU, CODES,		IS OP CODE M	12	01101	D 00*#1 01124 3	
1052		BCE			IS OP CODE L	12	01113	B 01149 02563	
1053		BCE			IS OP CODE U	1	01125	B	
1054		BCE			IS OP CODE R	1	01126	B	
1055		BCE	RX30R1		IS OP CODE X	6	01127	B 01168	
1056		BCE			IS OP CODE 3	1	01133	B	
1057		BCE			IS OP CODE 1	1	01134	B	
1058		BCE			IS OP CODE J	1	01135	B	
1059		B	SCAN		GO FIND NEXT OPER	6	01136	B 01187	
1060		MLCS	10&X5,2&X6		CHEANGE CH--MODE CHAR	7	01142	J 01064	
1061		B	SCAN		GO FIND NEXT OPER	12	01149	D 00*#0 00*#2 3	
1062		MLCS	11&X5,1&X6		CHANGE B-I-S-I-O OP	7	01161	J 01064	
1063		B	SCAN		GO FIND NEXT OPER	12	01168	D 00*#1 00*#1 3	
1064		MLCS	7&X6,*&12		STORE MODIFIER	7	01180	J 01064	
1065		BCE	ONE234, MODS,		IS MODIFIER A 1	12	01187	D 00*#7 01210 3	
1066		BCE			IS MODIFIER A 2	12	01199	B 01221 02567	
1067		BCE			IS MODIFIER A 3	1	01211	B	
1068		BCE			IS MODIFIER A 4	1	01212	B	
1069		B	SCAN		GO FIND NEXT OPER	1	01213	B	
1070		MLCS	12&X5,7&X6		CHANGE BOL MODIFIER	7	01214	J 01064	
1071		B	SCAN		GO FIND NEXT OPER	12	01221	D 00*#2 00*#7 3	
1072		B	SCAN		GO FIND NEXT OPER	7	01233	J 01064	

PGLIN LABEL

H 1 01240 .

DEFINE SYSTEM & CHANNEL CONTROL CARDS

ORG 1233 01233  
DCM @FN2FJRFJZFJ1313+9@ 17 01249

DEFINE PROGRAM TITLE  
\*\*

ORG 1250 01250  
DCM @DA01C@,G 5 01254

LOCATE THE SYSTEM & CHANNEL CARDS

ORG 1256 01256  
SYSTEM DC @ 50 01256  
          @ 7 01312  
          @ 01289

ORG 1289 01289  
CHNL1 DC @ 50 01289  
          @ 7 01345  
          @ 01346

ORG 1346 01346  
CHNL2 DC @ 50 01346  
          @ 7 01402  
          @ 01403

ORG 1403 01403  
CHNL3 DC @ 50 01403  
          @ 7 01459  
          @ 01460

ORG 1460 01460  
CHNL4 DC @ 50 01460  
          @ 7 01516  
          @

1103

CT ADDR INSTRUCTION

I/O DICOST TYPE  
OPCOD OPERAND

LABEL

PGLIN

1105 \*\*\* I/O DICOST PROGRAM \*\*\*

1106 \*\*\* TYPE AND REQUEST FOR INTERVENTION \*\*\*

1107 THIS ROUTINE IS USED TO TYPE ALL MESSAGES AND REQUESTS FOR

1108 MANUAL INTERVENTION.THE ROUTINE WILL TYPE A MESSAGE FROM A COMMON

1109 DATA FIELD,OR THE MESSAGE MAY BE LOCATED IMMEDIATELY AFTER THE

1110 BRANCH INSTRUCTION TO THIS ROUTINE.IF A REPLY IS REQUIRED A READ

1111 CONSOLE PRINTER OPERATION IS ISSUED.THIS ROUTINE IS USED TO TYPE

1112 ALL MESSAGES IN THIS PROGRAM.

PGLIN	TYPE	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1105						
1106						
1107						
1108						
1109						
1110						
1111						
1112						
1113						
1114	STORE RETURN ADDR			7	01517	G 01591 B
1115	TYPE MESSAGE			10	01524	M 2TO 00201 M
1116	BRCH BUSY			7	01534	R 01524 Z
1117				7	01541	R 01548 M
1118				1	01548	M
1119	READ CONSOLE PRINTER			10	01549	M 2TO 00000 R
1120	BRCH ON ANY BUT WLR			7	01559	R 01549 M
1121				7	01566	R 01573 M
1122	TURN OFF SWITCH 11			6	01573	0 01549
1123	CLEAR PRINT AREA			6	01579	/ 00330
1124				1	01585	/
1125	RETURN TO DICOST			7	01586	J 00000
1126	STORE ADDR OF MESSG			7	01593	G 00029 B
1127				7	01600	J 01620
1128	STORE ADDR OF MESSG			7	01607	G 00029 B
1129	TURN ON REPLY SW			6	01614	0 01652
1130	TYPE MESSAGE			10	01620	M 2TO 00000 M
1131	STORE RETURN ADDR			7	01630	G 00029 B
1132				7	01637	R 01620 Z
1133				7	01644	R 01651 M
1134	BRCH			1	01651	M
1135	IF REPLY REQUIRED			7	01652	J 01666
1136	RETURN			7	01659	J 00000
1137	REPLY TO MESSG			10	01666	M 2TO 00000 R
1138	STORE RETURN ADDR			7	01676	G 00029 B
1139	BRCH ON ANY BUT WLR			7	01683	R 01666 M
1140				7	01690	R 01697 M

1141	CW	REPLY&I		6	01697	□ 01652
1142	B	0&X1	RETURN	7	01703	J 000&0
1143	MLCWS	0N0,PASS1	RESET FIRST PASS INST	12	01710	D 07585 01944 7
1144	BCE	*013,1264,1	BRCH IF PRIORITY AVAILABLE	12	01722	B 01746 01264 1
1145	MLCWS	0N0,MONITR&7	ALTER PRIORITY INST TO NO-OP	12	01734	D 07585 02073 7
1146	MRCWG	*09,1230	RESTORE CHANNEL ALTER ROUTINE	12	01746	D 01766 01230 L
1147	B	PASS1&7	RETURN TO NORMAL INITIALIZE	7	01758	J 01951
1148	H			1	01765	.
1149	DC	0.730		3	01768	
1150	DCW	0J0		1	01769	
1151	DC	SCAN		5	01774	01064
1152	DC	0 0		1	01775	
1153	DCW	0.0,0		1	01776	
1154	DS	12			01789	

\*\*\* ERROR TABLES THESE ARE USED FOR ERROR \*\*\*  
 \*\*\* SUMMARIES AND ERROR IDENTIFICATION \*\*\*

1158	ORG	*EX00			01800	
1159	ORG	*01			01801	
1160	DCW	0L0		1	01801	
1161	DC	0 0		1	01802	
1162	DC	0 0		1	01803	
1163	DC	0 0		1	01804	
1164	DC	0 0		1	01805	
1165	DC	0 0		1	01806	
1166	DC	0 0		1	01807	
1167	DC	0 0		1	01808	
1168	DC	0 0		1	01809	
1169	DC	0 0		1	01810	
1170	DC	0 0		1	01811	
1171	DC	0 0		1	01812	
1172	DC	0 0		1	01813	
1173	DC	0 0		1	01814	
1174	DC	0 0		1	01815	
1175	DC	0 0		1	01816	

I/O DICOST TYPE

CT ADDR INSTRUCTION

PGLLN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1177	E16		0 0	1	01817	
1178	E17		0 0	1	01818	
1179	E18		0 0	1	01819	
1180	E19		0 0	1	01820	
1181	E20		0 0	1	01821	
1182	E21		0 0	1	01822	
1183	E22		0 0	1	01823	
1184	E23		0 0	1	01824	
1185	E24		0 0	1	01825	
1186	E25	DC	0 0	1	01826	
1187	E26	DC	0 0	1	01827	
1188	E27		0 0	1	01828	
1189	E28		0 0	1	01829	
1190	E29		0 0	1	01830	
1191	E30		0 0	1	01831	
1192	E31		0 0	1	01832	
1193	E32		0 0	1	01833	
1194	E33		0 0	1	01834	
1195	E34		0 0	1	01835	
1196	E35		0 0	1	01836	
1197	E36		0 0	1	01837	
1198	E37		0 0	1	01838	
1199	E38		0 0	1	01839	
1200	E39		0 0	1	01840	
1201	E40		0 0	1	01841	
1202	E41		0 0	1	01842	
1203	E42		0 0	1	01843	
1204	E43		0 0	1	01844	
1205	E44		0 0	1	01845	
1206	E45		0 0	1	01846	
1207	E46		0 0	1	01847	
1208	E47		0 0	1	01848	
1209	E48		0 0	1	01849	
1210	E49		0 0	1	01850	
1211	E50		0 0	1	01851	
1212	E51	DC	0 0	1	01852	

I/O DICOST TYPE

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
12I3	E52		2 2	1	01853	
12I4	E53		2 2	1	01854	
12I5	E54		2 2	1	01855	
12I6	E55		2 2	1	01856	
12I7	E56		2 2	1	01857	
12I8	ERRTAB	DC	2+2	1	01858	
12I9		DC	2 2	1	01859	
1220						

I/O DICOST INITIALIZE ROUTINE

PGLIN	LABEL	OPCODE	OPERAND	PRINT TITLE	CT	ADDR	INSTRUCTION
1222	INITLE	WCP	1250	PRINT TITLE	10	01860	M 3T0 01250 W
1223		BCB1	*-16		7	01870	R 01860 2
1224		BAL	*81		7	01877	R 01884 M
1225		CS	99	RESET IND REG S	6	01884	/ 00099
1226		SW	25	SET WM IN IND REG I	6	01890	* 00025
1227		MLCS	2+2,100	PREPARE TO LOAD 2-15	12	01896	D 07586 00100 3
1228		MRWR	25,30	LOAD IND REG 2-15	12	01908	D 00025 00030 3
1229		MRCWG	RESUME,1	MOVE RESET PROCEDURE	12	01920	D 02015 00001 D
1230		MRCWG	INTR,101	MOVE INTERRUPT PROC	12	01932	D 02007 00101 L
1231	PASS1	B	DATA	GO DO MORE INITIALIZING	7	01944	J 01710
1232		CH	LPRT,SW1161	CLEAR AND RESET	11	01951	□ 02575 01549
1233		CS	656	ERROR TABLE	6	01962	/ 01857
1234		MLCS	2L2,STPTAB	GO TO ROUTINE INIT.	12	01968	D 07587 01801 7
1235		B	START		7	01980	J 03377
1236		H	2000		1	01987	.
1237		ORG	INITLE		7	02000	J 01860
1238		B		*** RESET & INTERRUPT ROUTINES, THESE ROUTINES ***			
1239				*** ARE MOVED TO LOCATIONS I & 101			
1240		BNQ	PRGCTL	RETURN TO PROG CNTRL	7	02007	J 02238 Q
1241		DCW	2M2		1	02014	
1242		B	CKLUP		7	02015	J 02023
1243		DCW	2M2		1	02022	
1244	INTR	BW	MONITR,LPRT	CHECK FOR LOOP ROUT	12	02023	V 02066 02575 1
1245	RESUME	BW	LOOP,LPINST	CHECK INST LOOP SW	12	02035	V 01013 02576 1
1246	CKLUP	MLNA	X3,X2	LOAD IX 2	12	02047	D 00039 00034 /
1247		B	MONITR67	GO TO MONITR	7	02059	J 02073
1248							
1249							
1250							
1251							

I/O DICOST MONITOR  
 PGLIN LABEL OPCOD OPERAND CT ADDR INSTRUCTION

```

1253 *** I/O DICOST PROGRAM ***
1254 *** MONITOR ROUTINE ***
1255 THE MONITOR IS ENTERED AFTER EVERY TEST ROUTINE IS COMPLETED,OR
1256 A STATUS ERROR HAS BEEN DETECTED AND INDICATED.IN THE CASE OF A
1257 STATUS ERROR MONITOR SIMPLY BRANCHES BACK TO THE POINT AT WHICH
1258 THE STATUS ERROR WAS DETECTED.WHEN ENTERED FROM THE END OF A
1259 TEST ROUTINE MONITOR CHECKS TO SEE IF THE CE PRESSED INQUIRY,THE
1260 ROUTINE IS BEING LOOPEED,ANY ERRORS OCCURED,ALTER ROUTINE SEQUENCE
1261 IS SELECTED,OR THE NEXT SEQUENTIAL ROUTINE SHOULD BE RUN.
1262
  
```

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1263	MONLTR	SBR	X2	7	02066	G 00034 B
1264		BXPA	*E1	7	02073	Y 02080 X
1265		BNQ	PRGCTL	7	02080	J 02238 Q
1266	MONIT1	BW	0EX3,LPRT	12	02087	V 00040 02575 1
1267	MONIT2	MLCWS	0A0,224	12	02099	D 07588 00224 7
1268		B	ERRCTL	7	02111	J 02635
1269	MONIT3	NOP		1	02118	N
1270		MLCWA	X2,X3	12	02119	D 00034 00039 X
1271		MLCWS	0 0,224	12	02131	D 07589 00224 7
1272		B	0EX2	7	02143	J 000.0
1273	WHERE2	MLCWS	0 0,224	12	02150	D 07589 00224 7
1274		BCE	*E8,0EX2,N	12	02162	B 02181 000.0 N
1275		B	0EX2	7	02174	J 000.0
1276		BZN	*E8,1EX2,2	12	02181	V 02200 000.1 2
1277		B	0EX2	7	02193	J 000.0
1278		BZN	*E8,2EX2,2	12	02200	V 02219 000.2 2
1279		B	0EX2	7	02212	J 000.0
1280		BW	MONIT3,3EX2	12	02219	V 02118 000.3 1
1281		B	0EX2	7	02231	J 000.0
1282						



PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1284		***	I/O DICOST PROGRAM ***			
1285		***	PROGRAM CONTROL ***			
1286			WHEN THE CE PRESSES INQUIRY TO SELECT A STANDARD PROGRAM OPTION			
1287			THIS ROUTINE IS ENTERED. THE CE ENTERS ON THE TYPEWRITER THE			
1288			OPTION CODE DESIRED, ALONG WITH THE DATA NEEDED BY THE OPTION. THE			
1289			ROUTINE DETERMINES WHICH OPTION HAS BEEN SELECTED AND INITIATES			
1290			THE OPTION.			
1291						
1292	PRGCTL	RCPW	GTLFLD	10	02238	L XTO 00201 R
1293		SBR	X1	7	02248	G 00029 B
1294		BEXI	PRGCIL, M	7	02255	R 02238 M
1295		SW	GTLFLD&1	6	02262	, 00202 G
1296		BAI	*&1	7	02268	R 02275 M
1297		CW	LPRT, LPINST	11	02275	D 02575 02576
1298		MLWS	*, E1	12	02286	D 02297 01802 4
1299		MRWR	E1, E2	12	02298	D 01802 01803 3
1300		MLCS	CTLFLD, *&12	12	02310	D 00201 02333 3
1301		BCE	ENDTST, CTLCOD,	12	02322	B 07429 02574
1302		BCE	ALTADS	6	02334	B 02389
1303		BCE	ALTMEM	6	02340	B 02412
1304		BCE	LUPRT	6	02346	B 02459
1305		BCE	ONELUP	6	02352	B 02488
1306		BCE	RSTART	6	02358	B 02522
1307		BCE	CONT	6	02364	B 02545
1308		BCE	N10, CTLFLD, 8	12	02370	B 06127 00201 8
1309		B	PRGCTL	7	02382	J 02238
1310	ALTADS	MLCA	CTLFLD&4, 1003	12	02389	D 00205 01003 T
1311		CS	MONIT1, 299	11	02401	/ 02087 00299
1312	ALTMEM	MLCA	CTLFLD&5, *&9	12	02412	D 00206 02432 T
1313		RCPW	0	10	02424	L XTO 00000 R
1314		BEXI	*-16, M	7	02434	R 02424 M
1315		BAI	*&1	7	02441	R 02448 M
1316		CS	MONIT1, 299	11	02448	/ 02087 00299
1317	LUPRT	SW	LPRT	6	02459	, 02575
1318		MLNA	CTLFLD&5, X2	12	02465	D 00206 00034 /
1319		CS	MONIT2, 299	11	02477	/ 02099 00299

I/O DICOST PROGRAM CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1320	ONELUP	SW	LPINST	6	02488	J 02576
1321	LUPINT	NOPWM		1	02494	N
1322		B	*E8	7	02495	J 02509
1323		B	PREP	7	02502	J 06580
1324		CW	LUPINT&1	6	02509	□ 02495
1325		B	LOOP	7	02515	J 01013
1326	RSTART	MLNA	CTLFLD&5,X2	12	02522	D 00206 00034 /
1327		CS	MONIT2,299	11	02534	/ 02099 00299
1328	CONT	CS	WHERE2,299	11	02545	/ 02150 00299

I/O DICOST CONSTANTS

1330	CODES	DCW	0J13XRULM0	8	02563	
1331	MODS	DCW	043210	4	02567	
1332		DCW	070	1	02568	
1333		DC	060	1	02569	
1334			050	1	02570	
1335			040	1	02571	
1336			020	1	02572	
1337			010	1	02573	
1338	CTLCOD		0 0	1	02574	
1339	LPRT	DC	0 0	1	02575	
1340	LPINST	DC	0 0	1	02576	
1341	ADDR02	DCW	ERRTAB	5	02581	01858
1342	ERR	DCW	0*ERR0R0	6	02587	
1343	ACTION	DC	0REQ ERROR ACTION0,G	16	02588	
1344	ERCODE	DCW	0547P0	4	02608	
1345	SAVIND	DCW	01 2 4 8 A B0,G	11	02609	
1346	STIND	DC	01 2 4 8 A B0,G	11	02621	
1347	NOERSW	DC	0 0	2	02633	
1348						
1349						

I/O DICOST ERROR CONTROL  
OPCOD OPERAND

1351 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1352 \*\*\* ERROR CONTROL \*\*\*  
 1353 THIS ROUTINE DETERMINES IF ANY STATUS ERRORS OR PROGRAM DETECT-  
 1354 ED ERRORS HAVE TO BE INDICATED, IF THERE ARE THIS ROUTINE BUILDS  
 1355 THE ERROR MESSAGE AND HAS IF TYPED OUT. THIS ROUTINE ALSO CHECKS  
 1356 TAD 1 TO SEE IF A REQUEST FOR ERROR ACTION SHOULD BE MADE.  
 1357

LOCATE FAILING INST

PGLIN	LABEL	OPCOD	OPERAND	ERRCTL	MLCA	X2,X5	LOAD IND REG 5	CT	ADDR	INSTRUCTION
1358								12	02635	D 00034 00049 T
1359					S	010,X5		11	02647	S 07590 00049 S
1360					SCNLA	06X5,06X5	SCAN THE ROUTINE	12	02658	D 00#0 00#0 B
1361					SAR	X5	STORE CHAR ADDR	7	02670	G 00049 A
1362					MLCS	16X5,*12	MOVE CHAR TO BE CHKD	12	02677	D 00#1 02700 3
1363					BCE	GOTONE,CODES,	IS OP CODE M	12	02689	B 02733 02563
1364					BCE		IS OP CODE L	1	02701	B
1365					BCE	SHORT1	IS OP CODE U	6	02702	B 02752
1366					C	X3,X5	HAS ROUTINE BEEN	11	02708	C 00039 00049
1367					BL	LOADFLD	SEARCHED	7	02719	J 02776 T
1368					B	ERRCTL&12	GO CONTINUE THE SRCH	7	02726	J 02647
1369					GOTONE	106X5,LOOP&9	LOAD THE LOOP INST	12	02733	D 00#0 01022 X
1370					B	LOADFLD		7	02745	J 02776
1371					MLCWA	56X5,LOOP&9	LOAD THE LOOP INST	12	02752	D 00#5 01022 X
1372					MLCS	0N2,LOOP	SET NO-OP FOR SHORT	12	02764	D 07585 01013 3
1373							INSTRUCTION			
1374					MLCA	LOOP&9,234	MOVE FAILING OPER	12	02776	D 01022 00234 T
1375					MLNA	X3,223	MOVE ADDR OF ROUT	12	02788	D 00039 00223 /
1376					ZA	ADDR02,X1	LOAD NO REG 1	11	02800	H 02581 00029
1377					ZA	002090,X5	LOAD IND REG 5	11	02811	M 07595 00049
1378							SCAN ERROR TABLE & UPDATA ERROR COUNT			
1379					ERSCAN	SCNLA 06X1,06X1	SCAN THE ERROR TABLE	12	02822	D 000#0 000#0 S
1380					SAR	X1	STORE ADDR	7	02834	G 00029 A
1381					BCE	AFTSRH,16X1,L	HAS TABLE BEEN COMP.	12	02841	B 02900 000#1 L
1382					SM	X1-1	DEFINE ERROR	6	02853	, 00028
1383					MLNWA	X1,06X5	MOVE ERROR CODE NO.	12	02859	D 00029 00#0 V
1384					A	030,X5	UPDATE IND REG 5	11	02871	A 07596 00049

PGLIN	LABEL	OPCOD	OPERAND	I/O DICOST ERROR CONTROL	CT	ADDR	INSTRUCTION
1387				NINE TIMES			
1388		CW	18X1,X1-1	CLEAR WM S	11	02882	000+1 00028
1389		B	ERSCAN		7	02893	J 02822
1390				LOAD PRINT FIELD WITH ERROR MESSG			
1391	AFTSRH	BCE	WHERE2,1000,1	BRCH IF BYPASSING ERRORS	12	02900	B 02150 01000 1
1392	ERROSM	NOP			1	02912	N
1393		BCE	WHERE2,209	BRCH IF NO ERRORS	12	02913	B 02150 00209
1394		SW	ERROSM&1	RESET ERROR SW	6	02925	, 02913
1395		MLCA	ERR,206	MOVE ERROR	12	02931	D 02587 00206 T
1396		MLCA	2&X3,ROUTID	MOVE ROUTINE IDENT	12	02943	D 00042 02972 T
1397		B	TYPI	GO TYPE ROUTINE ID	7	02955	J 01593
1398		DCW	ROUTINE @		8	02969	
1399	ROUTID	DC	@ @,G		3	02972	
1400		B	TYMES		7	02974	J 01517
1401				TYPE ADDITIONAL ERROR INFORMATION			
1402	EXTRA	NOPWM			1	02981	N
1403		WCP	DATA	PRINT EXTRA DATA	10	02982	M 8TO 01710 W
1404		BCB1	--16		7	02992	R 02982 2
1405		BA1	*61		7	02999	R 03006 M
1406		CW	EXTRA&1		6	03006	02982
1407	ACT	BCE	*8,1001,1	LODP ACTION REQUIRED	12	03012	B 03031 01001 1
1408		B	WHERE2		7	03024	J 02150
1409		SW	LUPINT&1	TURN ON SWITCH	6	03031	, 02495
1410		MRCWG	ACTION,201	MOVE ACTION MESSG	12	03037	D 02588 00201 L
1411		B	TYMES		7	03049	J 01517
1412		B	PRGCTL		7	03056	J 02238
1413							
1414				*** I/O DICOST PROGRAM ***			
1415				*** DETERMINE WHICH STATUS INDICATORS ARE ON ***			
1416				THIS ROUTINE DETERMINES WHICH STATUS INDICATORS ARE ON, ON THE			
1417				CHANNEL BEING USED. THE INDICATORS FOUND ON ARE STORED IN THE			
1418				PRINT FIELD AND THE PROGRAM BRANCHES TO ERROR CONTROL.			
1419	STACKH	SBR	X5	STORE ADDR IN IND 5	7	03063	G 00049 B
1420		SBR	X2		7	03070	G 00034 B
1421		BW	0&X2,LPRT		12	03077	V 000.0 02575 1
1422		S	@7a.X5	REDUCE ADDR BY 7	11	03089	S 07597 00049

I/O DICOST ERROR CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1423		MLCS	0&X5, LOOP&10	12	03100	D 00#0 01023 3
1424		MRCWG	STIND, 237	12	03112	D 02621 00237 L
1425		MLCS	0&X5, NUOPCO	12	03124	D 00#0 03154 3
1426		B	CHALTR	7	03136	J 01045
1427		DCM	CNTERR	5	03147	03309
1428		DC	NOTRDY	5	03152	03167
1429		DCM	2 2	1	03153	
1430	NUOPCO	DC	2 2	1	03154	
1431		DC	2 2	1	03155	
1432		ZA	200237a, X5	11	03156	Q 07602, 00049
1433	NOTRDY	NOP		1	03167	N
1434		BNR1	CNTERR	7	03168	R 03309 1
1435		B	UPIX	7	03175	J 03340
1436	BUSY	NOP		1	03182	N
1437		BCB1	CNTERR	7	03183	R 03309 2
1438		B	UPIX	7	03190	J 03340
1439	DATAACK	NOP		1	03197	N
1440		BER1	CNTERR	7	03198	R 03309 4
1441		B	UPIX	7	03205	J 03340
1442	EXTCND	NOP		1	03212	N
1443		BEF1	CNTERR	7	03213	R 03309 8
1444		B	UPIX	7	03220	J 03340
1445	NOTRNS	NOP		1	03227	N
1446		BNT1	CNTERR	7	03228	R 03309 B
1447		B	UPIX	7	03235	J 03340
1448	MLR	NOP		1	03242	N
1449		BWL1	CNTERR	7	03243	R 03309 -
1450		B	UPIX	7	03250	J 03340
1451		SW	NOTRDY&1, BUSY&1	11	03257	, 03168 03183
1452		SW	DATAACK&1, EXTCND&1	11	03268	, 03198 03213
1453		SW	NOTRNS&1, MLR&1	11	03279	, 03228 03243
1454		MRCG	237, SAVIND	12	03290	D 00237 02609 \$
1455		B	ERRCTL	7	03302	J 02635
1456	CNTERR	SBR	X6	7	03309	G 00054 B
1457		A	27a, X6	11	03316	A 07597 00054
1458		CW	ERROSM&1	6	03327	2 02913

I/O DICOST ERROR CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1459		B	UPIX&19	7	03333	J 03359
1460	UPIX	SBR	X6	7	03340	G 00054 B
1461		MLCS	2,0&X5	12	03347	D 07589 00#0 3
1462		A	222,X5	11	03359	A 07603 00049
1463		B	0&X6	7	03370	J 00#0.0
1464						

STORE RETURN ADDR  
 REMOVE STATUS CHAR  
 UPDATE IND REG 5  
 RETURN TO PROGRAM

CT ADDR INSTRUCTION

I/O DICOST SEQUENCE CONTROL

OPCOD OPERAND

LABEL

PGLIN

1466	CTLFLD	EQU	201
1467		PST	

INITIALIZE ROUTINE  
 PGLIN LABEL OPCODE OPERAND CT ADDR INSTRUCTION

DETERMINE WHICH CHANNEL TO USE

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
1469	START	CM	CEHAD,OUT&1	11	03377	□ 07472 04602
1470		CM	NOGOOD&1,LAST2&1	11	03388	□ 04930 05483
1471		CM	PAS2SW&1,FILE&4	11	03399	□ 06046 07695
1472		CM	SURFSW&1	6	03410	□ 05508
1473		MLCA	2002,FILE&1	12	03416	D 07605 07692 T
1474		SM	FILE&1	6	03428	, 07692
1475		S	TRKCNT	6	03434	S 07511
1476		ZA	20002,X15	11	03440	M 07609 00099
1477		ZA	21302,X14	11	03451	M 07613 00094
1478	ONE	BCE	*28,0&X14,F	12	03462	B 03481 00M.0 F
1479		B	UPX15	7	03474	J 03569
1480		MLCA	CODE3&X15,TSTCH	12	03481	D 07EG5 03512 T
1481		B	CHALTR	7	03493	J 01045
1482		DCM	TOP	5	03504	07465
1483		DC	BOTTOM-1	5	03509	03512
1484		DCM	CHANNEL	1	03510	
1485		DC	CODES	1	03511	
1486	TSTCH	DC	2 2	1	03512	
1487	BOTTOM	SD	1,FILE	10	03513	M 2FO 07691 R
1488		BAL	*21	7	03523	R 03530 M
1489		BNRI	*28	7	03530	R 03544 1
1490		B	RIGHT1	7	03537	J 03610
1491	UP1	A	212,FILE&1	11	03544	A 07590 07692
1492		BZ	*28	7	03555	J 03569 Y
1493		B	BOTTOM	7	03562	J 03513
1494	UPX15	A	232,X15	11	03569	A 07596 00099
1495		A	2572,X14	11	03580	A 07615 00094
1496		BCE	ENDTST,X15-1,1	12	03591	B 07429 00098 1
1497		B	ONE	7	03603	J 03462
1498	RIGHT1	MLNS	FILE&1,RDYME&11	12	03610	D 07692 03652 1
1499		MLNS	TSTCH,RDYME&15	12	03622	D 03512 03656 1
1500		B	TYP2	7	03634	J 01607
1501	RDYME	DCM	2TESTING MOD CH 2,G	16	03641	



INITIALIZE ROUTINE

PGLIN	LABEL	OPCOD	OPERAND	REPLY AREA	CT	ADDRS	INSTRUCTION
1505		DCW	a a,g	REPLY AREA	1	03658	
1506		BCE	FOUND1, *-13,1	BRCH IF THIS ONE IS	12	03660	8 03679 03658 1
1507		B	UPI	TO BE TESTED	7	03672	J 03544
1508							
1509							
1510							
1511	FOUND1	B	TYP2		7	03679	J 01607
1512		DCW	aSEL MODEa,g		8	03693	
1513	MODE	DCW	aN a,g		5	03695	
1514		SW	MODE1,FILE&2		11	03701	, 03696 07693
1515		MLCA	MODE&4,LOEND	SAVE ADDRESS	12	03712	D 03699 07515 1
1516		MLCA	MODE&4,FILE&5	SET FILE TKHD ADDR	12	03724	D 03699 07696 1
1517		MLNA	MODE&4,LIMIT	SET FILE ADDR LIMIT	12	03736	D 03699 07476 1
1518		BZN	CYL,MODE,&	BRCH IF USING CYL	12	03748	V 03803 03695 B
1519		BZN	TRCK,MODE,-	BRCH IF USING TRACK	12	03760	V 03834 03695 K
1520		BZN	SURF,MODE,+		12	03772	V 03821 03695 S
1521		MLNA	00000,LIMIT	SET FILE ADDR LIMIT	12	03784	D 07609 07476 1
1522		B	CKOPT		7	03796	J 03845
1523	CYL	A	0400,LIMIT	DETERMINE HIGH LIMIT	11	03803	A 07617 07476
1524		B	CKOPT		7	03814	J 03845
1525	SURF	SW	SURFSW&1	SET SWITCH TO TEST ONE SWITCH	6	03821	, 05508
1526		B	CKOPT		7	03827	J 03845
1527	TRCK	A	010,LIMIT	DETERMINE HIGH LIMIT	11	03834	A 07590 07476
1528	CKOPT	MLNS	MODE,OPTNSW	STORE OPTION SELECTD	12	03845	D 03695 07484 1
1529		BCE	CESWON,OPTNSW,1	WILL HAI BE WRITTEN	12	03857	B 05936 07484 1
1530		BCE	CESWON,OPTNSW,4	WILL HAI BE WRITTEN	12	03869	B 05936 07484 4
1531		B	MONTR	GO TO MONITER	7	03881	J 02066
1532							

PREPARE PROG TO RUN UNDER MODE SELECTED

CT ADDR INSTRUCTION

POSITION THE ACCESS  
OPCOD OPERAND

PGLIN LABEL

1534 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1535 \*\*\* POSITION THE ACCESS \*\*\*  
 1536 THIS ROUTINE SEEKS THE ACCESS TO THE LATEST TRACK AND HEAD ADDR  
 1537 BEING USED, IT SHOULD BE POINTED OUT THAT THIS ROUTINE IS BYPASSED  
 1538 WHEN THE ADDRESS CHANGE DOES NOT REQUIRE THE ACCESS TO BE MOVED.  
 1539 AFTER THE SEEK OPERATION A READ HAD IS ISSUED, THIS READ IS GIVEN  
 1540 ONLY IF THE CE-HAD SWITCH IS OFF, IF THE READ OP RESULTS IN A  
 1541 NO RECORD FOUND, ERROR 1 IS INDICATED. ALL STATUS ERRORS ARE ALSO  
 1542 INDICATED.

PGLIN	NOI	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1543						
1544		NOP		1	0388	N
1545		DC	2012	2	03890	
1546		SD	1,FILE	10	03891	M XFO 07691 R
1547		BCB1	*-16	7	03901	R 03891 Z
1548		BAL	STACHK	7	03908	R 03063 M
1549		BW	NOIXIT,CEHAD	12	03915	V 03971 07472 1
1550		LU	XFS,FILE,R	10	03927	L XFS 07691 R
1551		BCB1	*-16	7	03937	R 03927 Z
1552		BAL	*E1	7	03944	R 03951 M
1553		BEX1	*E8,Y	7	03951	R 03965 Y
1554		B	NOIXIT	7	03958	J 03971
1555			*** SET ERROR 1 ON ***			
1556		SW	E1	6	03965	, 01802
1557			ACCESS POSITIONED INCORRECTLY, READ OP CAUSES NO RECORD FOUND.			
1558		NOIXIT	B	7	03971	J 02066
1559			MONITR			

WRITE FORMAT FOR MAXIMUM LENGTH  
PGLIN LABEL OPCOD OPERAND

1561 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1562 \*\*\* WRITE MAXIMUM LENGTH FORMAT IN 8 BIT MODE \*\*\*  
 1563 THIS ROUTINE WRITES A FORMAT IN 8 BIT MODE EACH TIME A NEW  
 1564 CYLINDER IS BEGUN. IF THE PROGRAM IS BEING RUN IN THE VERIFY ADDR  
 1565 MODE ONLY THIS ROUTINE IS COMPLETELY BYPASSED. AFTER THE FORMAT IS  
 1566 WRITTEN IT IS WRITE CHECKED. IF THIS RESULTS IN A DATA CHECK, ERROR  
 1567 2 IS INDICATED. ALL STATUS ERRORS ARE ALSO INDICATED.

FORMAT WRITTEN IN 8 BIT MODE  
 44433333333333333333333333333333 HAZ AREA CONSISTS OF 2180 CHAR 4

FORMAT ORGANIZATION  
 GAP1--HAI--GAP2--HAZ 2209CHARS--GAP3

PGLIN	NO2	NOP	ROUTINE IDENT	IS FORMAT BEING WRN	CT	ADDR	INSTRUCTION
1575	DC	020			1	03978	N
1576	BCE	N02XIT,OPTNSW,2			2	03980	
1577	SW	DATAFD			12	03981	B 04155 07484 2
1578	ZA	ADDR1,X10	LOAD IX 10		6	03993	0 07700
1579	CS	06X10	CLEAR THE DATA FLD		11	03999	M 07567 00074
1580	SBR	X10	STORE ADDR REG		6	04010	/ 00...0
1581	BW	CLRFLD,DATAFD	MORE TO CLEAR		7	04016	G 00074 8
1582	SW	DATAFD&2232	PREPARE TO LOAD		12	04023	V 04010 07700 1
1583	MLCS	030,DATAFD	DATA FIELD		6	04035	, 09932
1584	MRN	DATAFD,DATAFD&1	MOVE IN HAI FORMAT		12	04041	D 07596 07700 3
1585	MLCS	040,DATAFD&2233	SET IN LAST GAP		12	04053	D 07700 07701 9
1586	MLCA	HAAREA,DATAFD&23	MOVE IN HAI FORMAT		12	04065	D 07618 09933 3
1587	MLCWS	0M0,DATAFD&2234	SET TERMINATING WMGH		12	04077	D 07508 07723 T
1588	MU	0F7,FILE,M	WRITE THE FORMAT		12	04089	D 07588 09934 7
1589	BC81	**16			10	04101	M 0F7 07691 W
1590	BAL	STACHK	BRCH ON ANY ERROR		7	04111	R 04101 2
1591	WDC	1,FILE	WRITE DISK CHECK		7	04118	R 03063 M
1592	BAL	08	BRCH ON ANY ERROR		10	04125	M 0F3 07691 W
1593	B	N02XIT			7	04135	R 04149 M
1594					7	04142	J 04155
1595			*** SET ERROR 2 ON ***				
1596	SW	E2			6	04149	, 01803

WRITE FORMAT FOR MAXIMUM LENGTH  
OPCOD OPERAND

DA01 PAGE 58  
CT ADDR5 INSTRUCTION

PGLLN

1597      WRITE CHECK OF FORMAT RESULTS IN DATA CHECK  
1598      NOZXIT      B      MONITR  
1599

7 04155 J 02066

CT ADDR INSTRUCTION

OPCOD OPERAND

PGLIN LABEL

1601 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1602 \*\*\* WRITE THE HOME ADDRESS 1 AND CHECK IT \*\*\*  
 1603 WHEN THE WRITE ADDRESS MODE IS BEING USED AND THE CE-HAO SWITCH  
 1604 IS ON THIS ROUTINE WRITES HAI&2.THE ROUTINE ASSUMES THE ACCESS IS  
 1605 PROPERLY POSITIONED FOR WRITTING THE ADDRESS,AFTER WRITTING HAO  
 1606 A READ HAD BRINGS THE WRITTEN HAI BACK INTO MEMORY.THE ADDRESS  
 1607 READ IS CHECKED IN MEMORY,IF IT DOESN T COMPARE WITH THE ADDRESS  
 1608 WRITTEN ERROR 3 IS INDICATED.STATUS ERRORS WILL ALSO BE INDICATED

1609 FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE NO2

1610 DATA FIELD USED WRITE AND READ IN 8 BIT MODE  
 1611 0000888 THE FIRST 4 ZEROS ARE HAI,THE FIRST 8 BIT IS THE FLAG

PGLIN	NO3	NOP	ROUTINE IDENT	CT	ADDR	INSTRUCTION
1615	0032	DC	ROUTINE IDENT	1	04162	N
1616	N03XIT,OPTNSM,2	BBE	IS ROUTINE USED	2	04164	
1617	N03XIT,OPTNSM,5	BCE	IS ROUTINE USED	12	04165	W 04341 07484 2
1618	*E8,CEHAO	BW	IS CE-HAO SW ON	12	04177	B 04341 07484 5
1619	N03XIT	B		12	04189	V 04208 07472 1
1620	MA,DATAFD&2210	MLCWS	SET TERMINATING WIMG	7	04201	J 04341
1621	FILE&2,DATAFD	MRCG	MOVE ADDR TO DATAFD	12	04208	D 07588 09910 7
1622	MA,DATAFD&6	MLCS	MOVE IN HAZ CHAR	12	04220	D 07693 07700 8
1623	WLR&1	CW	TURN OFF WLR CHECK	12	04232	D 07619 07706 3
1624	*F5,FILE,M	LU	WRITE HOME ADDR	6	04244	H 03243
1625	*-16	BCBI		10	04250	L *F5 07691 W
1626	*E1	BAI		7	04260	R 04250 2
1627	STACHK,M	BEX1	BRCH ANY BUT WLR	7	04267	R 04274 M S
1628	DATAFD&22	CS	CLEAR DATA FLD	7	04274	R 03063 M S
1629	*F5,FILE,R	LU	READ THW HOME ADDR	6	04281	/ 07722
1630	*E1	BAI		10	04287	L *F5 07691 R
1631	STACHK,M	BEX1	BRCH ANY BUT WLR	7	04297	R 04304 M S
1632	WLR&1	SW	TURN ON WLR CHECK	7	04304	R 03063 M S
1633	DATAFD&5,FILE&7	C	IS THE ADDR GOOD	6	04311	, 03243
1634	*E7	BE	IF TI SI BRCH	11	04317	C 07705 07698
1635	*** SET ERROR 3 ON ***			7	04328	J 04341 S

CT ADDR INSTRUCTION

WRITE THE HOME ADDR & CHECK IT

OPCOD OPERAND

LABEL

PGLIN

1637	SW	E3	TURN ON ERROR	6	04335	, 01804
1638	ADDRESS READ BACK DOES NOT COMPARE TO ADDRESS WRITTEN					
1639	N03XIT	B	MONITR	7	04341	J 02066
1640						

ANALYZE DISK SURFACE FOR DEFECTS

CT ADDR INSTRUCTION

OPCOD OPERAND

LABEL

PGLIN

```

1642      *** TEST ROUTINE DESCRIPTION ***
1643      *** USE BLANKS TO ANALYZE SURFACE ***
1644      THIS ROUTINE WRITES A MAXIMUM RECORD OF BLANKS IN THE 8 BIT
1645      MODE, THE RECORD ACTUALLY BEING THE HAZ AREA, THE RECORD IS READ
1646      BACK AND CHECKED IN MEMORY. IF THE RECORD IS NOT ALL BLANKS THE
1647      PROGRAM BRANCHES TO ROUTINE N07 WHERE EACH CHARACTER IS CHECKED
1648      UNTIL THE FAILING CHARACTER IS LOCATED. THE PROGRAM RETURNS TO
1649      THIS ROUTINE AND THE RECORD IS WRITTEN AND READ AGAIN. IF THE READ
1650      DATA IS GOOD ON THE 2ND PASS ERROR 5 IS INDICATED, THIS WOULD BE A
1651      SOFT ERROR AND DOES NOT INDICATE A DEFECTIVE SURFACE. IF THE 2ND
1652      PASS READ DATA IS BAD, THE PROGRAM ONCE MORE BRANCHES TO ROUTINE
1653      N07 FOR A CHARACTER BY CHARACTER CHECK. IF THE FAILING CHARACTER
1654      LOCATION IN RECORD IS THE SAME AS THE FIRST PASS, ERROR 4 IS
1655      INDICATED. THIS WOULD BE A SOLID ERROR AND A STRONG INDICATION OF
1656      A DEFECTIVE TRACK. IF THE FAILING CHARACTER IS NOT THE SAME AS THE
1657      FIRST PASS ERROR 5 WOULD BE INDICATED. ALL STATUS ERRORS BUT WRONG
1658      LENGTH RECORD WILL ALSO BE INDICATED.
1659      FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE N02

```

DATA FIELD USED IN 8 BIT MODE  
 2205 BLANKS THE ENTIRE FIELD IS HAZ

PART I USE BLANKS TO ANALYZE SURFACE

N04	NOP	ROUTINE IDENT	CT	ADDR	INSTRUCTION
1667	DC	040	1	04348	N
1668	BCE	N06XIT,OPTNSW,1	2	04350	
1669	BCE	N06XIT,OPTNSW,2	12	04351	B 05282 07484 1
1670	BW	N06XIT,CEHAD	12	04363	B 05282 07484 2
1671	CW	WLR&1	12	04375	V 05282 07472 1
1672	SW	DATAFD	6	04387	D 03243
1673	ZA	ADDR2,X10	6	04393	Q 07700
1674	CS	0&X10	11	04399	M 07572 00074
1675	SBR	X10	6	04410	/ 00:00
1676	BW	CLEAN,DATAFD	7	04416	G 00074 B
1677		THE DATA FLD	12	04423	V 04410 07700 1

ANALYZE DISK SURFACE FOR DEFECTS

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1678		MLCWS	0A0,DATAFD&2205	12	04435	D 07588 09905 7
1679		MLCS	0,TSBIT	12	04447	D 07589 07509 3
1680		LU	0F5,FILE,M	10	04459	L 0F5 07691 M
1681		BCB1	0-16	7	04469	R 04459 2
1682		BA1	0E1	7	04476	R 04483 M
1683		BEX1	STACHK,M	7	04483	R 03063 M
1684		LU	0F5,FILE,R	10	04490	L 0F5 07691 R
1685		BA1	0E1	7	04500	R 04507 M
1686		BEX1	STACHK,M	7	04507	R 03063 M
1687		SW	DATAFD,HLR&1	11	04514	, 07700 03243
1688		C	DATAFD&2204,DATAFD&2203	11	04525	C 09904 09903
1689			CHECK THE DATA FLD IN MEMORY			
1690		BE	FIRST	7	04536	J 04570 S
1691		B	CHARCK	7	04543	J 05977
1692		B	IN	7	04550	J 04393
1693			*** SET ERROR 4 ON ***			
1694		SW	E4	6	04557	, 01805
1695			TURN ON ERROR IND			
1696			ON 2 PASSES THE SAME CHARACTER LOCATION FAILED,PROBABLY DEFECTIVE SURFACE			
1697		B	OUT	7	04563	J 04601
1698		BW	0E8,PAS2SW&1	12	04570	V 04589 06046 1
1699		B	OUT	7	04582	J 04601
1700		CW	PAS2SW&1	6	04589	0 06046
1701			*** SET ERROR 5 ON ***			
1702		SW	E5	6	04595	, 01806
1703			TURN ON ERROR IND			
1704			CHARACTER LOCATION FAILED ONCE ON TWO PASSES			
1704		NOPWM		1	04601	N
1705		B	ALTRK	7	04602	J 06471
1706		B	MONTR	7	04609	J 02066
1707						
1708			PART II USE V TO ANALYZE SURFACE			
1709						
1710			*** TEST ROUTINE DESCRIPTION ***			
1711			*** USE WORD MARK V TO ANALYZE SURFACE ***			
1712			THIS ROUTINE FUNCTIONS IN THE SAME WAY AS ROUTINE NO4 EXCEPT			
1713			WORD MARK V IS USED. SINCE WORD MARKS ARE USED IT IS			



ANALYZE DISK SURFACE FOR DEFECTS

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1714			VERY DIFFICULT TO CHECK THE DATA IN MEMORY SO A WRITE DISK CHECK			
1715			IS USED TO CHECK THE DATA WRITTEN. IF A DATA CHECK RESULTS THEN			
1716			THE RECORD IS READ BACK INTO MEMORY AND A CHARACTER BY CHARACTER			
1717			CHECK IS MADE. THE LOCATION OF THE FAILING CHARACTER IS SAVED AND			
1718			THE ROUTINE IS REPEATED. ON THE 2ND PASS IF THE WRITE CHECK DOES			
1719			NOT FAIL, OR IF IT DOES BUT THE FAILING CHARACTER LOCATION IS NOT			
1720			THE SAME AS THE FIRST PASS, ERROR 7 IS INDICATED. IF ON THE 2ND			
1721			PASS A FAILURE OF SAME CHARACTER LOCATION OCCURS, ERROR 6 IS			
1722			INDICATED. THIS BEING THE SOLID ERROR. ALL STATUS ERRORS WILL ALSO			
1723			BE INDICATED.			
1724						
1725			FORMAT REQUIRED IS THE SAME AS DESCRIBED TO ROUTINE NO2			
1726						
1727			DATA FIELD USED 8 BIT MODE			
1728			2205 WCRD MARK V S			
1729						
1730	N05	NOP		1	04616	N
1731	DC	2058	ROUTINE IDENT	2	04618	
1732	CM	WLR61	TURN OFF WLR CHECK	6	04619	Q 03243
1733	GETRDY	ZA	ADDR2, X10	11	04625	M 07572 00074
1734	SW	DATAFD	CLEAR	6	04636	, 07700
1735	CLEAN3	CS	06X10	6	04642	/ 00,00
1736	SBR	X10	DATA	7	04648	G 00074 B
1737	BW	CLEAN3, DATAFD	FIELD	12	04655	V 04642 07700 1
1738	SW	DATAFD		6	04667	, 07700
1739	MLCWS	2V2, DATAFD&2204	LOAD THE	12	04673	D 07620 09904 7
1740	MLCHB	DATAFD&2204, DATAFD&2203	DATA FIELD	12	04685	D 09904 09903 P
1741	MLCWS	2V2, TSTBIT	SAVE THE TEST BIT	12	04697	D 07620 07509 7
1742	MLCWS	2M2, DATAFD&2205	SET TERMINATING WMGH	12	04709	D 07588 09905 7
1743	LU	2F5, FILE, M	WRITE HAZ FULL TRCK	10	04721	L 2F5 07691 M
1744	BA1	2E1		7	04731	R 04738 M
1745	BEX1	STACHK, M	BRCH ANY BUT WLR	7	04738	R 03063 M
1746	WRTRCK	LU	2F3, FILE, M	10	04745	L 2F3 07691 M
1747	BA1	2E1	WRITE DISK CHECK	7	04755	R 04762 M
1748	BEX1	STACHK, .	BRCH ON ANY BUT DC	7	04762	R 03063 .
1749	BER1	2E8	BRCH ON DATA CHECK	7	04769	R 04783 4

ANALYZE DISK SURFACE FOR DEFECTS

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1750		B	OK	7	04776	J 04962
1751		ZA	ADDR2,X10	11	04783	M 07572 00074
1752		SW	DATAFD	6	04794	, 07700
1753	CLEAN4	CS	0&X10	6	04800	/ 00...0
1754		SBR	X10	7	04806	G 00074 B
1755		BW	CLEAN4,DATAFD	12	04813	V 04800 07700 1
1756		LU	%F5,FILE,R	10	04825	L %F5 07691 R
1757		BAL	*E1	7	04835	R 04842 M
1758		BEX1	STACHK,M	7	04842	R 03063 M
1759		SW	HLR&1	6	04849	, 03243
1760		ZA	@220&@,X7	11	04855	H 07624 00059
1761	CKWM	BW	*E8,DATAFD&X7	12	04866	V 04885 07XMO 1
1762		B	NOGOOD	7	04878	J 04929
1763		BCE	*E8,DATAFD&X7,V	12	04885	B 04904 07XMO V
1764		B	NOGOOD	7	04897	J 04929
1765		S	@1&,X7	11	04904	S 07590 00059
1766		BZ	OK	7	04915	J 04962 V
1767		B	CKWM	7	04922	J 04866
1768	NOGOOD	NOPWM		1	04929	N
1769		B	*E14	7	04930	J 04950
1770		SW	NOGOOD&1	6	04937	, 04930
1771		B	GETRDY	7	04943	J 04625
1772			*** SET ERROR 6 ON ***			
1773		SW	E6	6	04950	, 01807
1774			ON 2 PASSES THE SAME CHARACTER LOCATION FAILED,PROBABLY DEFECTIVE			
1775			SURFACE			
1776		CW	NOGOOD&1	6	04956	□ 04930
1777	OK	BW	*E8,NOGOOD&1	12	04962	V 04981 04930 1
1778		B	NOSXIT	7	04974	J 04993
1779			*** SET ERROR 7 ON ***			
1780		SW	E7	6	04981	, 01808
1781			CHARACTER LOCATION FAILED ONCE ON TWO PASSES			
1782		CW	NOGOOD&1	6	04987	□ 04930
1783	NOSXIT	B	MONITR	7	04993	J 02066
1784						
1785			PART III USE - TO ANALYZE SURFACE			

ANALYZE DISK SURFACE FOR DEFECTS

CT ADDR INSTRUCTION

PGLIN LABEL

OPCOD OPERAND

1786  
 1787  
 1788 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1789 \*\*\* USE - TO ANALYZE SURFACE \*\*\*  
 1790 THIS ROUTINE IS THE SAME AS ROUTINE NO4 EXCEPT THAT - IS USED  
 1791 INSTEAD OF BLANK.SOFT ERRORS ARE INDICATED BY ERROR 9,AND TWO  
 1792 SUCCESSIVE CHARACTER LOCATION FAILURES ARE INDICATED BY ERROR 8.  
 1793 FOR GREATER DETAIL CHECK ROUTINE NO4 DESCRIPTION.

1794 FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE NO2

1795 DATA FIELD USED

1796 2205 EXCLAMATION POINTS -

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1786	NOP			1	05000	N
1787	DC	0060		2	05002	
1788	CM	WLR01		6	05003	03243
1789	ZA	ADDR2,X10		11	05009	M 07572 00074
1790	SM	DATAFD		6	05020	, 07700
1791	CS	06X10		6	05026	/ 00...0
1792	SBR	X10	DATA	7	05032	G 00074 8
1793	BW	CLEAN5,DATAFD	FIELD	12	05039	V 05026 07700 1
1794	MLCS	0...0,DATAFD02204	LOAD	12	05051	D 07625 09904 3
1795	SM	DATAFD	THE	6	05063	, 07700
1796	MLCHB	DATAFD02204,DATAFD02203	DATA FIELD	12	05069	D 09904 09903 P
1797	MLCS	0...0,TSTBIT	SAVE THE TEST BIT	12	05081	D 07625 07509 3
1798	MLCWS	0...0,DATAFD02205	SET TERMINATING WGMG	12	05093	D 07588 09905 7
1799	LU	0F5,FILE,M	WRITE HA2 FULL TRK	10	05105	L 0F5 07691 M
1800	BA1	001		7	05115	R 05122 M
1801	BEX1	STACHK,M	BRCH ANY BUT WLR	7	05122	R 03063 M
1802	ZA	ADDR2,X10	LOAD IX 10	11	05129	M 07572 00074
1803	SM	DATAFD	CLEAR	6	05140	, 07700
1804	CS	06X10	THE	6	05146	/ 00...0
1805	SBR	X10	DATA	7	05152	G 00074 8
1806	BW	CLEAN6,DATAFD	FIELD	12	05159	V 05146 07700 1
1807	LU	0F5,FILE,R	READ HA2FULL TEK	10	05171	L 0F5 07691 R
1808	BA1	001		7	05181	R 05188 M

ANALYZE DISK SURFACE FOR DEFECTS

PGLIN	LABEL	OPCOD	OPERAND	CT	ADRS	INSTRUCTION
1822		BEXI	STACHK,M	7	05188	R 03063 M
1823		SM	DATAFD,MLR&1	11	05195	, 07700 03243
1824		C	DATAFD&2204,DATAFD&2203	11	05206	C 09904 09903
1825			CHECK THE DATA FIELD IN MEMORY			
1826		BE	AOK	7	05217	J 05251 S
1827		B	CHARCK	7	05224	J 05977
1828		B	GETSET	7	05231	J 05009
1829			*** SET ERROR 8 ON ***			
1830		SM	E8	6	05238	, 01809
1831			TURN ON ERROR IND			
1832			ON 2 PASSES THE SAME CHARACTER LOCATION FAILED,PROBABLY DEFECTIVE			
1833			SURFACE			
1834		B	N06XIT	7	05244	J 05282
1835		BW	*E8,PAS2SW&1	12	05251	V 05270 06046 1
1836		B	N06XIT	7	05263	J 05282
1837		CM	PAS2SW2&1	6	05270	□ 06046
1838			TURN OF PASS SW			
1839			*** SET ERROR 9 ON ***			
1840		SM	E9	6	05276	, 01810
1841			TURN ON ERROR IND			
1842			CHARACTER LOCATION FAILED ONCE ON TWO PASSES			
1843		B	MONITR	7	05282	J 02066

VERIFY HAL ADDRESSES  
 PGLIN LABEL OPCOD OPERAND CT ADDR INSTRUCTION

1843 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1844 \*\*\* VERIFY THAT HAL ADDRESSES ARE CORRECT \*\*\*  
 1845 WHEN RUNNING IN A MODE THAT USES THIS ROUTINE AND THE CE-HAD  
 1846 SWITCH IS OFF A READ HAO OP IS ISSUED. IF THE READ HAO OP RESULTS  
 1847 IN A NO RECORD FOUND, ERROR 10 IS INDICATED. IF THE ERROR OCCURS  
 1848 THE PROGRAM WILL REQUEST THE CE-HAD SWITCH BE TURNED ON, THE FAIL-  
 1849 ING ADDRESS IS THEN READ BACK INTO MEMORY AND DISPLAYED FOR  
 1850 ANALYSIS. ALL STATUS ERRORS ARE ALSO INDICATED.  
 1851

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1852	NOP			1	05289	N
1853	DC	2082	ROUTINE IDENT	2	05291	
1854	BCE	N08XIT,OPTNSH,3	BRCH IF NOT USED	12	05292	B 05472 07484 3
1855	BW	N08XIT,CEHAD	IS CE-HAD SW ON	12	05304	V 05472 07472 1
1856	MLCWS	2M2,DATAFD&15	SET FLD LENGTH	12	05316	D 07588 07715 7
1857	LU	2F5,FILE,R	READ HAZ FULL TRK	10	05328	L 2F5 07691 R
1858	BCB1	*--16		7	05338	R 05328 2
1859	BAL	*61		7	05345	R 05352 M
1860	BEX1	*28,Y	BRCH ON NO-TR OR EC	7	05352	R 05366 Y
1861	B	N08XIT		7	05359	J 05472
1862		*** SET ERROR 10 ON ***				
1863	SW	E10	TURN ON ERROR IND	6	05366	, 01611
1864		READ HAD RESULTS IN A NO RECORD FOUND				
1865	BCE	*28,SPTADO,1	BRCH IF IN MANUAL MD	12	05372	B 05391 01004 1
1866	B	N08XIT		7	05384	J 05472
1867	B	MONTR	GO INDICATE ADDR ERR	7	05391	J 02066
1868	B	CESWON		7	05398	J 05936
1869	MU	2F5,FILE,R	READ BACK ADDR	10	05405	M 2F5 07691 R
1870	BAL	*61		7	05415	R 05422 M
1871	SW	DATAFD		6	05422	, 07700
1872	MLCA	DATAFD&4,ADRMSG&16	MOVE FAILING ADDR	12	05428	D 07704 05463 T
1873	B	TYP1	GO TYPE MESSAGE	7	05440	J 01593
1874	ADRMSG	2HAL READ IS	2,G	17	05447	
1875	B	SWOFF	GO TURN OFF CE-HAD	7	05465	J 05897
1876	B	MONTR		7	05472	J 02066
1877						

CT ADDR INSTRUCTION

ADDRESS UPDATE ROUTINE  
OPCOD OPERAND

PGLIN LABEL

1879 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1880 \*\*\* FILE ADDRESS UPDATE ROUTINE \*\*\*  
 1881 THIS ROUTINE UPDATES THE HAI ADDRESS IN THE FILE ADDRESS, IT  
 1882 DETERMINES WHEN A CYLINDER HAS BEEN COMPLETED AND WHEN ALL OF THE  
 1883 CUSTOMER CYLINDERS HAVE BEEN COMPLETED. WHEN A CYLINDER IS  
 1884 COMPLETED AND THE NEXT CYLINDER MUST BE STARTED IT INSURES THAT  
 1885 THE POSITION ACCESS ROUTINE IS RUN. WHEN ALL CUSTOMER CYLINDERS  
 1886 HAVE BEEN COMPLETED IT SETS THE FILE ADDRESS FOR THE DIAGNOSTIC  
 1887 CYL. IN ADDITION THIS ROUTINE CHECKS WHEN THE PROGRAM IS COMPLETED  
 1888 ACCORDING TO THE MODE BEING RUN, 1 TRACK, 1 CYLINDER, THE ENTIRE MOD

PGLIN	Label	OPCOD	OPERAND	ROUTINE IDENT	CT	ADDR	INSTRUCTION
1879	NOP				1	05479	N
1880	DC	2092			2	05481	
1881	LAST2	NOPWM			1	05482	N
1882	B	TW053		BRCH WHEN SW TS ON	7	05483	J 05704
1883	SW	FILE62			6	05490	Q 07693
1884	ZA	EN01,X3		LOAD IX 3	11	05496	M 07630 00039
1885	SURFSW	NOPWM			1	05507	N
1886	B	UPSURF			7	05508	J 05787
1887	A	212,FILE65		UPDATE ADDR	11	05515	A 07590 07696
1888	C	FILE65,LIMIT		LIMIT REACHED	11	05526	C 07696 07476
1889	BE	ANYMOR		IF SO BRCH	7	05537	J 05616 S
1890	A	212,TRKCNT		UPDATE TRCK CNT	11	05544	A 07590 07511 D
1891	MRCWG	FILE,DATA		MOVE NEW ADDR	12	05555	D 07691 01710 L
1892	SW	EXTRA61		TURN ON EXT DATA SW	6	05567	• 02982
1893	BCE	CYLCMP,TRKCNT-1,4		BRCH IF CYL COMPLETE	12	05573	B 05603 07510 4
1894	ZA	EN03,X3		LOAD IND REG 3	11	05585	M 07635 00039
1895	B	N03		GO TO ROUTINE 3	7	05596	J 04162
1896	S	TRKCNT		RESET TRK COUNT	6	05603	S 07511
1897	B	N01		GO TO ROUTINE 1	7	05609	J 03888
1898	S	TRKCNT		RESET TRCK COUNTER	6	05616	S 07511
1899	BZN	SUMORE,MODE,2		RUNNING ENTIRE MOD	12	05622	V 05679 03695 2
1900	BW	AGAIN,CEHAD		IS CE-HAD SW ON	12	05634	V 05653 07472 1
1901	B	ALLDUN			7	05646	J 05835
1902	B	SWOFF			7	05653	J 05897
1903	MLCA	LOEND,FILE65		RESET ADDR	12	05660	D 07515 07696 T

ADDRESS UPDATE ROUTINE

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1915		B	N01	7	05672	J 03888
1916	SUMORE	SW	LAST2&1	6	05679	05483
1917		MLCA	09#000,FILE&5	12	05685	D 07639 07696 T
1918		B	N01	7	05697	J 03888
1919	TW053	SW	FILE&4	6	05704	07695
1920		A	010,FILE&5	11	05710	A 07590 07696
1921		BCE	ALLDUN,FILE&4,6	12	05721	B 05835 07695 6
1922		C	FILE&5,0200	11	05733	C 07696 07641
1923		BE	TW054	7	05744	J 05769 S
1924		ZA	EN03,X3	11	05751	M 07635 00039
1925		B	N03	7	05762	J 04162
1926	TW054	ZA	EN01,X3	11	05769	M 07630 00039
1927		B	N01	7	05780	J 03888
1928	UPSURF	A	0400,FILE&5	11	05787	A 07617 07696
1929		C	FILE&5,LIMIT	11	05798	C 07696 07476
1930		BE	*68	7	05809	J 05823 S
1931		B	N01	7	05816	J 03888
1932		BW	AGAIN,CEHAO	12	05823	V 05653 07472 I
1933	ALLDUN	CW	LAST2&1,FILE&4	11	05835	05483 07695
1934		CW	SURFSW&1	6	05846	05508
1935		MLCA	LOEND,FILE&5	12	05852	D 07515 07696 T
1936		BW	*68,CEHAO	12	05864	V 05883 07472 I
1937		B	UPI	7	05876	J 03544
1938		B	SWOFF	7	05883	J 05897
1939		B	N01	7	05890	J 03888
1940	SWOFF	SBR	OFFXIT&5	7	05897	G 05934 B
1941		B	TYPI	7	05904	J 01593
1942		DCW	0CE-HAO OFF0,G	10	05920	
1943		H		1	05922	0
1944		CW	CEHAO	6	05923	07472
1945	OFFXIT	B	0	7	05929	J 00000
1946	CESSON	SBR	ONXIT&5	7	05936	G 05972 B
1947		B	TYPI	7	05943	J 01593
1948		DCW	0CE-HAO ON0,G	9	05958	
1949		H		1	05960	0
1950		SW	CEHAO	6	05961	07472

ADDRESS UPDATE ROUTINE

DA01 PAGE 70

OPCOD OPERAND

CT ADDR INSTRUCTION

PGLIN LABEL

195I 0NX1I B 0

7 05967 J 00000



CHARACTER BY CHARACTER CHECK

CT ADDR INSTRUCTION

PGLIN LABEL OPCOD OPERAND

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1953			OF THE DATA FIELD			
1954			*** TEST ROUTINE DESCRIPTION ***			
1955			*** CHARACTER BY CHARACTER CHECK ROUTINE ***			
1956			THIS ROUTINE IS USED BY ROUTINE N04 & N06, TWO FD THE SURFACE			
1957			ANALYSIS ROUTINES. THE ROUTINE CHECKS EVERY CHARACTER IN THE REC.			
1958			READ BACK FROM THE FILE, WHEN A CHARACTER IS LOCATED WHICH WAS NOT			
1959			RECORDED ITS LOCATION IN THE RECORD IS STORED IN INDEX REG. 7, AND			
1960			THE ROUTINE RETURNS TO THE ROUTINE THAT DISCOVERED THE FAILURE.			
1961			IF THE SAME TRACK FAILS AGAIN THIS ROUTINE CHECKS EVERY CHARACTER			
1962			AND WHEN IT LOCATES A FAILURE THE LOCATION IN THE RECORD IS CHECK			
1963			ED AGAINST THE FIRST FAILING LOCATION. IF THE LOCATIONS ARE THE			
1964			SAME A SOLID ERROR WILL BE INDICATED, IF NOT A SOFT ERROR IS IND.			
1965						
1966						
1967						
1968						
1969						
1970						
1971						
1972						
1973						
1974						
1975						
1976						
1977						
1978						
1979						
1980						
1981						
1982						
1983						
1984						
1985						
1986						

CT	ADDR	INSTRUCTION
1	05974	N
2	05976	
7	05977	G 00064 B
11	05984	N 07645 00054
12	05995	D 07509 06018 3
12	06007	B 06026 07X.0
7	06019	J 06045
12	06026	V 06045 07X.0 1
7	06038	J 06077
1	06045	N
7	06046	J 06102
11	06053	M 00054 00069
6	06064	, 06046
7	06070	J 00.00
11	06077	S 07590 00054
7	06088	J 00.20 V
7	06095	J 06007
11	06102	C 00054 00069
7	06113	J 00.07 S
7	06120	J 00.20

FLAGGING ROUTINE  
OPCOD OPERAND

PGLIN LABEL

1988 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*

1989 \*\*\* FLAG A DEFECTIVE TRACK \*\*\*

1990 THIS ROUTINE IS ENTERED ONLY AT THE DIRECTION OF CE, ITS PURPOSE

1991 IS TO ALLOW THE CE TO FLAG DEFECTIVE TRACKS AND TO INSURE THAT

1992 THE SELECTED ALTERNATE TRACK IS FREE OF DEFECTS. THE CE SELECTS

1993 THE ROUTINE AS A PROGRAM OPTION AND AT THE SAME TIME ENTERS THE

1994 HAI ADDRESS AND FLAG CHARACTER. THE ROUTINE POSITIONS THE ACCESS.

1995 WRITES THE HOME ADDRESS ON THE ALTERNATE TRACK PLUS A CODE CHAR-

1996 ACTER, AND WRITES THE FLAG BIT ON THE DEFECTIVE TRACK. THE CE-HAD

1997 SWITCH IS TURNED OFF AND A READ HAD IS ISSUED, IF A NO RECORD

1998 FOUND RESULTS ERROR 11 IS INDICATED. IF THE TRACK READ DOESN'T

1999 CONTAIN THE CODE CHARACTER RECORDED ON THE ALTERNATE TRACK ERROR

2000 12 IS INDICATED, THE ALTERNATE TRACK DID NOT GET SELECTED. IF

2001 EITHER ERROR 11 OR 12 OCCUR THE CE SHOULD RE-SELECT THE FLAG

2002 ROUTINE USING A DIFFERENT FLAG CHAR. IF THERE HAVE BEEN NO ERROR

2003 INDICATIONS THE ROUTINE BRANCHES TO SURFACE ANALYSIS ROUTINE NO4.

2004 THE ALTERNATE TRACK IS ANALYZED FOR DEFECTS. IF A HARD ERROR

2005 RESULTS, ERROR 13 IS INDICATED, IN THIS CASE THE CE SHOULD RESELECT

2006 THE FLAG ROUTINE USING A DIFFERENT FLAG CHARACTER. WHEN THE ROUT-

2007 INE IS COMPLETE IT REQUESTS-WHAT NEXT-THE CE AT NOW SELECTS

2008 ANY PROGRAM OPTION AVAILABLE. NORMALLY THE CONTINUE OPTION WOULD

2009 BE TAKEN. ALL STATUS ERRORS WILL BE INDICATED.

2010

2011

2012 NOTE EXTREME CAUTION SHOULD BE USED WHEN SELECTING A FLAG CHAR-

2013 ACTER, SO THAT AN ALTERNATE TRACK THAT IS ALL READY IN USE IS NOT

2014 SELECTED AGAIN.

2015

2016

2017 FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE NO2

2018

2019 DATA FIELD USED ON ALTERNATE TRACK AND DEFECTIVE TRACK

2020 HAI-FLAG CHAR-HAZ-CODE CHARACTER CODE CHAR IS A IN POSITION 8

2021 EXAMPLE 000088BA ALTERNATE TRACK

2022 EXAMPLE 0000288N DEFECTIVE TRACK

2023



FLAGGING ROUTINE

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
2060		B	MONITR	7	06410	J 02066
2061	HA10K	BCE	TRK,DATAFD&2,A	12	06417	B 06442 07702 A
2062			*** SET ERROR 12 ON ***			
2063		SM	E12	6	06429	, 01813
2064			TURN ON ERROR IND			
2065			AFTER FLAGGING BAD A READ OF THAT ADDRESS DOES NOT SELECT			
2066			ALTERNATE TRACK			
2067	TRK	B	MONITR	7	06435	J 02066
2068		SM	OUT&1,WLR&1	11	06442	, 04602 03243
2069		ZA	EN04,X3	11	06453	M 07659 00039
2070		B	IN	7	06464	J 04393
2071	ALTRK	CM	OUT&1,WLR&1	11	06471	E 04602 03243
2072		ZA	EN10,X3	11	06482	M 07650 00039
2073		BW	BADTRK,E4	12	06493	V 06567 01805 1
2074	LETS60	BCE	CESWON,OPTNSW,1	12	06505	B 05936 07484 1
2075		B	TYPI	7	06517	J 01593
2076		DCW	ATRCK FLGD OK&G	12	06535	
2077		MLCA	SAVADD,FILE&5	12	06537	D 07524 07696 T
2078		ZA	EN01,X3	11	06549	M 07630 00039
2079		B	PRGCTL	7	06560	J 02238
2080			*** SET ERROR 13 ON ***			
2081	BADTRK	SM	E13	6	06567	, 01814
2082			TURN ON ERROR IND			
2083			SELECTED ALTERNATE TRACK APPEARS TO BE DEFECTIVE			
		B	MONITR	7	06573	J 02066
			GO REPORT ERROR			

PREPARE ONE INSTRUCTION LOOP AND DATA FIELD

CT ADDR INSTRUCTION

PGLIN LABEL

2085 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2086 \*\*\* PREPARE ONE INSTRUCTION LOOP AND DATA FIELD \*\*\*  
 2087 \*\*\* ACCORDING TO CE REQUEST \*\*\*  
 2088 WHEN THE CE SELECTS THE PROGRAM OPTION FOR ONE INSTRUCTION LOOP  
 2089 ING, THIS ROUTINE TAKES THE DATA ENTERED BY THE CE AND BUILDS THE  
 2090 DATA FIELD AND LOOP INSTRUCTION FROM IT. WHEN IT HAS COMPLETED  
 2091 THIS IT POSITIONS THE ACCESS TO THE ADDRESS ENTERED AND BRANCHES  
 2092 TO THE LOOP ROUTINE.

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2093	PREP	MLCA	226, RECAD	12	06580	D 00226 07549 T
2094		CS	299	6	06592	/ 00299
2095		ZA	ADDR1, X10	11	06598	M 07567 00074
2096		SW	DATAFD	6	06609	, 07700
2097	CLEAN7	CS	06X10	6	06615	/ 00000
2098		SBR	X10	7	06621	G 00074 B
2099		BW	CLEAN7, DATAFD	12	06628	V 06615 07700 1
2100		MLCB	XCTL1-1, LOOP&1	12	06640	D 07526 01014 L
2101		MLCS	XCTL1, LOOP&3	12	06652	D 07527 01016 3
2102		MLCS	XCTL1&1, LOOP&9	12	06664	D 07528 01022 3
2103		ZA	NOFCHR, X8	11	06676	M 07542 00064
2104		ZA	NOFREC, WORK1	11	06687	M 07538 07557
2105		A	060, NOFCHR	11	06698	A 07660 07542
2106		M	NOFCHR, WORK2	11	06709	0 07542 07562
2107		ZA	WORK2, X9	11	06720	M 07562 00069
2108		MLCS	NOFCHR&1, DATAFD	12	06731	D 07543 07700 3
2109		MLCS	BOS10, LOOP&10	12	06743	D 07529 01023 3
2110		MLCA	HA2, FILE&7	12	06755	D 07535 07698 T
2111		S	WORK2	6	06767	S 07562
2112		BCE	LOOP, LOOP&3, 0	12	06773	B 01013 01016 0
2113		SD	1, FILE	10	06785	M 070 07691 R
2114		BCB1	*-16	7	06795	R 06785 2
2115		BA1	*61	7	06802	R 06809 M
2116		MLCS	LOOP&3, *612	12	06809	D 01016 06832 3
2117		BCE	SRO, SPECOD,	12	06821	B 06864 07554
2118		BCE	TRO	6	06833	B 06913
2119		BCE	HAD	6	06839	B 07000
2120						

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
2121		BCE	TWA	6	06845	B 07123
2122		BCE	WFO	6	06851	B 07223
2123		B	PRGCTL	7	06857	J 02238
2124	SRO	MLCA	RECADD, FILE&7	12	06864	D 07549 07698 T
2129		SW	DATAF&X8	6	06876	, 07P00 I
2126		MRCW	DATAFD, DATAF&1	12	06882	D 07700 07701 M
2127		MLCWS	AM, DATAF&X8	12	06894	D 07588 07P00 7
2128		B	LOOP	7	06906	J 01013
2129	TR0	S	AM, NOFCHR	11	06913	S 07660 07542
2130		S	WORK2	6	06924	S 07562
2131		ZA	NOFREC, WORK1	11	06930	M 07538 07557
2132		M	NOFCHR, WORK2	11	06941	Q 07542 07562
2133		ZA	WORK2, X9	11	06952	M 07562 00069
2134		SW	DATAF&X9	6	06963	, 07P+0
2135		MRCW	DATAFD, DATAF&1	12	06969	D 07700 07701 M
2136		MLCWS	AM, DATAF&X9	12	06981	D 07588 07P+0 7
2137		B	LOOP	7	06993	J 01013
2138	HAD	A	AM, X9	11	07000	A 07603 00069
2139		ZA	AM, X8	11	07011	M 07665 00064
2140		SW	DATAF&X9	6	07022	, 07P+0
2141		MRCW	DATAFD, DATAF&1	12	07028	D 07700 07701 M
2142		MLCWS	AM, DATAF&X9	12	07040	D 07588 07P+0 7
2143		MRC	HAZ-1, DATAFD	12	07052	D 07534 07700 #
2144	LOADDR	MLCA	RECADD, DATAF&7&X8	12	07064	D 07549 07P07 T
2145		S	AM, NOFREC	11	07076	S 07590 07538
2146		BZ	LOOP	7	07087	J 01013 V
2147		A	NOFCHR, X8	11	07094	A 07542 00064
2148		A	AM, RECAD	11	07105	A 07590 07549
2149		B	LOADDR	7	07116	J 07064
2150	TWA	SW	DATAF&X9	6	07123	, 07P+0
2151		MRCW	DATAFD, DATAF&1	12	07129	D 07700 07701 M
2152		MLCWS	AM, DATAF&X9	12	07141	D 07588 07P+0 7
2153		ZA	AM, X8	11	07153	M 07665 00064
2154	LOADADD	MLCA	RECADD, DATAF&5&X8	12	07164	D 07549 07P05 T
2155		S	AM, NOFREC	11	07176	S 07590 07538
2156		BZ	LOOP	7	07187	J 01013 V

ADDRESS

PREPARE ONE INSTRUCTION LOOP AND DATA FIELD

DA01

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
2157		A	NOFCHR,X8	11	07194	A 07542 00064
2158		A	010,RECA DD	11	07205	A 07590 07549
2159		B	LODADD	7	07216	J 07164
2160	WFO	SW	DATAFD&2205	6	07223	, 09965
2161		MRC	DATAFD,DATAFD&1	12	07229	D 07700 07701 #
2162		MLCA	HAAREA,DATAFD&23	12	07241	D 07508 07723 T
2163		S	060,NOFCHR	11	07253	S 07660 07542
2164		ZA	NOFREC,WORK1	11	07264	M 07538 07557
2165		A	010,NOFCHR&1	11	07275	A 07590 07543
2166		SW	DATAFD&30	6	07286	, 07730
2167		MLCS	NOFCHR&1,DATAFD&41	12	07292	D 07543 07741 3
2168		MLCB	DATAFD&41,DATAFD&40	12	07304	D 07741 07740 L
2169		MLCS	DATAFD&41,DATAFD&52 LOAD	12	07316	D 07741 07752 3
2170		MLCS	DATAFD&41,DATAFD&63	12	07328	D 07741 07763 3
2171		A	0380,NOFCHR	11	07340	A 07667 07542
2172		ZA	NOFCHR,X9	11	07351	M 07542 00069
2173	LODFOR	MLCA	DATAFD&63,DATAFD&63&X9	12	07362	D 07763 07PN3 T
2174		S	010,NOFREC	11	07374	S 07590 07538
2175		BZ	0&19	7	07385	J 07410 V
2176		A	NOFCHR,X9	11	07392	A 07542 00069
2177		B	LODFOR	7	07403	J 07362
2178		MLCS	0M0,DATAFD&31&X9	12	07410	D 07588 07PT1 7
2179		B	LOOP	7	07422	J 01013

OPCODE OPERAND

LABEL

PREPARE ONE INSTRUCTION LOOP AND DATA FIELD

DA01

END TEST AND PROGRAM CONSTANTS

OPCODE OPERAND

CT ADDR INSTRUCTION

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
2181			DA01C END TEST ROUTINE			
2182		***	END TEST ROUTINE ***			
2183	ENDTST	BCE	2000,IAD3,1	12	07429	B 02000 01003 1
2184		8M	SKOFF,CEHAO	12	07441	V 05897 07472 1
2185		8	TYP1	7	07453	J 01593
2186		DCW	APASSA,G	4	07463	
2187	TOP	H	40C	6	07465	. 00400
2188		H		1	07471	.
2189						
2190	CEHAO	DC	2 2	1	07472	
2191	LIMIT	DCW	2 2	4	07476	
2192	NUMODE	DCW	276543212	7	07483	
2193	OPTNSW	DC	2 2	1	07484	
2194	HAAREA	DCW	24443333333333333333333333333342	24	07508	
2195	TSTBIT	DCW	2 2	1	07509	
2196	TRKCNT	DCW	2002	2	07511	
2197	LOEND	DCW	200002	4	07515	
2198	SAVFLG	DCW	2000002	5	07520	
2199	SAVADD	DCW	200002	4	07524	
2200	LPDATA	DCW	2 2	1	07525	
2201		DCW	2 2	1	07526	
2202	XCTL1	DCW	2 2	1	07527	
2203		DC	2 2	1	07528	
2204	80S10	DCW	2 2	1	07529	
2205	TKHD	DCW	2 2	4	07533	
2206	HAZ	DC	2 2	2	07535	
2207	NOFREC	DCW	2 2	3	07538	
2208	NOFCHR	DCW	2 2	4	07542	
2209		DC	2 2	1	07543	
2210	RECADD	DCW	2 2	6	07549	
2211	SPECOD	DCW	2765212	5	07554	
2212	WORK1	DCW	20002	3	07557	
2213	WORK2	DC	200002	5	07562	
2214	ADDR1	DCW	DATAF02233	5	07567	09933
2215	ADDR2	DCW	DATAF02204	5	07572	09904
2216	CODE3	DCW	22R12	3	07575	



END TEST AND PROGRAM CONSTANTS

CT ADDR INSTRUCTION

PGLIN LABEL OPCODE OPERAND

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
2217		DCH	20X2a	3	07578	
2218		DCH	2M33a	3	07581	
2219		DCH	2.14a	3	07584	
2220		ETORG		1	07585	
2220			2a2	1	07586	
2220			2a2	1	07587	
2220			2a2	1	07588	
2220			2a2	1	07589	
2220			2a2	1	07590	
2220			2a2	5	07595	
2220			2a2	1	07596	
2220			2a2	1	07597	
2220			2a2	5	07602	
2220			2a2	1	07603	
2220			2a2	2	07605	
2220			2a2	4	07609	
2220			2a2	4	07613	
2220			2a2	2	07615	
2220			2a2	2	07617	
2220			2a2	1	07618	
2220			2a2	1	07619	
2220			2a2	1	07620	
2220			2a2	4	07624	
2220			2a2	1	07625	
2220			2a2	5	07630	03888
2220			2a2	5	07635	04162
2220			2a2	4	07639	
2220			2a2	2	07641	
2220			2a2	4	07645	
2220			2a2	5	07650	06127
2220			2a2	4	07654	
2220			2a2	5	07659	04348
2220			2a2	1	07660	
2220			2a2	5	07665	
2220			2a2	2	07667	

END TEST AND PROGRAM CONSTANTS

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2221		ORG	7691		07691	
2222	FILE	DCW	2000000882.G	8	07691	
2223	DATAFD	DC	@ @	1	07700	
2224		DS	2240		09940	
2225		END				J

END OF ASSEMBLY

6.03.00.0 DA03 RELIABILITY TEST DESCRIPTION

This test obsoletes DA03B. It incorporates improved and more thorough methods of testing the reliability of the 7631-1301.

The program tests every available module on every channel in an automatic or manual mode. The automatic mode requires no manual intervention and can be run from a load-and-go maintenance tape. The manual mode does require intervention and can not be run unattended.

The normal sequence of the program starts by testing the Error Detection Ckts in the 7631. This is followed by 100 random seeks and verification that the access arrived at the correct location. At the CE cylinder (253) Read, Write, and Write Format are tested in 6 and 8 bit mode, the Read-Write test being performed on each of the 40 heads. The specific file operation; home address, full track with address, full track without addresses, single record, and cylinder, are tested for both read and write in the 8 bit mode. The cylinder op is tested only when in manual mode so that its availability can be checked. If the priority feature is available, a quick check of the seek complete line is made.

This is performed on every channel for every ready 1301 module. When all modules have been tested, the test ends, if in automatic mode. If it is in manual mode, the program runs an overlap test where files and tapes on any channel are overlapped. When the overlap routine is completed, the test in manual mode is over.

6.03.01.0 OPERATING PROCEDURE

The standard procedures outlined in the package write-up apply to this program, in addition the following procedures are used to run this program.

01.1 SWITCH SETTINGS PREVIOUS TO RUNNING PROGRAM

- a. Write Format Switch On (on all 1301 mods to be tested)
- b. HAO Switch ON (on all 7631's to be tested)
- c. All 1301 modules not to be tested are set inoperative.
- d. All other 7631-1301 switches OFF.

6.03.01.0 OPERATING PROCEDURE (continued)

01.2 SPECIAL REQUESTS (Made Only in the Manual Mode)

- a. "CYO Available"  
CE enters 1 if it is,  $\bar{1}$  if it is not. ( $\bar{1}$  = any other character but 1.)
- b. "CE-HAO ON"  
CE turns on CE-HAO switch and presses start. This request is made when during the random seek test the access does not arrive at the correct location. With the CE-HAO switch on the HAL is read into memory and displayed on the typewriter.
- c. "Addr Read, 0000000, CE-HAO OFF"  
The CE now turns off the CE-HAO switch and presses start to continue.

01.3 SPECIAL TADS

There is one special TAD for this program (memory location 01004).

If this TAD is set to a 1, the program will run in the manual mode. This TAD is set to a 1 when the program is loaded.

01.4 STANDARD OPTIONS

All the standard program options are available in this program.

01.5 MANUAL MODE

When running in the manual mode all channels which have tapes, but do not have files should have a scratch tape loaded and ready on Drive "1". This is required for proper operation of the overlap test.

01.6 SUMMARY TYPEOUT

The summary typeout as described in the package write-up is given at the end of this test.

6.03.02.0 OPERATING HINTS

## 02.1 SELECTING MANUAL MODE (Alter Special TAD)

Use program option code 2 (alter memory) to alter the special TAD to a 1 or  $\bar{1}$ . Special TAD location is 01004.

## 02.2 RELIABILITY RUN

To run the program in a reliability mode:

1. Run program in automatic mode.
2. Alter TADS (select option code 3) to repeat test.
3. Terminate program when desired (select option code blank).

## 02.3 ALTER ROUTINE SEQUENCE

If this program option is selected, care should be used to insure that the format required by certain routines is available when the routine is run in the altered sequence.

6.03.03.0 PROGRAM STOPS

## 03.1 ERROR STOPS

None

## 03.2 NORMAL STOPS - Manual Mode Only

<u>Mem Loc</u>	<u>Reason</u>
5530	Wait for CE to turn on CE-HAO switch, press start.
5614	Wait for CE to turn off CE-HAO switch, press start.

6.03.04.0 TYPEOUTS (Other Than Request or Standard Typeouts)

## 04.1 "HAO AND FORMAT SWS ON"

This is to remind the CE that this program runs in automatic mode when loaded and that the HAO and Write Format switches must be ON.

6.03.04.0 TYPEOUTS (continued)

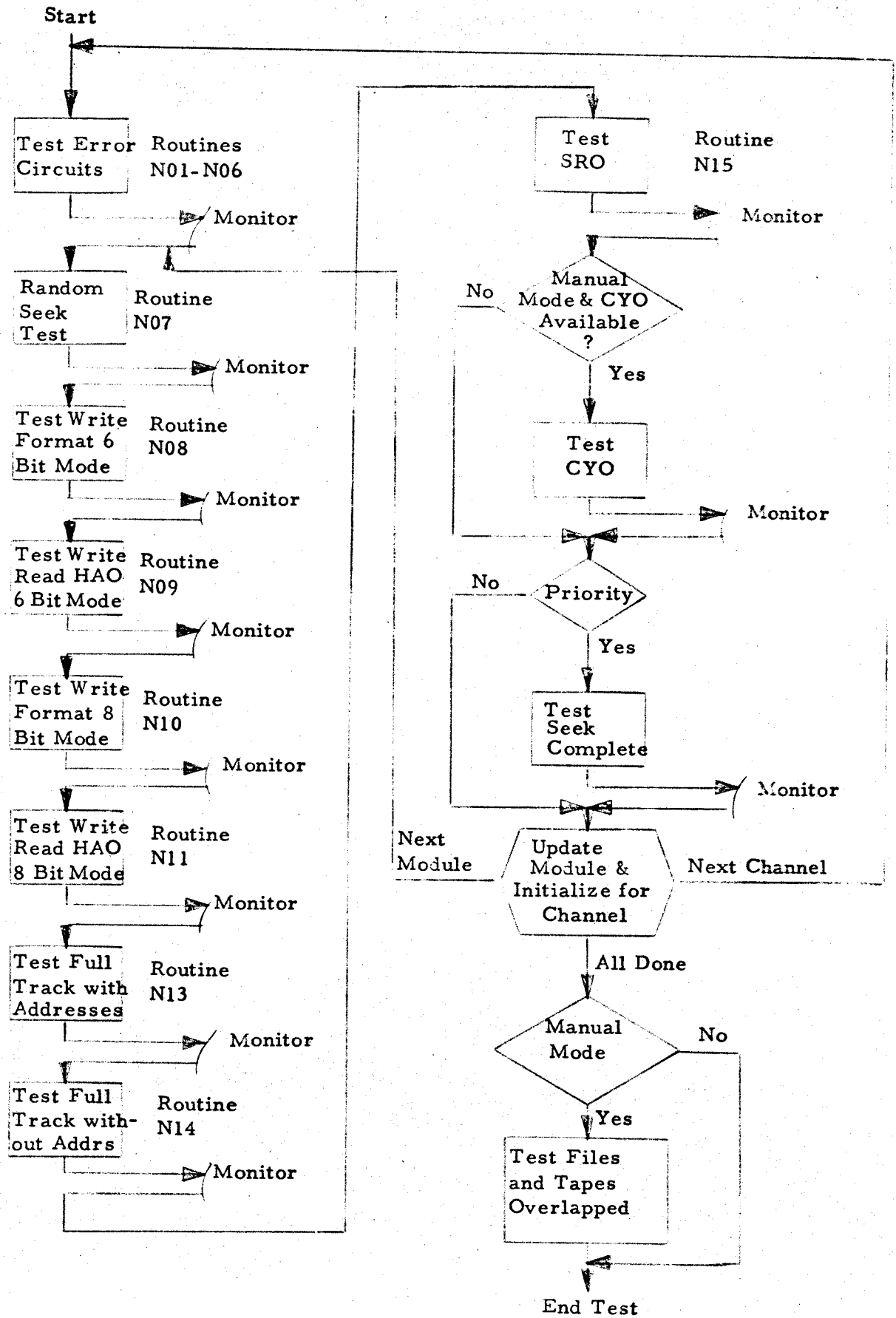
04.2 "TST MOD CH"

This tells the CE which module on which channel is being tested at present.

6.03.05.0 FLOW CHART

The following flow chart is designed to give a general picture of the test routine's relationship to one another.

10  
19  
18  
17  
16  
15  
14  
13  
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1



6.03.06.0 ROUTINE/ERROR INDEX DA03

To locate routines and errors in the program listing.

<u>Routine Number</u>	<u>Error Number</u>	<u>Page</u>
N01	02	108
N02	04	109
N03	05	110, 111
	06	111
	07	111
	08	111
N04	09	113
	10	114
	11	114
N05	12	115
	13	116
	14	116
	15	116
N06	16	117
	17	117
N07	01	118
N08	18	120, 121
N09	19	122,
	20	123
N10	21	124, 125
N11	22	126,
	23	127
	24	127



6.03.06.0 ROUTINE/ERROR INDEX DA03 (continued)

<u>Routine Number</u>	<u>Error Number</u>	<u>Page</u>
N13	25	128
N14	26	130
N15	27	132
	28	133
	29	133
N16	30	134, 135
N17	31	136
N18		137
N19	32	139, 140
	33	141
	34	142
	35	142



CT ADDR INSTRUCTION

I/O DICOST DEFINE TADS

OPCOD OPERAND

LABEL

PGLIN

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1002	CTL	2				
1003						
1004						
1005						
1006						
1007	TADO	ORG	1000	1	01000	
1008	TAD1	DCM	2 2	1	01001	
1009	TAD2		2 2	1	01002	
1010	TAD3		2 2	1	01003	
1011						
1012						
1013						
1014	SPTADO	DCM	2 2	1	01004	
1015	SPTAD1		2 2	1	01005	
1016	SPTAD2		2 2	1	01006	
1017	SPTAD3		2 2	1	01007	
1018	SPTAD4		2 2	1	01008	
1019	SPTAD5		2 2	1	01009	
1020	SPTAD7		2 2	1	01010	
1021	SPTAD8		2 2	1	01011	
1022	SPTAD9		2 2	1	01012	
1023						

DEFINE STANDARD TADS

DEFINE SPECIAL TADS

I/O DICOST ONE INSTRUCTION LOOP

```

PGLIN LABEL          I/O DICOST ONE INSTRUCTION LOOP
      OPCOD OPERAND
1025      *** I/O DICOST PROGRAM ***
1026      *** ONE INSTRUCTION LOOP ROUTINE ***
1027      WHEN THE CE SELECTS A ONE INSTRUCTION LOOP THE I/O INSTRUCTION
1028      IN THIS ROUTINE IS ALTERED AND THE LOOP IS ENTERED. NOTE THAT THE
1029      BRANCH ON INQUIRY INSTRUCTION IS THE ONLY EXIT FROM THE LOOP.
1030      MU      211,0,R      I/O INST BEING LUP D
1031      8A1      *E1
1032      BNQ      PRGCTL      BRCH ON INQ TO PRGCL
1033      B        LOOP      CONTINUE TO LOOP
1034      H
1035

```

```

10  01013  M 211 00000 R
7   01023  R 01030 M
7   01030  J 02250 Q
7   01037  J 01013
1   01044  .

```

CT ADDR INSTRUCTION

I/O DICOST CHANNEL ALTER

CT ADDR INSTRUCTION

OPCOD OPERAND

LABEL

PGLIN

\*\*\* I/O DICOST PROGRAM \*\*\*

\*\*\* CHANNEL ALTER ROUTINE \*\*\*

THIS ROUTINE ALTERS ALL I/O INSTRUCTIONS, BRANCH-ON-STATUS-  
 INDICATOR-ON INSTRUCTIONS, AND BRANCH ON CHANNEL OVERLAP IN PRO-  
 CESS INSTRUCTIONS ACCORDING TO THE CHANNEL INDICATED. THIS IS DONE  
 BY SCANNING A DEFINED AREA OF MEMORY AND ALTERING THESE INSTRU-  
 TIONS.

PGLIN	LABEL	OPCOD	OPERAND	SBR	X5	STORE ADDR	CT	ADDR	INSTRUCTION
1037							7	01045	G 00049 B
1038				MLCA	9EX5,X7	LOAD IX6 & IX7	12	01052	D 00+9 00059 T
1039				SCNLA	0EX6,0EX6	SCAN FOR WM	12	01064	D 00+.0 00+.0 B
1040				SAR	X6	STORE ADDR OF OPER	7	01076	G 00054 A
1041				C	X6,X7	HAS ALL OF FLD BEEN	11	01083	C 00054 00059
1042				BH	13EX5	SEARCHED IF SO BRCH	7	01094	J 00+/3 U
1043				MLCS	1EX6,*E12	STORE OP CODE	12	01101	D 00+.1 01124 3
1044				BCE	MLORU, CODES,	IS OP CODE M	12	01113	B 01149 02750
1045				BCE		IS OP CODE L	1	01125	B
1046				BCE		IS OP CODE U	1	01126	B
1047				BCE	RX3OR1	IS OP CODE R	6	01127	B 01168
1048				BCE		IS OP CODE X	1	01133	B
1049				BCE		IS OP CODE 3	1	01134	B
1050				BCE		IS OP CODE 1	1	01135	B
1051				BCE	JAY	IS OP CODE J	6	01136	B 01187
1052				B	SCAN	GO FIND NEXT OPER	7	01142	J 01064
1053				MLCS	10EX5,2EX6	CHEANGE CH-MODE CHAR	12	01149	D 00+/0 00+.2 3
1054				B	SCAN	GO FIND NEXT OPER	7	01161	J 01064
1055				MLCS	11EX5,1EX6	CHANGE B-I-S-I-O OP	12	01168	D 00+/1 00+.1 3
1056				B	SCAN	GO FIND NEXT OPER	7	01180	J 01064
1057				MLCS	7EX6,*E12	STORE MODIFIER	12	01187	D 00+.7 01210 3
1058				BCE	ONE234,MODS,	IS MODIFIER A 1	12	01199	B 01221 02754
1059				BCE		IS MODIFIER A 2	1	01211	B
1060				BCE		IS MODIFIER A 3	1	01212	B
1061				BCE		IS MODIFIER A 4	1	01213	B
1062				B	SCAN	GO FIND NEXT OPER	7	01214	J 01064
1063				MLCS	12EX5,7EX6	CHANGE BOL MODIFIER	12	01221	D 00+/2 00+.7 3
1064				B	SCAN	GO FIND NEXT OPER	7	01233	J 01064

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
1073	H			1	01240	.
1074						
1075						
1076	DEFINE SYSTEM & CHANNEL CONTROL CARDS					
1077						
1078	ORG	1233			01233	
1079	DCW	2FN2FJRFJFJJ301*92		17	01249	
1080						**
1081	DEFINE PROGRAM TITLE					
1082						**
1083	ORG	1250			01250	
1084	DCW	2DA03C2,G		5	01254	
1085						
1086	LOCATE THE SYSTEM & CHANNEL CARDS					
1087						
1088	ORG	1256			01256	
1089	DC	2		2	50 01256	
1090						
1091	ORG	1289			01289	
1092	DC	2		2	50 01289	
1093						
1094	ORG	1346			01346	
1095	DC	2		2	50 01346	
1096						
1097	ORG	1403			01403	
1098	DC	2		2	50 01403	
1099						
1100	ORG	1460			01460	
1101	DC	2		2	50 01460	
1102						
1103	DC	2		2	7 01516	

1105 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1106 \*\*\* TYPE AND REQUEST FOR INTERVENTION \*\*\*  
 1107 THIS ROUTINE IS USED TO TYPE ALL MESSAGES AND REQUESTS FOR  
 1108 MANUAL INTERVENTION.THE ROUTINE WILL TYPE A MESSAGE FROM A COMMON  
 1109 DATA FIELD,OR THE MESSAGE MAY BE LOCATED IMMEDIATELY AFTER THE  
 1110 BRANCH INSTRUCTION TO THIS ROUTINE.IF A REPLY IS REQUIRED A READ  
 1111 CONSOLE PRINTER OPERATION IS ISSUED.THIS ROUTINE IS USED TO TYPE  
 1112 ALL MESSAGES IN THIS PROGRAM.  
 1113

PGLIN	LABEL	OPCOD	OPERAND	TYPES	SBR	TYPXIT&S	STORE RETURN ADDR	CT	ADDR	INSTRUCTION
1114		WCP	201	TYPE			TYPE MESSAGE	7	01517	G 01591 B
1115		BCB1	TYPE				BRCH BUSY	10	01524	M XTO 00201 M
1116		BA1	*E1					7	01534	R 01524 Z
1117		NOPWM						7	01541	R 01548 M
1118		RCP	0				READ CONSOLE PRINTER	1	01548	N
1119		BEX1	--16,M				BRCH ON ANY BUT WLR	10	01549	M XTO 00000 R
1120		BA1	*E1					7	01559	R 01549 M
1121		CW	SW11E1				TURN OFF SWITCH 11	7	01566	R 01573 M
1122		CS	330				CLEAR PRINT AREA	6	01573	□ 01549
1123		CS						6	01579	/ 00330
1124		B					RETURN TO DICOST	1	01585	/
1125		SBR	X1				STORE ADDR OF MESS	7	01586	J 00000
1126		B	*E14					7	01593	G 00029 B
1127		SBR	X1				STORE ADDR OF MESS	7	01600	J 01620
1128		SW	REPLYE1				TURN ON REPLY SW	7	01607	G 00029 B
1129		WCP	0EX1				TYPE MESSAGE	6	01614	, 01652
1130		SBR	X1				STORE RETURN ADDR	10	01620	M XTO 000#0 M
1131		BCB1	--23					7	01630	G 00029 B
1132		BA1	*E1					7	01637	R 01620 Z
1133		NOPWM						7	01644	R 01651 M
1134		B	RDCON				IF REPLY REQUIRED	1	01651	N
1135		B	0EX1				RETURN	7	01652	J 01666
1136		RCP	0EX1				REPLY TO MESS	7	01659	J 000#0
1137		SBR	X1				STORE RETURN ADDR	10	01666	M XTO 000#0 R
1138		BEX1	--23,M				BRCH ON ANY BUT WLR	7	01676	G 00029 B
1139		BA1	*E1					7	01683	R 01666 M
1140								7	01690	R 01697 M

I/O DDCOST TYPE

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1141		CW	REPLY&1	6	01697	01652
1142		B	0&X1	7	01703	J 000+0
1143	DATA	MLCHS	0n0,PASS1	12	01710	D 09572 01944 7
1144		BCE	*E13,1264,1	12	01722	B 01746 01264 1
1145		MLCWS	0n0,MONITR&7	12	01734	D 09572 02073 7
1146		MRCWG	*E9,1230	12	01746	D 01756 01230 L
1147		B	PASS1&7	7	01758	J 01951
1148		H		1	01765	.
1149		DC	0.730	3	01768	
1150		DCW	0JA	1	01769	
1151		DC	SCAN	5	01774	01064
1152		DC	0 0	1	01775	
1153		DCW	0.0.0G	1	01776	
1154		DS	12		01789	

\*\*\* ERROR TABLES THESE ARE USED FOR ERROR \*\*\*  
 \*\*\* SUMMARIES AND ERROR IDENTIFICATION \*\*\*

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1155		ORG	*E&X00		01800	
1156		ORG	*E1		01801	
1157		DCW	0L0	1	01801	
1158		DC	0 0	1	01802	
1159		DC	0 0	1	01803	
1160		DC	0 0	1	01804	
1161		DC	0 0	1	01805	
1162		DC	0 0	1	01806	
1163		DC	0 0	1	01807	
1164		DC	0 0	1	01808	
1165		DC	0 0	1	01809	
1166		DC	0 0	1	01810	
1167		DC	0 0	1	01811	
1168		DC	0 0	1	01812	
1169		DC	0 0	1	01813	
1170		DC	0 0	1	01814	
1171		DC	0 0	1	01815	
1172		DC	0 0	1	01816	
1173		DC	0 0			
1174		DC	0 0			
1175		DC	0 0			
1176		DC	0 0			



PGLIN	LABEL	I/O DICO	TYPE	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1177	E16				2 2	1	01817	
1178	E17				2 2	1	01818	
1179	E18				2 2	1	01819	
1180	E19				2 2	1	01820	
1181	E20				2 2	1	01821	
1182	E21				2 2	1	01822	
1183	E22				2 2	1	01823	
1184	E23				2 2	1	01824	
1185	E24				2 2	1	01825	
1186	E25			DC	2 2	1	01826	
1187	E26			DC	2 2	1	01827	
1188	E27				2 2	1	01828	
1189	E28				2 2	1	01829	
1190	E29				2 2	1	01830	
1191	E30				2 2	1	01831	
1192	E31				2 2	1	01832	
1193	E32				2 2	1	01833	
1194	E33				2 2	1	01834	
1195	E34				2 2	1	01835	
1196	E35				2 2	1	01836	
1197	E36				2 2	1	01837	
1198	E37				2 2	1	01838	
1199	E38				2 2	1	01839	
1200	E39				2 2	1	01840	
1201	E40				2 2	1	01841	
1202	E41				2 2	1	01842	
1203	E42				2 2	1	01843	
1204	E43				2 2	1	01844	
1205	E44				2 2	1	01845	
1206	E45				2 2	1	01846	
1207	E46				2 2	1	01847	
1208	E47				2 2	1	01848	
1209	E48				2 2	1	01849	
1210	E49				2 2	1	01850	
1211	E50				2 2	1	01851	
1212	E51			DC	2 2	1	01852	

I/O DICOST TYPE

CT ADDR INSTRUCTION

PGLIN	LABEL	OPCOD	OPERAND
1213	E52		a a
1214	E53		a a
1215	E54		a a
1216	E55		a a
1217	E56		a a
1218	ERRTAB	DC	a+a
1219		DC	a a
1220			

CT	ADDRS	INSTRUCTION
1	01853	
1	01854	
1	01855	
1	01856	
1	01857	
1	01858	
1	01859	

I/O DICOST INITIALIZE ROUTINE

PCLLN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION	
1222	INITLE	WCP	1250	10	01860	M %T0 01250 W	
1223		BCB1	--16	7	01870	R 01860 Z	
1224		BAL	*61	7	01877	R 01884 M	
1225		CS	99	6	01884	/ Q0099	
1226		SM	25	6	01890	, 00025	
1227		MLCS	@#0,100	12	01896	D 09573 00100 3	
1228		MRWR	25,30	12	01908	D 00025 00030 %	
1229		MRCWG	RESUME,1	12	01920	D 02015 00001 L	
1230		MRCWG	INTR,101	12	01932	D 02007 00101 L	
1231	PASS1	B	DATA	7	01944	J 01710	
1232		OPT2	CH NOERSW&1	6	01951	□ 02840	
1233		CM	LPRT,SW11&1	11	01957	□ 02764 01549	
1234		OPT1	CM SEQSW	6	01968	□ 02763	
1235		CS	E56	6	01974	/ 01857	
1236		MLCWS	@L@,STPTAB	12	01980	D 09574 01801 7	
1237		B	START	7	01992	J 04088	
1238		H		1	01999	.	
1239		ORG	2000		02000		
1240		B	INITLE	7	02000	J 01860	
1241		*** RESET & INTERRUPT ROUTINES, THESE ROUTINES ***					
1242		*** ARE MOVED TO LOCATIONS 1 & 101					
1243	INTR	BNQ	PRGCTL	7	02007	J 02250 Q	
1244		DCW	@M@	1	02014		
1245	RESUME	B	CKLUP	7	02015	J 02023	
1246		DCW	@M@	1	02022		
1247	CKLUP	8W	MONITR,LPRT	12	02023	V 02066 02764 1	
1248		8W	LOOP,LPINST	12	02035	V 01013 02765 1	
1249		MLNA	X3,X2	12	02047	D 00039 00034 /	
1250		B	MONITR&7	7	02059	J 02073	
1251		CHECK FOR LOOP ROUT					
1252		CHECK INST LOOP SW					
1253		LOAD IX 2					
		GO TO MONITR					



CT ADDR INSTRUCTION

1287 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1288 \*\*\* PROGRAM CONTROL \*\*\*  
 1289 WHEN THE CE PRESSES INQUIRY TO SELECT A STANDARD PROGRAM OPTION  
 1290 THIS ROUTINE IS ENTERED, THE CE ENTERS ON THE TYPEWRITER THE  
 1291 OPTION CODE DESIRED, ALONG WITH THE DATA NEEDED BY THE OPTION. THE  
 1292 ROUTINE DETERMINES WHICH OPTION HAS BEEN SELECTED AND INITIATES  
 1293 THE OPTION.  
 1294

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1287				10	02250	L 310 00201 R
1288				7	02260	G 00029 B S
1289				7	02267	R 02250 M
1290				6	02274	, 00202 G
1291				7	02280	R 02287 M
1292				6	02287	□ 02763
1293				11	02293	□ 02764 02765
1294				12	02304	D 02315 01802 4
1295				12	02316	D 01802 01803 3
1296				12	02328	D 00201 02351 3
1297				12	02340	B 08392 02762
1298				6	02352	B 02401
1299				6	02358	B 02424
1300				6	02364	B 02471
1301				6	02370	B 02524
1302				6	02376	B 02553
1303				6	02382	B 02587
1304				6	02388	B 02610
1305				7	02394	J 02250
1306				12	02401	D 00205 01003 T
1307				11	02413	/ 02087 00299
1308				12	02424	D 00206 02444 T
1309				10	02436	L 310 00000 R
1310				7	02446	R 02436 M S
1311				7	02453	R 02460 M
1312				11	02460	/ 02087 00299
1313				12	02471	D 09575 00040 7
1314				12	02483	D 00202 02633 L
1315						
1316						
1317						
1318						
1319						
1320						
1321						
1322						

I/O DICOST PROGRAM CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1323		OPT1 SW	SEQSW	6	02495	• 02763
1324		OPT1 MLNA	SQCON1,X4	12	02501	D 02738 00044 /
1325		OPT1 CS	MONIT2,299	11	02513	/ 02099 00299
1326	LUPRT	SW	LPRT	6	02524	• 02764
1327		MLNA	CTLFLD&5,X2	12	02530	D 00206 00034 /
1328		CS	MONIT2,299	11	02542	/ 02099 00299
1329	ONELUP	SW	LPINST	6	02553	• 02765
1330	LUPINT	NOPWM		1	02559	N
1331		B	•E8	7	02560	J 02574
1332		B	PREP	7	02567	J 08435
1333		CW	LUPINT&1	6	02574	□ 02560
1334		B	LOOP	7	02580	J 01013
1335	RSTART	MLNA	CTLFLD&5,X2	12	02587	D 00206 00034 /
1336		CS	MONIT2,299	11	02599	/ 02099 00299
1337	CONT	CS	WHERE2,299	11	02610	/ 02162 00299

I/O DICOST CONSTANTS

1338						
1339						
1340	STACNTOPT2	DCW	0000	2	02622	
1341		OPT2	0000	2	02624	
1342		OPT2	0000	2	02626	
1343		OPT2	0000	2	02628	
1344		OPT2	0000	2	02630	
1345		OPT2	0000	2	02632	
1346	SEQFLDOPT1	DCW	0000	1	02633	
1347		OPT1 DC	0	37	02670	
1348		OPT1 DC	0	37	02707	
1349		OPT1 DC	0	25	02732	
1350	SQCON1OPT1	DCW	SEQFLD	5	02738	02633
1351	CMPFLOOPT1	DCW	0N 0	4	02742	
1352	CODES	DCW	0J13XRULM0	8	02750	
1353	MODS	DCW	043210	4	02754	
1354		DCW	070	1	02755	
1355		DC	060	1	02756	
1356			050	1	02757	
1357			040	1	02758	
1358		OPT1	030	1	02759	

I/O DICOST PROGRAM CONTROL

CT ADDR INSTRUCTION

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1359			020	1	02760	
1360			010	1	02761	
1361	CTLCD		00	1	02762	
1362	SEQSW OPT1	DC	00	1	02763	
1363	LPRT	DC	00	1	02764	
1364	LPINST	DC	00	1	02765	
1365	ADDR02	DCW	ERRTAB	5	02770	01858
1366	ADDR03OPT2	DCW	STACNT	5	02775	02622
1367	ERR	DCW	0-ERROR0	6	02781	
1368	ACTION	DC	0REQ ERROR ACTION0,G	16	02782	
1369	ERCODE	DCW	054700	4	02802	
1370	SAVIND	DCW	01 2 4 8 A B0,G	11	02803	
1371	STIND	DC	01 2 4 8 A B0,G	11	02815	
1372	STACDOP2	DCW	0NR0	2	02828	
1373	OPT2	DCW	0BY0	2	02830	
1374	OPT2	DCW	0DC0	2	02832	
1375	OPT2	DCW	0EC0	2	02834	
1376	OPT2	DCW	0NT0	2	02836	
1377	OPT2	DCW	0WL0	2	02838	
1378	NOERSW	DC	00	2	02839	
1379						

ADDR OF ERR TABLE  
 ADDR OF STATUS TABLE

CT ADDR INSTRUCTION

1381 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1382 \*\*\* ERROR CONTROL \*\*\*  
 1383 THIS ROUTINE DETERMINES IF ANY STATUS ERRORS OR PROGRAM DETECTED ERRORS HAVE TO BE INDICATED, IF THERE ARE THIS ROUTINE BUILDS THE ERROR MESSAGE AND HAS IF TYPED OUT. THIS ROUTINE ALSO CHECKS YAD 1 TO SEE IF A REQUEST FOR ERROR ACTION SHOULD BE MADE.

LOCATE FAILING INST

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1388	ERRCTL	MLCA	X2,X5	12	02841	D 00034 00049 T
1389		S	010,X5	11	02853	S 09577 00049 S
1390		SCNLA	00X5,00X5	12	02864	D 00000 00000 B
1391		SAR	X5	7	02876	G 00049 A
1392		MLCS	10X5,*012	12	02883	D 00011 02906 3
1393		BCE	GOTONE, CODES,	12	02895	B 02939 02750
1394		BCE		1	02907	B
1395		BCE	SHORT1	6	02908	B 02958
1396		C	X3,X5	11	02914	C 00039 00049
1397		BL	LODFLD	7	02925	J 02982 T
1398		B	ERRCTL012	7	02932	J 02853
1399	GOTONE	MLCHA	100X5, LOOP09	12	02939	D 00000 01022 X
1400		B	LODFLD	7	02951	J 02982
1401	SHORT1	MLCHA	50X5, LOOP09	12	02958	D 00005 01022 X
1402		MLCS	0000, LOOP	12	02970	D 09572 01013 3
1403						INSTRUCTION
1404		MLCA	LOOP09,234	12	02982	D 01022 00234 T
1405		MLNA	X3,223	12	02994	D 00039 00223 /
1406		OPT2 SW	NOERSW01	6	03006	G 02840
1407		ZA	ADDR02,X1	11	03012	M 02770 00029
1408		ZA	0002090,X5	11	03023	M 09582 00049
1409						SCAN ERROR TABLE & UPDATA ERROR COUNT
1410	ERRSCAN	SCNLA	00X1,00X1	12	03034	D 00000 00000 S
1411		SAR	X1	7	03046	G 00029 A
1412		BCE	AFTSRH,10X1,L	12	03053	B 03135 00001 L
1413		SW	X1-1	6	03065	, 00028
1414		MLNWA	X1,00X5	12	03071	D 00029 00000 V



I/O DICOST ERROR CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1417		OPT2 A	@1@,1@X1	11	03083	A 09577 000#1
1418		A	@3@,X5	11	03094	A 09583 00049
1419		OPT2 BCE	SUMARY,1@X1,9	12	03105	B 04043 000#1 9
1420			NINE TIMES			
1421		CW	1@X1,X1-1	11	03117	□ 000#1 00028
1422		B	ERSCAN	7	03128	J 03034
1423			LOAD PRINT FIELD WITH ERROR MESSG			
1424	AFTSRH	BCE	WHERE2,1000,1	12	03135	B 02162 01000 1
1425	ERROSM	NOP		1	03147	N
1426		BCE	WHERE2,209	12	03148	B 02162 00209
1427		SW	ERROSW@1	6	03160	□ 03148
1428		MLCA	ERR,206	12	03166	D 02781 00206 T
1429		MLCA	Z@X3,ROUTID	12	03178	D 000#2 03207 T
1430		B	TYPI	7	03190	J 01593
1431		DCW	@ROUTINE @	8	03204	
1432	ROUTID	DC	@ @,G	3	03207	
1433		B	TYPES	7	03209	J 01517
1434			TYPE ADDITIONAL ERROR INFORMATION			
1435	EXTRA	NOPMM		1	03216	N
1436		HCP	DATA	10	03217	M #TO 01710 W
1437		BCB1	*-16	7	03227	R 03217 Z
1438		BA1	*@1	7	03234	R 03241 M
1439		CW	EXTRA@1	6	03241	□ 03217
1440	ACT	BCE	*@8,1001,1	12	03247	B 03266 01001 1
1441		B	WHERE2	7	03259	J 02162
1442		SW	LUPINTE@1	6	03266	□ 02560
1443		MRCWG	ACTION,201	12	03272	D 02782 00201 L
1444		B	TYPES	7	03284	J 01517
1445		B	PRGCTL	7	03291	J 02250

ERROR CONTROL-CHECK STATUS INDICATORS

OPCODE OPERAND

LABEL

PGLIN

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
1447			*** I/O DICOST PROGRAM ***			
1448			*** DETERMINE WHICH STATUS INDICATORS ARE ON ***			
1449			THIS ROUTINE DETERMINES WHICH STATUS INDICATORS ARE ON, ON THE			
1450			CHANNEL BEING USED. THE INDICATORS FOUND ON ARE STORED IN THE			
1451			PRINT FIELD AND THE PROGRAM BRANCHES TO ERROR CONTROL.			
1452	STACHK	SBR	X5	7	03298	G 00049 B
1453		SBR	X2	7	03305	G 00034 B
1454		BW	0&X2,LPRT	12	03312	V 00000 02764 1
1455		S	070,X5	11	03324	S 09584 00049
1456		MLCS	0&X5,LOOP&10	12	03335	D 00000 01023 3
1457		MRCWG	STIND,237	12	03347	D 02815 00237 L
1458		OPT2 MLCA	ADDR03,X1	12	03359	D 02775 00029 T
1459		MLCS	0&X5,NUOPCO	12	03371	D 00000 03401 3
1460		B	CHALTR	7	03383	J 01045
1461		DCW	NTERR	5	03394	03556
1462		DC	NOTRDY	5	03399	03414
1463		DCW	0 0	1	03400	
1464	NUOPCO	DC	0 0	1	03401	
1465		DC	0 0	1	03402	
1466		ZA	0002370,X5	11	03403	Q 09589 00049
1467		NOP		1	03414	N
1468		BNR1	NTERR	7	03415	R 03556 1
1469		B	UPIX	7	03422	J 03598
1470	BUSY	NOP		1	03429	N
1471		BCB1	NTERR	7	03430	R 03556 2
1472		B	UPIX	7	03437	J 03598
1473	DATAK	NOP		1	03444	N
1474		BER1	NTERR	7	03445	R 03556 4
1475		B	UPIX	7	03452	J 03598
1476	EXTCND	NOP		1	03459	N
1477		BEF1	NTERR	7	03460	R 03556 8
1478		B	UPIX	7	03467	J 03598
1479	NOTRNS	NOP		1	03474	N
1480		BNT1	NTERR	7	03475	R 03556 B
1481		B	UPIX	7	03482	J 03598
1482	WLR	NOP		1	03489	N

ERROR CONTROL-CHECK STATUS INDICATORS

CT ADDR INSTRUCTION

PGLIN

LABEL

OPCOD OPERAND

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1483		BWLI	CNTERR	7	03490	R 03556 -
1484		B	UPIX	7	03497	J 03598
1485		SW	NOTRDY&1,BUSY&1	11	03504	, 03415 03430
1486		SW	DATA&1,EXTEND&1	11	03515	, 03445 03460
1487		SW	NOTRNS&1,WLR&1	11	03526	, 03475 03490
1488		MRCG	237,SAVIND	12	03537	D 00237 02803 \$
1489		B	ERRCTL	7	03549	J 02841
1490	CNTERR	SBR	X6	7	03556	G 00054 B
1491	OPT2 A		212,0&X1	11	03563	A 09577 000+0
1492	A		272,X6	11	03574	A 09584 00054
1493	CW		ERROSWE&1	6	03585	H 03148
1494	B		UPIX&19	7	03591	J 03617
1495	UPIX	SBR	X6	7	03598	G 00054 B
1496		MLCS	2 2,0&X5	12	03605	D 09576 00+0 3
1497	OPT2 A		222,X1	11	03617	A 09590 00029
1498	A		222,X5	11	03628	A 09590 00049
1499	B		0&X6	7	03639	J 00+0
1500						



I/O DICOST SUMMARY ROUTINE

CT ADDR INSTRUCTION

1535 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1536 \*\*\* SUMMARY ROUTINE \*\*\*  
 1537 AFTER A COMPLETE PASS OF THE PROGRAM OR IF THE PROGRAM IS TERM-  
 1538 INATED THIS ROUTINE ORGANIZES A SUMMARY OF PROGRAM DETECTED  
 1539 ERRORS AND STATUS ERRORS. IT CAUSES THIS SUMMARY TO BE TYPED AND  
 1540 BRANCHES TO THE END OF TEST ROUTINES. THIS ROUTINE IS ALSO USED TO  
 1541 TYPE OUT THE ERROR COUNT IC MESSAGE WHEN A PROGRAM DETECTED ERROR  
 1542 OCCURES FOR THE TENTH TIME.

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1543	SUMLT	OPT2 B	TYP1	7	03836	J 01593
1544	OPT2	DCW	@ERR CNT@,G	7	03849	
1545	OPT2	MLNWA	@1@,CNTMSG-4	12	03851	D 09597 03912 V
1546	OPT2	ZA	@00001@,X7	11	03863	M 09602 00059
1547	MOVcnt	OPT1 MLNS	SIPTAB@X7,CNTMSG	12	03874	D 01YH1 03916 I
1548	OPT2	C	CNTMSG,@1@	11	03886	C 03916 09577
1549	OPT1	BH	@E15	7	03897	J 03918 U
1550	OPT2	B	TYP1	7	03904	J 01593
1551	CNTMSG	OPT2 DCW	@ @,G	6	03916	
1552	OPT2	A	@1@,CNTMSG-4	11	03918	A 09577 03912
1553	OPT2	A	@1@,X7	11	03929	A 09577 00059
1554	OPT2	C	CNTMSG-4,@51@	11	03940	C 03912 09604
1555	OPT2	BE	@E8	7	03951	J 03965 S
1556	OPT2	B	MOVcnt	7	03958	J 03874
1557	OPT2	ZA	@00000@,X7	11	03965	M 09609 00059
1558	MOVSTC	OPT2 MLCA	STACODEX7,C1MSG2-3	12	03976	D 02YB8 04008 T
1559	OPT2	MLNA	STACNT@X7,C1MSG2	12	03988	D 02M82 04011 /
1560	OPT2	B	TYP1	7	04000	J 01593
1561	C1MSG2	OPT2 DCW	@ @,G	5	04011	
1562	OPT2	A	@2@,X7	11	04013	A 09590 00059
1563	OPT2	BCE	ENDST@12,C1MSG2-4,W	12	04024	B 08404 04007 W
1564	OPT2	B	MOVSTC	7	04036	J 03976
1565	SUMARY	OPT2 MLNA	X1,MAXMSG-7	12	04043	D 00029 04072 /
1566	OPT2	CH	X1-1	6	04055	@ 00028
1567	OPT2	B	TYP1	7	04061	J 01593
1568	MAXMSG	OPT2 DCW	@ERR00 CNT 10@,G	12	04079	
1569	SUMKIT	OPT2 B	AFTSRH	7	04081	J 03135

I/O DICOST SUMMARY ROUTINE

CT ADDR INSTRUCTION

OPCOD OPERAND

PGLIN LABEL

1571 CILFLD EQU 201

1572 PST

DA03

INITIALIZE FOR DA03

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
1574	START	SW	CHNLSWE1	6	04088	TURN ON CHANNEL SW
1575		MLCA	000000,FILEE5	12	04094	RESET FILE ADDR TO 0
1576		MRCWG	INTRET,108	12	04106	LOAD INTERRUPT INST
1577		SW	FILEE1	6	04118	RESET DELAY
1578		S	DELAY	6	04124	RESET OVLAP COUNTER
1579		S	OVL CNT	6	04130	RESET TOTAL TIME CNT
1580		S	TOTIME	6	04136	RESET TOTAL TIME CNT
1581		S	SEGFLD-1	6	04142	RESET ERROR COUNTERS
1582		S		1	04148	
1583		S		1	04149	
1584		S		1	04150	
1585		S		1	04151	
1586		S		1	04152	
1587		B	TYPI	7	04153	GO TYPE BLANKS
1588		DCW	0HAD&FORMAT SMS DN0,6	17	04176	
1589	TIMEIT	MCP	BLANK	10	04178	TYPE BLANKS
1590		BA1	*61	7	04188	CONSOLE STILL BUSY
1591		BCB1	*68	7	04195	
1592		B	GETSET	7	04202	
1593		A	03170,TOTIME	11	04209	KEEP TOTAL TIME
1594		B	TIMEIT	7	04220	
1595	GETSET	ZA	0013080,X10	11	04227	LOAD IX10
1596		ZA	000000,X15	11	04238	LOAD IX15
1597		ZA	EN18,X3	11	04249	LOAD IX3
1598		B	N18E10	7	04260	
1599						

TEST NOT READY  
OPCOD OPERAND

LABEL

PGLIN

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
\*\*\* TEST NOT READY \*\*\*

THIS TESTS THE ABILITY OF THE 7631-1301 TO GIVE A NOT READY INDICATION WHEN AN INOPERATIVE ACCESS IS ADDRESSED. EVERY MODULE AND ACCESS ARE ADDRESSED UNTIL ONE INDICATES NOT READY. IF NONE GIVE A NOT READY IT IS CONSIDERED AN ERROR. NOTE IF MODULES 0-9 ARE AVAILABLE ON ONE CHANNEL, THE ACCESS ON ONE OF THE MODULES MUST BE SET INOPERATIVE BEFORE RUNNING THIS PROGRAM.

ONLY THE SEEK OPERATION IS USED IN THIS ROUTINE

1	04267	N
2	04269	
12	04270	D 09626 09696 T
10	04282	M 3FO 09691 R
7	04292	R 04299 H
7	04299	R 04337 I
11	04306	A 09577 09692
7	04317	J 04331 V
7	04324	J 04282
6	04331	, 01803

12	04337	D 07523 09692 I
7	04349	J 02066

NO1 NOP  
 DC @01@ ROUTINE ID  
 MLCA @0000@,FILE&5 LOAD FILE ADDR  
 TSTRDY SD 1,FILE TRY A MOD  
 BAI \*E1  
 BNRI NOTRDE BRCH NOT READY  
 A @1@,FILE&1 ADD 1 TO MOD ADDR  
 BZ \*E8 BRCH ON TENTH MOD  
 B TSTRDY  
 SW E2 NO ACCESS OR MODULE WAS FOUND

NOT READY, ERROR 2 IS INDICATED BECAUSE OF THIS. INSURE THAT ONE ACCESS IS INOPERATIVE OR SOME MODULE 0-9 IS OFF LINE.

NOTRDE MLNS R0YMSG&8,FILE&1 MOVE MOD ADDR  
NOIXIT 8 MONITR

- 1601
- 1602
- 1603
- 1604
- 1605
- 1606
- 1607
- 1608
- 1609
- 1610
- 1611
- 1612
- 1613
- 1614
- 1615
- 1616
- 1617
- 1618
- 1619
- 1620
- 1621
- 1622
- 1623
- 1624
- 1625
- 1626
- 1627
- 1628



CT ADDR INSTRUCTION

TEST BUSY  
OPCOD OPERAND

PGLIN LABEL

1630 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1631 \*\*\* TEST ACCESS BUSY \*\*\*  
 1632 TWO SUCCESSIVE SEEK OPERATIONS ARE ISSUED TO THE ACCESS BEING  
 1633 TESTED, AFTER THE 2ND SEEK THE BUSY INDICATOR IS CHECKED. IF BUSY  
 1634 IS NOT ON ERROR 4 IS INDICATED. A READ HAD OPERATION FOLLOWING THE  
 1635 TWO SEEKS VERIFIES THAT THE ACCESS ARRIVED AT THE CORRECT LOCA-  
 1636 TION. ALL COMMON STATUS ERRORS ARE ALSO CHECKED IN THIS ROUTINE.  
 1637 THE TRACK-HEAD ADDRESS USED IS 9#20 HAI .

1638	NOZ	NOP				1	04356	N
1639		DC	@02@	ROUTINE IT		2	04358	
1640		MLCA	@9#20@,FILEES	LOAD FILE ADDR		12	04359	D 09630 09696 T
1641		SD	1, FILE	SEEK ACCESS		10	04371	M 3FO 09691 R
1642		BCB1	--16			7	04381	R 04371 2
1643		BAI	*E1			7	04388	R 04395 M
1644		SD	1, FILE	SEEK ACCESS		10	04395	M 3FO 09691 R
1645		BAI	*E1			7	04405	R 04412 M
1646		BCB1	*E7	BRCH BUSY		7	04412	R 04425 2

\*\*\* SET ERROR 4 ON \*\*\*

1647	SH	E4		SET ERROR IND		6	04419	, 01805
1648		MU	3F5, FILE, R	READ & VERIFY ACC		10	04425	M 3F5 09691 R
1649		BCB1	--16	ARRIVAL		7	04435	R 04425 2
1650		BAI	*E1			7	04442	R 04449 M
1651		BEX1	STACHK, Y	BRCH ON COND OR NO T		7	04449	R 03298 Y

THIS ERROR IS SET WHEN BUSY IS NOT TURNED ON BY 2 SUCCESSIVE SKS  
 IF THE ACCESS DID NOT ARRIVE AT THE CORRECT LOCATION THE NO REC-  
 ORD FOUND WILL CAUSE THE NO TRANSFER AND EXTERNAL CONDITION  
 STATUS INDICATORS TO COME ON.

1652	NOZXIT	B	MONITR			7	04456	J 02066
1653								
1654								
1655								
1656								
1657								
1658								
1659								
1660								



TEST DATA CHECK & EXT CONDITION

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1698		MLCA	HAAREA,DATAFD&23	12	04516	D 09347 09723 T
1699		MLCS	@ 3,DATAFD&30	12	04528	D 09576 09730 3
1700		MU	%F7,FILE,M	10	04540	M %F7 09691 W
1701		BCB1	*-16	7	04550	R 04540 Z
1702		BA1	*&1	7	04557	R 04564 M
1703		BER1	FORCHK	7	04564	R 04577 4
1704			BRCH ON DATA CHECK			
1705		SW	E5	6	04571	, 01806
1706			ILLEGAL FORMAT CHAR DIDN T CAUSE DATA CHECK			
1707	FORCHK	MLCS	@2,DATAFD&30	12	04577	D 09590 09730 3
1708		MLCA	GAP6,DATAFD&63	12	04589	D 09381 09763 I
1709		MRCWG	GAP6,DATAFD&78	12	04601	D 09381 09778 L
1710		MU	%F7,FILE,M	10	04613	M %F7 09691 W
1711		BA1	STACHK	7	04623	R 03298 M
1712		MLCS	@4,DATAFD&24	12	04630	D 09631 09724 3
1713		WDC	1,FILE	10	04642	M %F3 09691 W
1714		BA1	*&1	7	04652	R 04659 M
1715		BEF1	GAPCK	7	04659	R 04672 8
1716			BRCH ON EXT COND			
1717		SW	E6	6	04666	, 01807
1718			LONG GAP DIDN T CAUSE EXT. CONDITION			
1719	GAPCK	MLCA	@31,DATAFD&24	12	04672	D 09633 09724 T
1720		WDC	1,FILE	10	04684	M %F3 09691 M
1721		BA1	*&1	7	04694	R 04701 M
1722		BEF1	TSTMFO	7	04701	R 04714 8
1723			BRCH ON EXT COND			
1724		SW	E7	6	04708	, 01808
1725			MISSING GAP DIDN T CAUSE EXT. CONDITION			
1726	TSTMFO	MLCS	@4,DATAFD&23	12	04714	D 09631 09723 3
1727		WDC	1,FILE	10	04726	M %F3 09691 M
1728		BER1	N03XIT-6	7	04736	R 04757 4
1729		BA1	STACHK	7	04743	R 03298 M
1730		B	N03XIT	7	04750	J 04763
1731			BRCH ON ANY ERROR			
1732		SW	E8	6	04757	, 01809
1733			PROPERLY WRITTEN FCRMAT.CAUSES DATA CHECK WHEN WRITE CHECKED			

\*\*\* SET ERROR 5 ON \*\*\*

\*\*\* SET ERROR 6 ON \*\*\*

\*\*\* SET ERROR 7 ON \*\*\*

\*\*\* SET ERROR 8 ON \*\*\*

DA03

CT ADDR INSTRUCTION

7 04763 J 02066

TEST DATA CHECK & EXT CONDITION

OPCOD OPERAND

LABEL

PGLIN

MONITR

B

N03XIT

1734

1735

TEST DATA CHECK  
OPCOD OPERAND

1737 \*\*\*TEST ROUTINE DESCRIPTION \*\*\*  
 1738 \*\*\*TEST DATA CHECK CAUSED BY PARITY,CHAR CODE CHK \*\*\*  
 1739 \*\*\* WRITE DISK CHECK \*\*\*  
 1740 A RECORD IS WRITTEN IN 6 BIT MODE USING THE HAD OP,THIS IS  
 1741 IS FOLLOWD BY A READ HAD OPERATION,8 BIT MODE,CAUSING PARITY OR  
 1742 CHAR CODE CHECK IN THE 7631.THE DATA CHECK INDICATOR IS TESTED  
 1743 AND IF IT IS NOT ON ERROR 9 IS INDICATED.A WRITE 8 BIT MODE HAD  
 1744 IS ISSUED,AND AGAIN THE DATA CHECK IS TESTED,IF IT ISN T ON,ERROR  
 1745 IO IS INDICATED.THE RECORD IS REWRITTEN IN THE 6 BIT MODE BUT  
 1746 BEFORE IT IS WRITE CHECKED THE DATA FIELD IN MEMORY IS ALTERED.  
 1747 THE RECORD IS WRITE CHECKED USING THE ALTERED DATA FIELD AND THE  
 1748 DATA CHECK IND IS TESTED IF IT ISN T ON ERROR 11 IS INDICATED.  
 1749

1750 FORMAT REQUIRED IS IN SIX BIT MODE ON CYLINDER 253  
 1751 44433333333433333334111111222222222111111112111111111121  
 1752 1111111111112

DATA FIELD ORGANIZATION  
 HA2 2 CHAR-REC ADDR 6 CHAR-RECORD 10 CHAR

DATA FIELD USED  
 88ADDR01#\*---666

1760	NOP					1	04770	N
1761	DC	2042	ROUTINE ID			2	04772	
1762	CS	DATAFD&25	CLEAR			6	04773	/ 09925
1763	CS		DATA			1	04779	/
1764	CS		FIELD			1	04780	/
1765	MRCWG	HAOP,DATAFD	LOAD THE			12	04781	D 09383 09700 L
1766	MLCWS	2Ha,DATAFD&18	DATA FIELD			12	04793	D 09575 09718 7
1767	MU	%F5,FILE,W	WRITE A RECORD			10	04805	M %F5 09691 W
1768	8A1	*&1				7	04815	R 04822 M
1769	LU	%F5,FILE,R	READ RECORD IN			10	04822	L %F5 09691 R
1770	8A1	*&1	WRONG MODE			7	04832	R 04839 M
1771	BER1	WRTMOD	BRCH ON DATA CHK			7	04839	R 04852 4
1772			*** SET ERROR 9 ON ***					

PGLIN LABEL OPCODE OPERAND

1773	SW	E9	SET ERROR IND	6	04846	, 01810
1774	8 BIT MODE READ OF 6 BIT MODE DATA DOESN T CAUSE DATA CHECK					
1775	WRTMOD	MRCWG HAOP,DATAFD	LOAD THE	12	04852	D 09383 09700 L
1776	MLCWS	MA,DATAFD&18	DATA FIELD	12	04864	D 09575 09718 7
1777	LU	%F5,FILE,W	WRITE RECORD IN	10	04876	L %F5 09691 W
1778	BA1	*&1	WRONG MODE	7	04886	R 04893 M
1779	BEX1	REWRT,Y	BRCH ON NO T.,E.C.	7	04893	R 04906 Y
1780	*** SET ERROR 10 ON ***					
1781	SW	E10	TURN ON ERROR IND	6	04900	, 01811
1782	8 BIT MODE WRITE WITH 6 BIT MODE FORMAT DOESN T CAUSE DATA CHECK					
1783	REWRT	MU %F5,FILE,W	REWRITE RECORD	10	04906	M %F5 09691 W
1784	BA1	STACHK	BRCH ON ANY ERROR	7	04916	R 03298 M
1785	MLCA	MA,DATAFD&8	ALTER RECORD WRITN	12	04923	D 09576 09708 T
1786	WDC	1,FILE	WRITE CHK	10	04935	M %F3 09691 W
1787	BA1	*&1		7	04945	R 04952 M
1788	BER1	N04XIT	BRCH ON DATA CHK	7	04952	R 04965 4
1789	*** SET ERROR 11 ON ***					
1790	SW	E11	SET ERROR IND	6	04959	, 01812
1791	WRITE CHECK WITH ALTERED DATA FIELD DOESN T CAUSE DATA CHECK					
1792	N04XIT	B	MONITR	7	04965	J 02066
1793						



CT ADDR INSTRUCTION

LABEL

PGLIN

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
1831		MU	ZF5,FILE,R	10	05132	M ZF5 09691 R
1832		BCB1	--16	7	05142	R 05132 Z
1833		BA1	*E1	7	05149	R 05156 M
1834		BEF1	*E7	7	05156	R 05169 8
1835			*** SET ERROR 13 ON ***			
1836		SW	E13	6	05163	, 01814
1837			NO RECORD FOUND NOT SETTING EXT CONDITION			
1838		BNT1	*E7	7	05169	R 05182 B
1839			*** SET ERROR 14 ON ***			
1840		SW	E14	6	05176	, 01815
1841			NO RECORD FOUND NOT SETTING NO TRANSFER			
1842		SD	1,FILE	10	05182	M ZFO 09691 R
1843		BA1	*E1	7	05192	R 05199 M
1844		WDC	1,FILE	10	05199	M ZF3 09691 W
1845		BCB1	--16	7	05209	R 05199 Z
1846		BA1	*E1	7	05216	R 05223 M
1847		BEF1	N05XIT	7	05223	R 05236 8
1848			*** SET ERROR 15 ON ***			
1849		SW	E15	6	05230	, 01816
1850			IMPROPER MODE SETTING DOESN T CAUSE EXT CONDITION			
1851		N05XIT	B	7	05236	J 02066
1852			MONITR			



CT ADDR INSTRUCTION

TEST WRONG LENGTH RECORD

PGLIN LABEL

OPCODE OPERAND

1854 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1855 \*\*\* TEST WRONG LENGTH RECORD LONG AND SHORT \*\*\*  
 1856 A READ HAD WITH A DATA FIELD OF ONE CHARACTER IS ISSUED,THE  
 1857 WRONG LENGTH RECORD IND. IS CHECKED IF IT IS NOT ON ERROR 16 IS  
 1858 INDICATED.A READ HAD WITH A DATA FIELD THAT HAS NO TERMINATING  
 1859 WORD MARK GROUP MARK IS ISSUED, THE WLR INDICATOR IS CHECKED AND  
 1860 IF IT IS NOT ON ERROR 17 IS INDICATED.

1861  
 1862 FORMAT REQUIRED IS IN SIX BIT MODE ON CYLINGER 253  
 1863 44433333333333333333411111222 6 CHAR REC ADDRESS CHAR REC  
 1864 DATA FIELD USED FOR SHORT RECORD 8

1865  
 1866 DATA FIELD USED FOR LONG RECORD, FROM START OF DATA FIELD TO THE  
 1867 END OF MEMORY

1868 NOP  
 1869 DC 2062 ROUTINE ID  
 1870 MLCWS 202,DATAFD61  
 1871 MU 2F5,FILE,R READ WITH W.L.R.  
 1872 BCBL \*-16 RECORD SHORT  
 1873 BAL \*61  
 1874 BWL1 \*67 BRCH ON W.L.R.

\*\*\* SET ERROR 16 ON \*\*\*

SW E16 SET ERROR IND.

SHORT DATA FIELD DOESN T CAUSE WRONG LENGTH RECORD

CS DATAFD6225 CLEAR

CS DATA FIELD

CS 2F5,FILE,\$ READ TO END OF MEM

MU \*61 RECORD LONG

BWL1 \*67 BRCH ON W.L.R.

\*\*\* SET ERROR 17 ON \*\*\*

SW E17 SET ERROR IND.

LONG DATA FIELD DOESN T CAUSE WRONG LENGTH RECORD

N06X1T B MONITR

1887 7 05333 J 02066

1888

1 05243 N  
 2 05245  
 12 05246 D 09575 09701 7  
 10 05258 M 2F5 09691 R  
 7 05268 R 05258 2  
 7 05275 R 05282 M  
 7 05282 R 05295 -  
 6 05289 01817  
 6 05295 / 09925  
 1 05301 /  
 1 05302 /  
 10 05303 M 2F5 09691 \$  
 7 05313 R 05320 M  
 7 05320 R 05333 -  
 6 05327 01818

RANDOM SEEK CHECK  
OPCOD OPERAND

PGLIN LABEL

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*

\*\*\* RANDOM SEEK TEST \*\*\*

1890 USING A FOUR DIGIT NUMBER, DEVELOPED FROM THE TIME TAKEN FOR THE  
 1891 CARRIAGE ON THE TYPEWRITER TO RETURN, RANDOM ADDRESSES ARE GENER-  
 1892 ATED FOR THE FILE. A SEEK IS ISSUED FOR EACH ADDRESS AND ARRIVAL  
 1893 OF THE ACCESS IS VERIFIED BY A READ HAD OP. IF THE READ OP RESULTS  
 1894 IN A NO RECORD FOUND, ERROR 1 IS INDICATED FOLLOWED BY THE FILE  
 1895 ADDRESS BEING USED. ANY STATUS INDICATORS ENCOUNTERED BY THE SEEK  
 1896 OR READ OPS WILL ALSO BE INDICATED. IF THE PROGRAM IS IN THE MAN-  
 1897 UAL MODE, A NO RECORDED FOUND ON THE READ OP WILL CAUSE A REQUEST  
 1898 TURN ON THE CE-HAD SO THAT THE ADDRESS AT WHICH THE ACCESS  
 1899 ACTUALLY ARRIVED AT CAN BE DISPLAYED FOR ANALYSIS. 100 SEEKS ARE  
 1900 MADE IN THE ROUTINE, AFTER WHICH THE ACCESS IS POSITIONED AT THE  
 1901 DIAGNOSTIC CYL. 253.

NOT	NOP	ROUTINE ID	CT	ADDR	INSTRUCTION
1890			1	05340	N
1891			2	05342	
1892	DC	0070	6	05343	0 09693
1893	SW	FILE02	12	05349	D 09323 09696 V
1894	MLNWA	TOTIME, FILE05	10	05361	M 0F0 09691 R
1895	SD	1, FILE	7	05371	R 05361 Z
1896	BC01	--16	7	05378	R 03298 M
1897	BA1	STACHK	10	05385	M 0F5 09691 R
1898	MU	0F5, FILE, R	7	05395	R 05385 Z
1899	BC01	--16	7	05402	R 05463 Y
1900	BE01	VEROR, Y	7	05409	R 05416 M
1901	BA1	001	11	05416	A 09644 09323
1902	A	03000, TOTIME	11	05427	A 09323 09696
1903	A	TOTIME, FILE05	11	05438	A 09577 09528
1904	A	010, COUNT	7	05449	J 05614 V
1905	BZ	ENDSKS	7	05456	J 05361
1906	B	SEEKS			
1907		*** SET ERROR 1 ON ***			
1908	SW	E1, EXTRA01	11	05463	0 01802 03217
1909		SET ERROR			
1910		ON A RANDOM SEEK ACCESS POSITION RESULTED IN A NO RECORD FOUND			
1911	MRCWG	FILE, DATA	12	05474	D 09691 01710 L
1912	BA1	STACHK	7	05486	R 03298 M
1913		GO TO STATUS CHECK			

RANDOM SEEK CHECK  
OPCOD OPERAND

PGLIN LABEL

PGLIN	LABEL	OPCOD	OPERAND	BRCH IF IN MANUAL MD	CT	ADDRS	INSTRUCTION
1926		BCE	*E8,SPTADO,I		12	05493	B 05512 01004 I
1927		B	RANDOM	GO TRY NEXT SEEK	7	05505	J 05416
1928		B	TYP1	GO REQUEST THAT CE-HAO	7	05512	J 01593
1929		DCW	ACE-HAD ONA,G	BE TURNED ON	9	05527	
1930		H		WAIT FOR ACTION	1	05529	
1931		MU	ZF5,FILE,R	READ IN TKHD ADDR	10	05530	M ZF5 09691 R
1932		BCBL	--16		7	05540	R 05530 Z
1933		BA1	*E1		7	05547	R 05554 M
1934		SM	DATAFD		6	05554	, 09700
1935		MLCA	DATAFD&6,ADRM&G&16	MOVE ADDR READ BACK	12	05560	D 09706 05595 T
1936		B	TYP1	GO TYPE ADDR	7	05572	J 01593
1937	ADRM&G	DCW	ZADDR READ	,CE-HAO OFFA,G	28	05579	
1938		H	RANDOM	WAIT FOR ACTION	6	05608	, 05416
1939	ENDSKS	MLNA	Z9Z0Z,FILE&5	RESET ADDR TO CE TK	12	05614	D 09630 09696 /
1940		SD	1,FILE	POSITION ACCESS	10	05626	M ZFO 09691 R
1941		BCBL	--16		7	05636	R 05626 Z
1942		BA1	*E1		7	05643	R 05650 M
1943	NOTXIT	B	MONITR	GO TO MONITOR	7	05650	J 02066
1944							

1946 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
1947 \*\*\* TEST WRITE 6 BIT MODE FORMAT \*\*\*  
1948 THIS ROUTINE WRITES A SHORT FORMAT FOR CYL. 253 IN THE 6 BIT  
1949 MODE. THE FORMAT IS WRITE CHECKED AND IF A DATA CHECK RESULTS,  
1950 ERR 18 IS INDICATED. IN ADDITION ANY STATUS INDICATORS ENCOUNTERED  
1951 BY THE WRITE FORMAT, OR THE WRITE CHECK, WILL BE DISPLAYED IN  
1952 THE ERROR TYPEOUT.  
1953  
1954 FORMAT WRITTEN ON CYL 253 IN 6 BIT MODE  
1955 443333333333333333411111222222222222111111112111111111111121  
1956 111111111122222222221111111112111111112111111111111112222  
1957 222222221111111121111111211111111111111111111111111111111  
1958 1111111111111111111111112

ORGANIZATION OF FORMAT

1961 GAP1--HA1--GAP2--HA2 9CHARS--X GAP--REC ADDR 10CHAR--Y GAP--REC  
1962 AREA 14CHARS--X GAP--REC ADDR 10CHARS--Y GAP--REC AREA 14CHARS--  
1963 REC ADDR 10CHARS--X GAP--REC AREA 64CHARS--GAP3

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1964	NOP			1	05657	M
1965	DC	0080		2	05659	
1966	CS	DATAFD0225	CLEAR	6	05660	/ 09925
1967	CS		DATA	1	05666	/
1968	CS		FIELD	1	05667	/
1969	MLCS	010,DATAFD	LOAD	12	05668	D 09577 09700 3
1970	MLCA	09#200,FILE05	SET TKHD ADDR	12	05680	D 09630 09696 T
1971	SM	DATAFD0225	THE	6	05692	, 09925
1972	MRN	DATAFD,DATAFD01	FORMAT	12	05698	D 09700 09701 9
1973	MLNA	HAAREA,DATAFD023	SIX	12	05710	D 09347 09723 /
1974	MLNA	GAP6,DATAFD063	MODE	12	05722	D 09381 09763 /
1975	MLNA	GAP6,DATAFD0111	THREE	12	05734	D 09381 09811 /
1976	MLNA	GAP6,DATAFD0159	AND	12	05746	D 09381 09859 /
1977	MRCWG	GAP6,DATAFD0224	REC ADDR	12	05758	D 09381 09924 L
1978	MU	07,FILE,M	WRITE THE FORMAT	10	05770	M 097 09691 M
1979	BCB1	*-16		7	05780	R 05770 Z
1980	BA1	STACHK	BRCH ON ANY ERROR	7	05787	R 03298 M
1981	WDC	1,FILE	WRT DISK CHK	10	05794	M 097 09691 M

TEST WRITE FORMAT 6 BIT MODE

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1982		BA1	*61	7	05804	R 05811 M G
1983		8ER1	*68	7	05811	R 05825 4
1984		B	N08XIT	7	05818	J 05831
1985			*** SET ERROR 18 ON ***			
1986		SW	E18	6	05825	, 01819
1987			WRITE CHECK OF THE FORMAT RESULTS IN A DATA CHECK			
1988			N08XIT B MONITR	7	05831	J 02066
1989						

1991 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1992 \*\*\* TEST READWRITE IN 6 BIT MODE \*\*\*  
 1993 A TRACK OF 100 CHARACTERS IS WRITTEN.THE TRACK IS WDC,READ INTO  
 1994 MEMORY AND COMPARED TO THE ORIGINAL DATA THAT WAS WRITTEN.IF THE  
 1995 WRITE CHECK TURNS ON DATA CHECK ERROR 19 IS INDICATED,IF THE READ  
 1996 DATA DOES NOT COMPARE WITH THE WRITE DATA,ERROR 20 IS INDICATED.  
 1997 ANY STATUS INDICATORS ENCOUNTERED WILL BE DISPLAYED.THE TEST IS  
 1998 REPEATED 40 TIMES,ONCE FOR EACH HEAD ON THE ACCESS. USES CYL 253  
 1999

2000 FORMAT REQUIRED SAME AS THE FORMAT DESCRIBED IN ROUTINE N08

2001 DATA FIELD ORGANIZATION

2002 HA2 2CHARS--REC ADDR 6CHARS--RECORD 10CHARS--REC ADDR 6CHARS--  
 2003 RECORD 10CHARS--REC ADDR 6CHARS--RECORD 60CHARS  
 2004 DATA FIELD USED  
 2005 88ADDR01##---\$\$\$ ADDR0212488421 ADDR03.□ \$\* -/,# #B £ABC  
 2006 DEFGHI-JKLMNOPQR#STUVWXYZ035679  
 2007  
 2008

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2009	N09	NOP		1	05838	N
2010	DC	0090	ROUTINE ID	2	05840	
2011	MLCA	09#200	FILE05	12	05841	D 09630 09696 T
2012	B	0030		7	05853	J 05889
2013	SW	FILE04		6	05860	, 09695
2014	A	010,FILE05	UPDATE TKHD ADDR	11	05866	A 09577 09696
2015	BCE	N09XIT,FILE04,6	BRCH IF CYL COMPLETE	12	05877	B 06036 09695 6
2016	CS	DATAFD0225	CLEAR	6	05889	/ 09925
2017	CS		DATA	1	05895	/
2018	CS		FIELD	1	05896	/
2019	MRCWG	HAOP,DATAFD	LOAD THE DATA FIELD	12	05897	D 09383 09700 L
2020	MU	#F5,FILE,W	WRITE THE RECORDS	10	05909	M #F5 09691 W
2021	BA1	STACHK	BRCH ON ANY ERROR	7	05919	R 03298 M
2022	WDC	1,FILE	WRITE CHECK THE DATA	10	05926	M #F3 09691 W
2023	BER1	#015	BRCH ON DATA CHK	7	05936	R 05957 4
2024	BA1	STACHK	BRCH ON ANY ERROR	7	05943	R 03298 M
2025	B	RDCHK6		7	05950	J 05963
2026			*** SET ERROR 19 ON ***			







TEST. WRITE FORMAT 8 BIT MODE

CT ADDR INSTRUCTION

OPCOD OPERAND

PGLIN LABEL

2079		*** SET ERROR 21 ON ***	
2080	SM	E21	SET ERROR IND
2081		WRITE CHECK OF THE FORMAT RESULTS IN A DATA CHECK	
2082	NIOXIT	B	MONITR
2083			

6	06204	,	01822
7	06210	J	02066

2085 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2086 \*\*\* TEST READWRITE IN 8 BIT MODE \*\*\*  
 2087 A RECORD OF 100 CHARACTERS,HA2 & 3 RECORDS & 3 RECORD ADDRESSES  
 2088 ,IS WRITTEN USING HAD IN 8 BIT MODE.IT IS WRITE CHECKED,READ BACK  
 2089 INTO MEMORY,AND COMPARED AGAINST THE ORIGINAL DATA WRITTEN.IF  
 2090 THE WRITE CHECK RESULTS IN DATA CHECK,ERROR 22 IS INDICATED.IF  
 2091 THE READ DATA DOES NOT COMPARE TO THE WRITE DATA ERROR 24 IS  
 2092 INDICATED.SINCE THE RECORD IS WRITTEN AND READ IN 8 BIT MODE THE  
 2093 READ DATA IS CHECKED FOR A WORD MARK IN A FIXED LOCATION. IF THE  
 2094 WORD MARK IS NOT THERE ERROR 23 WILL BE INDICATED.ANY STATUS  
 2095 ERROR WILL ALSO BE INDICATED.THE TEST IS REPEATED 40 TIMES,ONCE  
 2096 FOR EACH HEAD ON THE ACCESS. USES CYL 253  
 2097

FORMAT REQUIRED SAME AS THE FORMAT DESCRIBE IN ROUTINE N10

DATA FIELD ORGANIZATION

2101 HA2 2CHARS--REC ADDR 6CHARS--RECORD 10CHARS--REC ADDR 6CHARS--  
 2102 RECORD 10CHARS--REC ADDR 6CHARS--RECORD 60CHARS  
 2103 DATA FIELD USED  
 2104 88ADDR01#\*-- --&&& ADDR0212488421 ADDR03.0 \$\* -/,% #\*# &ABC  
 2105 DEFGHI-JKLMNOPQR\*STUVWXYZ035679

PGLIN	Label	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2106						
2107	N11	NOP		1	06217	N
2108	DC	0110	ROUTINE ID	2	06219	
2109	MLCA	09#200,FILE05	SET TRHD ADDR	12	06220	D 09630 09696 T
2110	CS	DATAFD0225	CLEAR	6	06232	/ 09925
2111	CS		DATA	1	06238	/
2112	CS		FIELD	1	06239	/
2113	MRCWG	HAOP,DATAFD	LOAD THE DATA FIELD	12	06240	D 09383 09700 L
2114	LU	XF5,FILE,W	WRITE THE DATA	10	06252	L XF5 09691 W
2115	BA1	STACHK	BRCH ON ANY ERROR	7	06262	R 03298 M
2116	LU	XF3,FILE,W	WRITE CHECK THE DATA	10	06269	L XF3 09691 W
2117	BERI	*015	BRCH ON DATA CHECK	7	06279	R 06300 4
2118	BA1	STACHK		7	06286	R 03298 M
2119	B	ROCHK8		7	06293	J 06306
2120			*** SET ERROR 22 ON ***			

TEST READ & WRITE IN 8 BIT MODE

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2121		SM	E22	6	06300	, 01823
2122			WRITE CHECK OF RECORD RESULTS IN A DATA CHECK			
2123	RDCHK8	MRCG	DATAFD,DATAFD&101	12	06306	D 09700 09801 \$
2124		CS	DATAFD&99	6	06318	/ 09799
2125		LU	XF5,FILE,R	10	06324	L XF5 09691 R
2126		BA1	STACHK	7	06334	R 03298 M
2127	CHKWM	BW	*67,DATAFD&2	12	06341	V 06359 09702 1
2128			*** SET ERROR 23 ON ***			
2129		SM	E23	6	06353	, 01824
2130			WORD MARK MISSING FROM READ DATA			
2131	DAJCK8	C	DATAFD&200,DATAFD&99	11	06359	C 09900 09799
2132		BE	*67	7	06370	J 06383 S
2133			*** SET ERROR 24 ON ***			
2134		SM	E24	6	06377	, 01825
2135			READ DATA DOES NOT COMPARE TO WRITE DATA			
2136	N11XIT	B	MONITR	7	06383	J 02066
2137			ALTER ADDRESS BY 1 UNTIL EVERY HEAD			
2138			IS SELECTED AND TESTED IN 8 BIT MODE			
2139	N12	NOP		1	06390	N
2140		DC	0120	2	06392	
2141		SM	FILE&4	6	06393	, 09695
2142		A	010,FILE&5	11	06399	A 09577 09696
2143		BCE	N12XIT,FILE&6,6	12	06410	8 06440 09695 6
2144		ZA	&N11,X3	11	06422	H 09649 00039
2145		B	N11&15	7	06433	J 06232
2146	N12XIT	B	MONITR	7	06440	J 02066
2147						

PGLIN

LABEL

OPCOD OPERAND

2149 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2150 \*\*\* TEST FULL TRACK WITH ADDRESSES OPERATION \*\*\*  
 2151 A DATA FIELD OF 3 RECORDS AND ADDRESSES IS WRITTEN IN THE 8 BIT  
 2152 MODE USING THE WFT OP ON CYL 253 ADDR 9#20 .THE DATA IS READ  
 2153 BACK IN 8 BIT MODE USING THE RFT OP AND THE DATA READ IS COMPARED  
 2154 IN MEMORY WITH THE DATA WRITTEN. IF THE DATA DOESN T COMPARE ERROR  
 2155 25 IS INDICATED. STATUS ERRORS ARE ALSO INDICATED.

2156 FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE N10

2157 DATA FIELD ORGANIZATION  
 2158 REC ADDR 6CHARS--RECORD 10CHARS--REC ADDR 6CHARS--RECORD 10CHARS--  
 2159 --REC ADDR 6CHARS--RECORD 60CHARS

2160 DATA FIELD USED  
 2161 ADDR01##---&E& ADDR021248&21 ADDR03.□ \$\* -/,% #\*# &ABCDE  
 2162 FGHI--JKLMNQR\*STUVWXYZ035679

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2163						
2164						
2165						
2166						
2167	N13	NOP		1	06447	N
2168	DC	0130	ROUTINE ID	2	06449	
2169	CS	DATAFD&225	CLEAR	6	06450	/ 09925
2170	CS		DATA	1	06456	/
2171	CS		FIELD	1	06457	/
2172	MRCG	ADDR1-5,DATAFD	LOAD DATA FIELD	12	06458	D 09385 09700 \$
2173	SW	DATAFD&98	SET WM OVER GM	6	06470	, 09798
2174	MLCA	09#200,FILE&5	SET TKHD ADDR	12	06476	D 09630 09696 T
2175	LU	0F6,FILE,M	WRITE TRK WITH ADDR	10	06488	L 0F6 09691 W
2176	BAI	STACHK	BRCH ON ANY ERROR	7	06498	R 03298 M
2177	MRCG	DATAFD,DATAFD&99	SAVE DATA	12	06505	D 09700 09799 \$
2178	CS	DATAFD&97		6	06517	/ 09797
2179	LU	0F6,FILE,R	READ TRK WITH ADDR	10	06523	L 0F6 09691 R
2180	BAI	STACHK	BRCH ON ANY ERROR	7	06533	R 03298 M
2181	C	DATAFD&97,DATAFD&196	CHECK DATA READ	11	06540	C 09797 09896
2182	BE	067	IF IT IS GOOD BRCH	7	06551	J 06564 S
2183			*** SET ERROR 25 ON ***			
2184	SW	E25	SET ERROR IND	6	06558	, 01826

TEST FULL TRACK WITH ADDRESSES

DA03 PAGE 129

CT ADDR INSTRUCTION

OPCOD OPERAND

PGLIN LABEL

2185 READ DATA DOES NOT COMPARE WITH DATA WRITTEN

2186 N19XIT B MONITR

2187

7 06564 J 02066

2189 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2190 \*\*\* TEST FULL TRACK WITHOUT ADDRESSES OPERATION \*\*\*  
 2191 A DATA FIELD OF 3 RECORDS IS WRITTEN IN 8 BIT MODE USING THE  
 2192 WDT CP ON CYL 253 ADDR 9#20 .THE DATA IS READ BACK USING THE RDT  
 2193 DP AND THE DATA READ IS COMPARED AGAINST THAT WHICH WAS WRITTEN.  
 2194 IF THE DATA DOES NOT COMPARE ERROR 26 IS INDICATED.ALL STATUS  
 2195 ERRORS ENCOUNTERED ARE ALSO INDICATED.  
 2196

2197 FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE N10

2198 DATA FIELD ORGANIZATION

2199 RECORD 10CHARS--RECORD 10CHARS--RECORD 60CHARS

2200 DATA FIELD USED

2201 ##---### 12488421 . □ \$\* -/,% #@ &ABCDEFGHI-JKLMNOPQR\*STU  
 2202 WXYZ035679  
 2203  
 2204

PGLIN	Label	OPCOD	Operand	CT	ADDR	INSTRUCTION
2205	N14	NOP		1	06571	N
2206	DC	0140	ROUTINE ID	2	06573	
2207	CS	DATAFD0225	CLEAR	6	06574	/ 09925
2208	CS		DATA	1	06580	/
2209	CS		FIELD	1	06581	/
2210	MRCG	ADDR101,DATAFD	LOAD DATA FIELD	12	06582	D 09391 09700 \$
2211	MRCG	ADDR206,DATAFD010	LOAD	12	06594	D 09407 09710 \$
2212	MRCWG	ADDR306,DATAFD020	DATA FIELD	12	06606	D 09423 09720 L
2213	MLCA	09#200,FILE05	SET TKHD ADDR	12	06618	D 09630 09696 T
2214	LU	%F2,FILE,W	WRITE FULL TRACK	10	06630	L %F2 09691 W
2215	BA1	STACHK	BRCH ON ANY ERROR	7	06640	R 03298 M
2216	MRCG	DATAFD,DATAFD081	SAVE DATA	12	06647	D 09700 09781 \$
2217	CS	DATAFD079	CLEAR STORAGE	6	06659	/ 09779
2218	LU	%F2,FILE,R	READ TRACK	10	06665	L %F2 09691 R
2219	BA1	STACHK		7	06675	R 03298 M
2220	C	DATAFD079,DATAFD0160	CHECK DATA READ	11	06682	C 09779 09860
2221	BE	*07	IF IT IS GOOD BRCH	7	06693	J 06706 S
2222			*** SET ERROR 26 ON ***			
2223	SM	E26		6	06700	, 01827
2224			READ DATA DOES NOT COMPARE WITH DATA WRITTEN			

TEST FULL TRACK WITHOUT ADDRESSES

CT ADDR INSTRUCTION

7 06706 J 02066

OPCOD OPERAND

MONITR

LABEL

N14XIT

PGLIN

2225

CT ADDR INSTRUCTION

TEST SINGLE RECORD OP

OPCOD OPERAND

LABEL

PGLIN

2227 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2228 \*\*\* TEST SINGLE RECORD OPERATION \*\*\*  
 2229 IN THE EIGHT BIT MODE A SINGLE RECORD OF 10 CHARACTERS IS WRIT-  
 2230 TEN, ADDRESS-ADDR01, IF NO RECORD FOUND RESULTS, ERROR 27 IS  
 2231 INDICATED. A READ SINGLE RECORD RECORD ADDRESS ADDR03 IS ISSUED  
 2232 AND IF A NO RECORD FOUND RESULTS ERROR 28 IS INDICATED. THE DATA  
 2233 READ BACK IS CHECKED TO INSURE THE PROPER RECORD WAS READ, IF IT  
 2234 IS NOT THE CORRECT DATA, ERROR 29 IS INDICATED. ALL STATUS ERRORS  
 2235 WILL BE INDICATED.

2236  
2237 FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE N10

2238  
2239 RECORD ADDRESS & DATA FIELD USED IN WRITE SINGLE RECORD, THE REC-  
 2240 ORD ADDRESS WAS WRITTEN IN ROUTINE 13  
 2241 ---ADDR01 333333334

2242  
2243 RECORD ADDRESS USED AND RECORD EXPECTED IN READ SINGLE RECORD  
 2244 ---ADDR03 . 0 \$\* - / . % # @ & ABCDEFGHI - JKLMNOPQR # STUVWXYZ035679

N15	NOP	ROUTINE ID	ROUTINE ID	CT	ADDR	INSTRUCTION
2245	DC	0150	CLEAR	1	06713	N
2246	CS	DATAF0&225	CLEAR	2	06715	
2247	CS		DATA	6	06716	/ 09925
2248	CS		FIELDS	1	06722	/
2249	MLCA	ADDR1, FILE&7	SET RECORD ADDR	1	06723	/
2250	MRCWG	GAP8-9, DATAFD	LOAD DATA FIELD	12	06724	D 09390 09698 T
2251	LU	XF1, FILE, W	WRITE SINGLE RECORD	12	06736	D 09508 09700 L
2252	BNT1	*815	BRCH NO TRAN	10	06748	L XF1 09691 W
2253	BA1	STACHK	BRCH ON ANY ERROR	7	06758	R 06779 B
2254	B	SKORD	BRCH ON ANY ERROR	7	06765	R 03298 M
2255	SW	E27	SET ERROR IND	7	06772	J 06785
2256	SRORD	DATAFD&99	CLEAR DATA FIELD	6	06779	. 01828
2257	MLCA	ADDR3&5, FILE&7	SET RECORD ADDR	6	06785	/ 09799
2258				12	06791	D 09422 09698 T



DA03

PGLIN	LABEL	TEST SINGLE RECORD OP	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2263		MLCWS	DATAFD&60	SET WMGM	12	06803	D 09575 09760 7
2264		LU	FILE,R	READ SINGLE RECORD	10	06815	L 09691 R
2265		BNTI	15	BRCH NO TRANS	7	06825	R 06846 B
2266		BAI	STACHK	BRCH ON ANY ERRORS	7	06832	R 03298 M
2267		B	SROCHK		7	06839	J 06852
2268				*** SET ERROR 28 ON ***			
2269		SW	E28	SET ERROR IND	6	06846	, 01829
2270				READ SINGLE RECORD RESULTS IN NO RECORD FOUND			
2271		SW	DATAFD		6	06852	, 09700
2272		C	DATAFD&59	CHECK DATA READ	11	06858	C 09482 09759
2273		BE	12	IF IT IS GOOD BRCH	7	06869	J 06882 S
2274				*** SET ERROR 29 ON ***			
2275		SW	E29		6	06876	, 01830
2276				RECORD READ WAS NOT RECORD EXPECTED			
2277		MLCA	FILE&7	RESTORE FILE ADDR	12	06882	D 09534 09698 Y
2278		B	MONITR		7	06894	J 02066
2279							

2281 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2282 \*\*\* TEST CYLINDER OPERATION \*\*\*  
 2283 WITH A DATA FIELD OF 9 RECORDS 240 CHARS 3 TRACKS ARE WRITTEN  
 2284 USING THE CYLINDER OPTION.THIS IS DONE ON EVERY 3 TRACKS UNTIL  
 2285 THE ENTIRE CYLINDER IS COMPLETED. CYL 253 THE ADDRESS IS RESET  
 2286 AND A READ CYLINDER OP OF 3 TRACKS IS PERFORMED.THE READ DATA IS  
 2287 COMPARED TO THE ORIGINAL WRITE DATA AND IF THEY DO NOT COMPARE  
 2288 ERROR 30 IS INDICATED.THE READ IS REPEATED FOR EVERY 3 TRACKS  
 2289 ALSO.THIS TEST IS RUN ONLY IF CYO IS AVAILABLE.

2290  
 2291 FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE N10

2292  
 2293 DATA FIELD ORGANIZATION  
 2294 RECORD 10CHARS--RECORDS 10CHARS--RECORD 60CHARS REPEAT 2 TIMES

2295  
 2296 DATA FIELD USED TO WRITE 3 TRACKS  
 2297 YYY-3 RECORDS OF 80 Y EACH-YYYY

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2298	N16	NDP		1	06901	N
2299	DC	0160		2	06903	
2300	BCE	*08,SPTAD0,1		12	06904	B 06923 01004 1
2301	B	N16XIT		7	06916	J 07204
2302	B	TYP2		7	06923	J 01607
2303	DCW	0CYO AVAIL0,G		9	06938	
2304	DC	0 0,G		1	06940	
2305	BCE	*08,0-13,1		12	06942	B 06961 06940 1
2306	B	N16XIT		7	06954	J 07204
2307	CS	DATAFDE240		6	06961	/ 09940
2308	CS			1	06967	/
2309	CS			1	06968	/
2310	MLCA	CETKHD,FILE07		12	06969	D 09534 09698 1
2311	MLCS	0Y0,DATAFD		12	06981	D 09650 09700 3
2312	SW	DATAFDE239,FILE04		11	06993	, 09939 09695
2313	MRC	DATAFD,DATAFDE1		12	07004	D 09700 09701 #
2314	CW	DATAFDE239		6	07016	0 09939
2315	MLCWS	0M0,DATAFDE240		12	07022	D 09575 09940 7

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2317	CYOWRT	LU	%F0,FILE,W	10	07034	L %F0 09691 W
2318		BA1	STACHK	7	07044	R 03298 M
2319		A	@30,FILE05	11	07051	A 09583 09696
2320		C	FILE05,@590	11	07062	C 09696 09652
2321		BE	*08	7	07073	J 07087 S
2322		B	CYOWRT	7	07080	J 07034
2323		MLCA	@9#200,FILE05	12	07087	D 09630 09696 T
2324	CYORD	CS	DATAFD0239	6	07099	/ 09939
2325		CS		1	07105	/
2326		CS		1	07106	/
2327		LU	%F0,FILE,R	10	07107	L %F0 09691 R
2328		BEX1	STACHK,M	7	07117	R 03298 M
2329		BA1	*01	7	07124	R 07131 M
2330		SW	DATAFD	6	07131	, 09700
2331		C	DATAFD0239,DATAFD0238	11	07137	C 09939 09938
2332		BE	*014	7	07148	J 07168 S
2333			*** SET ERROR 30 ON ***			
2334		SW	E30	6	07155	, 01831
2335			READ DATA DOES NOT COMPARE WITH DATA WRITTEN			
2336		B	N16XIT	7	07161	J 07204
2337		A	@30,FILE05	11	07168	A 09583 09696
2338		C	FILE05,@590	11	07179	C 09696 09652
2339		BE	*08	7	07190	J 07204 S
2340		B	CYORD	7	07197	J 07099
2341	N16XIT	B	MONITR	7	07204	J 02066

CT ADDR INSTRUCTION

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*

\*\*\* TEST INTERRUPT FROM 7631-1301 \*\*\*

THIS TEST IS RUN WHEN THE PRIORITY FEATURE IS AVAILABLE. A SEEK CYL 000 IS ISSUED, THE PROGRAM ENTERS THE ALERT MODE AND WAITS IN A LOOP FOR THE INTERRUPT. AFTER CERTAIN TIME, IF NO INTERRUPT OCCURS ERROR 31 IS INDICATED. STATUS ERRORS ARE ALSO INDICATED.

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2343				1	07211	N
2344				2	07213	
2345				12	07214	B 07233 01264 1
2346				7	07226	J 07313
2347				10	07233	M 2FO 09691 R
2348				7	07243	R 07233 2 G
2349				7	07250	R 03298 M
2350	N17	NOP		7	07257	Y 07264 E
2351		DC	2170	6	07264	S 00059
2352		BCE	068,1264,1	11	07270	A 09577 00059
2353		B	N17XIT	12	07281	B 07313 00056 4
2354		SD	1,FILE	7	07293	J 07270
2355		BCB1	0-16	7	07300	Y 07307 X
2356		BA1	STACHK	6	07307	, 01832
2357		BEPA	0E1	7	07313	J 02066
2358		S	X7			
2359	INTLUP	A	212,X7			
2360		BCE	N17XIT,X7-3,4			
2361		B	INTLUP			
2362	NOINTR	BXPA	0E1			
2363						
2364		SW	E31			
2365						
2366	N17XIT	B	MONTR			

\*\*\* SET ERROR 31 ON \*\*\*

SET ERROR IND

NO INTERRUPT AT THE COMPLETION OF THE SEEK OP

UPDATE ROUTINE  
 OPCOD OPERAND  
 LABEL  
 PGLIN  
 2368 \*\*\* CHANNEL AND MODULE ADDRESS UPDATE ROUTINE \*\*\*  
 2369 THIS ROUTINE LOCATES CHANNELS WITH 7631 ON THEM AND CAUSES  
 2370 THE PROGRAM TO BE INITIALIZED ACCORDINGLY AND LOCATES READY  
 2371 MODULES ON THE CHANNEL AS LONG AS THERE ARE UNTESTED READY MODULE  
 2372 AVAILABLE THIS ROUTINE WILL LOOP BACK TO ROUTINE N01 OR N07 WHEN  
 2373 THERE NO FURTHER UNTESTED MODULES ON ANY CHANNEL THIS ROUTINE  
 2374 FALLS THROUGH TO MONITOR THE UPDATE ROUTINE STARTS WITH CHANNEL 1  
 2375 MODULE 0 AND PROGRESSES THROUGH CHANNEL 4 MODULE 9.  
 2376

PGLIN	LABEL	OPCOD	OPERAND	ROUTINE TD	CT	ADDR	INSTRUCTION
2368	N18	NOP			1	07320	N
2369	DC	0180			2	07322	
2370	B	TOP07			7	07323	J 07418
2371	BCE	068,00X10,F	FILES ON THIS CHNL		12	07330	B 07349 00,0 F
2372	B	UPCHNL	GO UP DATE FOR NEXT		7	07342	J 07443
2373	MLCA	CODE30X15,INCODE	MOVE CHANNEL CODES		12	07349	D 09EC7 07380 T
2374	B	CHALTR	GO TO CHANNEL ALTER		7	07361	J 01045
2375	DCW	TOP	HIGH LIMIT		5	07372	07411
2376	DC	BOTTOM	LOW LIMIT		5	07377	04270
2377	DCW	0 0			1	07378	
2378	DC	0 0			1	07379	
2379	DC	0 0			1	07380	
2380	INCODE				6	07381	, 07530
2381	SW	CHNL\$W01	TURN ON CHANNEL SW		10	07387	M 0F0 09691 R
2382	SD	1,FILE	SEEK THE ACCESS		7	07397	R 07418 I
2383	BNR1	0015	BRCH NOT READY		7	07404	R 07411 M
2384	BA1	001			7	07411	J 07484
2385	B	GOTIT	BRCH,FOUND A RDY MOD		11	07418	A 09577 09692
2386	A	010,FILE01	UPDATE MOD ADDR		7	07429	J 07443 V
2387	BZ	008	BRCH IF TEN MOD TRID		7	07436	J 07387
2388	B	RDYFIL	GO TRY ANOTHER MOD		11	07443	A 09654 00074
2389	A	0570,X10	UPDATE		11	07454	A 09583 00099
2390	A	030,X15	IND REG 10&15		12	07465	B 07579 00074 F
2391	BCE	N18XIT,X10,F	BRCH IF ALL CHNL CHK		7	07477	J 07330
2392	B	N18010	GO CHK NEXT CHNL		12	07484	D 09692 07523 I
2393	MLNS	FILE01,RDYM\$008	MOVE MOD ADDR		12	07496	D 07380 07527 I
2394	MLNS	INCODE,RDYM\$0012	MOVE CHANNEL NUMBER		7	07508	J 01593
2395	B	TYPI					

PGLIN	LABEL	UPDATE ROUTINE	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2404	RDYMSG	DCW	BTST MOD	CH 3.G	13	07515	
2405	CHNLSW	NOPWM			1	07529	N
2406		B	NUCHNL		7	07530	J 07555
2407		ZA	EN07,X3	CHANNEL SWITCH	11	07537	M 09659 00039
2408		B	0EX3	LOAD IX 3	7	07548	J 000M0
2409	NUCHNL	CM	CHNLSW&1		6	07555	R 07530
2410		ZA	EN01,X3	TURN OFF CHANNEL SW	11	07561	M 09664 00039
2411		B	0EX3	LOAD IX 3	7	07572	J 000M0
2412	N18XIT	B	MONITR	GO TO MONITOR	7	07579	J 02066
24E3							

TEST OVERLAP FILES AND TAPES

CT ADDR INSTRUCTION

PGLIN LABEL OPCODE OPERAND

2415 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2416 \*\*\* TEST FILES & TAPES OVERLAPPED \*\*\*  
 2417 THIS ROUTINE USES FILES ON EVERY CHANNEL WHICH HAS THEM, ON  
 2418 CHANNELS WHICH DO NOT HAVE FILES, TAPES ARE USED. IF NEITHER FILES  
 2419 OR TAPES ARE AVAILABLE THE CHANNEL IS BY-PASSED. STARTING WITH  
 2420 CHANNEL 1 AN OVERLAPPED WRITE OP IS GIVEN TO FILES OR TAPE. THEN  
 2421 CHANNEL 2 IS STARTED AND THEN 3 AND 4. CHANNEL 1 IS CHECKED AGAIN  
 2422 IF IT IS IN OVERLAP CHANNEL 2 IS CHECKED AND SO ON, WHEN A CHANNEL  
 2423 IS FOUND TO BE OUT OF OVERLAP ANOTHER WRITE IS INITIATED ON THE  
 2424 CHANNEL. AFTER 500 WRITES HAVE BEEN ISSUED THE FILES ARE ISSUED  
 2425 READ OPS, WHEN 500 READS HAVE BEEN INITIATED THE OVERLAP OP-  
 2426 ERATIONS ARE STOPPED. THE PROGRAM DELAYS FOR 1.5 SECONDS AND THEN  
 2427 EVERY CHANNEL THAT WAS USED IS CHECKED FOR OVERLAP IN PROCESS. IF  
 2428 ANY ARE FOUND TO BE IN PROCESS AN ERROR IS INDICATED, FOR CHI  
 2429 ERROR 32, FOR CH2 ERROR 33, FOR CH3 ERROR 34, FOR CH4 ERROR 35. ALL  
 2430 STATUS ERRORS WILL BE INDICATED ALSO.  
 2431 FORMAT REQUIRED IS THE SAME AS DESCRIBED IN ROUTINE N10  
 2432 DATA FIELD USED FOR FILES ON CYL 253 ADDRESS 9#20

DATA FIELD USED FOR TAPES TAPE UNIT 1

N19	NOP	ROUTINE ID	BRCH IF OVERLAP AVAIL	1	07586	N
2435	DC	0190		2	07588	
2436	BCE	*08,1263,1		12	07589	B 07608 01263 1
2437	B	N19XIT		7	07601	J 08385
2438	BCE	*08,SPTADO,1		12	07608	B 07627 01004 1
2439	B	N19XIT		7	07620	J 08385
2440	CW	RORWF01,ERRONF01	CLEAR RD OR WRT SW	11	07627	B 07833 07860
2441	CW	ERRONTE01,CKCHL101	CLEAR ERROR SW	11	07638	B 08033 07891
2442	CW	CKCH1101,CKCH1201		11	07649	B 07974 08064
2443	MLNS	RDYMSG08,FILE01	SET MOD ADDR	12	07660	D 07523 09692 1
2444	ZA	013080,X10	LOAD IX 10	11	07672	M 09668 00074
2445	ZA	012910,X11	LOAD IX 11	11	07683	M 09672 00079
2446	ZA	000000,X12	LOAD IX 12	11	07694	M 09609 00084
2447	BCE	MOVCCD,00EX10,F	FILES AVAIL	12	07705	B 07781 00000 F
2448	BCE	MOVCCD,00EX11,1	TAPES AVAIL	12	07717	B 07781 00000 F
2449	A	0570,X10	UPDATE IX 10	11	07729	A 09654 00074

TEST OVERLAP FILES AND TAPES

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2451		A	0570,X11	11	07740	A 09654 00079
2452		A	030,X12	11	07751	A 09583 00084
2453		BCE	RESEX,X10,F	12	07762	B 07672 00074 F
2454		B	FILE1	7	07774	J 07705
2455	MOVCOD	MLCA	0CCDE3EX12,INITL1	12	07781	D 09E49 07812 T
2456		B	CHALTR	7	07793	J 01045
2457		DCW	FROM	5	07804	08102
2458		DC	TO	5	07809	07840
2459		DCW	080	1	07810	
2460		DC	080	1	07811	
2461	INITL1	DC	010	1	07812	
2462		BCE	*08,00X10,F	12	07813	B 07832 00000 F
2463		B	TAPEOP	7	07825	J 08001
2464	RORWF	NOPWM		1	07832	N
2465		B	RDFILE	7	07833	J 07918
2466	TO	MRCWG	HADP,DATAFD	12	07840	D 09383 09700 L
2467		BOLL	UPINDX	7	07852	J 07729 1
2468	ERRONF	NOPWM		1	07859	N
2469		BAI	FILERW	7	07860	R 07884 M
2470		LU	0F5,FILE,W	10	07867	L 0F5 09691 W
2471		B	WRICNT	7	07877	J 08116
2472	FILERW	SW	CKCHL101	6	07884	, 07891
2473	CKCHL1	NOPWM		1	07890	N
2474		BAI	*01	7	07891	R 07898 M
2475		CW	CKCHL101	6	07898	0 07891
2476		BAI	STACHK	7	07904	R 03298 M
2477		B	FILERW-17	7	07911	J 07867
2478	RDFILE	CS	DATAFD099	6	07918	/ 09799
2479		MLCWS	0M0,DATAFD0100	12	07924	D 09575 09800 T
2480		BOLL	UPINDX	7	07936	J 07729 1
2481		BAI	FILERW	7	07943	R 07967 M
2482		LU	0F5,FILE,R	10	07950	L 0F5 09691 R
2483		B	RDCNT	7	07960	J 08091
2484	FILERW	SW	CKCHL101	6	07967	, 07974
2485	CKCHL1	NOPWM		1	07973	N
2486		BAI	*01	7	07974	R 07981 M

CLEAR I/O INTRLK ON



TEST OVERLAP FILES AND TAPES

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2487		CW	CKCH11E1	6	07981	CHANNEL 1
2488		BAL	STACHK	7	07987	GO TO STATUS CHECK
2489		B	FILERR-17	7	07994	
2490	TAPEOP	MLCHS	3M3,DATAFD6244	12	08001	SET FIELD LENGTH
2491		BOL1	UPINDX	7	08013	BRCH OVL-IN-PROCESS
2492		MRCWG	ADDR1,DATAFD6101	12	08020	LOAD DATA FIELD
2493	ERRONT	NOPWM		1	08032	
2494		BAL	TAPERW	7	08033	BRCH ON ANY ERROR
2495		LU	081,DATAFD6101,W	10	08040	WRITE TAPE OVERLAP
2496		B	WRTCNT	7	08050	GO TO WRITE COUNTER
2497	TAPERW	SW	CKCH12E1	6	08057	
2498	CKCH12	NOPWM		1	08063	
2499		BAL	*E1	7	08064	CLEAR I/O INTRLK ON
2500		CW	CKCH12E1	6	08071	CHANNEL
2501		BAL	STACHK	7	08077	GO TO STATUS CHECK
2502		B	TAPERW-17	7	08084	
2503	RDCNT	A	010,OVLCNT	11	08091	UPDATE PASS COUNT
2504	FROM	BZ	CHKOVL	7	08102	BRCH IF 100 PASSES
2505		B	UPINDX	7	08109	GO TRY ANOTHER CHL
2506	WRTCNT	A	010,OVLCNT	11	08116	UPDATE PASS COUNT
2507		SW	ERRONF61,ERRONT61	11	08127	SET ERROR SMS
2508		BCE	SETRDF,OVLCNT-2,5	12	08138	BRCH ON 500TH PASS
2509		B	UPINDX	7	08150	GO TRY ANOTHER CHL
2510	SETRDF	SW	RORWF61	6	08157	TURN ON RD-WRT SW
2511		B	UPINDX	7	08163	GO TRY ANOTHER CHL
2512	CHKOVL	S	DELAY	6	08170	RESET DELAY
2513	WAIT	A	010,DELAY	11	08176	DELAY FOR 1.5 SECS
2514		BZ	*E8	7	08187	TO ALLOW ALL OVL
2515		B	WAIT	7	08194	OPERATIONS TO END
2516		BCE	*E8,1268,1	12	08201	CH 1 AVAIL
2517		B	CKOVL2	7	08213	GO CHECK CHL2 OVL
2518		BOL1	*E8	7	08220	BRCH CH1 OVL IN PROC
2519		B	*E7	7	08227	
2520						*** SET ERROR 32 ON ***
2521		SW	E32	6	08234	SET ERROR IND
2522						CHANNEL 1 HUNG IN OVERLAP IN PROCESS

PGLIN LABEL OPCOD OPERAND

CT ADDR INSTRUCTION

CT ADDR INSTRUCTION

2523 8A1 \*E1 CLEAR I/O INTRLK 1  
 2524 8CE \*E8,1269,1 CH 2 AVAIL  
 2525 B CKOVL3 GO CHECK CHL3 OVL  
 2526 B0L2 \*E8 BRCH CH2 OVL IN PROC  
 2527 B \*E7  
 2528 \*\*\* SET ERROR 33 ON \*\*\*

2529 SW E33 SET ERROR IND  
 2530 CHANNEL 2 HUNG IN OVERLAP IN PROCESS

2531 8A2 \*E1 CLEAR I/O INTRLK 2  
 2532 8CE \*E8,1270,1 CH 3 AVAIL  
 2533 B CKOVL4 GO CHECK CHL4 OVL  
 2534 DCW @J@  
 2535 DC CKOVL4-6  
 2536 DC @3@  
 2537 B \*E7  
 2538 \*\*\* SET ERROR 34 ON \*\*\*

2539 SW E34  
 2540 CHANNEL 3 HUNG IN OVERLAP IN PROCESS

2541 DCW @3@  
 2542 DC CKOVL4 CLEAR I/O INTRLK 3  
 2543 DC @M@  
 2544 BCE \*E8,1271,1 CH 4 AVAIL  
 2545 B N19XIT  
 2546 DCW @J@  
 2547 DC N19XIT-6  
 2548 DC @4@  
 2549 B N19XIT

2550 \*\*\* SET ERROR 35 ON \*\*\*

2551 SW E35 SET ERROR IND  
 2552 CHANNEL 4 HUNG IN OVERLAP IN PROCESS

2553 DCW @1@  
 2554 DC N19XIT CLEAR I/O INTRLK 4  
 2555 DC @M@  
 2556 N19XIT B MONITR  
 2557

7 08240 R 08247 M  
 12 08247 B 08266 01269 1  
 7 08259 J 08293  
 7 08266 J 08280 2  
 7 08273 J 08286

6 08280 , 01834

7 08286 X 08293 M  
 12 08293 B 08312 01270 1  
 7 08305 J 08339

1 08312  
 5 08317 08333  
 1 08318  
 7 08319 J 08332

6 08326 , 01835

1 08332  
 5 08337 08339  
 1 08338

12 08339 B 08358 01271 1  
 7 08351 J 08385

1 08358  
 5 08363 08379  
 1 08364  
 7 08365 J 08385

6 08372 , 01836

1 08378  
 5 08383 08385  
 1 08384  
 7 08385 J 02066

CT ADDR5 INSTRUCTION

2559		*** END TEST ROUTINE ***			
2560	ENDTST	BW	SUMIT,NOERSW&1	12	08392 V 03836 02840 1
2561		B	TYPI	7	08404 J 01593
2562		DCW	@PASS@,G	4	08414
2563	CHKREP	BCE	02000,TAD3,1	12	08416 B 02000 01003 1
2564		B	400	7	08428 J 00400
2565					

BRCH IF REPEATING  
 GO TO LOADER

2567 \*\*\* PREPARE ONE INSTRUCTION LOOP AND DATA FIELD \*\*\*  
 2568 \*\*\* ACCORDING TO CE REQUEST \*\*\*  
 2569 WHEN THE CE SELECTS THE PROGRAM OPTION FOR ONE INSTRUCTION LOOP  
 2570 ING, THIS ROUTINE TAKES THE DATA ENTERED BY THE CE AND BUILDS THE  
 2571 DATA FIELD AND LOOP INSTRUCTION FROM IT. WHEN IT HAS COMPLETED  
 2572 THIS IT POSITIONS THE ACCESS TO THE ADDRESS ENTERED AND BRANCHES  
 2573 TO THE LOOP ROUTINE.

PGLIN	LABEL	OPCOD	OPERAND	MLCA	226, RECADD	STORE LOOP DATA	CT	ADDR	INSTRUCTION
2574							12	08435	D 00226 09301 T
2575	PREP	MLCA	226, RECADD				6	08447	/ 00299
2576		CS	299			CLEAR CNTL FLD	11	08453	M 09319 00074
2577		ZA	ADRI, X10			LOAD IX 10	6	08464	, 09700
2578		SW	DATAFD			CLEAR	6	08470	/ 00...0
2579	CLEAN7	CS	06X10			THE	7	08476	G 00074 B
2580		SBR	X10			DATA	12	08483	V 08470 09700 1
2581		BW	CLEAN7, DATAFD			FIELD	12	08495	D 09278 01014 L
2582		MLCB	XCTL1-1, LOOP&1			SET MODE & CHANNEL	12	08507	D 09279 01016 3
2583		MLCS	XCTL1, LOOP&3			SET SPECIFIC OPER	12	08519	D 09280 01022 3
2584		MLCS	XCTL1&1, LOOP&9			SET MODIFIER	11	08531	M 09294 00064
2585		ZA	NDFCHR, X8			LOAD IND REG 8	11	08542	M 09290 09304
2586		ZA	NDFREC, WORK1			ADD NO. OF RECORDS	11	08553	A 09673 09294
2587		A	06&, NDFCHR			INCREASE CHAR COUNT	11	08564	0 09294 09309
2588		M	NDFCHR, WORK2			RECORDS X CHARS	11	08575	M 09309 00069
2589		ZA	WORK2, X9			LOAD RESULT INTO IX9	12	08586	D 09295 09700 3
2590		MLCS	NDFCHR&1, DATAFD				12	08598	D 09281 01023 3
2591		MLCS	BOS10, LOOP&10			ALTER B-O-S-I-D OP	12	08610	D 09287 09698 T
2592		MLCA	HA2, FILE&7				6	08622	S 09309
2593		S	WORK2			RESET WORK 2	12	08628	B 01013 01016 0
2594		BCE	LOOP, LOOP&3, 0			BRCH IF SEEK OP	10	08640	M 09691 R
2595		SD	1, FILE			POSITION THE ACC	7	08650	R 08640 2
2596		BCB1	--16				7	08657	R 08664 M
2597		BA1	*61				12	08664	D 01016 08687 3
2598		MLCS	LOOP&3, *612			MOVE THE OP CODE	12	08676	B 08718 09314
2599		BCE	SRO, SPECOD,			IS THE OP CODE 1	6	08688	B 08767
2600		BCE	TR0			IS THE OP CODE 2	6	08694	B 08848
2601		BCE	HA0			IS THE OP CODE 5	6	08700	B 08971
2602		BCE	TWA			IS THE OP CODE 6			

PREPARE 1 INST LOOP & DATA FIELD

PGLIN	LABEL	OPCOD	OPERAND	IS THE OP CODE	CT	ADDR	INSTRUCTION
2603		BCE	WFO	IS THE OP CODE 7	6	08706	B 09071
2604		H	PRGCTL	SPECIFIC OP INCORRECT	6	08712	. 02250
2605	SRO	MLCA	RECADD, FILE&7	LOAD REC ADDR	12	08718	D 09301 09698 T
2606		SW	DATAF&X8	LOAD	6	08730	. 09P00
2607		MRCW	DATAFD, DATAF&1	DATA	12	08736	D 09700 09701 M
2608		MLCWS	@M@, DATAF&X8	FIELD	12	08748	D 09575 09P00 7
2609		B	LOOP		7	08760	J 01013
2610	TRD	ZA	NDFREC, WORK1	ADD NO. OF RECORDS	11	08767	Q 09290 09304
2611		S	@6@, NOFCHR	RESET NOFCHR COUNT	11	08778	S 09673 09294
2612		M	NOFCHR, WORK2	RECORDS X CHARS	11	08789	Q 09294 09309
2613		ZA	WORK2, X9	LOAD RESULT INTO IX9	11	08800	M 09309 00069
2614		SW	DATAF&X9	THE	6	08811	. 09P#0
2615		MRCW	DATAFD, DATAF&1	DATA	12	08817	D 09700 09701 M
2616		MLCWS	@M@, DATAF&X9	FIELD	12	08829	D 09575 09P#0 7
2617		B	LOOP		7	08841	J 01013
2618	HAO	A	@2@, X9		11	08848	A 09590 00069
2619		ZA	@0000@, X8	RESET IND REG 8	11	08859	M 09609 00064
2620		SW	DATAF&X9	LOAD	6	08870	. 09P#0
2621		MRCW	DATAFD, DATAF&1	DATA	12	08876	D 09700 09701 M
2622		MLCWS	@M@, DATAF&X9	FIELD	12	08888	D 09575 09P#0 7
2623		MRC	HAZ-1, DATAFD	LOAD HAZ ADDR	12	08900	D 09286 09700 #
2624	LOADDR	MLCA	RECADD, DATAF&7&X8	LOAD	12	08912	D 09301 09P07 T
2625		S	@1@, NOFREC	THE	11	08924	S 09577 09290
2626		BZ	LOOP	RECORD	7	08935	J 01013 V
2627		A	NOFCHR, X8	ADDR	11	08942	A 09294 00064
2628		A	@1@, RECADD	IM	11	08953	A 09577 09301
2629		B	LOADDR	THE DATA FLD	7	08964	J 08912
2630	TWA	SW	DATAF&X9	LOAD	6	08971	. 09P#0
2631		MRCW	DATAFD, DATAF&1	DATA	12	08977	D 09700 09701 M
2632		MLCWS	@M@, DATAF&X9	FIELD	12	08989	D 09575 09P#0 7
2633		ZA	@0000@, X8	LOAD	11	09001	M 09609 00064
2634	LODADD	MLCA	RECADD, DATAF&5&X8	THE	12	09012	D 09301 09P05 T
2635		S	@1@, NOFREC	RECORD	11	09024	S 09577 09290
2636		BZ	LOOP	ADDRESS	7	09035	J 01013 V
2637		A	NOFCHR, X8	INTO	11	09042	A 09294 00064
2638		A	@1@, RECADD	THE	11	09053	A 09577 09301

PGLIN	LABEL	OPCOD	OPERAND	DATA FIELD	CT	ADDRS	INSTRUCTION
2639		B	LODADD		7	09064	J 09012
2640	WFO	SW	DATAFD&2205	LOAD DATA	6	09071	, 11965
2641		MRC	DATAFD,DATAFD&1	FIELD	12	09077	D 09700 09701 #
2642		MLCA	HAAREA,DATAFD&23	LOAD THE	12	09089	D 09347 09723 T
2643		S	@6@,NOFCHR	RESET NO. OF CHAR	11	09101	S 09673 09294
2644		ZA	NOFREC,WORK1	DETERMINE THE END	11	09112	M 09290 09304
2645		A	@1@,NOFCHR&1	ADDRESS AREAS	11	09123	A 09577 09295
2646		SW	DATAFD&30	AND	6	09134	, 09730
2647		MLCS	NOFCHR&1,DATAFD&41		12	09140	D 09295 09741 3
2648		MLCB	DATAFD&41,DATAFD&40	GAP	12	09152	D 09741 09740 L
2649		MLCS	DATAFD&41,DATAFD&52	LOAD	12	09164	D 09741 09752 3
2650		MLCS	DATAFD&41,DATAFD&63	SHORT GAPS	12	09176	D 09741 09763 3
2651		A	@38@,NOFCHR	AREAS INTO	11	09188	A 09675 09294
2652		ZA	NOFCHR,X9	THE FORMAT	11	09199	M 09294 00069
2653	LODFOR	MLCA	DATAFD&63,DATAFD&63&X9	FIELD	12	09210	D 09763 09PW3 T
2654		S	@1@,NOFREC	REDUCE REC COUNT BY1	11	09222	S 09577 09290
2655		BZ	*619		7	09233	J 09258 V
2656		A	NOFCHR,X9		11	09240	A 09294 00069
2657		B	LODFOR		7	09251	J 09210
2658		MLCWS	@M@,DATAFD&31&X9	TERMINATING WMGM	12	09258	D 09575 09PT1 7
2659		B	LOOP		7	09270	J 01013
2660							



INSTRUCTION

CONSTANTS

OPCOD OPERAND

LABEL

PGLIN

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2698		DCW	a#33a	3	09555	
2699		DCW	a#14a	3	09558	
2700	BLANK	DCW	a a.g	4	09559	
2701	INTRET	B	N17XIT	7	09564	J 07313
2702		DCW	aMa	1	09571	
2703		LTORG	*		09572	
2703		aNa		1	09572	
2703		a#a		1	09573	
2703		D		1	09574	
2703		aLa		1	09574	
2703		aMa		1	09575	
2703		a a		1	09576	
2703		a1a		1	09577	
2703		a00209a		5	09582	
2703		a3a		1	09583	
2703		a7a		1	09584	
2703		a00237a		5	09589	
2703		a2a		1	09590	
2703		a09995a		5	09595	
2703		a01a		2	09597	
2703		a00001a		5	09602	
2703		a51a		2	09604	
2703		a00000a		5	09609	
2703		a317a		3	09612	
2703		a01308a		5	09617	
2703		N18		5	09622	07320
2703		a0000a		4	09626	
2703		a9#20a		4	09630	
2703		a4a		1	09631	
2703		a31a		2	09633	
2703		a9a80a		4	09637	
2703		a9#00a		4	09641	
2703		a300a		3	09644	
2703		Nil		5	09649	06217
2703		aYa		1	09650	
2703		a59a		2	09652	
2703		a57a		2	09654	



DA03 INSTRUCTION

CT ADDR

5	09659	05340
5	09664	04267
4	09668	
4	09672	
1	09673	
2	09675	
	09691	
8	09691	
1	09700	
	09945	

J

CONSTANTS  
OPCOD OPERAND

LABEL

PGLIN

2703		N07
2703		N01
2703		@13082
2703		@12912
2703		@62
2703		@382
2704		9691
2705	FILE	@00000882.G
2706	DATAFD	@ @
2707	DS	245
2708	END	

END OF ASSEMBLY



## 6.04.00.0 7631 ELECTRONIC TEST DESCRIPTION

This test obsoletes DA04C. It is enlarged to test flagging and flag detection abilities and to test more thoroughly the HAO, Write Inhibit and Write Format switches. In addition, the new level incorporates the standard features previously described in this package.

Beginning with a reset of the machine, the program starts with as simple an operation as possible and builds upward to more complex operations and tests. The program runs through 26 test routines in either the manual or automatic mode. Although both modes require manual intervention, the automatic requires far less than the manual mode, but the manual mode is a more thorough test. The program uses only 1301 module 0, all other modules are bypassed and must be set inoperative. Every 7631 available on every channel will be tested starting with channel 1 through 4.

The program does not require that the home addresses be present or correct, and data on the customer's tracks is not disturbed.

### 6.04.01.1 OPERATING PROCEDURE

The standard procedures outlined in the package write-up apply to this program. In addition, the following procedures are used to run this program.

#### 01.1 SWITCH SETTINGS PREVIOUS TO RUNNING PROGRAM

- A. Write format on (1301 module 0 on each channel to be tested)
- B. HAO switch on (on all 7631's to be tested)
- C. CE-HAO switch on (on all 7631's to be tested)
- D. 1301 modules 1-9 are set inoperative (all channels being tested)
- E. All other 7631-1301 switches are off.
- F. Check control switch to reset and restart (1410 console).

#### 01.2 SPECIAL REQUESTS

- A. "HAC, CE-HAO, WRT FMT ON, SEL MODE"

This reminds the CE to insure the switches are on and requests that the mode be selected. If the CE enters a "1," manual mode is run; if a 1 is entered, automatic mode is run.

6.04.01.0 OPERATING PROCEDURE (continued)

## B. "COMP RESET, CHK 7631"

The CE presses Computer Reset, checks the lights on the 7631 to insure that it is reset, and then presses Start.

C. "ACC TO CYL 000" (Manual mode only)

The CE manually sets the access on 1301 module 0 to cylinder 000. Press Start.

D. "ACC TO CYL 110" (Manual mode only)

The CE manually sets the access to cylinder 110. Press Start.

E. "ACC TO CYL 194" (Manual mode only)

The CE sets the access to cylinder 194. Press Start.

## F. "ACC TO CYL 253"

The CE checks the access to insure it has positioned itself properly at cylinder 253, then presses Start.

## G. "# OF SPARE HEADS"

The CE enters the number of spare heads available for writing on alternate surfaces (should enter 2, 4 or 6).

## H. "CE-HAO OFF"

CE turns off CE-HAO switch and presses Start.

## I. "CYO"

CE enters 1 if Cyo feature is available.

## J. " MOD 3"

CE enters 1 if 7631 is a model III.

K. "HAO & WRT FMT SWS OFF" (Manual mode only)

CE turns off HAO and write format switches on 7631 being tested.

### 6.04.01.1 OPERATING PROCEDURE (continued)

L. "WRITE INHIBIT AND HAO SWS ON" (Manual mode only)

CE turns on write inhibit and HAO switches on 7631 being tested.

M. "WRT INHIBIT OFF, HAO & CE-HAO SWS ON"

CE turns off write inhibit, turns on HAO and CE-HAO switches on 7631 being tested.

N. "PASS, SWS OFF"

When test is complete, this reminds the CE to turn off 7631 switches before continuing.

### 01.3 SPECIAL TAD'S

There is one special TAD for this program (memory location 01005). This TAD is set when the mode is selected; if it is set to 1, manual mode is run, if it is set to  $\bar{1}$  automatic mode is run. This TAD is set to  $\bar{1}$  when the program is loaded.

### 01.4 STANDARD OPTIONS

Two of the standard options are not available with this program, they are:

- A. Alter Routine Sequence - Code 3
- B. One Instruction Loop - Code 5

### 01.5 MANUAL MODE

When running in the manual mode, the following tests are run which are not run in the automatic mode.

- A. Test 7631 Track Register  
Routines N06, N07, and N08
- B. Test HAO, Write Format, and Write Inhibit Switches  
Routine N24

### 01.6 SUMMARY TYPEOUT

The summary of errors typeout is not available with this program.

6.04.02.0 OPERATING HINTS

## 02.1 SELECTING MANUAL MODE (ALTER SPECIAL TAD)

If the mode selected when the program is first loaded must be changed, use program option code 2 (alter memory) to change memory location 01005 to a 1 or 1.

## 02.2 LOOPING ROUTINES

Certain routines make requests during their operation for switch settings. These requests must be honored for valid operation.

6.04.03.0 PROGRAM STOPS

## 03.1 ERROR STOPS

None

## 03.2 NORMAL STOPS

<u>Memory Location</u>	<u>Reason</u>
03554	Wait for CE to press Computer Reset and Start.
04509	Wait for CE to position ACC at cycle 000 (manual mode only).
04651	Wait for CE to position ACC at cycle 110 (manual mode only)
04793	Wait for CE to position ACC at cycle 194 (manual mode only)
04971	Wait for CE to insure ACC is at cycle 253.
07166	Wait for CE to turn off CE-HAO (manual mode)
08640	Turn off write format and HAO switches (manual mode)
08843	Turn on write inhibit and HAO switches (manual mode)
09056	Turn off write inhibit, turn on CE-HAO
09321	Reset all switches

6.04.04.0 TYPEOUTS (OTHER THAN REQUESTS AND STANDARD TYPE-OUTS)

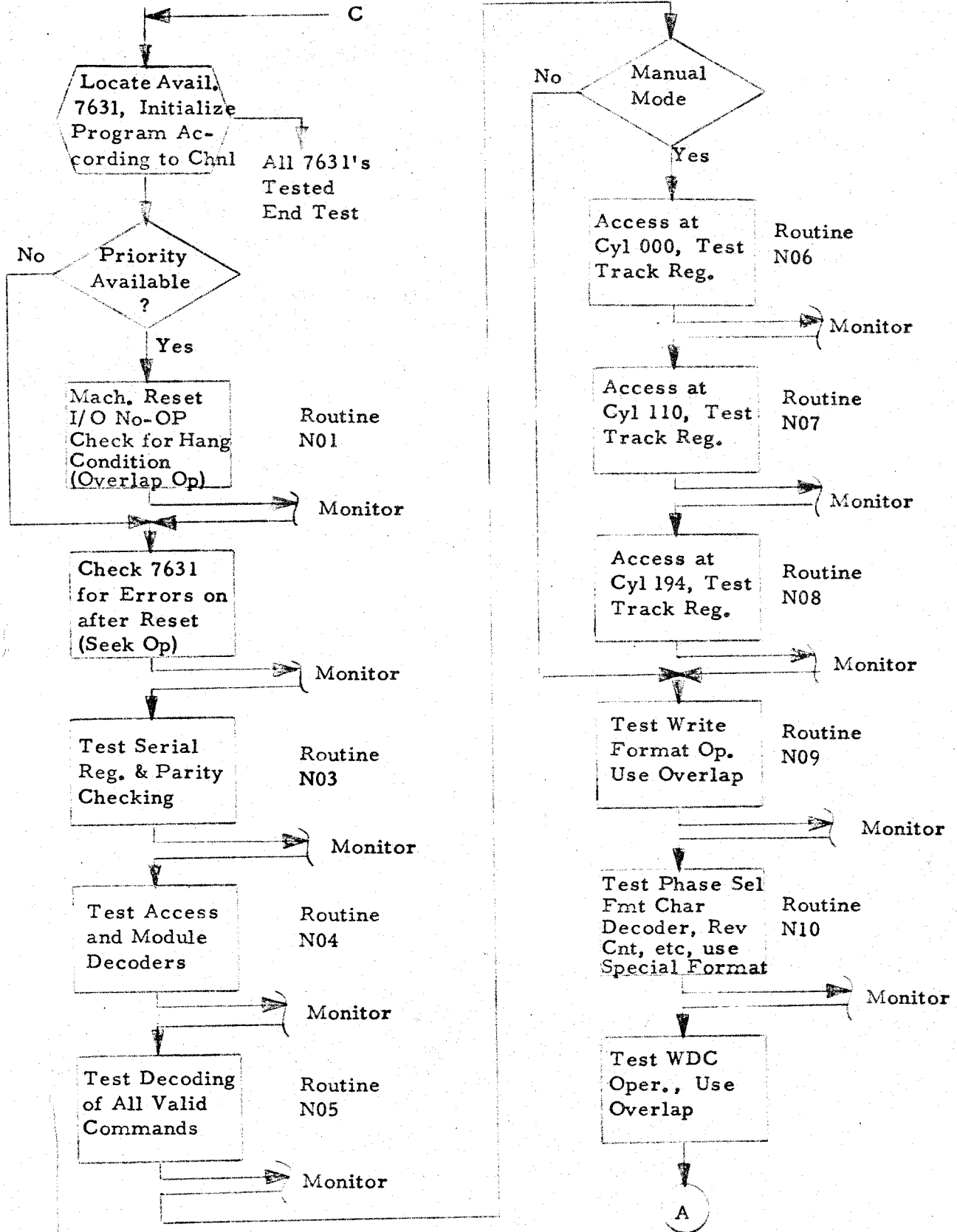
04.2 "TST CH0"

This tells the CE which channel is being tested.

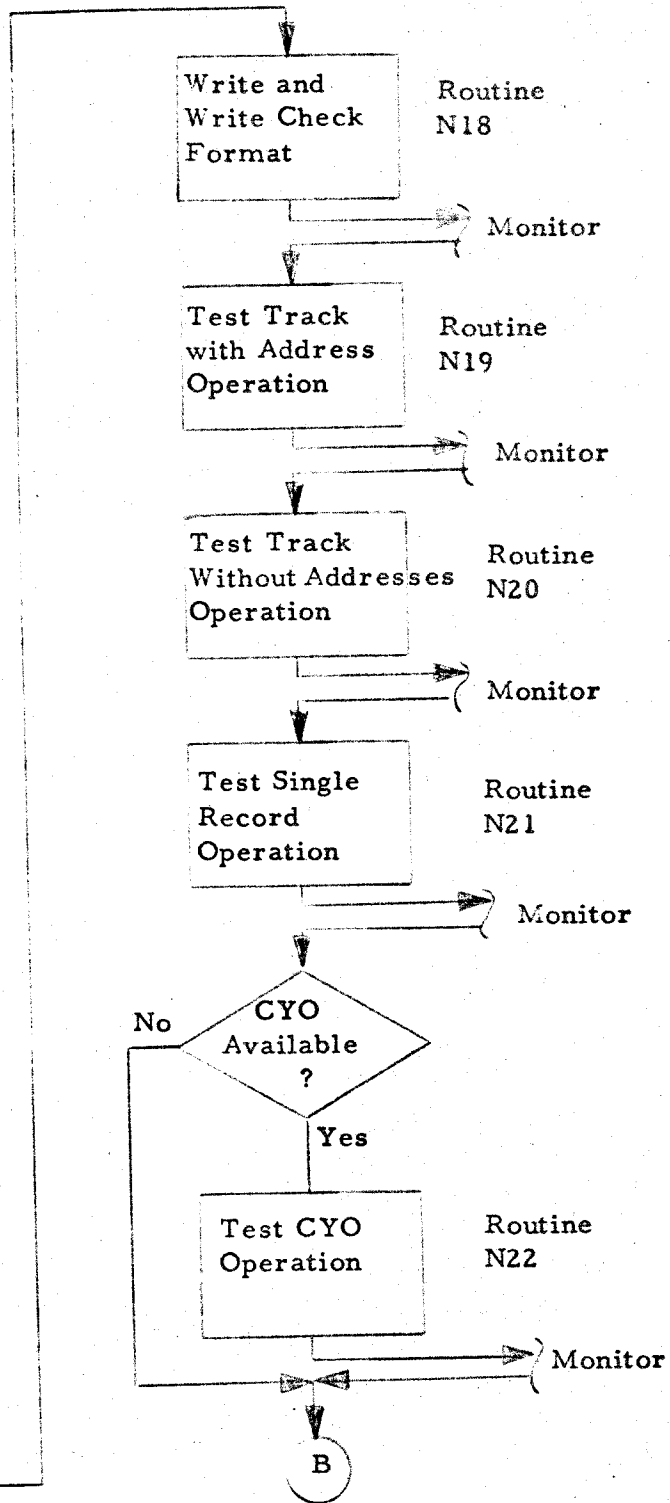
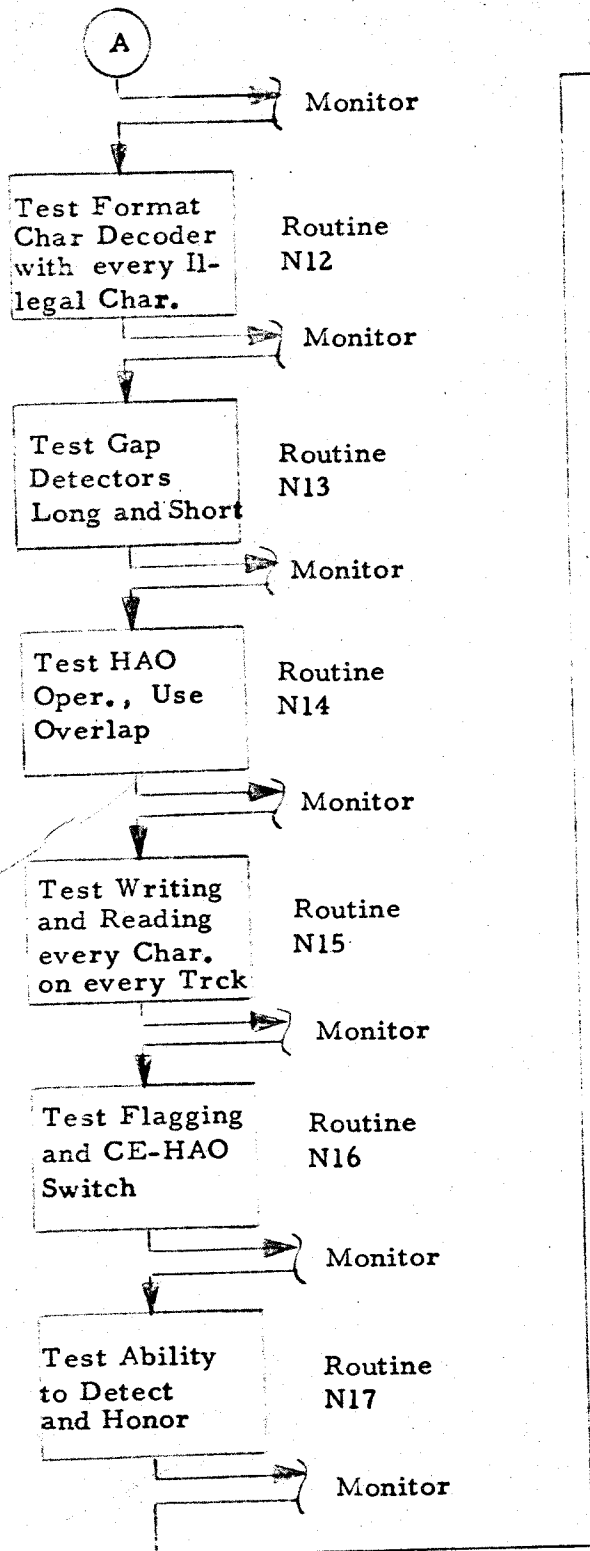
04.2 Following the standard error message a third line of data, pertinent to the error, will be given with some errors. This will be the setting of the E or B register after the file op or the file address being used. Refer to the individual test routines for details.

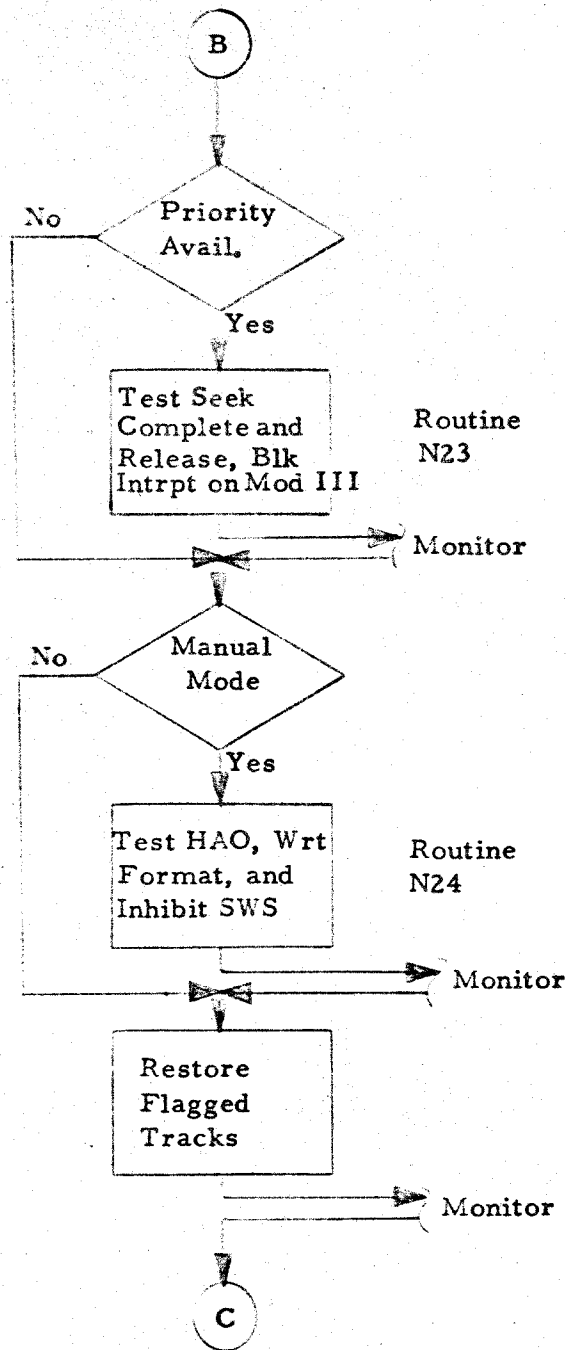
6.04.05.0 FLOW CHART

The following flow chart is designed to give a general picture of the test routine's relationship to one another.









Go Find and Test  
Next 7631

6.04.06.0 ROUTINE/ ERROR INDEX DA04

This index should be used to locate routines and errors in the program listing.

<u>Routine Number</u>	<u>Error Number</u>	<u>Page</u>
N01	01	177, 178
N02	02	179,
N03	03	180
N04	04	181
	05	181
	06	182
	07	182
N05	08	183
	09	184
	10	184
	11	184
	12	184
	13	184
N06	14	186
N07	15	187
N08	16	188
N09	18	189, 190
N10	19	191, 192
	20	192
	21	192
	22	192
	23	192
N11	25	194, 195
	26	195
	27	195
N12	28	196
	29	197

6.04.06.0 ROUTINE/ERROR INDEX DA04 (continued)

<u>Routine Number</u>	<u>Error Number</u>	<u>Page</u>
N13	30	198
	31	199
	32	199
	33	199
N14	35	200, 201
N15	36	202, 203
	37	203
	38	202
	39	204
	40	204
N16	41	205, 206
	42	206
N17	43	208
N18	44	209
	45	209
N19	46	210
N20	47	211
N21	48	212
N22	49	213, 214
N23	51	215
	52	216
	53	216
N24	54	218, 219
	55	219
	56	219

DA04

Page 158

NOTES



I/O DICOST DEFINE TADS

OPCOD OPERAND

LABEL

PGLIN

1002	CTL	2				
1003						
1004				**		
1005						
1006				**		
1007	ORG	1000			01000	
1008	DCH	0 0			1 01000	
1009		0 0			1 01001	
1010		0 0			1 01002	
1011				**	1 01003	
1012						
1013				**		
1014						
1015						
1016						
1017						
1018						
1019						
1020						
1021						
1022						
1023						

DEFINE STANDARD TADS

OPCOD OPERAND

LABEL

PGLIN

1014	SPTADO	0 0			1 01004	
1015	SPTADI	0 0			1 01005	
1016	SPTAD2	0 0			1 01006	
1017	SPTAD3	0 0			1 01007	
1018	SPTAD4	0 0			1 01008	
1019	SPTAD5	0 0			1 01009	
1020	SPTAD7	0 0			1 01010	
1021	SPTAD8	0 0			1 01011	
1022	SPTAD9	0 0			1 01012	

DEFINE SPECIAL TADS

OPCOD OPERAND

LABEL

PGLIN

CT ADDR INSTRUCTION

PGLIN LABEL

OPCOD OPERAND

```

1025      *** I/O DICOST PROGRAM ***
1026      *** ONE INSTRUCTION LOOP ROUTINE ***
1027      WHEN THE CE SELECTS A ONE INSTRUCTION LOOP THE I/O INSTRUCTION
1028      IN THIS ROUTINE IS ALTERED AND THE LOOP IS ENTERED. NOTE THAT THE
1029      BRANCH ON INQUIRY INSTRUCTION IS THE ONLY EXIT FROM THE LOOP.
1030      LOOP      MU      Z11.0.R      I/O INST BEING LUP D
1031      BAI      *E1
1032      BNQ      PRGCTL      BRCH ON INQ TO PRGCL
1033      B      LOOP      CONTINUE TO LOOP
1034      H
1035

```

```

10 01013 M Z11 00000 R
7 01023 R 01030 M
7 01030 J 02238 Q
7 01037 J 01013
1 01044 .

```



I/O DICOST CHANNEL ALTER  
 OPCOD OPERAND  
 CT ADDR INSTRUCTION

1037 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1038 \*\*\* CHANNEL ALTER ROUTINE \*\*\*  
 1039 THIS ROUTINE ALTERS ALL I/O INSTRUCTIONS, BRANCH-ON-STATUS-  
 1040 INDICATOR-ON INSTRUCTIONS, AND BRANCH ON CHANNEL OVERLAP IN PRO-  
 1041 CESS INSTRUCTIONS ACCORDING TO THE CHANNEL INDICATED. THIS IS DONE  
 1042 BY SCANNING A DEFINED AREA OF MEMORY AND ALTERING THESE INSTRU-  
 1043 TIONS.  
 1044

PGLIN	LABEL	OPCOD	OPERAND	CHALTR	SBR	X5	STORE ADDR	CT	ADDR	INSTRUCTION
1045						X5		7	01045	G 00049 B
1046				MLCA	9EX5,X7		LOAD IX6 & IX7	12	01052	D 00#9 00059 T
1047	SCAN			SCNLA	0EX6,0EX6		SCAN FOR MM	12	01064	D 00#0 00#0 B
1048				SAR	X6		STORE ADDR OF OPER	7	01076	G 00054 A
1049				C	X6,X7		HAS ALL OF FLD BEEN	11	01083	C 00054 00059
1050				BH	13EX5		SEARCHED IF SO BRCH	7	01094	J 00#73 U
1051				MLCS	1EX6,*E12		STORE OP CODE	12	01101	D 00#1 01124 3
1052				BCE	MLORU,CODES,		IS OP CODE M	12	01113	B 01149 02551
1053				BCE			IS OP CODE L	1	01125	B
1054				BCE			IS OP CODE U	1	01126	B
1055				BCE	RX30R1		IS OP CODE R	6	01127	B 01168
1056				BCE			IS OP CODE X	1	01133	B
1057				BCE			IS OP CODE 3	1	01134	B
1058				BCE			IS OP CODE 1	1	01135	B
1059				BCE	JAY		IS OP CODE J	6	01136	B 01187
1060				B	SCAN		GO FIND NEXT OPER	7	01142	J 01064
1061				MLCS	10EX5,2EX6		CHEANGE CH-MODE CHAR	12	01149	D 00#70 00#2 3
1062				B	SCAN		GO FIND NEXT OPER	7	01161	J 01064
1063				MLCS	11EX5,1EX6		CHANGE B-I-S-I-O OP	12	01168	D 00#71 00#1 3
1064				B	SCAN		GO FIND NEXT OPER	7	01180	J 01064
1065	JAY			MLCS	7EX6,*E12		STORE MODIFIER	12	01187	D 00#7 01210 3
1066				BCE	ONE234,MODS,		IS MODIFIER A 1	12	01199	B 01221 02555
1067				BCE			IS MODIFIER A 2	1	01211	B
1068				BCE			IS MODIFIER A 3	1	01212	B
1069				BCE			IS MODIFIER A 4	1	01213	B
1070				B	SCAN		GO FIND NEXT OPER	7	01214	J 01064
1071	ONE234			MLCS	12EX5,7EX6		CHANGE B0L MODIFIER	12	01221	D 00#72 00#7 3
1072				B	SCAN		GO FIND NEXT OPER	7	01233	J 01064

H 1 01240 .

DEFINE SYSTEM & CHANNEL CONTROL CARDS

ORG 1233 01233  
 DCM @FN2FJRFJ309#9@ 17 01249

\*\*

DEFINE PROGRAM TITLE

\*\*

ORG 1250 01250  
 DCH @DA04D@,G 5 01254

LOCATE THE SYSTEM & CHANNEL CARDS

ORG 1256 01256  
 DC @ 50 01256  
 SYSTEM @ 7 01312  
 ORG 1289 01289  
 DC @ 50 01289  
 CHNL1 @ 7 01345  
 ORG 1346 01346  
 DC @ 50 01346  
 CHNL2 @ 7 01402  
 ORG 1403 01403  
 DC @ 50 01403  
 CHNL3 @ 7 01459  
 ORG 1460 01460  
 DC @ 50 01460  
 CHNL4 @ 7 01516

1073

1074

1075

1076

1077

1078

1079

1080

1081

1082

1083

1084

1085

1086

1087

1088

1089

1090

1091

1092

1093

1094

1095

1096

1097

1098

1099

1100

1101

1102

1103

CT ADDR INSTRUCTION

I/O DICOST TYPE  
OPCOD OPERAND

1105 \*\*\* I/O DICOST PROGRAM \*\*\*

1106 \*\*\* TYPE AND REQUEST FOR INTERVENTION \*\*\*

1107 THIS ROUTINE IS USED TO TYPE ALL MESSAGES AND REQUESTS FOR  
 1108 MANUAL INTERVENTION. THE ROUTINE WILL TYPE A MESSAGE FROM A COMMON  
 1109 DATA FIELD, OR THE MESSAGE MAY BE LOCATED IMMEDIATELY AFTER THE  
 1110 BRANCH INSTRUCTION TO THIS ROUTINE. IF A REPLY IS REQUIRED A READ  
 1111 CONSOLE PRINTER OPERATION IS ISSUED. THIS ROUTINE IS USED TO TYPE  
 1112 ALL MESSAGES IN THIS PROGRAM.

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1113				7	01517	G 01591 B
1114				10	01524	M XTO 00201 M
1115				7	01534	R 01524 Z
1116				7	01541	R 01548 M
1117				1	01548	N
1118	SW11	NOPWM		10	01549	M XTO 00000 R
1119	LAB60	RCP	0	7	01559	R 01549 M
1120		BEX1	--16,M	7	01566	R 01573 M
1121		BA1	*61	6	01573	01549
1122		CM	SW1161	6	01579	/ 00330
1123		CS	330	1	01585	/
1124		CS		7	01586	J 00000
1125	TYPX1F	B	0	7	01593	G 00029 B
1126	TYP1	SBR	X1	7	01600	J 01620
1127		B	*614	7	01607	G 00029 B
1128		SBR	X1	6	01614	01652
1129		SW	REPLY61	10	01620	M XTO 000#0 M
1130		WCP	06X1	7	01630	G 00029 B
1131		SBR	X1	7	01637	R 01620 Z
1132		BCB1	--23	7	01644	R 01651 M
1133		BA1	*61	1	01651	N
1134	REPLY	NOPWM		7	01652	J 01666
1135		B	RDCON	7	01659	J 000#0
1136		B	06X1	10	01666	M XTO 000#0 R
1137	RDCON	RCP	06X1	7	01676	G 00029 B
1138		SBR	X1	7	01683	R 01666 M
1139		BEX1	--23,M	7	01690	R 01697 M
1140		BA1	*61			

OPCOD OPERAND

CT ADDR INSTRUCTION

PGLLN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1141		CW	REPLY&1	6	01697	□ 01652
1142		B	06X1	7	01703	J 000*0
1143	DATA	MLCWS	0N0,PASS1	12	01710	D 09809 02044 7
1144		BCE	*013,1264,1	12	01722	B 01746 01264 1
1145		MLCWS	0N0,MONITR&7	12	01734	D 09809 02073 7
1146		MRCR	E20,DATA	12	01746	D 01921 01710 0
1147		MRCWG	*09,1230	12	01758	D 01778 01230 L
1148		B	PASS1&7	7	01770	J 02051
1149		H		1	01777	.
1150		DC	0.730	3	01780	
1151		DCW	0J0	1	01781	
1152		DC	SCAN	5	01786	01064
1153		DC	0 0	1	01787	
1154		DCW	0.0,G	1	01788	
1155		DS	12		01801	

RETURN

RESET FIRST PASS INST

BRCF IF PRIORITY AVAILABLE

ALTER PRIORITY INST TO NO-OP

RESET FIELD

RESTORE CHANNEL ALTER ROUTINE

\*\*\* ERROR TABLES THESE ARE USED FOR ERROR \*\*\*

\*\*\* SUMMARIES AND ERROR IDENTIFICATION \*\*\*

PGLLN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1160		ORG	*EX00		01900	
1161		ORG	*E1		01901	
1162		DCW	0L0	1	01901	
1163		DC	0 0	1	01902	
1164		DC	0 0	1	01903	
1165		DC	0 0	1	01904	
1166		DC	0 0	1	01905	
1167		DC	0 0	1	01906	
1168		DC	0 0	1	01907	
1169		DC	0 0	1	01908	
1170		DC	0 0	1	01909	
1171		DC	0 0	1	01910	
1172		DC	0 0	1	01911	
1173		DC	0 0	1	01912	
1174		DC	0 0	1	01913	
1175		DC	0 0	1	01914	
1176		DC	0 0	1	01915	

STPTAB

E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14

INSTRUCTION

I/O DICOST TYPE

OPCOD OPERAND

LABEL

PGLIN

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS
1177	E15	DC	2 2	1	01916
1178	E16		2 2	1	01917
1179	E17		2 2	1	01918
1180	E18		2 2	1	01919
1181	E19		2 2	1	01920
1182	E20		2 2	1	01921
1183	E21		2 2	1	01922
1184	E22		2 2	1	01923
1185	E23		2 2	1	01924
1186	E24		2 2	1	01925
1187	E25	DC	2 2	1	01926
1188	E26	DC	2 2	1	01927
1189	E27		2 2	1	01928
1190	E28		2 2	1	01929
1191	E29		2 2	1	01930
1192	E30		2 2	1	01931
1193	E31		2 2	1	01932
1194	E32		2 2	1	01933
1195	E33		2 2	1	01934
1196	E34		2 2	1	01935
1197	E35		2 2	1	01936
1198	E36		2 2	1	01937
1199	E37		2 2	1	01938
1200	E38		2 2	1	01939
1201	E39		2 2	1	01940
1202	E40		2 2	1	01941
1203	E41		2 2	1	01942
1204	E42		2 2	1	01943
1205	E43		2 2	1	01944
1206	E44		2 2	1	01945
1207	E45		2 2	1	01946
1208	E46		2 2	1	01947
1209	E47		2 2	1	01948
1210	E48		2 2	1	01949
1211	E49		2 2	1	01950
1212	E50		2 2	1	01951

I/O DICOST TYPE  
OPCOD OPERAND

PGLIN LABEL

CT ADDR INSTRUCTION

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1213	E51	DC	2 2	1	01952	
1214	E52		2 2	1	01953	
1215	E53		2 2	1	01954	
1216	E54		2 2	1	01955	
1217	E55		2 2	1	01956	
1218	E56		2 2	1	01957	
1219	ERRTAB	DC	2+2	1	01958	
1220		DC	2 2	1	01959	
1221						

I/O DICOST INITIALIZE ROUTINE

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1223						
1224	INITLE	WCP	1250	10	01960	M *TO 01250 W
1225		BCBL	*-16	7	01970	R 01960 Z
1226		BA1	*81	7	01977	R 01984 M
1227		CS	99	6	01984	/ 00099
1228		SW	25	6	01990	, 00025
1229		MLCS	@+@,100	12	01996	D 09810 00100 3
1230		MRMR	25,30	12	02008	D 00025 00030 * D
1231		MRCWG	RESUME,1	12	02020	D 02015 00001 L D
1232		MRCWG	INTR,101	12	02032	D 02007 00101 L
1233	PA6S1	B	DATA	7	02044	J 01710
1234		CW	LPRT,SW11&1	11	02051	D 02563 01549
1235		CS	E56	6	02062	/ 01957
1236		MLCHS	@@,STPTAB	12	02068	D 09811 01901 7
1237		B	START	7	02080	J 03365
1238						
1239		H		1	02087	.
1240		ORG	2000		02000	
1241		B	INITLE	7	02000	J 01960
1242						
1243						
1244	INTR	BNQ	PRGCTL	7	02007	J 02238 Q
1245		DCH	@Ma	1	02014	
1246	RESUME	B	CKLUP	7	02015	J 02023
1247		DCH	@Ma	1	02022	
1248	CKLUP	BW	MONITR,LPRT	12	02023	V 02066 02563 1
1249		BW	LOOP,LPINST	12	02035	V 01013 02564 1
1250		MLNA	X3,X2	12	02047	D 00039 00034 /
1251		B	MONITR&7	7	02059	J 02073
1252						

\*\*\* INITIALIZE ROUTINE FOR THE DICOST PROGRAM \*\*\*

PRINT TITLE

RESET IND REG S

SET MM IN IND REG 1

PREPARE TO LOAD 2-15

LOAD IND REG 2-15

MOVE RESET PROCEDURE

MOVE INTERRUPT PROC

GO DO PORE INITIALIZING

CLEAR AND RESET

ERROR TABLE

GO TO ROUTINE INIT.

\*\*\* RESET & INTERRUPT ROUTINES, THESE ROUTINES \*\*\*

\*\*\* ARE MOVED TO LOCATIONS 1 & 101

RETURN TO PROG CNTRL

CHECK FOR LOOP ROUT

CHECK INST LOOP SW

LOAD IX 2

GO TO MONITR





CT ADDR INSTRUCTION

1285 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1286 \*\*\* PROGRAM CONTROL \*\*\*  
 1287 WHEN THE CE PRESSES INQUIRY TO SELECT A STANDARD PROGRAM OPTION  
 1288 THIS ROUTINE IS ENTERED.THE CE ENTERS ON THE TYPEWRITER THE  
 1289 OPTION CODE DESIRED,ALONG WITH THE DATA NEEDED BY THE OPTION.THE  
 1290 ROUTINE DETERMINES WHICH OPTION HAS BEEN SELECTED AND INITIATES  
 1291 THE OPTION.  
 1292

PGLIN	LABEL	OPCOD	OPERAND	PRGCIL	RCPW	CTLFLD	READ THE CONSOLE PRI	CT	ADDR	INSTRUCTION
1293								10	02238	L X10 00201 R
1294		SBR	XI					7	02248	G 00029 B
1295		BEX1	PRGCTL,M					7	02255	R 02238 M
1296		SW	CTLFLD61					6	02262	, 00202 G
1297		BA1	*61					7	02268	R 02275 M
1298		CW	LPRT,LPINST					11	02275	D 02563 02564
1299		MLWS	*E1					12	02286	D 02297 01902 4
1300		MRWR	E1,E2					12	02298	D 01902 01903 2
1301		MLCS	CTLFLD,*612					12	02310	D 00201 02333 3
1302		BCE	ENDYST,CTLCOD,					12	02322	B 09299 02562
1303		BCE	ALTADS					6	02334	B 02377
1304		BCE	ALTMEM					6	02340	B 02400
1305		BCE	LUPRT					6	02346	B 02447
1306		BCE	ONELUP					6	02352	B 02476
1307		BCE	RSTART					6	02358	B 02510
1308		BCE	CONT					6	02364	B 02533
1309		B	PRGCTL					7	02370	J 02238
1310	ALTADS	MLCA	CTLFLD64,1003					12	02377	D 00205 01003 T
1311		CS	MONIT1,299					11	02389	/ 02087 00299
1312	ALTMEM	MLCA	CTLFLD65,*69					12	02400	D 00206 02420 T
1313		RCPW	0					10	02412	L X10 00000 R
1314		BEX1	*-16,M					7	02422	R 02412 M
1315		BA1	*61					7	02429	R 02436 M
1316		CS	MONIT1,299					11	02436	/ 02087 00299
1317	LUPRT	SW	LPRT					6	02447	, 02563
1318		MLNA	CTLFLD65,X2					12	02453	D 00206 00034 /
1319		CS	MONIT2,299					11	02465	/ 02099 00299
1320	ONELUP	SW	LPINST					6	02476	, 02564

I/O DICOST PROGRAM CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1321	LUPINT	NOPWM		1	02482	N
1322		B	*E8	7	02483	J 02497
1323		B	PREP	7	02490	J 09339
1324		CW	LUPINT&1	6	02497	D 02483
1325		B	LOOP	7	02503	J 01013
1326	RSTART	MLNA	CTLFLD&5,X2	12	02510	D 00206 00034 /
1327		CS	MONITZ,299	11	02522	/ 02099 00299
1328	CONT	CS	WHEREZ,299	11	02533	/ 02150 00299

I/O DICOST CONSTANTS

1330	CODES	DCW	2J13XRULM2	8	02551	
1331	MODS	DCW	243212	4	02555	
1332		DCW	272	1	02556	
1333		DC	262	1	02557	
1334			252	1	02558	
1335			242	1	02559	
1336			222	1	02560	
1337			212	1	02561	
1338	CTLCOD		2 2	1	02562	
1339	LPRT	DC	2 2	1	02563	
1340	LPINST	DC	2 2	1	02564	
1341	ADDR02	DCW	ERRTAB	5	02569	01958
1342	ERR	DCW	2*ERR02	6	02575	
1343	ACTION	DC	2REQ ERROR ACTION2,G	16	02576	
1344	ERCODE	DCW	2547P2	4	02596	
1345	SAVIND	DCW	21 2 4 8 A B2,G	11	02597	
1346	STIND	DC	21 2 4 8 A B2,G	11	02609	
1347	NOERSM	DC	2 2	2	02621	
1348						
1349						

CT ADDR INSTRUCTION

I/O DICOST ERROR CONTROL  
 PGLIN LABEL OPCOD OPERAND

1351 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1352 \*\*\* ERROR CONTROL \*\*\*  
 1353 THIS ROUTINE DETERMINES IF ANY STATUS ERRORS OR PROGRAM DETECTED ERRORS HAVE TO BE INDICATED. IF THERE ARE THIS ROUTINE BUILDS THE ERROR MESSAGE AND HAS IF TYPED OUT. THIS ROUTINE ALSO CHECKS FLAG 1 TO SEE IF A REQUEST FOR ERROR ACTION SHOULD BE MADE.

LOCATE FAILING INST

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1351	ERRCTL	MLCA	X2,X5	12	02623	D 00034 00049 T
1352		S	010,X5	11	02635	S 09814 00049 S
1353		SCNLA	00X5,00X5	12	02646	D 00000 00000 B
1354		SAR	X5	7	02658	G 00049 A
1355		MLCS	10X5,0012	12	02665	D 00001 02688 3
1356		BCE	GOTONE, CODES,	12	02677	B 02721 02551
1357		BCE		1	02689	B
1358		BCE	SHORT1	6	02690	B 02740
1359		C	X3,X5	11	02696	C 00039 00049
1360		BL	LOADFLD	7	02707	J 02764 T
1361		B	ERRCTL012	7	02714	J 02635
1362	GOTONE	MLCWA	100X5,LOADP09	12	02721	D 00000 01022 X
1363		B	LOADFLD	7	02733	J 02764
1364	SHORT1	MLCWA	50X5,LOADP09	12	02740	D 00005 01022 X
1365		MLCS	0000,LOOP	12	02752	D 09809 01013 3
1366						INSTRUCTION
1367	LOADFLD	MLCA	LOADP09,234	12	02764	D 01022 00234 T
1368		MLNA	X3,223	12	02776	D 00039 00223 /
1369		ZA	ADDR02,X1	11	02788	Q 02569 00029
1370		ZA	0002090,X5	11	02799	M 09819 00049
1371			SCAN ERROR TABLE & UPDATE ERROR COUNT			
1372	ERSCAN	SCNLA	00X1,00X1	12	02810	D 00000 00000 B
1373		SAR	X1	7	02822	G 00029 A
1374		BCE	AFTSRH,10X1,L	12	02829	B 02888 00001 L
1375		SW	X1-1	6	02841	0 00028
1376		MLNWA	X1,00X5	12	02847	D 00029 00000 V
1377		A	0000,X5	11	02859	A 09820 00049

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
1387						
1388		CH	1&X1,X1-1	11	02870	□ 000#1 00028
1389		B	ERSCAN	7	02881	J 02810
1390			LOAD PRINT FIELD WITH ERROR MESSG			
1391	AFTSRH	BCE	WHERE2,1000,1	12	02888	B 02150 01000 1
1392	ERROSW	NOP		1	02900	N
1393		BCE	WHERE2,209	12	02901	B 02150 00209
1394		SW	ERROSW&1	6	02913	, 02901
1395		MLCA	ERR,206	12	02919	D 02575 00206 T
1396		MLCA	2&X3,ROUTID	12	02931	D 000M2 02960 T
1397		B	TYPI	7	02943	J 01593
1398		DCH	ROUTINE 2	8	02957	
1399	ROUTID	DC	2 2,6	3	02960	
1400		B	TYMES	7	02962	J 01517
1401			TYPE ADDITIONAL ERROR INFORMATION			
1402	EXTRA	NOPWM		1	02969	N
1403		WCP	DATA	10	02970	M 2TO 01710 W
1404		BCB1	--16	7	02980	R 02970 2
1405		BAI	&1	7	02987	R 02994 M
1406		CM	EXTRA&1	6	02994	□ 02970
1407	ACT	BCE	*68,1001,1	12	03000	B 03019 01001 1
1408		B	WHERE2	7	03012	J 02150
1409		SW	LUPINT&1	6	03019	, 02483
1410		MRCWG	ACTION,201	12	03025	D 02576 00201 L
1411		B	TYMES	7	03037	J 01517
1412		B	PRGCTL	7	03044	J 02238
1413						
1414			*** I/O DICOST PROGRAM ***			
1415			*** DETERMINE WHICH STATUS INDICATORS ARE ON ***			
1416			THIS ROUTINE DETERMINES WHICH STATUS INDICATORS ARE ON, ON THE			
1417			CHANNEL BEING USED, THE INDICATORS FOUND ON ARE STORED IN THE			
1418			PRINT FIELD AND THE PROGRAM BRANCHES TO ERROR CONTROL.			
1419	STACK	SBR	X5	7	03051	G 00049 B
1420		SBR	X2	7	03058	G 00034 B
1421		BM	06X2,LPRT	12	03065	V 000,0 02563 1
1422		S	272,X5	11	03077	S 09821 00049

\*\*\* I/O DICOST PROGRAM \*\*\*  
 \*\*\* DETERMINE WHICH STATUS INDICATORS ARE ON \*\*\*  
 THIS ROUTINE DETERMINES WHICH STATUS INDICATORS ARE ON, ON THE  
 CHANNEL BEING USED, THE INDICATORS FOUND ON ARE STORED IN THE  
 PRINT FIELD AND THE PROGRAM BRANCHES TO ERROR CONTROL.  
 STACK SBR X5 STORE ADDR IN IND 5  
 SBR X2  
 BM 06X2,LPRT  
 S 272,X5 REDUCE ADDR BY 7

I/O DICOST ERROR CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1423		MLCS	06X5, LOOP&10	12	03088	D 00##0 01023 3
1424		MRCWG	STIND, 237	12	03100	D 02609 00237 L
1425		MLCS	06X5, NUOPCO	12	03112	D 00##0 03142 3
1426		B	CHALTR	7	03124	J 01045
1427		DCM	CNTERR	5	03135	03297
1428		DC	NOTRDY	5	03140	03155
1429		DCM	0 0	1	03141	
1430	NUOPCO	DC	0 0	1	03142	
1431		DC	0 0	1	03143	
1432		ZA	002376.X5	11	03144	Q 09826 00049
1433	NOTRDY	NOP		1	03155	N
1434		BNR1	CNTERR	7	03156	R 03297 1
1435		B	UPIX	7	03163	J 03328
1436	BUSY	NOP		1	03170	N
1437		BCB1	CNTERR	7	03171	R 03297 2
1438		B	UPIX	7	03178	J 03328
1439	DATAK	NOP		1	03185	N
1440		BER1	CNTERR	7	03186	R 03297 4
1441		B	UPIX	7	03193	J 03328
1442	EXTCND	NOP		1	03200	N
1443		BEF1	CNTERR	7	03201	R 03297 8
1444		B	UPIX	7	03208	J 03328
1445	NOTRNS	NOP		1	03215	N
1446		BNT1	CNTERR	7	03216	R 03297 8
1447		B	UPIX	7	03223	J 03328
1448	WLR	NOP		1	03230	N
1449		BWL1	CNTERR	7	03231	R 03297 -
1450		B	UPIX	7	03238	J 03328
1451		SW	NOTRDY&1, BUSY&1	11	03245	, 03156 03171
1452		SW	DATAK&1, EXTCND&1	11	03256	, 03186 03201
1453		SW	NOTRNS&1, WLR&1	11	03267	, 03216 03231
1454		MRCG	237, SAVIND	12	03278	D 00237 02597 \$
1455		B	ERRCTL	7	03290	J 02623
1456	CNTERR	SBR	X6	7	03297	G 00054 8
1457		A	070.X6	11	03304	A 09821 00054
1458		CW	ERROSN&1	6	03315	0 02901

I/O DICOST ERROR CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1459		B	UPIX&19	7	03321	J 03347
1460	UPIX	SBR	X6	7	03328	G 00054 B
1461		MLCS	@ @,0EX5	12	03335	D 09813 00##0 3
1462		A	@2@,X5	11	03347	A 09827 00049
1463		B	0EX6	7	03358	J 00##0
1464						

STORE RETURN ADDR  
 REMOVE STATUS CHAR  
 UPDATE IND REG 5  
 RETURN TO PROGRAM

CT ADDR INSTRUCTION

I/O DICOST SEQUENCE CONTROL

OPCOD OPERAND

LABEL

PGLIN

201

EQU

CTLFLD

1466

PST

1467

INITIALIZE FOR DA04

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1469	START	CM	ONE3SH61,THREE161 CLEAR	11	03365	D 05190 05285
1470		S	LMGCNT	6	03376	S 09459
1471		S	TENCNT	6	03382	S 09346
1472		ZA	@0000@,X14	11	03388	M 09831 00094
1473		ZA	@0000@,X15	11	03399	M 09831 00099
1474		BCE	*@8,1256,X	12	03410	B 03429 01256 X
1475		B	*@13	7	03422	J 03441
1476		MLCA	@30@,CON2	12	03429	D 09833 09496 T
1477		B	TYP2	7	03441	J 01607
1478		DCW	@HAD,CE-HAO,WRT FMT ON,SEL MODE@,G	30	03477	
1479		DCW	@ @,G	1	03479	
1480		MLCS	@-13,SPTAD1	12	03481	D 03479 01005 3
1481		ZA	@N26,X3	11	03493	M 09838 00039
1482		B	N26	7	03504	J 09141

\*\*\* INITIALIZE COUNTERS,SWITCHES,AND INDEX REG \*\*\*

\*\*\* SELECT MODE \*\*\*



NO1 CT ADDR INSTRUCTION

PGLIN LABEL OPCOD OPERAND

PGLIN	LABEL	OPCOD	OPERAND	NO1	CT	ADDR	INSTRUCTION
1486							
1487			*** TEST ROUTINE DESCRIPTION ***				
1488			*** RESET 7631,TEST CONTROL TRIGGER & END OP ***				
1489			THIS TEST REQUESTS A MACHINE RESET TO RESET ALL LATCHES IN THE				
1490			7631.THEY IF PRIORITY IS AVAILABLE AN OVERLAPPED I/O NO-OP IS				
1491			ISSUED,FOLLOWING A SHORT DELAY THE OVERLAP IN PROCESS IS TESTED.				
1492			IF OVERLAP IN PROCESS IS ON IT INDICATES THAT THE 7631 HAS HUNG				
1493			UP AND THE MACHINE IS RESET BY ISSUING AN ILLEGAL INSTRUCTION.IF				
1494			THIS HAPPENS ERROR 01 IS INDICATED,INCLUDED IN THE ERROR MESSAGE				
1495			WILL BE THE CONTENTS OF THE E REGISTER.SHOWING HOW MANY CHARACTER				
1496			WHERE TRANSFERED BEFORE THE 7631 HUNG UP.				
1497							
1498	NO1	NOP			1	03511	N
1499		DC	0010 ROUTINE ID		2	03513	
1500		MRCWG	BRCH0,1 MOVE RESET BRCH INST		12	03514	D 09359 00001 L
1501		B	TYPI		7	03526	J 01593
1502		DCW	0COMP RESET,CHK 76310,6		19	03551	
1503		H	WAIT FOR ACTION		1	03553	.
1504	RESETI	MRCWG	RESUME,1 RESTORE LOC 1		12	03554	D 02015 00001 L
1505		BCE	*08,1264,1 BRCH IF PRIORITY AVA		12	03566	B 03585 01264 1
1506	BOTTOM	B	NOEXIT		7	03578	J 03720
1507		MRCG	CEADDR,FILE SET FILE ADDR		12	03585	D 09667 09891 S
1508		MLCS	OVRLAP&X14,*02 MOVE OVER LAP CODE		12	03597	D 09GR6 03610 3
1509		MU	0FO,FILE,V I/O NO-OP OVERLAPPED		10	03609	M 0FO 09891 V
1510	DELAYI	A	010,TENCNT WAIT FOR OVERLAP		11	03619	A 09814 09346
1511		BZ	*08 TO DROP ON 7010		7	03630	J 03644 V
1512		B	DELAYI		7	03637	J 03619
1513		B0L1	*015 BRCH OVERLAP IN PROC		7	03644	J 03665 1
1514		BA1	*01		7	03651	R 03658 M
1515		B	NOEXIT		7	03658	J 03720
1516		SER	DATA&4 STORE ADDR REG		7	03665	G 01714 E
1517		MRCWG	EREG,DATA&18 MOVE E REG MESSAGE		12	03672	D 09347 01728 L
1518		MRCWG	BRCH1,1 MOVE BRCH INST TO 1		12	03684	D 09367 00001 L
1519		DCW	0M0		1	03696	
1520	HANGI	MRCWG	RESUME,1 RESTORE LOCATION 1		12	03697	D 02015 00001 L
1521			*** SET ERROR 01 ON ***				

CT ADDR INSTRUCTION

NCI

CPCOD OPERAND

PGLIN	LABEL	CPCOD	OPERAND	CT	ADDR	INSTRUCTION
1522		S*	E1,EXTRA&1	11	03709	01902 02970
1523	7631		HAS PLNG IN OVERLAP,POSSIBLE CAUSE,CONTROL TRIGGER OR END OP			
1524			FAILING. CHECK E REG CONTENTS FOR POSSIBLE CLUE,-E REG SETTING			
1525			TYPED IN ERROR MESSAGE-			
1526	NOEXIT	8	MONTR	7	03720	J 02066

PGLIN	LABEL	NOZ	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1528					1	03727	N
1529					2	03729	
1530				*** TEST ROUTINE DESCRIPTION ***	12	03730	B 03764 01264 I
1531				*** TEST ERROR CONDITIONS ON 7631 AFTER MACHINE RESET ***	12	03742	D 09667 09891 S
1532				THIS ROUTINE CHECKS FOR ANY STATUS INDICATORS TURNED ON BY THE	10	03754	H 2FO 09891 R
1533				I/O NO-OP ISSUED IN ROUTINE NO1.--A SEEK OP IS USED IF PRIORITY IS	7	03764	R 03778 H
1534				NOT AVAILABLE--IF ANY INDICATORS ARE FOUND ON ERROR 02 IS	7	03771	J 03784
1535				INDICATED.			
1536							
1537							
1538							
1539							
1540							
1541							
1542							
1543							
1544							
1545							
1546							

\*\*\* TEST ERROR CONDITIONS ON 7631 AFTER MACHINE RESET \*\*\*

THIS ROUTINE CHECKS FOR ANY STATUS INDICATORS TURNED ON BY THE I/O NO-OP ISSUED IN ROUTINE NO1.--A SEEK OP IS USED IF PRIORITY IS NOT AVAILABLE--IF ANY INDICATORS ARE FOUND ON ERROR 02 IS INDICATED.

\*\*\* TEST ERROR CONDITIONS ON 7631 AFTER A MACHINE RESET, POSSIBLE STATUS INDICATOR TURNED ON BY 7631 AFTER A MACHINE RESET, POSSIBLE TROUBLE WITH ERROR LATCHES IN 7631.

MONITR

CT ADDR INSTRUCTION

PGLIN	LABEL	OPCODE	OPERAND	NO3	ROUTINE ID	ROUTINE	CT	ADDR	INSTRUCTION
1548							1	03791	N
1549							2	03793	
1550							12	03794	D 09380 09898 T
1551							11	03806	M 09831 00074
1552							11	03817	M 09831 00079
1553							10	03828	M 8FO 09891 R
1554							7	03838	R 03845 M
1555							7	03845	R 03906 4
1556							11	03852	A 09814 00074
1557							12	03863	D 09LQ1 09898 3
1558							6	03875	D 09LQ1
1559							11	03881	C 00074 09840
1560							7	03892	J 03947 S
1561							7	03899	J 03828
1562							12	03906	D 09898 01PA0 3
1563							11	03918	, 02970 01904
1564							11	03929	A 09814 00079
1565							7	03940	J 03852
1566							7	03947	J 02066
1567									
1568									
1569									
1570									
1571									
1572									
1573									
1574									
1575									
1576									
1577									
1578									
1579									

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 \*\*\* TEST SERIAL REG A'D PARITY TRIGGER \*\*\*  
 USING A SEEK OP ALL 64 CHARS ARE SHIPPED TO THE 7631 IN THE HAZ  
 PORTION OF THE FILE ADDRESS, ONE CHARACTER AT A TIME. WHEN EVER A  
 DATA CHECK OCCURES THE CHARACTER BEING USED IS STORED AND THE  
 ROUTINE CONTINUES UNTIL ALL 64 CHARACTERS HAVE BEEN TESTED. IF ANY  
 ONE OR MORE CHARACTERS CAUSED A DATA CHECK ERROR 03 IS INDICATED  
 AND THE FAILING CHARACTERS ARE TYPED OUT. IF MORE THAN ONE CHAR.  
 FAILED, ANALYSIS OF THE BIT MAKE UP WILL AID IN LOCATING THE BUG.

NO3  
 NOP  
 DC 0030  
 ROUTINE ID  
 MLCA ZERO, FILEE7 LOAD FILE ADDR  
 ZA 00000, X10 LOAD IX 10  
 ZA 00000, X11 LOAD IX 11  
 SD 1, FILE SEEK ACC  
 BAI \*61  
 BER1 BADCHR BRCH ON DATA CHECK  
 A 010, X10 UP DATE X10  
 MLCS ALLCHREX10, FILEE7 MOVE TEST CHAR  
 MLCS ALLCHREX10  
 C X10, 06C0 HAVE ALL CHAR BEEN  
 BE N03XIT CHECKED  
 B CHKCHR  
 MLCS FILEE7, DATA&X11 MOVE FAILING CHAR  
 \*\*\* SET ERROR 03 ON \*\*\*  
 SW EXTRA&1, E3 TURN ON ERROR IND  
 ONE OR MORE CHARACTERS CAUSED PARITY ERROR ON A SEEK OP. FAILING  
 CHARACTERS APPEAR AS 3RD LINE OF ERROR MESSAGE.  
 A 010, X11 UPDATE X 11  
 B NEXCHR  
 B MONITR

CT ADDR INSTRUCTION

N04  
 PCLIN LABEL OPCOD OPERAND

1581  
 1582 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1583 \*\*\* TEST ACCESS AND MODULE DECODER \*\*\*  
 1584 THE ACCESS AND MODULE ADDRESS IS SET TO 11 AND A SEEK OP IS  
 1585 ISSUED, NOT READY IS CHECKED. ERROR 4 WILL BE INDICATED IF THE  
 1586 NOT READY IS NOT ON. THE ADDRESS IS SET TO 00 AND ANOTHER SEEK IS  
 1587 ISSUED THIS TIME NOT READY SHOULD BE DOWN AND ERROR 05 IS GIVEN  
 1588 IF IT IS ON. THE ACCESS ADDRESS IS NOW STEPPED FROM 1 TO 9 WITH A  
 1589 SEEK AND CHECK FOR NOT READY ON EACH COUNT. IF NOT READY IS OFF  
 1590 THE TEST IS TERMINATED AND ERROR 06 IS GIVEN, THIS LEAVES THE  
 1591 FAILING ACCESS ADDRESS STILL AVAILABLE IN THE FILE ADDRESS. IF THE  
 1592 ACCESS TEST IS SUCCESSFUL THE MODULE ADDRESS IS STEPPED FROM 1-9  
 1593 AND A SEEK OP WITH CHECK FOR NOT READY IS ISSUED EACH TIME. IF THE  
 1594 NOT READY IS EVER OFF ERROR 07 IS INDICATED AND THE TEST IS TERM-  
 1595 INATED, LEAVING THE FAILING MODULE ADDRESS IN THE FILE ADDRESS. IT  
 1596 IS IMPORTANT THAT ALL MODULES HAVE BEEN SET INOPERATIVE EXCEPT  
 1597 MODULE 0 IN ORDER FOR THIS TEST TO BE VALID.  
 1598

N04	NOP					1	03954	N
1599	DC	2042	ROUTINE ID			2	03956	
1600	MLCA	29#202, FILEE5	LOAD FILE ADDR			12	03957	D 09844 09896 T
1601	MLCA	2112	LOAD ACC&MOD ADDR			6	03969	D 09846
1602	SD	1, FILE	SEEK			10	03975	M 2FO 09891 R
1603	BAL	*E1				7	03985	R 03992 M
1604	BNR1	*E7	BRCH NOT READY			7	03992	R 04005 I
1605	***	SET ERROR 04 ON ***				6	03999	, 01905
1606	SW	E4	SET ERROR IND ON					
1607			ACCESS & MODULE ADDRESS OF 11 DIDNOT BRING UP NOT READY ON A SEEK					
1608			OP. POSSIBLE CAUSE--ACCESS INOP LATCH OR NOT READY LATCH FROZEN OFF					
1609	MLCA	2002, FILEE1	RESET ACCESS AND MOD			12	04005	D 09848 09892 T
1610	SD	1, FILE	SEEK DISK			10	04017	M 2FO 09891 R
1611	BAL	*E1				7	04027	R 04034 M
1612	BNR1	*E8	BRCH NOT READY			7	04036	R 04048 I
1613	B	*E7				7	04041	J 04054
1614	***	SET ERROR 05 ON ***						
1615	SW	E5	SET ERROR IND ON			6	04048	, 01906
1616								

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1617			AFTER SETTING NOT READY ON, A SEEK OP WITH ACCESS MODULE SET TO 00			
1618			DOES NOT RESET THE NOT READY. POSSIBLE CAUSE ACCESS INDP LATCH			
1619			CANNOT BE RESET.			
1620	NEXACC	A	010, FILE	11	04054	A 09814 09891
1621		BZ	NEXMOD-6	7	04065	J 04109 V
1622		SD	1, FILE	10	04072	M 09891 R
1623		BAI	*01	7	04082	R 04089 M
1624		BNR1	NEXACC	7	04089	R 04054 I
1625		***	SET ERROR 06 ON ***			
1626		SM	E6	6	04096	, 01907
1627			SET ERROR IND ON			
1628			AN ACCESS ADDRESS 1-9 DID NOT TURN ON NOT READY ON A SEEK OP. THE			
1629			FAILING ADDRESS MAY BE SEEN BY DISPLAYING THE FILE ADDRESS.			
1630			POSSIBLE CAUSE ACCESS DECODER FAILING.			
1630		B	NO4XIT			
1631		SM	FILE01	7	04102	J 04163
1632				6	04109	, 09892
1632	NEXMOD	A	010, FILE01	11	04115	A 09814 09892
1633		BZ	NO4XIT	7	04126	J 04153 V
1634		SD	1, FILE	10	04133	M 09891 R
1635		BAI	*01	7	04143	R 04150 M
1636		BNR1	NEXMOD	7	04150	R 04115 I
1637		***	SET ERROR 07 ON ***			
1638		SM	E7	6	04157	, 01908
1638			SET ERROR IND ON			
1639			A MODULE ADDRESS 1-9 DID NOT TURN ON NOT READY ON A SEEK OP. THE			
1640			FAILING ADDRESS MAY BE SEEN BY DISPLAYING THE FILE ADDRESS.			
1641			POSSIBLE CAUSE MODULE DECODER FAILING.			
1642						
1642	NO4XIT	B	MONITR	7	04163	J 02066

CT ADDR INSTRUCTION

N05

PGLIN LABEL OPCOD OPERAND

```

1844
1845 *** TEST ROUTINE DESCRIPTION ***
1846 *** TEST 7631 OP CODE DECODER ***
1847 THIS ROUTINE TESTS THE OP CODE DECODERS ABILITY TO DECODE
1848 PROPERLY 7 OF THE 11 SPECIFIC OPERATIONS POSSIBLE.THE CODES TEST-
1849 ED ARE DONE IN A NO-OP MODE SO THAT NO OPERATIONS ARE PERFORMED,
1850 BECAUSED PRIORITY IS REQUIRED FOR THE NO-OP THIS TEST IS NOT RUN
1851 IF PRIORITY IS NOT AVAILABLE.THE ERRORS INDICATED WHEN INVALID
1852 COMMAND IS SENSED ARE.
1853 SEEK OP CODE 0 ERROR 07
1854 SRO OP CODE 1 ERROR 08
1855 TRO OP CODE 2 ERROR 09
1856 WDC OP CODE 3 ERROR 10
1857 HAO OP CODE 5 ERROR 11
1858 TWA OP CODE 6 ERROR 12
1859 WFT OP CODE 7 ERROR 13
1860 THE REMAINING OP CODES ARE OPTIONAL FEATURES AND ONE SETS THE
1861 ACCESS INOP.THEY MAY BE TESTED LATER IN THE PROGRAM.
1862 N05
1863 DC 2050 ROUTINE ID
1864 MRCG CEADDR,FILE LOAD FILE
1865 SD 1,FILE SEEK DISK
1866 BAI *81
1867 BEFI *88 CHECK FOR INVALID CD
1868 B *87
1869 *** SET ERROR 07 ON ***
1870 SW E7 SET ERROR IND ON
1871 A SEEK OP CAUSES EXT. COND-INVALID COMMAND-,CHECK OP DECODER
1872 BCE N05XIT,1264, BRCH IF PRI NOT AVL
1873 MU 3F1,FILE,Q SRO OP
1874 BAI *81
1875 BEFI *88 CHECK INVALID CODE
1876 B *87
1877 *** SET ERROR 08 ON ***
1878 SW E8 TURN ON ERROR IND
1879 A SINGLE RECORD OP CAUSES EXT COND-INVALID COMMAND-CHECK OP DECDR

```

1	04170	N
2	04172	
12	04173	D 09667 09891 \$
10	04185	M 3FO 09891 R
7	04195	R 04202 M
7	04202	R 04216 8
7	04209	J 04222
6	04216	, 01908
12	04222	B 04456 01264
10	04234	M 3F1 09891 Q
7	04244	R 04251 M
7	04251	R 04265 8
7	04258	J 04271
6	04265	, 01909

1680	MU	XF2,FILE,Q	TRD OP	10	04271	M XF2 09891 Q
1681	BA1	*E1		7	04281	R 04288 M
1682	BEF1	*E8	CHECK INVALID COMD	7	04288	R 04302 B
1683	B	*E7		7	04295	J 04308
1684	***	SET ERROR 09 ON ***				
1685	SW	E9	SET ERROR IND ON	6	04302	, 01910
1686	A TRACK WITHOUT ADDRESSES OP CAUSES EXT COND-INVALID COMMAND-					
1687	CHECK OP DECODER					
1688	MU	XF3,FILE,V	WDC OP	10	04308	M XF3 09891 V
1689	BA1	*E1		7	04318	R 04325 M
1690	BEF1	*E8	CHECK FOR INVALID CD	7	04325	R 04339 B
1691	B	*E7		7	04332	J 04345
1692	***	SET ERROR 10 ON ***				
1693	SW	E10	SET ERROR IND ON	6	04339	, 01911
1694	A WDC OP CAUSES EXT COND-INVALID COMMAND-CHECK OP DECODER					
1695	MU	XF5,FILE,Q	HAD OP	10	04345	M XF5 09891 Q
1696	BA1	*E1		7	04355	R 04362 M
1697	BEF1	*E8	CHECK INVALID CODE	7	04362	R 04376 B
1698	B	*E7		7	04369	J 04382
1699	***	SET ERROR 11 ON ***				
1700	SW	E11	SET ERROR IND ON	6	04376	, 01912
1701	A HOME ADDRESS OP CAUSES EXT COND-INVALID COMMAND-CHECK OP DECDR					
1702	MU	XF6,FILE,Q	TWA OP	10	04382	M XF6 09891 Q
1703	BA1	*E1		7	04392	R 04399 M
1704	BEF1	*E8	CHECK INVALID CODE	7	04399	R 04413 B
1705	B	*E7		7	04406	J 04419
1706	***	SET ERROR 12 ON ***				
1707	SW	E12	SET ERROR IND ON	6	04413	, 01913
1708	A TRACK WITH ADDRESS OP CAUSES EXT COND-INVALID COMMAND-CHECK					
1709	OP DECODER					
1710	MU	XF7,FILE,Q	FMT OP	10	04419	M XF7 09891 Q
1711	BA1	*E1		7	04429	R 04436 M
1712	BEF1	*E8	CHECK INVALID CODE	7	04436	R 04450 B
1713	B	*E7		7	04443	J 04456
1714	***	SET ERROR 13 ON ***				
1715	SW	E13	SET ERROR IND ON	6	04450	, 01914



CT ADDR INSTRUCTION

N05

OPCOD OPERAND

LABEL

PGLIN

1716 A WRITE FORMAT OP CAUSES EXT COND-INVALID COMMAND-CHECK OP DECDR

1717 N05XIT B MONITR

7 04456 J 02066

CT ADDR INSTRUCTION

N06 OPCOD OPERAND

PGLIN LABEL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1719						
1720						
1721						
1722						
1723						
1724						
1725						
1726						
1727						
1728						
1729						
1730	N06	NOP		1	04463	N
1731		DC	0060	2	04465	
1732		BCE	*08,SPTAD1,1	12	04466	B 04485 01005 I
1733		B	N08XIT	7	04478	J 04901
1734		B	TYPI	7	04485	J 01593
1735		DCW	0ACC TO CYL 0000,6	14	04505	
1736		H		1	04507	.
1737		MLCA	000000,FILE05	12	04508	D 09831 09896 T
1738		MLCA	0000	6	04520	D 09848
1739	CYLO00	SD	1,FILE	10	04526	M 0FO 09891 R
1740		BAL	*01	7	04536	R 04543 M
1741		SD	1,FILE	10	04543	M 0FO 09891 R
1742		BAL	*01	7	04553	R 04560 M
1743		BC01	ZEROCK	7	04560	R 04597 2
1744	NEXTRK	A	010,FILE05	11	04567	A 09814 09896
1745		BCE	N06XIT,FILE04,4	12	04578	B 04617 09895 4
1746		B	CYLO00	7	04590	J 04526
1747						
1748	ZEROCK	SW	E14	6	04597	. 01915
1749						
1750		BAL	STACHK	7	04603	R 03051 M
1751		B	NEXTRK	7	04610	J 04567
1752	N06XIT	B	MONITR	7	04617	J 02066

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 \*\*\* TEST HI ORDER POSITIONS OF TRACK REGISTER \*\*\*  
 \*\*\* ACCESS POSITIONED AT CYLINDER 000 \*\*\*  
 THIS TEST IS RUN ONLY WHEN MANUAL MODE HAS BEEN SELECTED. THE  
 ACCESS IS FIRST POSITIONED MANUALLY TO CYL 000 BY THE CE, THEN A  
 SEEK IS ISSUED TO EACH TRACK POSITION IN CYL 000. EACH SEEK IS  
 FOLLOWED BY A SEEK TO THE SAME ADDRESS AND BUSY IS CHECKED. IF  
 BUSY COMES ON THE ACCESS HAS MOVED INDICATING THE TRACK REGISTER  
 IMPROPERLY DECODED THE ADDRESS. IF THIS HAPPENS ERROR 14 IS IND-  
 ICATED AND THE FAILING ADDRESS IS STILL PRESENT AT THIS TIME.

ROUTINE ID  
 BRCH IF IN MANUAL  
 WAIT FOR ACTION  
 LOAD FILE ADDR  
 SEEK ACCESS  
 SEEK ACCESS AGAIN  
 CHECK FOR BUSY  
 UPDATE TRACK ADDR  
 CYLINDER COMPLETE  
 SET ERROR 14 ON \*\*\*  
 SET ERROR IND ON  
 A SEEK TO ONE OF THE TRACKS IN CYL 000 CAUSED ACCESS TO MOVE.  
 BRCH TO STATUS CHK  
 RETURN HERE

CT ADDR INSTRUCTION

1754  
 1755 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1756 \*\*\* TEST HI ORDER POSITION OF TRACK REGISTER \*\*\*  
 1757 THIS IS THE SAME AS ROUTINE N06  
 1758 THIS IS THE SAME AS ROUTINE N06 EXCEPT THAT THE ACCESS IS  
 1759 POSITIONED AT CYLINDER 110 AND SEEKS ARE ISSUED FOR EACH TRACK  
 1760 IN THE CYLINDER. IF THE ACCESS MOVES ERROR 15 IS INDICATED. FOR  
 1761 MORE DETAIL REFER TO ROUTINE N06.  
 1762

PGLIN	LABEL	OPCODE	OPERAND	N07	ROUTINE ID	CT	ADDR	INSTRUCTION
1763	N07	NOP				1	04624	N
1764		DC	0070			2	04626	
1765		B	TYP1			7	04627	J 01593
1766		DCW	0ACC TO CYL 1100,G			14	04647	
1767		H		WAIT FOR ACTION		1	04649	
1768		MLCA	044000,FILE05	LOAD FILE		12	04650	D 09852 09896 T
1769		MLCA	0000	ADDRESS		6	04662	D 09848
1770	CYL110	SD	1,FILE	SEEK ACCESS		10	04668	M 0F0 09891 R
1771		BAL	001			7	04678	R 04685 M
1772		SD	1,FILE	SEEK ACCESS AGAIN		10	04685	M 0F0 09891 R
1773		BAL	001			7	04695	R 04702 M
1774		BCB1	ONETEN	BRCH BUSY		7	04702	R 04739 2
1775	UPI1RK	A	010,FILE05	ADD 1 TO TKHD ADDR		11	04709	A 09814 09896
1776		BCE	N07XIT,FILE04,4	BRCH IF CYL COMP		12	04720	B 04759 09895 4
1777		B	CYL110			7	04732	J 04668
1778		***	SET ERROR 15 ON ***					
1779	CNETEN	SW	E15	SET ERROR IND ON		6	04739	01916
1780		A	SEEK TO ONE OF THE TRACKS IN CYL 110 CAUSED ACCESS TO MOVE					
1781		BAL	STACHK	GO TO ERROR ROUTINE		7	04745	R 03051 M
1782		B	UPI1RK	RETURN HERE		7	04752	J 04709
1783	N07XIT	B	MONITR			7	04759	J 02066

PGLIN	N08	OPCOD	OPERAND	LABEL	NO8	ROUTINE ID	CT	ADDR	INSTRUCTION
1785							1	04766	N
1786							2	04768	
1787							7	04769	J 01593
1788							14	04789	
1789							1	04791	.
1790							12	04792	D 09856 09896 T
1791							6	04804	D 09848
1792							10	04810	M ZFO 09891 R
1793							7	04820	R 04827 M
1794							10	04827	M ZFO 09891 R
1795							7	04837	R 04844 M
1796							7	04844	R 04881 Z
1797							11	04851	A 09814 09896
1798							12	04862	B 04901 09895 O
1799							7	04874	J 04810
1800							6	04881	. 01917
1801							7	04887	R 03051 M
1802							7	04894	J 04851
1803							7	04901	J 02066
1804									
1805									
1806									
1807									
1808									
1809									
1810									
1811									
1812									

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 \*\*\* TEST HI ORDER POSITION OF TRACK REGISTER \*\*\*  
 \*\*\* ACCESS POSITIONED AT CYL 194 \*\*\*

THIS IS THE SAME AS ROUTINE N06 & NOT EXCEPT THAT THE ACCESS IS  
 POSITIONED AT CYLINDER 194. ERROR 16 IS INDICATED IF THE ACCESS  
 MOVES. REFER TO ROUTINE N06 DESCRIPTION FOR MORE DETAIL.

NO8  
 NOP  
 DC @08@ ROUTINE ID  
 B TYPI  
 DCW @ACC TO CYL 194@,G  
 H  
 MLCA @7760@,FILE@S WAIT FOR ACTION  
 MLCA @00@ LOAD FILE  
 SD 1,FILE SEEK ACCESS  
 BA1 \*E1  
 SD 1,FILE SEEK ACCESS AGAIN  
 BA1 \*E1  
 BCBI ONE94 BRCH BUSY  
 A @1@,FILE@S UPDATE TRACK ADDR  
 BCE NOEXIT,FILE@4,O BRCH IF CYL COMPLETE  
 B CYL194  
 \*\*\* SET ERROR 16 ON \*\*\*  
 SW E16 SET ERROR IND ON  
 A SEEK TO ONE OF THE TRACKS IN CYL 194 CAUSED ACCESS TO MOVE  
 BAI STACHK GO TO ERROR ROUTINE  
 B TRKUPI RETURN HERE  
 B MONITR

CT ADDR INSTRUCTION

NO9

OPCOD OPERAND

PGLIN

LABEL

1814  
 1815  
 1816  
 1817  
 1818  
 1819  
 1820  
 1821  
 1822  
 1823  
 1824  
 1825  
 1826  
 1827  
 1828  
 1829  
 1830

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 \*\*\* TEST WRITE FORMAT OPERATION \*\*\*  
 USING AN OVERLAPPED WRITE FORMAT THIS TEST CHECKS FOR A HANG  
 CONDITION IN THE 7631 DUE TO IMPROPER DECODING AND HANDLING OF  
 THE WRITE FORMAT OPERATION. IF OVERLAP IN PROCESS REMAINS ON AFTER  
 THE FORMAT OPERATION SHOULD HAVE BEEN COMPLETED THE SETTING OF  
 THE E REG IS CHECKED AND ERROR 18 IS INDICATED. THE CONTENTS OF  
 THE E REG ARE ALSO DISPLAYED WITH THE ERROR MESSAGE. THIS TEST IS  
 BYPASSED IF OVERLAP IS NOT AVAILABLE. TEN PASSES ARE MADE

FORMAT ORGANIZATION  
 GAP1--HAL 33 CHARS--GAP3

FORMAT USED  
 444333333333333333333333333333334

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1831		NDP		1	04908	N
1832		DC	0090	2	04910	
1833		MRCG	CEADDR, FILE	12	04911	D 09667 09891 S
1834		SD	1, FILE	10	04923	M 8FO 09891 R
1835		BC81	*-16	7	04933	R 04923 2
1836		BA1	*41	7	04940	R 04947 M
1837		B	TYPI	7	04947	J 01593
1838		DCW	0ACC TO CYL 2530, G	14	04967	
1839		H		1	04969	.
1840		BCE	*48, 1264, 1	12	04970	B 04989 01264 1
1841		B	N09XIT	7	04982	J 05173
1842	TST9	CS	DATAFDE99	6	04989	/ 09999
1843		S	LNGCNT	6	04995	S 09459
1844		MRCWG	TSTFMT, DATAFD	12	05001	D 09569 09900 L
1845		MLCS	OVRLAPEX14, *42	12	05013	D 09686 05026 3
1846		MU	0F7, FILE, M	10	05025	M 0F7 09891 M
1847	DELAY2	A	010, LNGCNT	11	05035	A 09814 09459
1848		80L1	*615	7	05046	J 05067 1
1849		BA1	STACKH	7	05053	R 03051 M

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1850		B	PASS9	7	05060	J 05148
1851		BCE	*E8, LNCNT-3,2	12	05067	B 05086 09456 2
1852		B	DELAY2	7	05079	J 05035
1853		SER	DATAE4	7	05086	G 01714 E
1854		***	SET ERROR 18 ON ***			
1855		SW	E18, EXTRA&I	11	05093	, 01919 02970
1856	A		WRITE FORMAT OPERATION CAUSES 7631 TO HANG UP, THE CONTENTS OF			
1857			THE E REG AFTER THE WRITE FORMAT ARE DISPLAYED IN THE ERROR MESS-			
1858			AGE. IF THE E REG SETTING INDICATES ONLY THE ADDRESS WAS TRANS-			
1859			FERRED, POSSIBLE FAILURE OF PREP READ-WRITE OR WRITE LINE. IF THE			
1860			E REG SETTING INDICATES SOME PART OF THE DATA FIELD WAS TRANS-			
1861			FERRED, POSSIBLE FAILURE IN THE REVOLUTION COUNTER.			
1862		MRCWG	EREG, DATA&M	12	05104	D 09347 01G/0 D
1863		MRCWG	BRCH2, 1	12	05116	D 09460 00001 L
1864		DCW	DMa	1	05128	
1865	HANG2	MRCWG	RESUME, 1	12	05129	D 02015 00001 L
1866		B	N09XIT	7	05141	J 05173
1867	PASS9	A	@1a, TENCNT	11	05148	A 09814 09346
1868		BZ	N09XIT	7	05159	J 05173 V
1869		B	TST9	7	05166	J 04989
1870	N09XIT	B	MONITR	7	05173	J 02066

N10

PGLIN LABEL OPCOD OPERAND

1872 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1873 \*\*\* FORMAT CHAR DECODER, PHASE SELECT CKTS \*\*\*  
 1874 THIS TEST WRITES 8 BIT AND 6 BIT MODE FORMATS ON CYL 253. AFTER  
 1875 EACH WRITE FORMAT EXT COND, DATA CHECK, WRONG LENGTH RECORD, NO  
 1876 TRANSFER, AND THE NUMBER OF CHARACTERS TRANSFERRED ARE CHECKED.  
 1877 DIFFERENT COMBINATIONS OF THESE INDICATORS BEING ON CAUSE ERRORS  
 1878 TO BE INDICATED. THE FOLLOWING COMBINATIONS CAUSE THE FOLLOWING  
 1879 ERRORS.

1880 EXT COND ERROR1  
 1881 EXT CONDEWLR ERROR 22  
 1882 EXT CONDEWLR&NO TRANS ERROR 23  
 1883 EXT CONDENUT ALL DATA TRANS ERROR 20  
 1884 DATA CHECK ERROR 19

1885 TEN PASSES ARE MADE PROVIDED NO ERRORS OCCUR, WHEN AN ERROR DOES  
 1886 OCCURE THE TEST IS TERMINATED.  
 1887  
 1888

1889 FORMAT ORGANIZATION

1890 GAP1--HAI 33 CHARS--GAP3

1891 FORMAT FIELD 8 BIT MODE

1892 444111111111111111111111111111111112

1893 FORMAT FIELD 6 BIT MODE

1894 444111111111111111111111111111111112

N10	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1895	NDP		1	05180	N
1896	DC	#100	2	05182	
1897	CS	DATAFD#99	6	05183	/ 09999
1898	NOPWM		1	05189	N
1899	B	ONES	7	05190	J 05216
1900	MRCWG	TSTFMT, DATAFD	12	05197	D 09569 09900 L
1901	B	*#13	7	05209	J 05228
1902	MRCWG	TSTFT6, DATAFD	12	05216	D 09607 09900 L
1903	MU	#F7, FILE, W	10	05228	H #F7 09891 W
1904	SBR	DATA#4	7	05238	G 01714 B

PGLIN	LABEL	NIO OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1908		BAL	*E1	7	05245	R 05252 M
1909		BEF1	CHKWLR	7	05252	R 05328 8
1910		BER1	SETE19	7	05259	R 05412 4
1911		A	212, IENCNT	11	05266	A 09814 09346
1912		BZ	N10XIT	7	05277	J 05418 V
1913	THREB1	NOPWM		1	05284	N
1914		B	*E19	7	05285	J 05310
1915		SW	THREEE11, ONE3SW&1	11	05292	, 05285 05190
1916		B	ONE3SW	7	05303	J 05189
1917		CW	THREEE11, ONE3SW&1	11	05310	0 05285 05190
1918		B	ONE3SW	7	05321	J 05189
1919	CHKWLR	BW11	CHKNOT	7	05328	R 05379 -
1920		C	DATA&4, CON1	11	05335	C 01714 09472
1921		BE	*E14	7	05346	J 05366 S
1922		***	SET ERROR 20 ON ***	6	05353	, 01921
1923		SW	E20			SET ERROR IND ON
1924			WRITE FORMAT CAUSES EXT COND AND NOT ALL THE DATA IS TRANSFERRED,			
1925			POSSIBLE FAILURE IN PHASE SELECT CKTS ASSOCIATED WITH WRITE.			
1926		B	N10XIT	7	05359	J 05418
1927		***	SET ERROR 21 ON ***	6	05366	, 01922
1928		SW	E21			SET ERROR IND ON
1929			WRITE FORMAT CAUSES EXT COND WITH ALL DATA BEING TRANSFERRED			
1930			POSSIBLE CAUSE, DISCONNECT NOT RECOGNIZED.			
1931		B	N10XIT	7	05372	J 05418 S
1932	CHKNOT	BNT1	*E14	7	05379	R 05399 B
1933		***	SET ERROR 22 ON ***	6	05386	, 01923
1934		SW	E22			SET ERROR IND ON
1935			WRITE FORMAT CAUSES EXT COND, &WLR, ALL DATA WAS TRANSFERRED.			
1936			POSSIBLE 1301 CKT CHECK			
1937		B	N10XIT	7	05392	J 05418
1938		***	SET ERROR 23 ON ***	6	05399	, 01924
1939		SW	E23			SET ERROR IND ON
1940			WRITE FORMAT CAUSES EXT COND, WLR, & NO TRANSFER, POSSIBLE FAILURE			
1941			OF CE-HAD SWITCH ON OR THE ASSOCIATED CKTS.			
1942		B	N10XIT	7	05405	J 05418
1943		***	SET ERROR 19 ON ***			



CT ADDR INSTRUCTION

N10  
OPCOD OPERAND

PGLIN

LABEL

1944	SETEI9	SW	E19	SET ERROR IND ON	6	05412	01920
1945	WRITE FORMAT CAUSES DATA CHECK, POSSIBLE FAILURE OF FORMAT						
1946	CHARACTER DECODER.						
1947	N10XIT	B	MONITR		7	05418	J 02066

N11

LABEL OPCOD OPERAND

1949  
 1950  
 1951 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1952 \*\*\* TEST WRITE DISK OPERATION \*\*\*  
 1953 THIS CHECKS THE OPERATION OF GAP DETECTORS,WRITE FORMAT CKTS,  
 1954 PHASE SELECTION ASSOCIATED WITH READ,AND DECODING AND OPERATING  
 1955 A WRITE DISK CHECK.USING THE FORMAT WRITTEN IN ROUTINE N10 AN  
 1956 OVERLAPPED WDC IS ISSUED AND IF OVERLAP DOES NOT DROP AFTER A  
 1957 GIVEN PERIOD OF TIME ERROR 25 IS INDICATED.FOLLOWING THIS A NON-  
 1958 OVERLAPPED WDC IS ISSUED AND EXT COND AND WLR ARE CHECKED.EXT  
 1959 COND CAUSES ERROR 26,EXT COND AND WLR CAUSES ERROR 26.TEN PASSES  
 1960 ARE MADE PROVIDED NO ERRORS OCCURE,AN ERROR CAUSES THE TEST TO  
 1961 TERMINATE.THE OVERLAP PORTION IS BYPASSED IF OVERLAP IS NOT  
 1962 AVAILABLE.  
 1963  
 1964  
 1965  
 1966  
 1967  
 1968

FORMAT ORGANIZATION  
GAP1--HAL 33 CHARS--GAP3

DATA FIELD USED

444112

PGLIN	CT	ADDR	INSTRUCTION
1969	1	05425	NOP
1970	2	05427	DC @11@
1971	6	05428	S LNCNT
1972	12	05434	BCE *E8,1264,1 BRCH IF OVERLAP AVAL
1973	7	05446	B WDCNOV
1974	12	05453	MLCS OVR LAP EX14,*E2 MOVE OVER LAP CODE
1975	10	05465	MU @F3,FILE,W OVERLAPPED WDC
1976	11	05475	A @1@,LNCNT ADD 1 TO DELAY COUNT
1977	7	05486	BOL1 *E15
1978	7	05493	BAL STACHK GO TO STATUS CHECK
1979	7	05500	B WDCNOV
1980	12	05507	BCE *E8,LNCNT-3,2 IS DELAY COMPLETE
1981	7	05519	B DELAY3
1982	7	05526	SER DATA&4 STORE E REG
1983	12	05533	PRC&G EREG,DATA&7 MOVE MESSAGE
1984	12	05545	PRC&G BRCH3,1 MOVE BRCH INST

1  
2  
6  
12  
7  
12  
10  
11  
7  
7  
7  
12  
7  
7  
12  
7  
12  
12

05425  
05427  
05428  
05434  
05446  
05453  
05465  
05475  
05486  
05493  
05500  
05507  
05519  
05526  
05533  
05545

N  
D  
S  
B  
J  
D  
M  
A  
J  
R  
J  
B  
J  
G  
M  
B  
J  
E  
D  
L  
D  
L

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
1985		***	SET ERROR 25 ON ***			
1986		SW	E25,EXTRA&1	11	05557	SET ERROR IND ON 01926 02970
1987			WRITE DISK CHECK CAUSES 7631 TO HANG UP,CPU STAYS IN OVERLAP.			
1988		DCW	AMa	1	05568	
1989	HANG3	MRCWG	RESUME,1	12	05569	D 02015 00001 L
1990		B	N11XIT	7	05581	J 05663
1991	WDCNOV	WDC	1,FILE	10	05588	M 3F3 09891 W
1992		BAI	*&1	7	05598	R 05605 M
1993		BEF1	WLRCHK	7	05605	R 05637 8
1994		A	a1a,TENCNT	11	05612	A 09814 09346
1995		BZ	N11XIT	7	05623	J 05663 V
1996		B	N11	7	05630	J 05425
1997	WLRCHK	BW11	*&14	7	05637	R 05657 -
1998		***	SET ERROR 26 ON ***			
1999		SW	E26	6	05644	SET ERROR IND ON 01927
2000			WRITE DISK CHECK CAUSES EXT COND,POSSIBLE FAILURE OF GAP DETECTOR			
2001		B	N11XIT	7	05650	J 05663
2002		***	SET ERROR 27 ON ***			
2003		SW	E27	6	05657	SET ERROR IND ON 01928
2004			WRITE DISK CHECK CAUSES EXT COND AND WLR,POSSIBLE FAILURE OF			
2005			WRITE FORMAT CKTS,OR PHASE SELECT CKTS ASSOCIATED WITH READ.			
2006	N11XIT	B	MONITR	7	05663	J 02066

2008									
2009		***	TEST ROUTINE DESCRIPTION ***						
2010		***	TEST FORMAT CHARACTER DECODER ***						
2011			USING A NORMAL FORMAT FIELD,6 BIT MODE, WITH ONE ILLEGAL CHARACTR						
2012			INSERTED,A WRITE FORMAT IS ISSUED AND DATA CHECK IS CHECKED.IF						
2013			DATA CHECK IS OFF,NO ILLEGAL CHARACTER DETECTED,ERROR 28 IS IND-						
2014			ICATED.IF DATA CHECK IS ON,THE NUMBER OF CHARACTERS TRANSFERRED						
2015			IS CHECKED,AND IF IT DOES NOT REFLECT THE POSITION OF THE						
2016			ILLEGAL CHARACTER IN THE DATA FIELD ERROR 29 IS INDICATED.A PASS						
2017			IS MADE FOR EVERY POSSIBLE ILLEGAL CHARACTER EXCEPT IF AN ERROR						
2018			OCCURES THE TEST IS TERMINATED.						
2019			FORMAT ORGANIZATION						
2020			GAP1--HA1--GAP2--HA2 6 CHARS--X GAP--REC ADDR 10 CHARS--Y GAP--						
2021			RECORD AREA 6 CHARS--GAP3						
2022									
2023									
2024			FORMAT DATA FIELD USED,6 BIT MODE --ILLEGAL CHAR IN POSITION 26--						
2025			44433333333333333333333341X111122222222222111111111211111111121						
2026			111112						
2027									
2028	N12	NOP						1 05670	N
2029		DC	0120		ROUTINE ID			2 05672	
2030		CS	DATAFD099		CLEAR DATA FIELD			6 05673	/ 09999
2031		MRCWG	HA1-23,DATAFD		LOAD FORMAT			12 05679	D 09497 09900 L
2032		ZA	000000,X10		LOAD IX 10			11 05691	G M 09831 00074
2033	SETBAD	MLCS	ALLCHREX10,DATAFD025		SET ILLEGAL CODE			12 05702	D 09LQ1 09925 3
2034		MU	XF7,FILE,W		WRITE FORMAT			10 05714	M XF7 09891 W
2035		SBR	DATA04		STORE BAR			7 05724	G 01714 8
2036		BA1	001					7 05731	R 05738 M
2037		MRCWG	BREG,DATA07		MOVE MESC			12 05738	D 09353 01717 L
2038		BER1	CHKLOC		CHECK DATA CHECK			7 05750	R 05775 4
2039		***	SET ERROR 28 ON ***						
2040		SW	E28,EXTR01		SET ERROR IND ON			11 05757	, 01929 02970
2041			WRITE FORMAT USING AN ILLEGAL CHARACTER IN DATA FIELD DOES NOT						
2042			CAUSE DATA CHECK,POSSIBLE FAILURE OF FORMAT CHAR DECODER.FAILING						
2043			CHARACTER IS STILL PRESENT IN DATA FIELD AT TIME ERROR IS IND.						

PGLIN	N12 LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2044	B	N12XIT		7	05768	J 05841
2045	C	DATA64,CON2	WAS CORRECT CHAR	11	05775	C 01714 09496
2046	BE	GETCHR	DETECTED AS ILLEGL	7	05786	J 05811 S
2047	***	SET ERROR 29 ON ***				
2048	SW	E29,EXTRAE1	SET ERROR IND ON	11	05793	, 01930 02970
2049			WRITE FORMAT USING AN ILLEGAL CHARACTER IN DATA FIELD,THE WRONG			
2050			CHARACTER CAUSES DATA CHECK.B REG CONTENTS EQUALS 2 CHARACTERS			
2051			ABOVE ONE THAT CAUSED DATA CHECK.POSSEIBLE FAILURE OF FORMAT CHAR			
2052			DECODER,DECODING LEGAL CHARACTER AS ILLEGAL.			
2053	B	N12XIT		7	05804	J 05841
2054	A	212,X10	UP DATE IX 10	11	05811	A 09814 00074
2055	BCE	N12XIT,X10-1,5	HAVE ALL ILLEGAL	12	05822	B 05841 00073 5
2056	B	SETBAD	CHARS BEEN CHKO	7	05834	J 05702
2057	B	MONITR		7	05841	J 02066

2059  
 2060 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2061 \*\*\* TEST GAP DETECTORS \*\*\*  
 2062 A NORMAL 6 BIT MODE FORMAT IS WRITTEN, THIS IS FOLLOWED BY FOUR  
 2063 WRITE DISK CHECKS IN WHICH THE GAPS IN DATA FIELD ARE VARIED AND  
 2064 EXTERNAL CONDITION IS CHECKED, IF IT IS NOT ON AN ERROR IS INDI-  
 2065 CATED.  
 2066 1ST WDC LENGTHEN LONG X GAP NO EXT COND ERROR 30  
 2067 2ND WDC SHORTEN LONG X GAP NO EXT COND ERROR 31  
 2068 3RD WDC LENGTHEN SHORT GAP 2 NO EXT COND ERROR 32  
 2069 4TH WDC SHORTEN SHORT GAP 2 NO EXT COND ERROR 33  
 2070 AFTER THESE A WDC WITH ALL GAPS NORMAL CHECKS TO INSURE FORMAT  
 2071 WAS RECORDED CORRECTLY. TEN PASSES ARE MADE THROUGH THE ROUTINE.  
 2072  
 2073 FORMAT ORGANIZATION  
 2074 GAP1--HAL--GAP2--HAZ 6 CHARS--X GAP--REC ADDR 10 CHARS--Y GAP--  
 2075 RECORD AREA 6 CHARS--GAP3  
 2076  
 2077 FORMAT DATA FIELD USED  
 2078 %44333333333333333333333341111112222222222111111111211111111121  
 2079 111112

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2080	N13	NOP		1	05848	N
2081	DC	0130	ROUTINE ID	2	05850	
2082	S	TENCNT		6	05851	S 09346
2083	CS	DATAF09	CLEAR DATA FIELD	6	05857	/ 09909
2084	MRCWG	HAL-23,DATAFD	LOAD FORMAT FIELD	12	05863	D 09497 09900 L
2085	MU	3F7,FILE,W	WRITE FORMAT	10	05875	M 3F7 09891 W
2086	BA1	*01		7	05885	R 05892 M
2087	MLCS	020,DATAF0E42	LENGTHEN SHORT GAP	12	05892	D 09827 09942 3
2088	WDC	1,FILE	WRITE DISK CHECK	10	05904	M 3F3 09891 W
2089	BA1	*01		7	05914	R 05921 M
2090	BEF1	*07	CHECK EXTERNAL COND	7	05921	R 05934 8
2091	***	SET ERROR 30		6	05928	, 01931
2092	SM	E30	SET ERROR IND ON			
2093			WRITE DISK CHECK OF FORMAT WITH X GAP INCREASED BY 1 CHAR DOES			

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
2095	NOT CAUSE EXT COND, POSSIBLE FAILURE OF GAP DETECTOR					
2096	MLCA	0110	DATAFD042	12	05934	D 09846 09942 T
2097	WDC	1	FILE	10	05946	M 0F3 09891 M
2098	BAL	061		7	05956	R 05963 M
2099	BEFL	067		7	05963	R 05976 8
2100	*** SET ERROR 31 ON ***					
2101	SW	E31		6	05970	, 01932
2102	WRITE DISK CHECK OF FORMAT WITH X GAP SHORTENED BY 1 CHAR DOES					
2103	NOT TURN ON EXT COND, POSSIBLE FAILURE OF GAP DETECTOR					
2104	MLCA	0210	DATAFD042	12	05976	D 09858 09942 T
2105	MLCA	0220	DATAFD024	12	05988	D 09860 09924 T
2106	WDC	1	FILE	10	06000	M 0F3 09891 M
2107	BAL	061		7	06010	R 06017 M
2108	BEFL	067		7	06017	R 06030 8
2109	*** SET ERROR 32 ON ***					
2110	SW	E32		6	06024	, 01933
2111	WRITE DISK CHECK OF FORMAT WITH GAP2 INCREASED BY 1 CHAR DOES NOT					
2112	CAUSE EXT COND, POSSIBLE FAILURE OF GAP DETECTORS					
2113	MLCA	0110	DATAFD024	12	06030	D 09846 09924 T
2114	WDC	1	FILE	10	06042	M 0F3 09891 M
2115	BAL	061		7	06052	R 06059 M
2116	BEFL	067		7	06059	R 06072 8
2117	*** SET ERROR 33 ON ***					
2118	SW	E33		6	06066	, 01934
2119	WRITE DISK CHECK OF FORMAT WITH GAP2 SHORTENED BY 1 CHAR DOES NOT					
2120	CAUSE EXT COND, POSSIBLE FAILURE OF GAP DETECTORS					
2121	MLCA	040	DATAFD023	12	06072	D 09861 09923 T
2122	WDC	1	FILE	10	06084	M 0F3 09891 M
2123	BAL	STACHK		7	06094	R 03051 M
2124	A	010	TENCNT	11	06101	A 09814 09346
2125	BZ	N13XIT		7	06112	J 06126 V
2126	B	T5113		7	06119	J 05857
2127	N13XIT	B	MONITR	7	06126	J 02066

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 \*\*\* TEST HAO OPERATION \*\*\*

THE PROGRAM PERFORMS AN OVERLAPPED WRITE HAO OPERATION AND THEN DELAYS LONG ENOUGH FOR THE OPERATION TO BE COMPLETED. AT THE END OF THE DELAY IF OVERLAP IS STILL IN PROCESS ERROR 35 IS INDICATED THE CONTENTS OF THE E REG AFTER THE WRITE HAO IS ALSO DISPLAYED WITH THE ERROR MESSAGE. TEN PASS ARE MADE IF NO ERRORS OCCURE.

FORMAT REQUIRED  
 SAME AS FORMAT WRITTEN BY ROUTINE N13

DATA FIELD ORGANIZATION

HAI 5 CHARS--HAZ 2 CHARS--REC ADDR 6 CHARS--RECORD 2 CHARS

DATA FIELD ORGANIZATION

9#20888123456+-

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2129				1	06133	N
2130				2	06135	
2131				12	06136	B 06155 01263 I
2132				7	06148	J 06387
2133				6	06155	/ 09999
2134				12	06161	D 09667 09891 \$
2135				6	06173	, 09893
2136				12	06179	D 09896 09903 T
2137				12	06191	D 09864 09906 T
2138				12	06203	D 09645 09907 L
2139				6	06215	S 09346
2140				12	06221	D 09GR6 06234 3
2141				10	06233	M @F5 09891 W
2142				6	06243	S 09459
2143				11	06249	A 09814 09459
2144				7	06260	J 06281 I
2145				7	06267	R 03051 M
2146				7	06274	J 06362



PGLIN	LABEL	NI4 OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2165		BCE	*E8,LNGCNT-3,2	12	06281	B 05300 09456 2
2166		B	DELAY4	7	06293	J 06249
2167		***	SET ERROR 35 ON ***			
2168		SW	E35,EXTRA&1			
2169			WRITE HAD OVERLAPPED CAUSES 7631 TO HANG UP	11	06300	, 01936 02970
2170		SER	DATA&4			
2171		MRCWG	EREG,DATA&7	7	06311	G 01714 E
2172		MRCWG	BRCH&1	12	06318	D 09347 01717 L
2173		DCW	AMa	12	06330	D 09654 00001 L
2174	HANG4	MRCWG	RESUME,1	1	06342	
2175		B	NI4XIT	12	06343	D 02015 00001 L
2176	PASS14	A	@1@,TENCNT	7	06355	J 06387
2177		BZ	NI4XIT	11	06362	A 09814 09346
2178		B	TST14	7	06373	J 06387 V
2179	NI4XIT	B	MONITR	7	06380	J 06233
				7	06387	J 02066

IS DELAY COMPLETE

SET ERROR IND ON

STORE E REG

MOVE MESSAGE

MOVE BRCH INST

RESTORE LOC 1

ADD 1 TO PASS COUNT

BRCH ON 10TH PASS

N15

LABEL OPCOD OPERAND

PGLIN

```

2181
2182 *** TEST ROUTINE DESCRIPTION ***
2183 *** TEST DATA HANDLING CAPABILITIES ***
2184 THIS ROUTINE USES THE HAD OPERATION TO WRITE AND READ EVERY
2185 ONE OF THE 64 POSSIBLE CHARACTERS. SINCE THE CE-HAD SWITCH IS ON
2186 AT THIS TIME THE HOME ADDRESSES FOR 9#20-9#59 ARE ALSO WRITTEN.
2187 THE RECORD OF 2 CHARACTERS IS LOADED WITH ONE OF THE 64 1410
2188 CHARACTERS AND A WRITE HAD OP IS PERFORMED FOR EVERY TRACK IN
2189 CYLINDER 253. IF THE ENTIRE DATA FIELD IS NOT TRANSFERRED ON THE
2190 WRITE OP ERROR 36 IS INDICATED. AFTER EVERY TRACK HAS BEEN WRITTEN
2191 ON P READ HAD OF EVERY TRACK IS PERFORMED. EVERY READ IS FOLLOWED
2192 BY A CHECK OF EXT.COND, DATA CHECK, AND COMPARE IN MEMORY OF THE
2193 DATA FIELD READ TO THAT WRITTEN. THE FOLLOWING ERRORS CAN BE
2194 INDICATED
2195 EXT COND ON ERROR 39
2196 DATA CHECK ON ERROR 40
2197 RECORD READ DOES NOT EQUAL RECORD WRITTEN ERROR 37
2198 HOME ADDRESS 1 DOES NOT EQUAL HOME ADDRESS 1 WRITTEN
2199 ERROR 38
2200 THE ROUTINE IS REPEATED FOR ALL 64 CHARACTERS UNLESS AN ERROR
2201 OCCURS IN WHICH CASE THE TEST IS TERMINATED.
2202
2203 FORMAT REQUIRED
2204 SAME AS FORMAT WRITTEN BY ROUTINE N13
2205
2206 DATA FIELD ORGANIZATION
2207 HAI 5CHARS--HA2 2 CHARS--REC ADDR 6 CHARS--RECORD 2 CHARS
2208
2209 DATA FIELD USED--HAI UPDATED 20-59--RECORD UPDATED FOR EVERY CHAR
2210 9#20888123456XX
2211 N15 NOP
2212 DC 0150
2213 ZA 000000,X10 LOAD IX 10
2214 MRCG CEADDR,FILE RESET FILE ADDR
2215 CS DATAFDE99 CLEAR DATA FIELD
2216 SW FILE14

```

1	06394	N
2	06396	Q
11	06397	H 09831 00074
12	06408	D 09667 09891 \$
6	06420	/ 09999
6	06426	• 09895

PGLIN	LABEL	N15	OPCODE	OPERAND	CT	ADRS	INSTRUCTION
2217		MRCWG	ALLBIT,DATAFD&7	LOAD DATA FIELD	12	06432	D 09645 09907 L
2218		MLCS	ALLCHREX10,DATAFD&14	WITH REC ADDR AND	12	06444	D 09LQ1 09914 3
2219		MLCS	ALLCHREX10	TEST CHAR	6	06456	D 09LQ1
2220	WRTHAO	MRCG	FILE&2,DATAFD	LOAD ADDRESS	12	06462	D 09893 09900 \$
2221		MLCA	@888@,DATAFD&6	IN FIELD	12	06474	D 09864 09906 T
2222		MU	%F5,FILE,W	WRITE HAO	10	06486	M %F5 09891 W
2223		SBR	DATA&4	STORE B ADDR REG	7	06496	G 01714 B
2224		BA1	STACHK	BRCH ON ANY IND	7	06503	R 03051 M
2225		C	DATA&4,CON3	RETURN HERE	11	06510	C 01714 09666
2226		BE	*&14	WAS ALL DATA TRANS	7	06521	J 06541 S
2227		***	SET ERROR 36 ON ***				
2228		SW	E36	SET ERROR IND ON	6	06528	, 01937
2229				WRITE HAO OP THE ENTIRE DATA FIELD WAS NOT TRANSFERRED,POSSIBLE			
2230				FAILURE OF FORMAT RECOGNITION CKTS.			
2231		B	N15XIT		7	06534	J 06816
2232		A	@1@,FILE&5	ADD 1 TO TKHD ADK	11	06541	A 09814 09896
2233		BCE	*&8,FILE&4,6	IS CYL COMPLETE	12	06552	B 06571 09895 6
2234		B	WRTHAO		7	06564	J 06462
2235		MLCS	DATAFD&14,DATAFD&31	SAVE TEST CHAR	12	06571	D 09914 09931 3
2236		MLCS			1	06583	D
2237		MRCG	CEADDR,FILE	RESET FILE ADDR	12	06584	D 09667 09891 \$
2238		CS	DATAFD&14		6	06596	/ 09914
2239	RDHAO	MU	%F5,FILE,R	READ HAO	10	06602	M %F5 09891 R
2240		BEF1	SETE39	CHECK EXTERNAL COND	7	06612	R 06797 8
2241		BER1	SETE40	CHECK DATA CHECK	7	06619	R 06810 4
2242		BA1	STACHK	GO CHECK STATUS ERR	7	06626	R 03051 M
2243		SW	DATAFD&30		6	06633	, 09930
2244		C	DATAFD&14,DATAFD&31	CHECK DATA READ	11	06639	C 09914 09931
2245		BE	*&8	IF IT IS GOOD BRCH	7	06650	J 06664 S
2246		B	SETE37		7	06657	J 06712
2247		CH	FILE&4		6	06664	□ 09895
2248		SW	FILE&2,DATAFD		11	06670	, 09893 09900
2249		C	DATAFD&5,FILE&7	CHECK ADDRESS READ	11	06681	C 09905 09898
2250		BE	RDNXTK	BRCH IF ADDR CORRECT	7	06692	J 06725 S
2251		***	SET ERROR 38 ON ***				
2252		SW	E38	SET ERROR IND ON	6	06699	, 01939

CT ADDR INSTRUCTION

PGLIN	LABEL	NIS	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
2253	HOME ADDR 1 WRITTEN BY HAD OP DOES NOT COMPARE TO HOME ADDRESS				7	06705	J 06816
2254	READ BACK ADDRESS READ BACK IS IN DATA FIELD AT TIME ERROR IS IND						
2255	POSSIBLE FAILURE IN THE LO-ORDER POSITIONS OF THE TRACK REGISTER.						
2256		B	N15XIT				
2257	*** SET ERROR 37 ON ***				6	06712	, 01938
2258	SETE37 SW E37 SET ERROR IND ON						
2259	DATA RECORD READ BACK DOES NOT COMPARE TO DATA RECORD WRITTEN,						
2260	POSSIBLE FAILURE IN READ-WRITE PATHS. DATA RECORD READ IS IN DATA						
2261	FIELD WHEN ERROR IS INDICATED.						
2262		B	N15XIT		7	06718	J 06816
2263	RDNXTK SW FILEE4				6	06725	, 09895
2264	A @1@,FILEE5 ADD 1 TO TKHD ADDR				11	06731	A 09814 09896
2265	BCE *E8,FILEE4,4 IS CYL COMPLETE				12	06742	B 06761 09895 4
2266	B RDHA0				7	06754	J 06602
2267	A @1@,X10 ADD 1 TO CHAR COUNT				11	06761	A 09814 00074
2268	C X10,@6C@ ALL CHARACTERS CHKD				11	06772	C 00074 09840
2269	BE N15XIT IF SO BRCK				7	06783	J 06816 S
2270	B TSI15				7	06790	J 06408
2271	*** SET ERROR 39 ON ***						
2272	SETE39 SW E39 SET ERROR IND ON				6	06797	, 01940
2273	READ HAD CAUSES EXT COND, POSSIBLE FAILURE OF PHASE SELECT CKTS						
2274	ASSOCIATED WITH READ						
2275		B	N15XIT		7	06803	J 06816
2276	*** SET ERROR 40 ON ***						
2277	SETE40 SW E40 SET ERROR IND ON				6	06810	, 01941
2278	READ HAD CAUSES DATA CHECK, POSSIBLE FAILURE OF PHASE SELECT CKTS						
2279	OR READ DATA PATHS.						
2280	N15XIT B MONITR				7	06816	J 02066

PGLN	LABEL	OPCOD	OPERAND	N16	CT	ADDR	INSTRUCTION
2282							
2283			*** TEST ROUTINE DESCRIPTION ***				
2284			*** TEST FLAGGING CAPABILITIES ***				
2285			THE ROUTINE REQUESTS THE NUMBER OF SPARE HEADS AVAILABLE FOR				
2286			FLAGGING. USING THIS INFO THE PROGRAM WRITES A FLAG CHARACTER FOR				
2287			HEAD AVAILABLE ON TRACKS 9#20-9#25 OR LESS, AND WRITES HOME ADDR-				
2288			ESSES ON THE AVAILABLE ALTERNATES ALONG WITH A CODE CHARACTER.				
2289			A REQUEST IS THEN MADE TO TURN OFF THE CE-HAD SWITCH, AND A READ				
2290			HAD IS ISSUED TO AN UN-FLAGGED TRACK. IF THIS RESULTS IN EXT COND,				
2291			ERROR 41 IS INDICATED. THE TRACK ADDRESS IS RESET TO ZERO AND AN-				
2292			OTHER READ HAD IS ISSUED IF THIS DOES NOT CAUSE EXT COND ERROR 42				
2293			IS INDICATED.				
2294							
2295			FORMAT REQUIRED				
2296			SAME AS WRITTEN IN ROUTINE N13				
2297							
2298			DATA FIELD ORGANIZATION				
2299			HAI 4 CHARS--FLAG CHAR--AA2 2 CHARS--CODE CHARACTER				
2300							
2301			DATA FIELD USED--HAI UPDATED UP TO 9#25--				
2302			9#20X88A				
2303							
2304	N16	NCP					1 06823 N
2305		DC	@16@				2 06825 Q
2306		ZA	@0000@,X10	LOAD IX 10			11 06826 M 09831 00074
2307		B	TYP2				7 06837 J 01607
2308		DCW	@# OF SPARE HEADS@,G				16 06859
2309	AVALTR	DCW	@ @,G				1 06861
2310		PLNS	AVALTR,CKALT1@11	MOVE NO. OF HEADS			12 06863 D 06861 07021 1
2311		PLNS	AVALTR,CKALT2@11	MOVE NO. OF HEADS			12 06875 D 06861 07138 1
2312		PLNS	AVALTR,CKALT3@11	MOVE NO. OF HEADS			12 06887 D 06861 07354 1
2313		PLCWG	CEADDR,FILE	LOAD FILE ADDR			12 06899 D 09667 09891 L
2314		CS	DATAFD@99	CLEAR DATA FIELD			6 06911 / 09999
2315	TS116	PLC@G	FILE@2,DATAFD	LOAD ADDR INTO FIELD			12 06917 D 09893 09903 \$
2316		PLCWS	@@,DATAFD@8				12 06929 D 09812 09908 7
2317		PLCA	@888A@,DATAFD@7	LOAD CODE CHAR@A2			12 06941 D 09868 09907 T

PGLIN	LABEL	N16	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2318		MLCS	FLAGSEX10,FILE66		12	06953	D 090P6 09897 3
2319		MU	%F5,FILE,W	WRITE HAO	10	06965	M %F5 09891 M
2320		BA1	*E1		7	06975	R 06982 M
2321		A	@1@,X10	ADD 1 TO IX 10	11	06982	A 09814 00074
2322		SW	FILEE4		6	06993	, 09895
2323		A	@1@,FILEE5	ADD 1 TO FILE ADDR	11	06999	A 09814 09896
2324	CKALT1	BCE	*E8,X10,F	ALL ALTERNATES USED	12	07010	B 07029 00074 F
2325		B	TST16		7	07022	J 06917
2326		MRCG	CEADDR,FILE	RESET FILE ADDR	12	07029	D 09667 09891 \$
2327		ZA	@000@,X10	RELOAD IX 10	11	07041	M 09831 00074
2328	TST165	MRCG	FILEE2,DATAFD	LOAD ADDR INTO FLD	12	07052	D 09893 09900 \$
2329		MLCA	@N@,DATAFD&7	LOAD CODE CHAR	12	07064	D 09809 09907 T
2330		MLCS	FLAGSEX10,DATAFD&4	MOVE FLAG CHAR	12	07076	D 090P6 09904 3
2331		MU	%F5,FILE,W	WRITE HAO	10	07088	M %F5 09891 M
2332		BA1	*E1		7	07098	R 07105 M
2333		A	@1@,X10	ADD 1 TO IX 10	11	07105	A 09814 00074
2334		A	@1@,FILEE5	ADD 1 TO ADDR	11	07116	A 09814 09896
2335	CKALT2	BCE	*E8,X10,F	ALL FLAGS WRITTEN	12	07127	B 07146 00074 F
2336		B	TST165		7	07139	J 07052
2337		B	TYPI		7	07146	J 01593
2338		DCH	@CE-HAO OFF&G		10	07162	
2339		H		WAIT FOR ACTION	1	07164	.
2340		CS	DATAFD&99	CLEAR DATA FIELD	6	07165	/ 09999
2341		MU	%F5,FILE,R	READ HAO	10	07171	M %F5 09891 R
2342		BA1	*E1		7	07181	R 07188 M
2343		BEF1	*E8	CHECK EXT COND	7	07188	R 07202 8
2344		B	*E7		7	07195	J 07208
2345		***	SET ERROR 41 ON ***		6	07202	, 01942
2346		SW	E41	SET ERROR IND ON			
2347				READ HAO FOLLOWING TURNING OFF CE-HAO SWITCH CAUSES EXTERNAL COND			
2348				POSSIBLY DID NOT WRITE HOME ADDRESSES CORRECTLY IN ROUTINE N15			
2349		MLCA	@00@,FILEE3	SET TKHD ADDR TO	12	07208	D 09848 09894 T
2350		MU	%F5,FILE,R	CYL 0 AND READ HAO	10	07220	M %F5 09891 R
2351		BA1	*E1		7	07230	R 07237 M
2352		BEF1	N16XIT	CHECK FOR EXT COND	7	07237	R 07250 8
2353		***	SET ERROR 42 ON ***				

CT ADDR INSTRUCTION

6 07244 , 01943

7 07250 J 02066

N16 OPCOD OPERAND

SW E42 SET ERROR IND ON

READ HAD USING ADDRESS OF CYL 000 WHEN ACCESS IS AT CYL 253 DOES NOT CAUSE EXT COND. POSSIBLE FAILURE OF CE-HAD SWITCH OFF OR ITS ASSOCIATED CKTS.

PGLIN

2354

2355

2356

2357

2358

N16XIT

B

MONITR

CT ADDR INSTRUCTION

PGLIN LABEL N17 OPCOD OPERAND

2360 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2361 \*\*\* TEST FLAG DETECTION AND SWITCHING \*\*\*  
 2362  
 2363 THIS ROUTINE ADDRESSES EACH OF THE TRACERS FLAGGED IN ROUTINE 16  
 2364 WITH A READ HAO INSTRUCTION. THE DATA READ BACK IS CHECKED FOR THE  
 2365 CODE CHARACTER WRITTEN ON THE ALTERNATE TRACKS, IF THE CHARACTER  
 2366 IS NOT PRESENT ERROR 43 IS INDICATED.  
 2367

2368 FORMAT REQUIRED  
 2369 SAME AS WRITTEN IN ROUTINE N13

N17	OPCOD	OPERAND	ROUTINE ID	CT	ADDR	INSTRUCTION
2370	NOP			1	07257	N
2371	DC	0170		2	07259	
2372	MRCG	CEADDR, FILE	LOAD ADDR	12	07260	D 09667 09891 \$
2373	CS	DATAFD099	CLEAR DATA FIELD	6	07272	/ 09999
2374	MLCHS	0M0, DATAFD018	SET TERMINATING WMGM	12	07278	D 09812 09918 7
2375	MU	%F5, FILE, R	READ HAO	10	07290	M %F5 09891 R
2376	BA1	%01		7	07300	R 07307 M
2377	BCE	CHKFLG, DATAFD02, A	WAS ALTERNATE READ	12	07307	B 07332 09902 A

\*\*\* SET ERROR 43 ON \*\*\*

2379 SW E43 SET ERROR IND ON  
 2380 READ HAO OF A FLAGGED TRACK DOES NOT READ ALTERNATE TRACK.

N17	OPCOD	OPERAND	ROUTINE ID	CT	ADDR	INSTRUCTION
2381	B	MONITR		6	07319	, 01944
2382	A	010, FILE05	ADD 1 TO TKHD ADDR	7	07325	J 02066
2383	BCE	N17KIT, FILE05, 6	CYL COMPLETE	11	07332	A 09814 09896
2384	B	TS117	CHECKED	12	07343	B 07362 09896 6
2385	B	MONITR		7	07355	J 07272
2386	B	MONITR		7	07362	J 02066



CT ADDR INSTRUCTION

N18 OPCOD OPERAND

PGLIN LABEL

```

2388
2389 *** TEST ROUTINE DESCRIPTION ***
2390 *** WRITE & WRITE CHECK FORMAT ***
2391 THIS ROUTINE WRITES AND WRITE CHECKS A FORMAT ON CYLINDER 253.
2392 ANY STATUS ERRORS CAUSED BY THE WRITE FORMAT SETS ERROR 44 ON.
2393 ANY STATUS ERRORS CAUSED BY THE WRITE CHECK SETS ERROR 45 ON.
2394
2395 FORMAT ORGANIZATION
2396 GAP1--HA1--GAP2--HA2 6 CHARS--X GAP--REC ADDR 10 CHARS--Y GAP--
2397 RECORD AREA 6 CHARS--GAP 3
2398
2399 FORMAT DATA FIELD USED
2400 4443333333334333333333411111112222222221111111121111111111111121
2401 111112
2402 N18 NOP
2403 DC 2182 ROUTINE ID
2404 MRCG CEADDR,FILE LOAD FILE ADDR
2405 CS DATAFD99 CLEAR DATA FIELD
2406 MRCWG HA1-23,DATAFD LOAD FORMAT
2407 MU %F7,FILE,W WRITE FORMAT
2408 BA1 *E8 CHECK ALL INDICATORS
2409 B *E14
2410 *** SET ERROR 44 OR ***
2411 SW E44 SET ERROR IND ON
2412 WRITE FORMAT,6 BIT MODE,CAUSES STATUS ERROR
2413 BA1 STACHK GO TO STATUS ERROR
2414 WDC 1,FILE RETURN HERE FOR WDC
2415 BA1 *E8 CHECK ALL INDICATORS
2416 B N18X1T
2417 *** SET ERROR 45 ON ***
2418 SW E45 SET ERROR IND ON
2419 WRITE CHECK FORMAT CAUSES STATUS ERROR
2420 BA1 STACHK GO TO STATUS ERROR
2421 N18X1T B MONITR ROUTINE,RETURN HERE

```

```

1 07369 N
2 07371
12 07372 D 09667 09891 S
6 07384 / 09999
12 07390 D 09497 09900 L
10 07402 M %F7 09891 W
7 07412 R 07426 M
7 07419 J 07439
6 07426 , 01945
7 07432 R 03051 M
10 07439 M %F3 09891 W
7 07449 R 07463 M
7 07456 J 07476
6 07463 , 01946
7 07469 R 03051 M
7 07476 J 02066

```

PGLIN LABEL N19 OPCOD OPERAND

2423 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2424 \*\*\* TEST WRITE TRCK WITH ADDRESSES OPER \*\*\*  
 2425 THIS ROUTINE WRITES A RECORD AND READS IT BACK ,IT COMPARES THE  
 2426 DATA READ WITH THE DATA WRITTEN-IF IT DOES NOT COMPARE EQUAL  
 2427 ERROR 46 IS INDICATED.ALL STATUS ERRORS ARE ALSO INDICATED.  
 2428  
 2429  
 2430  
 2431  
 2432  
 2433  
 2434  
 2435

2436  
 2437  
 2438  
 2439  
 2440  
 2441  
 2442  
 2443  
 2444  
 2445  
 2446  
 2447  
 2448  
 2449  
 2450  
 2451  
 2452  
 2453  
 2454  
 2455  
 2456  
 2457

DATA FIELD ORGANIZATION  
 REC ADDR 6 CHARS--RECORD 2 CHARS

DATA FIELD USED  
 123456+-

N19	NOP	0190	ROUTINE ID	1	07483	N
DC	CEADDR,FILE	LOAD ADDR	2	07485		
MRCG	DATAFD&99	CLEAR DATA FIELD	12	07486	D 09667	09891 \$
CS	ALLBITS,DATAFD	LOAD DATA FIELD	6	07498	/	09999
MRCWG	060,FILE&5	SET ADDR ABOVE TRCKS	12	07504	D 09645	09900 L
MLCS	%F6,FILE,W	THAT ARE FLAGGED	12	07516	D 09869	09896 3
MU	STACHK	WRITE TRCK WITH ADDR	10	07528	M %F6	09891 W
BA1	DATAFD&7	BRCH ON ANY IND	7	07538	R 03051	M
CS	%F6,FILE,R	RETURN HERE	6	07545	/	09907
MU	STACHK	READ TRCK WITH ADDR	10	07551	M %F6	09891 R
BA1	DATAFD&7,ALLBIT&7	BRCH ON ANY IND	7	07561	R 03051	M
C	N19XIT	RETURN HERE	11	07568	C 09907	09652
BE		COMPARE DATA READ TO	7	07579	J 07592	S
		DATA WRITTEN				
		*** SET ERROR 46 ON ***				
SW	E46	SET ERROR IND ON	6	07586	,	01947
		DATA READ DOES NOT COMPARE TO DATA WRITTEN				
N19XIT	B	MONITR	7	07592	J	02066

CT ADDR INSTRUCTION

PGLIN LABEL OPCOD OPERAND

2459  
 2460 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2461 \*\*\* TEST TRACK WITHOUT ADDRESSES OP \*\*\*  
 2462 THIS ROUTINE PERFORMS A TRACK WITHOUT ADDRESSES WRITE AND READ,  
 2463 THE DATA READ IS COMPARED TO THE DATA WRITTEN AND IF IT DOES NOT  
 2464 COMPARE EQUAL ERROR 47 IS INDICATED. ALL STATUS ERRORS ARE ALSO  
 2465 INDICATED.  
 2466  
 2467 FORMAT REQUIRED  
 2468 SAME AS WRITTEN BY ROUTINE M18  
 2469  
 2470 DATA FIELD ORGANIZATION  
 2471 RECORD 2 CHARS  
 2472  
 2473 DATA FIELD USED  
 2474 \$-

2475	N20	NOP		1	07599	N	
2476		DC	202	2	07601		
2477		MRCG	CEADDR,FILE	12	07602	D	09667 09891 \$
2478		CS	DATAFDE99	6	07614	/	09999
2479		MRCWG	ALLBIT&6,DATAFD	12	07620	D	09651 09900 L
2480		MLCS	262,FILE&5	12	07632	D	09869 09896 3
2481							
2482		MU	2F2,FILE,W	10	07644	M	2F2 09891 W
2483		BA1	STACHK	7	07654	R	03051 M
2484		CS	DATAFD&1	6	07661	/	09901
2485		MU	2F2,FILE,R	10	07667	M	2F2 09891 R
2486		BA1	STACHK	7	07677	R	03051 M
2487		SM	DATAFD	6	07684	,	09900
2488		C	ALLBIT&7,DATAFD&1	11	07690	C	09652 09901
2489		BE	N20XIT	7	07701	J	07714 S
2490			*** SET ERROR 47 ON ***				
2491		SW	E47	6	07708	,	01948
2492			DATA READ DOES NOT COMPARE WITH DATA READ				
2493		N20XIT	B	7	07714	J	02066

TAHT ARE FLAGGED

WRITE TRACK NO ADDR  
 GO TO STATUS ERROR  
 ROUTINE, RETURN HERE  
 READ TRACK NO ADDR  
 GO TO STATUS ERROR  
 CHECK DATA READ BACK  
 IF IT IS GOOD BRCH

SET ERROR IND ON

DATA READ DOES NOT COMPARE WITH DATA READ

MONITR

PGLIN LABEL N21 OPCOD OPERAND

2495 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 2496 \*\*\* TEST SINGLE RECORD OP \*\*\*  
 2497  
 2498 THIS ROUTINE PERFORMS A SINGLE RECORD WRITE AND READ, USING THE  
 2499 RECORD ADDRESS WRITTEN IN ROUTINE N19. THE READ DATA IS COMPARED  
 2500 TO THE WRITE DATA AND IF IT DOES NOT COMPARE ERROR 48 IS  
 2501 INDICATED. ALL STATUS ERRORS ARE ALSO INDICATED.  
 2502

2503 FORMAT REQUIRED  
 2504 SAME AS WRITTEN BY ROUTINE N18  
 2505

2506 DATA FIELD USED  
 2507 \$--

PGLIN	N21	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2508	NOP			1	07721	N
2509	DC	0210		2	07723	
2510	CS	DATAFD099		6	07724	/ 09999
2511	MLCA	ALLBIT05, FILE07		12	07730	D 09650 09898 T
2512	MRCWG	ALLBIT06, DATAFD		12	07742	D 09651 09900 L
2513	MU	0F1, FILE, M		10	07754	M 0F1 09891 M
2514	BA1	STACHK		7	07764	R 03051 M
2515	CS	DATAFD01		6	07771	/ 09901
2516	MU	0F1, FILE, R		10	07777	M 0F1 09891 R
2517	BA1	STACHK		7	07787	R 03051 M
2518	SW	DATAFD		6	07794	, 09900
2519	C	ALLBIT07, DATAFD01		11	07800	C 09652 09901
2520	BE	N21X11		7	07811	J 07824 S
2521	***	SET ERROR 48 ON				
2522	SW	E48		6	07818	, 01949
2523						
2524	31141	DATA READ DOES NOT COMPARE TO DATA WRITTEN				
2525	N21X11	B	MONITR	7	07824	J 02066

CT ADDR INSTRUCTION

PGL IN LABEL OPCOD OPERAND

```

2527
2528 *** TEST ROUTINE DESCRIPTION ***
2529 *** TEST CYO OPERATION ***
2530 IF CYO IS AVAILABLE A TRACK WITHOUT ADDR OP IS USED TO WRITE A
2531 2 CHAR RECORD ON EACH TRACK IN CYL 253, THE WRITTEN IS 00 ON TRACK
2532 0,01 ON TRACK 1, AND SO ON THRU 39 ON TRACK 39. A READ CYO IS
2533 ISSUED, ADDRESSING THE BOTTOM TRACK ON CYL 253, AND THE DATA READ
2534 IS COMPARED TO THE 40 RECORDS WRITTEN. IF THE DATA READ DOES NOT
2535 COMPARE ERROR 49 IS INDICATED. THE 40 RECORDS ARE REWRITTEN USING
2536 A WRITE CYO AND THE PROGRAM BRANCHES BACK TO THE READ CYO. THE
2537 READ-WRITE CYO ARE REPEATED 10 TIMES.
2538
2539 FORMAT REQUIRED
2540 SAME AS WRITTEN BY ROUTINE N18
2541
2542 DATA FIELD ORGANIZATION
2543 40 2 CHARACTER RECORDS
2544
2545 DATA FIELD USED
2546 00010203040506070809101112131415161718192021222324252627282930313
2547 233343536373839
2548 N22 NOP
2549 DC 2220
2550 B TYP2 ROUTINE ID
2551 DCM 2CY02,G
2552 DCM 2 2,G
2553 BCE *28,*-13,1 BRCH IF CYO AVAIL
2554 B N22XIT
2555 S TENCNT
2556 MRCG CEADDR,FILE LOAD ADDR
2557 CS DATAFD299 CLEAR DATA FIELD
2558 MLC A 2002,DATAFD21 LOAD
2559 MLCWS 2M2,DATAFD22 DATA FIELD
2560 TST22 MU 2F2,FILE,M WRITE TRCK NO ADDR
2561 BAI STACHK BRCH ON ANY ERROR
2562 SW DATAFD,FILE24

```

```

1 07831 N
2 07833
7 07834 J 01607
3 07843
1 07845
12 07847 B 07866 07845 I
7 07859 J 08151
6 07866 S 09346
12 07872 D 09667 09891 $
6 07884 / 09999
12 07890 D 09848 09901 T
12 07902 D 09812 09902 7
10 07914 M 2F2 09891 M
7 07924 R 03051 M
11 07931 , 09900 09895

```

PGLIN	LABEL	OPCOD	OPERAND	INSTRUCTION	CT	ADDRS
2563		A	010,DATAFD01	UPDATE RECORD	11	07942 A 09814 09901
2564		A	010,FILE05	UPDATE TRACK ADDR	11	07953 A 09814 09896
2565		BCE	008,FILE04,6	IS CYL COMPLETE	12	07964 B 07983 09895 6
2566		B	TST22		7	07976 J 07914
2567		CS	DATAFD09	CLEAR DATA FIELD	6	07983 / 09999
2568		MLCWS	000,DATAFD08	SET TERMINATING WGM	12	07989 D 09812 09980 7
2569		MRCG	CEADDR,FILE	RELOAD FILE ADDR	12	08001 D 09667 09891 \$
2570	RDCYC	MU	0F0,FILE,R	READ CYO CYL 253	10	08013 M 0F0 09891 R
2571		SBR	DATA04	STORE BAR AFTER READ	7	08023 G 01714 B
2572		BAI	STACHK	GO TO STATUS CHECK	7	08030 R 03051 M
2573		SW	DATAFD	ROUTINE,RETURN HERE	6	08037 , 09900
2574		C	CYOFD,DATAFD07	CHECK DATA READ	11	08043 C 09761 09979
2575		BE	PASS22	IF IT IS GOOD BRCH	7	08054 J 08091 S
2576		***	SET ERROR 49 ON ***			
2577		SW	E49,EXTRA01	SET ERROR IND ON	11	08061 , 01950 02970
2578			DATA READ DOES NOT COMPARE TO DATA WRITTEN			
2579		MRCWG	BREG,DATA07	MOVE MESSAGE	12	08072 D 09353 01717 L
2580		B	N22XIT		7	08084 J 08151
2581	PASS22	A	010,TENCNT	ADD 1 TO PASS COUNT	11	08091 A 09814 09346
2582		BZ	N22XIT	BRCH AFTER 10TH PASS	7	08102 J 08151 V
2583	WRTCYD	MLCA	CYOFD,DATAFD07	LOAD DATA FIELD	12	08109 D 09761 09979 T
2584		MU	0F0,FILE,W	WRITE CYO CYL 253	10	08121 M 0F0 09891 M
2585		BAI	STACHK	GO TO STATUS CHECK	7	08131 R 03051 M
2586		CS	DATAFD07	ROUTINE RETURN HERE	6	08138 / 09979
2587		B	RDCYO		7	08144 J 08013
2588	N22XIT	B	MONITR		7	08151 J 02066

N23  
OPCOD OPERAND

2590  
2591 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
2592 \*\*\* TEST SEEK COMPLETE,BLOCK INTERRUPT,& RELEASE \*\*\*  
2593 IF PRIORITY IS AVAILABLE A SEEK IS ISSUED AND ALERT MODE IS  
2594 ENTERED.THE PROGRAM DELAYS AND IF NO INTERRUPT OCCURES ERROR 51  
2595 IS INDICATED.IF THE INTERRUPT OCCURES A NO-OP IS ISSUED AND BUSY  
2596 IS CHECKED.IF THE ACCESS IS STILL BUSY ERROR 52 IS INDICATED.IF  
2597 THE 7631 IS A MODLE 3 A SEEK IS ISSUED FOLLOWED BY A SET BLOCK  
2598 INTERRUPT AND THE PROGRAM ENTERS ALERT MODE.A DELAY FOLLOWS DURING  
2599 WHICH TIME NO INTERRUPT SHOULD OCCURE.IF IT DOES ERROR 53 IS  
2600 INDICATED.FINALLY A RELEASE INSTRUCTION IS ISSUED AND STATUS  
2601 ERRORS ARE CHECKED.  
2602

PGLIN	LABEL	OPCOD	OPERAND	ROUTINE ID	BRCH IF PRIORITY	REQUEST MOD INFO	LOAD ADDR	SET UP INTERRUPT LOC	RESET DELAY COUNTER	SEEK ACCESS	ENTER ALERT MODE	WAIT	FOR	SEEK	COMPLETE INTERRUPT	EXIT ALERT MODE	SET ERROR IND ON	WHEN IT IS COMPLETE	RESTORE INTERRUPT LOC	
2603	N23	NOP																		
2604		DC	@23@																	
2605		BCE	*@8,1264,1																	
2606		B	N23XIT																	
2607		B	TYP2																	
2608		DCM	@ MOD 3@,G																	
2609		DCM	@ @,G																	
2610		MLCA	@0000@,FILE@5																	
2611		MRCWG	PRITST,108																	
2612		S	LNGCNT																	
2613		SD	1,FILE																	
2614		BAI	@@1																	
2615		BEPA	@@1																	
2616		A	@1@,LNGCNT																	
2617		C	LNGCNT,@3200@																	
2618		BE	@@8																	
2619		B	DELAYS																	
2620		BXPA	@@1																	
2621		***	SET ERROR 51 ON ***																	
2622		SM	E51																	
2623		A	SEEK DOES NOT CAUSE AN INTERRUPT WHEN IT IS COMPLETE																	
2624		MRCWG	INTR,@101																	
2625		B	N23XIT																	

1	08158	N
2	08160	
12	08161	B 08180 01264 1
7	08173	J 08582
7	08180	J 01607
6	08192	
1	08194	
12	08196	D 09831 09896 1
12	08208	D 09763 00108 1
6	08220	S 09459
10	08226	M %FO 09891 R
7	08236	R 08243 M
7	08243	Y 08250 E
11	08250	A 09814 09459
11	08261	C 09459 09873
7	08272	J 08286 S
7	08279	J 08250
7	08286	Y 08293 X
6	08293	, 01952
12	08299	D 02007 00101 1
7	08311	J 08582

PGLIN	LABEL	DPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2626	GOTINT	MU	%F0,FILE,V	10	08318	M %F0 09891 V
2627		MRCWG	INTR,101	12	08328	D 02007 00101 L
2628		BAI	*%1	7	08340	R 08347 M
2629		BCB1	*%8	7	08347	R 08361 2
2630		B	PREVNT	7	08354	J 08374
2631		***	SET ERROR 52 ON ***			
2632		SW	E52	6	08361	, 01953
2633			A SEEK CAUSES AN INTERRUPT WHEN IT IS COMPLETE,BUT A NO-OP INDI-			
2634			CATES THE ACCESS IS STILL BUSY			
2635		B	N23XIT	7	08367	J 08582
2636	PREVNT	BCE	*%8,MODNUM,1	12	08374	B 08393 08194 1
2637		B	N23XIT	7	08386	J 08582
2638		MRCWG	BLKST,108	12	08393	D 09771 00108 L
2639		MLCA	@9#20a,FILES	12	08405	D 09844 09896 T
2640		SD	1,FILE	10	08417	M %F0 09891 R
2641		BAI	*%1	7	08427	R 08434 M
2642		MU	*F4,FILE,W	10	08434	M *F4 09891 W
2643		BAI	*%1	7	08444	R 08451 M
2644		BEX1	STACHK,L	7	08451	R 03051 L
2645		BEP4	*%1	7	08458	Y 08465 E
2646		S	LNGCNT	6	08465	S 09459
2647	DELAY6	A	@1a,LNGCNT	11	08471	A 09814 09459
2648		C	LNGCNT,@3200a	11	08482	C 09459 09873
2649		BE	*%8	7	08493	J 08507 S
2650		B	DELAY6	7	08500	J 08471
2651		BXPA	*%1	7	08507	Y 08514 X
2652		B	RELESE	7	08514	J 08546
2653		***	SET ERROR 53 ON ***			
2654	BADINT	SW	E53	6	08521	, 01954
2655			A SEEK OP FOLLOWED BY A SET BLOCK INTERRUPT DOES NOT BLOCK INTERPT			
2656		MRCWG	INTR,101	12	08527	D 02007 00101 L
2657		B	N23XIT	7	08539	J 08582
2658	RELESE	MRCWG	INTR,101	12	08546	D 02007 00101 L
2659		MU	%F9,FILE,W	10	08558	M %F9 09891 M
2660		BAI	*%1	7	08568	R 08575 M
2661		BEX1	STACHK,L	7	08575	R 03051 L



DA04  
CT ADDR INSTRUCTION

7 08582 J 02066

N23

DPCOD OPERAND

B MONITR

ROUTINE, RETURN

LABEL

N23XIT

PGLIN

2662

PGLIN LABEL OPCOD OPERAND

```
2664  
2665  
2666 *** TEST ROUTINE DESCRIPTION ***  
2667 *** TEST WRITE INHIBIT, HAO, WRITE FORMAT SWITCHES ***  
2668 THIS IS RUN ONLY IN THE MANUAL MODE, IT BEGINS BY REQUESTING THAT  
2669 THE HAO, AND WRITE FORMAT SWITCHES BE TURNED OFF. WITH THESE  
2670 SWITCHES OFF A WRITE HAO IS ISSUED AND NOT READY IS CHECKED, IF IT  
2671 IS NOT ON ERROR 54 IS INDICATED. A WRITE FORMAT WITH WDC OP IS  
2672 ISSUED AND EXT COND IS CHECKED, IF IT IS NOT ON ERROR 55 IS INDI-  
2673 CATED. THE ROUTINE REQUESTS THAT THE HAO AND WRITE INHIBIT  
2674 SWITCHES BE TURNED ON. A WRITE OP TRYS TO RE-WRITE A RECORD AND  
2675 READ IT BACK, IF THE RECORD IS WRITTEN ERROR 56 IS INDICATED.  
2676 RECORD USED WHEN ATTEMPTING HAO WRITE -HAO SWITCH OFF-  
2677 88123456  
2678  
2679 FORMAT USED WHEN ATTEMPTING WRITE FORMAT -WRT FMT SWITCH OFF-  
2680 44433333333333333333333341111112  
2681  
2682 RECORD USED WHEN ATTEMPTING WRITE -WRITE INHIBIT SWITCH ON-  
2683 99  
2684
```

```
2685 N24 NOP 1 08589 M  
2686 DC 2 08591  
2687 BCE *CB, SPTAD1, 1 BRCH IF MANUAL MODE 12 08592 B 08611 01005 I  
2688 B N24XIT 7 08604 J 08943  
2689 B TYP1 7 08611 J 01593  
2690 DCW @HAO@WRT FMT SMS OFF@,G 19 08636  
2691 H WAIT FOR ACTION 1 08638  
2692 MRCWG CEADDR, FILE LOAD FILE ADDR 12 08639 D 09667 09891 L D  
2693 MLCA @88@, DATAFD&1 LOAD 12 08651 D 09875 09901 T  
2694 MRCWG ALLBIT, DATAFD&2 DATA FIELD 12 08663 D 09645 09902 L D  
2695 SD 1, FILE POSITION ACCESS 10 08675 M @F0 09891 R  
2696 BC81 @-16 7 08685 R 08675 Z  
2697 BA1 *61 7 08692 R 08699 M G  
2698 MU @F5, FILE, M WRITE HAO 10 08699 M @F5 09891 W  
2699 BC81 @-16 7 08709 R 08699 Z
```

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
2700		BAI	*61	7	08716	R 08723 M G
2701		BNR1	*67	7	08723	R 08736 I
2702		***	SET ERROR 54 ON ***			
2703		SW	E54	6	08730	, 01955
2704			WRITE HAO CAN BE PERFORMED WITH HAO SWITCH OFF			
2705		CS	DATAFD699	6	08736	/ 09999
2706		SW	DATAFD	6	08742	, 09900
2707		MRCG	HAI-23,DATAFD	12	08748	D 09497 09900 \$
2708		MRCWG	RECADR-1,DATAFD630	12	08760	D 09566 09930 L
2709		MU	%F7,FILE,W	10	08772	M %F7 09891 W
2710		BCB1	*-16	7	08782	R 08772 Z
2711		BAI	*61	7	08789	R 08796 M
2712		BEF1	*67	7	08796	R 08809 B
2713		***	SET ERROR 55 ON ***			
2714		SW	E55	6	08803	, 01956
2715			WRITE FORMAT CAN BE PERFORMED WITH WRITE FORMAT SWITCH OFF			
2716		B	IVP1	7	08809	J 01593
2717		DCW	%WRITE INHIBIT%HAO SMS ON%G	24	08839	
2718		H		1	08841	.
2719		CS	DATAFD699	6	08842	/ 09999
2720		MLCA	%99%,DATAFD61	12	08848	D 09877 09901 T
2721		MLCWS	%M%,DATAFD62	12	08860	D 09812 09902 7
2722		MU	%F2,FILE,W	10	08872	M %F2 09891 W
2723		BAI	*61	7	08882	R 08889 M
2724		CS	DATAFD61	6	08889	/ 09901
2725		MU	%F2,FILE,R	10	08895	M %F2 09891 R
2726		BAI	*61	7	08905	R 08912 M
2727		C	DATAFD61,%99%	11	08912	C 09901 09877
2728		BE	*68	7	08923	J 08937 S
2729		B	N24XIT	7	08930	J 08943
2730		***	SET ERROR 56 ON ***			
2731		SW	E56	6	08937	, 01957
2732			WRITE TRACK WITHOUT ADDR CAN BE PERFORMED WITH WRITE INHIBIT			
2733			SWITCH ON			
2734		N24XIT	B	7	08943	J 02066

CT ADDR INSTRUCTION

N25 OPCOD OPERAND

PGLIN LABEL

PGLIN	LABEL	OPCOD	OPERAND	DESCRIPTION	CT	ADDR	INSTRUCTION
2736				*** TEST ROUTINE DESCRIPTION ***			
2737				*** RESTORE FLAGGED TRACKS ON DIAGNOSTIC CYL 253 ***			
2738				THIS ROUTINE RESTORES THE HOME ADDRESSES ON THE TRACKS USED IN			
2739				THE FLAGGING ROUTINES N16 & N17.			
2740							
2741	N25	NOP			1	08950	N
2742		DC	252	ROUTINE ID	2	08952	
2743		CS	DATAFD299	CLEAR DATAFLD	6	08953	/ 09999
2744		MRCWG	CEADDR,FILE	RESET ADDR	12	08959	D 09667 09891 L
2745		MRCWG	FILE2,DATAFD	LOAD ADDR INTO	12	08971	D 09893 09900 L
2746		MRCWG	FILE27	DATA FIELD	6	08983	D 09898
2747		SD	1,FILE	POSITION ACCESS	10	08989	M 3FO 09891 R
2748		BCBI	--16		7	08999	R 08989 Z
2749		BAI	*61		7	09006	R 09013 M
2750		B	TYPI		7	09013	J 01593
2751		DCW	2MRT INHIBIT OFF,HA0ECE-HAO SWS ON2,G		33	09052	
2752		H		WAIT FOR CE ACTION	1	09054	.
2753	REMOVE	MU	2F5,FILE,M	WRITE HAO	10	09055	M 3F5 09891 W
2754		BCBI	--16		7	09065	R 09055 Z
2755		BAI	*61		7	09072	R 09079 M
2756		BEXI	STACHK,M	CHECK ALL BUT WLR	7	09079	R 03051 M
2757		SW	FILE24	RETURN HERE	6	09086	. 09895
2758		A	212,FILE25	UPDATE FILE ADDR	11	09092	A 09814 09896
2759		MRCG	FILE2,DATAFD	MOVE ADDR TO DATA FD	12	09103	D 09893 09900 \$
2760		BCE	N25KIT,FILE25,6	BRCH IF ALL FLAGS	12	09115	B 09134 09896 6
2761		B	REMOVE	REMOVED	7	09127	J 09055
2762	N25KIT	B	MONITR		7	09134	J 02066

PGLIN	LABEL	OPCOD	OPERAND	NZ6	OPCOD	OPERAND	ROUTINE ID	ROUTINE ID	CT	ADDR	INSTRUCTION
2764									1	09141	N
2765									2	09143	
2766									11	09144	A 09879 00099
2767									11	09155	A 09820 00094
2768									12	09166	B 09299 00099 E
2769									12	09178	B 09197 018E1 F
2770									7	09190	J 09144
2771									12	09197	D 096J1 09228 T
2772									7	09209	J 01045
2773									5	09220	09265
2774									5	09225	03578
2775									1	09226	
2776									1	09227	
2777									1	09228	
2778									12	09229	D 09228 09279 3
2779									10	09241	M 2FO 09891 R
2780									7	09251	R 09144 1
2781									7	09258	R 09265 M
2782									7	09265	J 01593
2783									8	09272	Q
2784									11	09281	M 09884 00039
2785									7	09292	J 03511
2786									7	09299	J 01593
2787									12	09317	
2788									1	09319	
2789									12	09320	B 02000 01003 1
2790									7	09332	J 00400
2791									7	09339	J 02238
2792											
2793											
2794											
2795											
2796											
2797											
2798											
2799											

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 \*\*\* LOCATE CHANNELS THAT HAVE 7631 ADAPTERS \*\*\*  
 THIS ROUTINE USES THE INFORMATION ON THE CHANNEL CARDS TO  
 LOCATE AVAILABLE 7631. THE ROUTINE CAUSES THE PROGRAM TO BE  
 INITIALIZED ACCORDING TO THE CHANNEL LOCATED. WHEN ALL CHANNELS  
 HAVE BEEN CHECKED THE ROUTINE ENDS THE PROGRAM.

NOT AVAILABLE RETURN TO SELECT ANOTHER OPT

CT ADDR INSTRUCTION

N26

PGLIN LABEL OPCOD OPERAND

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*

\*\*\* DA04 CONSTANTS \*\*\*

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2800	TENCNT	DCW	202	1	09346	
2801	EREG	DCW	2E REG2,G	5	09347	
2802	BREG	DCW	2B REG2,G	5	09353	
2803	BRCHO	B	RESET1	7	09359	J 03554
2804	BRCHI	DCW	2MA	1	09366	
2805	BRCHI	B	HANG1	7	09367	J 03697
2806	BRCHI	DCW	2MA	1	09374	
2807	ZERO	DCW	2000002	6	09380	
2808	ALLCHR	DCW	2 .2BTR2\$*B,L-/,2SSMB#a:2MMABCEDEFGHI.JKLMNOPQR+STUV2	50	09381	
2809	ALLCHR	DC	2WXYZ05678912342,G	14	09444	
2810	ACCMES	DC	2ADDR FLDA2,G	8	09446	
2811	LNGCNT	DCW	2000002	5	09459	
2812	BRCH2	B	HANG2	7	09460	J 05129
2813	BRCH2	DCW	2MA	1	09467	
2814	CON1	DCW	DATAFDE38	5	09472	09938
2815	BRCH3	B	HANG3	7	09473	J 05569
2816	BRCH3	DCW	2MA	1	09480	
2817	CHRMES	DCW	2ILLGL CHAR2,G	10	09481	
2818	CON2	DCW	DATAFDE28	5	09496	09928
2819	HAI	DCW	244433333333333433333333342	24	09520	
2820	HAI	DC	21111112	6	09526	
2821	LONGAP	DCW	22222222222222222	12	09538	
2822	RECADR	DC	2111111111111111111111111111111112122,G	29	09567	
2823	TSTFMT	DCW	244433333333333333333333333333342,G	37	09569	
2824	TSTFT6	DCW	24441122,G	37	09607	
2825	ALLBIT	DCW	2123456B-2,G	8	09645	
2826	BRCH4	B	HANG4	7	09654	J 06343
2827	BRCH4	DCW	2MA	1	09661	
2828	CON3	DCW	DATAFDE16	5	09666	09916
2829	CEADDR	DCW	2009#20882,G	8	09667	
2830	FLAGS	DCW	21245672	6	09676	
2831	FLAGS	DCW	2000102030405060708091011121314151617181920212223242	50	09731	
2832	CYOFLO	DC	22526272829303132333435363738392,G	30	09761	

CT ADDR INSTRUCTION

7 09763 J 08318  
 1 09770  
 7 09771 J 08521  
 1 09778  
 3 09781  
 3 09784  
 3 09787  
 3 09790  
 3 09793  
 3 09796  
 3 09799  
 3 09802  
 3 09805  
 3 09808  
 09809  
 1 09809  
 1 09810  
 1 09811  
 1 09812  
 1 09813  
 1 09814  
 5 09819  
 1 09820  
 1 09821  
 5 09826  
 1 09827  
 4 09831  
 2 09833  
 5 09838 09141  
 2 09840  
 4 09844  
 2 09846  
 2 09848  
 4 09852  
 4 09856  
 2 09858

PGLIN	LABEL	N26	OPCOD	OPERAND
2836	PRITST	8	DCM	GOTINT C aMa
2837		DCM		
2838	BLKTST	8	DCM	BADINT G aMa
2839		DCM		
2840	CODE3	DCM		a a
2841		DCM		aR1a
2842		DCM		aX2a O
2843		DCM		aM33a
2844		DCM		a.14a
2845	OVLAP	DCM		a a
2846				a22a
2847				a***a
2848				a\$\$\$a
2849				a###a
2850			LTORG	aMa
2850				aPa
2850				aPa D
2850				aLa G
2850				aMa
2850				a a
2850				a1a
2850				a00209a
2850				a3a
2850				a7a
2850				a00237a
2850				a2a
2850				a0000a
2850				a30a
2850				N26
2850				a6Ca
2850				a9#20a
2850				a11a
2850				a00a
2850				a4400a
2850				a7760a
2850				a21a

INSTRUCTION

CT ADDR

N26

OPCOD

OPERAND

LABEL

PGLIN

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
2850			0220	2	09860	
2850			040	1	09861	
2850			0880	3	09864	
2850			088A0	4	09868	
2850			060	1	09869	
2850			032000	4	09873	
2850			0880	2	09875	
2850			0990	2	09877	
2850			0570	2	09879	
2850			NOI	5	09884	03511
2851		ORG	9891		09891	
2852	FILE	DCW	009#20880,G	8	09891	
2853	DATAFD	DCW	0 0	1	09900	
2854		DS	98		09998	
2855		END				J

END OF ASSEMBLY



## 6.05.00.0 DA05 MECHANICAL AND HYDRAULIC TEST DESCRIPTION

This test obsoletes DA05 . This test uses an oil warm-up routine before beginning the testing of the access.

The program tests every available module on every channel in an automatic or manual mode. The automatic mode requires no manual intervention and can be run from a Load-and-Go maintenance tape. The manual mode does require intervention and cannot be run unattended.

The program starts by running a five-minute oil warm-up routine; if in manual mode, an additional 20 minutes is run, and then proceeds to test the piston, Lo Glob, and Hi Glob Adders. Ten passes through a worse case seek routine are made, followed by 100 passes through a random seek test. The program now times the three basic seek times with the access being moved from the outside portion of the disk inward to the center. The three basic seek times are checked again with the access being moved from the center of the disk outward toward the edge of the disk. The results of the timing tests are printed on the console and the next available module is tested.

### 6.05.01.0 OPERATING PROCEDURE

The standard procedures outlined in the package write-up apply to this program. In addition, the following procedures are used to run this program.

#### 01.1 SWITCH SETTINGS PREVIOUS TO RUNNING PROGRAM

- A. Write HAO switch on (on all 7631's to be tested).
- B. \*Write Inhibit switch on (on all 7631's to be tested).
- C. All 1301 modules not to be tested are set inoperative.

\*NOTE: Write Inhibit switch need only be turned on when running in manual mode.

#### 01.2 SPECIAL REQUESTS (MADE ONLY IN THE MANUAL MODE)

##### A. "CE-HAO ON"

CE turns on CE HAO switch and presses start. This request is made if during the random seek test the access fails to position correctly. With the CE-HAO switch on, the HAI is read into memory and displayed on the typewriter.

## 6.05.01.0 OPERATING PROCEDURE (continued)

### B. "ADDR READ, 0000000, CE-HAO OFF"

The CE turns off the CE-HAO switch and presses start to continue.

### 01.3 SPECIAL TAD'S

There is one special TAD for this program (memory location 01004). IF THIS TAD IS SET TO "1," the program will run in the manual mode. This TAD is set to "1" when the program is loaded.

### 01.4 STANDARD OPTIONS

Two of the standard options are not available with this program, they are:

A. Alter Routine Sequence - option code 3

B. One Instruction Loop - option code 5

### 01.5 MANUAL MODE

When the manual mode has been selected, the program:

A. Runs the oil warm-up routine for a total of 25 minutes.

B. Requests intervention when access fails to position correctly in the random seek test.

### 01.6 SUMMARY TYPEOUT

The summary of errors typeout is not available with this program.

## 6.05.02.0 OPERATING HINTS

### 02.1 SELECTING MANUAL MODE (ALTER SPECIAL TAD)

Use program option code 2 (alter memory) to alter special TAD 1 to a 1 or 1. Manual mode should normally be selected during the first five minute warm-up period. Special TAD memory location 01004.

6.05.02.0 OPERATING HINTS (continued)

## 02.2 POWER ON WARM-UP

If power has just been brought up, the additional 20 minute warm-up must be run for valid results. To run the extra 20 minute warm-up, select manual mode during the first five minute warm-up.

6.05.03.0 PROGRAM STOPS

## 03.1 ERROR STOPS

None

## 03.2 NORMAL STOPS (MANUAL MODE ONLY)

Memory Loc.Reason

5071	Wait for CE to turn on CE-HAO switch and press start.
5148	Wait for CE to turn off CE-HAO switch and press start.

6.05.04.0 TYPEOUTS (OTHER THAN REQUEST OR STANDARD TYPEOUTS)

## 04.1 "AUTO MODE, HAO SWITCH ON"

This is to remind the CE that this program runs in automatic mode when loaded and that the HAO switch on the 7631 must be on.

## 04.2 "TST MOD 0 CH 0"

This tells the CE which module on which channel is being tested at present.

## 04.3 "BEGINNING 5 MINUTE WARM-UP"

"BEGIN 20 MINUTE WARM-UP"\*

"WARM-UP COMPLETE TEST BEGINNING"

These typeouts are simply reference points to let the CE know where he is at.

\*NOTE: The 20 minute message is given only when running in manual mode.

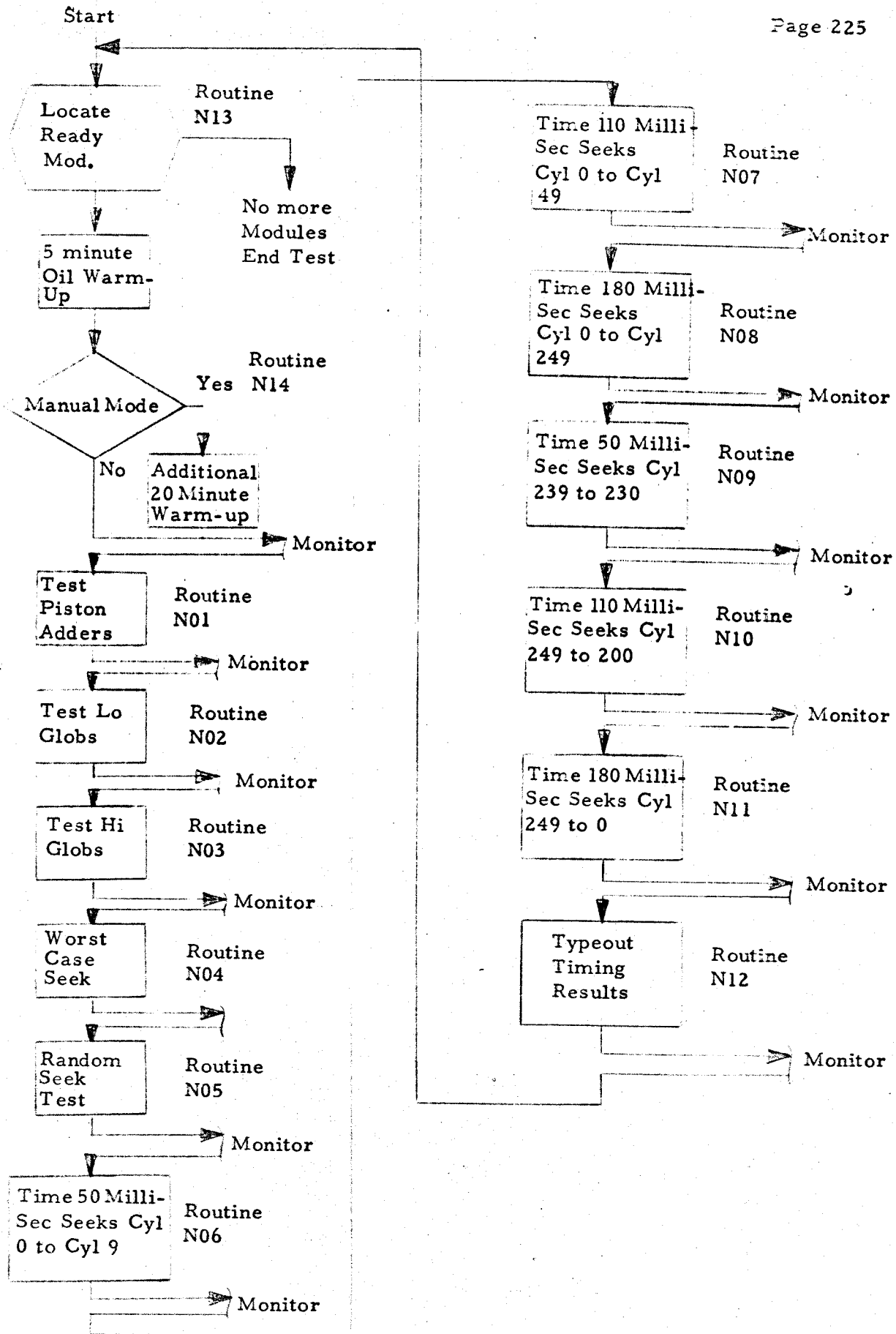
6.05.04.0 TYPEOUTS (continued)

04.4 Seek time results are typed in the following table after all the timings have been made.

Seek -	<u>From</u>	<u>To</u>	Time -	<u>Was</u>	<u>Should be</u>	In MSEC
	0000	0360			50	
	0000	1960			110	
	0000	9960			185	
	8760	8400			50	
	9960	8000			110	
	9960	0000			185	

6.05.05.0 FLOW CHART

The following flow chart is designed to give a general picture of the test routine's relationship to one another.



6.05.06.0 ROUTINE/ERROR INDEX DA05

This index should be used to locate routines and errors in the program listing.

<u>Routine Number</u>	<u>Error Number</u>	<u>Page</u>
N01	02	248
	04	249
N02	06	250
	08	251
N03	10	252
	12	252
N04	14	254
N05	16	255
N06		257
N07		258
N08		259
N09		260
N10		261
N11		262
N12		263
N13		264
N14		266

L/D DICOST DEFINE TADS

OPCOD OPERAND

LABEL

PGLIN

CTL 2

DEFINE STANDARD TADS

ORG 1000

DCM @ @

TADO

TAD1

TAD2

TAD3

01000

1 01000

1 01001

1 01002

1 01003

DEFINE SPECIAL TADS

DCM @ @

SPTAD0

SPTAD1

SPTAD2

SPTAD3

SPTAD4

SPTAD5

SPTAD7

SPTAD8

SPTAD9

1 01004

1 01005

1 01006

1 01007

1 01008

1 01009

1 01010

1 01011

1 01012

1002

1003

1004

1005

1006

1007

1008

1009

1010

1011

1012

1013

1014

1015

1016

1017

1018

1019

1020

1021

1022

1023

CT ADDR INSTRUCTION

I/O DICOST ONE INSTRUCTION LOOP

OPCOD OPERAND

LABEL

PCLIN

```

1025      *** I/O DICOST PROGRAM ***
1026      *** ONE INSTRUCTION LOOP ROUTINE ***
1027      WHEN THE CE SELECTS A ONE INSTRUCTION LOOP THE I/O INSTRUCTION
1028      IN THIS ROUTINE IS ALTERED AND THE LOOP IS ENTERED. NOTE THAT THE
1029      BRANCH ON INQUIRY INSTRUCTION IS THE ONLY EXIT FROM THE LOOP.
1030      LOOP      MU      X11.0.0.R      I/O INST BEING LUP D
1031      BAI      *E1
1032      BNQ      PRGCTL      BRCH ON INQ TO PRGCL
1033      B      LOOP      CONTINUE TO LOOP
1034      H
1035
10      01013 M X11 00000 R
7      01023 R 01030 M
7      01030 J 02238 Q
7      01037 J 01013
1      01044 .

```



I/O DICOST CHANNEL ALTER

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1037			*** I/O DICOST PROGRAM ***			
1038			*** CHANNEL ALTER ROUTINE ***			
1039			THIS ROUTINE ALTERS ALL I/O INSTRUCTIONS, BRANCH-ON-STATUS-			
1040			INDICATOR-ON INSTRUCTIONS, AND BRANCH ON CHANNEL OVERLAP IN PRO-			
1041			CESS INSTRUCTIONS ACCORDING TO THE CHANNEL INDICATED. THIS IS DONE			
1042			BY SCANNING A DEFINED AREA OF MEMORY AND ALTERING THESE INSTRU-			
1043			CTIONS.			
1044						
1045	CHALTR	SBR	X5	7	01045	G 00049 B
1046		MLCA	9&X5,X7	12	01052	D 00+9 00059 T
1047	SCAN	SCNLA	0&X6,0&X6	12	01064	D 00+0 00+0 B
1048		SAR	X6	7	01076	G 00054 A
1049		C	X6,X7	11	01083	C 00054 00059
1050		BH	13&X5	7	01094	J 00+73 U
1051		MLCS	1&X6,*&12	12	01101	D 00+1 01124 3
1052		BCE	MLORU, CODES,	12	01113	B 01149 02563
1053		BCE		1	01125	B
1054		BCE		1	01126	B
1055		BCE	RX3DR1	6	01127	B 01168
1056		BCE		1	01133	B
1057		BCE		1	01134	B
1058		BCE		1	01135	B
1059		BCE	JAY	6	01136	B 01187
1060		B	SCAN	7	01142	J 01064
1061	MLORU	MLCS	10&X5,2&X6	12	01149	D 00+0 00+2 3
1062		B	SCAN	7	01161	J 01064
1063	RX3DR1	MLCS	11&X5,1&X6	12	01168	D 00+1 00+1 3
1064		B	SCAN	7	01180	J 01064
1065	JAY	MLCS	7&X6,*&12	12	01187	D 00+7 01210 3
1066		BCE	ONE234,MODS,	12	01199	B 01221 02567
1067		BCE		1	01211	B
1068		BCE		1	01212	B
1069		BCE		1	01213	B
1070		B	SCAN	7	01214	J 01064
1071	ONE234	MLCS	12&X5,7&X6	12	01221	D 00+2 00+7 3
1072		B	SCAN	7	01233	J 01064

I/O DICOST CHANNEL ALTER

PGLIN LABEL

OPCODE OPERAND

H 1 01240 .

DEFINE SYSTEM & CHANNEL CONTROL CARDS

1073	ORG	1233	01233
1074	DCH	3FN2FJRFJZJ305*9a	17 01249

DEFINE PROGRAM TITLE

1075	ORG	1250	01250
1076	DCH	3DA05C3.G	5 01254

LOCATE THE SYSTEM & CHANNEL CARDS

1077	ORG	1256	01256
1078	DC	3	50 01256
1079	DC	3	7 01312
1080	ORG	1289	01289
1081	DC	3	50 01289
1082	DC	3	7 01345
1083	ORG	1346	01346
1084	DC	3	50 01346
1085	DC	3	7 01402
1086	ORG	1403	01403
1087	DC	3	50 01403
1088	DC	3	7 01459
1089	ORG	1460	01460
1090	DC	3	50 01460
1091	DC	3	7 01516
1092	DC	3	
1093	DC	3	
1094	DC	3	
1095	DC	3	
1096	DC	3	
1097	DC	3	
1098	DC	3	
1099	DC	3	
1100	DC	3	
1101	DC	3	
1102	DC	3	
1103	DC	3	

I/O DICOST TYPE  
OPCODE OPERAND

PGLLN LABEL

1105 \*\*\* I/O DICOST PROGRAM \*\*\*

1106 \*\*\* TYPE AND REQUEST FOR INTERVENTION \*\*\*

1107 THIS ROUTINE IS USED TO TYPE ALL MESSAGES AND REQUESTS FOR

1108 MANUAL INTERVENTION.THE ROUTINE WILL TYPE A MESSAGE FROM A COMMON

1109 DATA FIELD,OR THE MESSAGE MAY BE LOCATED IMMEDIATELY AFTER THE

1110 BRANCH INSTRUCTION TO THIS ROUTINE.IF A REPLY IS REQUIRED A READ

1111 CONSOLE PRINTER OPERATION IS ISSUED.THIS ROUTINE IS USED TO TYPE

1112 ALL MESSAGES IN THIS PROGRAM.

PGLLN	LABEL	I/O DICOST TYPE	OPCODE	OPERAND	STORE RETURN ADDR	CT	ADDRS	INSTRUCTION
1113						7	01517	G 01591 B
1114						10	01524	M ZTO 00201 M
1115						7	01534	R 01524 Z
1116						7	01541	R 01548 M
1117						1	01548	N
1118	SW11	SBR				10	01549	M ZTO 00000 R
1119	LAB60	RCP	0	S		7	01559	R 01549 M
1120		BEX1		--16,M		7	01566	R 01573 M
1121		BAL		*E1		6	01573	□ 01549
1122		CW		SW11E1		6	01579	/ 00330
1123		CS		330		1	01585	/
1124		CS				7	01586	J 00000
1125	TYPXIT	B	0			7	01593	G 00029 B
1126	TYPI	SBR	X1			7	01600	J 01620
1127		B		*E14		7	01607	G 00029 B
1128	TYP2	SBR	X1			6	01614	□ 01652
1129		SW		REPLYE1		10	01620	M ZTO 000+0 W
1130		WCP		0E1		7	01630	G 00029 B
1131		SBR	X1			7	01637	R 01620 Z
1132		BCB1		--23		7	01644	R 01651 M
1133		BAL		*E1		1	01651	N
1134	REPLY	NOPWM				7	01652	J 01666
1135		B		RDCON		7	01659	J 000+0
1136		B		0E1		10	01666	M ZTO 000+0 R
1137	RDCON	RCP		0E1		7	01676	G 00029 B
1138		SBR	X1			7	01683	R 01666 M
1139		BEX1		--23,M		7	01690	R 01697 M
1140		BAL		*E1				

1140

I/O DICOST TYPE  
OPCOD OPERAND

PGLIN

LABEL

CT ADDR INSTRUCTION

CM REPLY&I

DATA

RETURN  
RESET FIRST PASS INST  
BRCH IF PRIORITY AVAILABLE  
ALTER PRIORITY INST TO NO-OP  
RESTORE CHANNEL ALTER ROUTINE

1141	CM	REPLY&I	6	01697	01652
1142	B	0CX1	7	01703	J 000&0
1143	MLCWS	0&0,PASS1	12	01710	D 06868 01944 7
1144	BCE	*013,1264,1	12	01722	B 01746 01264 1
1145	MLCWS	0&0,MONITRE7	12	01734	D 06868 02073 7
1146	MRCWG	*09,1230	12	01746	D 01766 01230 L
1147	B	PASS1&7	7	01758	J 01951
1148	H		1	01765	.
1149	DC	0.730	3	01768	
1150	DCM	0J0	1	01769	
1151	DC	SCAN	5	01774	01064
1152	DC	0 0	1	01775	
1153	DCM	0.0.0.G	1	01776	
1154	DS	12		01789	

\*\*\* ERROR TABLES THESE ARE USED FOR ERROR \*\*\*  
\*\*\* SUMMARIES AND ERROR IDENTIFICATION \*\*\*

1156	ORG	0EX00			01800
1157	ORG	0E1			01801
1158	DCM	0L0	1	01801	
1159	DC	0 0	1	01802	
1160	DC	0 0	1	01803	
1161	DC	0 0	1	01804	
1162	DC	0 0	1	01805	
1163	DC	0 0	1	01806	
1164	DC	0 0	1	01807	
1165	DC	0 0	1	01808	
1166	DC	0 0	1	01809	
1167	DC	0 0	1	01810	
1168	DC	0 0	1	01811	
1169	DC	0 0	1	01812	
1170	DC	0 0	1	01813	
1171	DC	0 0	1	01814	
1172	DC	0 0	1	01815	
1173	DC	0 0	1	01816	
1174	DC	0 0			
1175	DC	0 0			
1176	DC	0 0			

I/O DICOST TYPE  
OPCOD OPERAND

CT ADDR INSTRUCTION

PGLIN	LABEL	OPCOD	OPERAND
1177	E16		0 0
1178	E17		0 0
1179	E18		0 0
1180	E19		0 0
1181	E20		0 0
1182	E21		0 0
1183	E22		0 0
1184	E23		0 0
1185	E24		0 0
1186	E25	DC	0 0
1187	E26	DC	0 0
1188	E27		0 0
1189	E28		0 0
1190	E29		0 0
1191	E30		0 0
1192	E31		0 0
1193	E32		0 0
1194	E33		0 0
1195	E34		0 0
1196	E35		0 0
1197	E36		0 0
1198	E37		0 0
1199	E38		0 0
1200	E39		0 0
1201	E40		0 0
1202	E41		0 0
1203	E42		0 0
1204	E43		0 0
1205	E44		0 0
1206	E45		0 0
1207	E46		0 0
1208	E47		0 0
1209	E48		0 0
1210	E49		0 0
1211	E50		0 0
1212	E51	DC	0 0

1	01817	
1	01818	
1	01819	
1	01820	
1	01821	
1	01822	
1	01823	
1	01824	
1	01825	
1	01826	
1	01827	
1	01828	
1	01829	
1	01830	
1	01831	
1	01832	
1	01833	
1	01834	
1	01835	
1	01836	
1	01837	
1	01838	
1	01839	
1	01840	
1	01841	
1	01842	
1	01843	
1	01844	
1	01845	
1	01846	
1	01847	
1	01848	
1	01849	
1	01850	
1	01851	
1	01852	

I/O DICOST TYPE

PGLIN	LABEL	OPCOD	OPERAND
1213	E52		0 0
1214	E53		0 0
1215	E54		0 0
1216	E55		0 0
1217	E56		0 0
1218	ERRTAB	DC	0+0
1219		DC	0 0
1220			

CT ADDR INSTRUCTION

1	01853	
1	01854	
1	01855	
1	01856	
1	01857	
1	01858	
1	01859	

I/O DICOST INITIALIZE ROUTINE

PGLIN	LABEL	OPCODE	OPERAND	PRINT TITLE	CT	ADDRS	INSTRUCTION
1222				*** INITIALIZE ROUTINE FOR THE DICOST PROGRAM ***			
1223	INITLE	MCP	1250		10	01860	M 3TO 01250 W
1224		BCBL	*-16		7	01870	R 01860 2
1225		BAI	*81		7	01677	R 01884 H
1226		CS	99	RESET IND REG 5	6	01884	/ 00099
1227		SW	25	SET WM IN IND REG 1	6	01890	, 00025
1228		MLCS	2+2,100	PREPARE TO LOAD 2-15	12	01896	D 06869 00100 3
1229		MRWR	25,30	LOAD IND REG 2-15	12	01908	D 00025 00030 2
1230		MRCWG	RESUME,1	MOVE RESET PROCEDURE	12	01920	D 02015 00001 L
1231		MRCWG	INTR,101	MOVE INTERRUPT PROC	12	01932	D 02007 00101 L
1232	PASS1	B	DATA	GO DO MORE INITIALIZING	7	01944	J 01710
1233		CW	LPRT,SW1161		11	01951	D 02575 01549
1234		CS	E56	CLEAR AND RESET	6	01962	/ 01857
1235		MLCWS	2L2,STPTAB	ERROR TABLE	12	01968	D 06870 01801 7
1236		B	START	GO TO ROUTINE INIT.	7	01980	J 03377
1237		H			1	01987	-
1238		ORG	2000			02000	
1239		B	INITLE		7	02000	J 01860
1241				*** RESET & INTERRUPT ROUTINES, THESE ROUTINES ***			
1242				*** ARE MOVED TO LOCATIONS 1 & 101			
1243	INTR	BNQ	PRGCTL	RETURN TO PROG CNTRL	7	02007	J 02238 Q
1244		DCW	2M2		1	02014	
1245	RESUME	B	CKLUP		7	02015	J 02023
1246		DCW	2M2		1	02022	
1247	CKLUP	BW	MONITR,LPRT	CHECK FOR LOOP ROUT	12	02023	V 02066 02575 1
1248		BW	LOOP,LPINST	CHECK INST LOOP SW	12	02035	V 01013 02576 1
1249		MLNA	X3,X2	LOAD IX 2	12	02047	D 00039 00034 /
1250		B	MONITR67	GO TO MONITR	7	02059	J 02073
1251							

I/O DICOST MONITOR

CT ADDR INSTRUCTION

PGLIN	LABEL	OPCOD	OPERAND	SBR	X2	STORE ADDR
1253						7 02066 G 00034 B
1254						7 02073 Y 02080 X
1255						7 02080 J 02238 Q
1256						12 02087 V 000M0 02575 1
1257						12 02099 D 06871 00224 7
1258						7 02111 J 02635
1259						1 02118 N
1260						12 02119 D 00034 00039 X
1261						12 02131 D 06872 00224 7
1262						7 02143 J 000.0
1263						12 02150 D 06872 00224 7
1264						12 02162 B 02181 000.0 N
1265						7 02174 J 000.0
1266						12 02181 V 02200 000.1 2
1267						7 02193 J 000.0
1268						12 02200 V 02219 000.2 2
1269						7 02212 J 000.0
1270						12 02219 V 02118 000.3 1
1271						7 02231 J 000.0
1272						
1273						
1274						
1275						
1276						
1277						
1278						
1279						
1280						
1281						
1282						

\*\*\* I/O DICOST PROGRAM \*\*\*  
 \*\*\* MONITOR ROUTINE \*\*\*  
 THE MONITOR IS ENTERED AFTER EVERY TEST ROUTINE IS COMPLETED, OR  
 A STATUS ERROR HAS BEEN DETECTED AND INDICATED. IN THE CASE OF A  
 STATUS ERROR MONITOR SIMPLY BRANCHES BACK TO THE POINT AT WHICH  
 THE STATUS ERROR WAS DETECTED. WHEN ENTERED FROM THE END OF A  
 TEST ROUTINE MONITOR CHECKS TO SEE IF THE CE PRESSED INQUIRY, THE  
 ROUTINE IS BEING LOOPEL, ANY ERRORS OCCURED, ALTER ROUTINE SEQUENCE  
 IS SELECTED, OR THE NEXT SEQUENTIAL ROUTINE SHOULD BE RUN.

MONITR SBR X2 STORE ADDR  
 BXP A \*E1 EXIT ALERT MODE  
 BNQ PRGCTL WAS THERE AN INQ  
 BWH OEX3,LPRT RETURN IF LOOPING RT  
 MLCWS @a,224 SET WMGM SHORT MMSG  
 B ERRCTL  
 MONIT3 NOP  
 MLCWA X2,X3 LOAD IX3  
 MLCWS @ a,224 CLEAR WMGM  
 B OEX2 GO TO NEXT ROUTINE  
 MLCWS @ a,224 CLEAR WMGM  
 BCE \*E8,0EX2,N BRCH IF ROUT COMP  
 B OEX2 RETURN TO ROUTINE  
 BZN \*E8,1EX2,2 BRCH IF CHAR IS NUMR  
 B OEX2 RETURN TO ROUTINE  
 BZN \*E8,2EX2,2 BRCH IF CHAR IS NUMR  
 B OEX2 RETURN TO ROUTINE  
 BWH MONIT3,3EX2 BRCH IF CHAR HAS WM  
 B OEX2 RETURN TO ROUTINE



I/O DICOST PROGRAM CONTROL

CT ADDR INSTRUCTION

1284 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1285 \*\*\* PROGRAM CONTROL \*\*\*  
 1286 WHEN THE CE PRESSES INQUIRY TO SELECT A STANDARD PROGRAM OPTION  
 1287 THIS ROUTINE IS ENTERED.THE CE ENTERS ON THE TYPEWRITER THE  
 1288 OPTION CODE DESIRED,ALONG WITH THE DATA NEEDED BY THE OPTION.THE  
 1289 ROUTINE DETERMINES WHICH OPTION HAS BEEN SELECTED AND INITIATES  
 1290 THE OPTION.  
 1291

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1292	PRGCTL	RCPW	CTLFLD	10	02238	L 310 00201 R
1293		SBR	XI	7	02248	G 00029 B
1294		BEX1	PRGCTL,M S	7	02255	R 02238 M
1295		SW	CTLFLD&1	6	02252	, 00202 G
1296		BA1	*&1	7	02258	R 02275 M
1297		CH	LPRT,LPINST	11	02275	0 02575 02576
1298		MLWS	*,&1	12	02286	D 02297 01802 4
1299		MRWR	E1,&2	12	02298	D 01802 01803 2
1300		MLCS	CTLFLD,*&12	12	02310	D 00201 02333 3
1301		BCE	ENDTST,CTLCOD,	12	02322	B 06576 02574
1302		BCE	ALTADS	6	02334	B 02377
1303		BCE	ALTMEM	6	02340	B 02400
1304		BCE	LUPRT	6	02346	B 02459
1305		BCE	ONELUP	6	02352	B 02488
1306		BCE	RSTART	6	02358	B 02522
1307		BCE	CONT	6	02364	B 02545
1308		B	PRGCTL	7	02370	J 02238
1309	ALTADS	MLCA	CTLFLD&4,1003	12	02377	D 00205 01003 T
1310		CS	MONIT1,299	11	02359	/ 02087 00299
1311	ALTMEM	MLCA	CTLFLD&5,*&9	12	02400	D 00206 02420 T
1312		RCPW	0	10	02412	L 310 00000 R
1313		BEX1	*-16,M S	7	02422	R 02412 M
1314		BA1	*&1	7	02429	R 02436 M
1315		CS	MONIT1,299	11	02435	/ 02087 00299
1316	ALTSEQ	MLCWS	0M2,0&X1	12	02447	D 06871 00040 7
1317	LUPRT	SW	LPRT	6	02459	, 02575
1318		MLNA	CTLFLD&5,X2	12	02465	D 00206 00034 /
1319		CS	MONIT2,299	11	02477	/ 02099 00299



CT ADDR INSTRUCTION

I/O DICOST ERROR CONTROL  
OPCOD OPERAND

PGLIN LABEL

1351 \*\*\* I/O DICOST PROGRAM \*\*\*  
 1352 \*\*\* ERROR CONTROL \*\*\*  
 1353 THIS ROUTINE DETERMINES IF ANY STATUS ERRORS OR PROGRAM DETECT-  
 1354 ED ERRORS HAVE TO BE INDICATED, IF THERE ARE THIS ROUTINE BUILDS  
 1355 THE ERROR MESSAGE AND HAS IF TYPED OUT. THIS ROUTINE ALSO CHECKS  
 1356 TAC 1 TO SEE IF A REQUEST FOR ERROR ACTION SHOULD BE MADE.

LOCATE FAILING INST

PGLIN	ERRCTL	MLCA	X2,X5	LOAD IND REG 5	CT	ADDR	INSTRUCTION
1357		S	010,X5		12	02635	D 00034 00049 T
1358		SCNLA	00X5,00X5	SCAN THE ROUTINE	11	02647	S 06873 00049 S
1359		SAR	X5	STORE CHAR ADDR	12	02658	D 00+0 00+0 B
1360		MLCS	10X5,*012	MOVE CHAR TO BE CHKD	7	02670	G 00049 A
1361		BCE	GOTONE, CODES,	IS OP CODE M	12	02677	D 00+1 02700 3
1362		BCE		IS OP CODE L	12	02689	B 02733 02563
1363		BCE	SHORT1	IS OP CODE U	1	02701	B
1364		C	X3,X5	HAS ROUTINE BEEN	6	02702	B 02752
1365		BL	LOADFLD	SEARCHED	11	02708	C 00039 00049
1366		B	ERRCTL012	GO CONTINUE THE SRCH	7	02719	J 02776 T
1367	GOTONE	MLCWA	100X5, LOOP09	LOAD THE LOOP INST	7	02726	J 02647
1368		B	LOADFLD		12	02733	D 00+0 01022 X
1369	SHORT1	MLCWA	50X5, LOOP09	LOAD THE LOOP INST	7	02745	J 02776
1370		MLCS	000, LOOP	SET NO-OP FOR SHORT	12	02752	D 00+5 01022 X
1371		MLCA	LOOP09, 234		12	02764	D 06868 01013 3
1372		MLNA	X3, 223	INSTRUCTION	12	02776	D 01022 00234 T
1373		ZA	ADDR02, X1	MOVE FAILING OPR	12	02788	D 00039 00223 /
1374		ZA	0002090, X5	MOVE ADDR OF ROUT	11	02800	H 02581 00029
1375				LOAD IND REG 1	11	02811	H 06878 00049
1376				LOAD IND REG 5	12	02822	D 000+0 000+0 B
1377	LOADFLD	SCNLA	00X1, 00X1	SCAN THE ERROR TABLE	7	02834	G 00029 A
1378		SAR	X1	STORE ADDR	12	02841	B 02900 000+1 L
1379		BCE	AFTSRH, 10X1, L	HAS TABLE BEEN COMP.	6	02853	, 00028
1380		SW	X1-1	DEFINE ERROR	12	02859	D 00029 00+0 V
1381	ERRSCAN	MLNWA	X1, 00X5	MOVE ERROR CODE NO.	11	02871	A 06879 00049
1382		A	030, X5	UPDATE IND REG 5			

I/O DICOST ERROR CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1387						
1388		CH	1&X1,X1-1	11	02882	□ 000+1 00028
1389		B	ERSCAN	7	02893	J 02822
1390						
1391	AFTSRH	BCE	WHERE2,1000,1	12	02900	B 02150 01000 I
1392	ERROSW	NOP		1	02912	N
1393		BCE	WHERE2,209	12	02913	B 02150 00209
1394		SM	ERROSW&1	6	02925	, 02913
1395		MLCA	ERR,206	12	02931	D 02587 00206 T
1396		MLCA	2&X3,ROUTID	12	02943	D 000M2 02972 T
1397		B	TYPI	7	02955	J 01593
1398		DCW	ROUTINE @	8	02969	
1399	ROUTID	DC	@ @,G	3	02972	
1400		B	TYES	7	02974	J 01517
1401						
1402	EXTRA	NOPWH		1	02981	N
1403		WCP	DATA	10	02982	M 310 01710 W
1404		BCB1	@-16	7	02992	R 02982 Z
1405		BAL	@&1	7	02999	R 03006 M
1406		CH	EXTRA&1	6	03006	□ 02982
1407	ACT	BCE	@&8,1001,1	12	03012	B 03031 01001 I
1408		B	WHEREZ	7	03024	J 02150
1409		SM	LUPINT&1	6	03031	, 02495
1410		MRCWG	ACTION,201	12	03037	D 02588 00201 L
1411		B	TYES	7	03049	J 01517
1412		B	PRGCTL	7	03056	J 02238
1413						
1414						
1415						
1416						
1417						
1418						
1419	STACKH	SBR	X5	7	03063	G 00049 B
1420		SBR	X2	7	03070	G 00034 B
1421		BW	0&X2,LPR1	12	03077	V 000,0 02575 I
1422		S	@&2,X5	11	03089	S 06880 00049

\*\*\* I/O DICOST PROGRAM \*\*\*

\*\*\* DETERMINE WHICH STATUS INDICATORS ARE ON \*\*\*  
 THIS ROUTINE DETERMINES WHICH STATUS INDICATORS ARE ON, ON THE  
 CHANNEL BEING USED. THE INDICATORS FOUND ON ARE STORED IN THE  
 PRINT FIELD AND THE PROGRAM BRANCHES TO ERROR CONTROL.

STORE ADDR IN IND 5  
 STORE ADDR IN IND 5  
 REDUCE ADDR BY 7

I/O DICOST ERROR CONTROL

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
1423		MLCS	06X5,LOOP&10	12	03100	D 00##0 01023 3
1424		MRCMG	STIND,237	12	03112	D 02621 00237 L
1425		MLCS	06X5,NUOPCO	12	03124	D 00##0 03154 3
1426		B	CHALTR	7	03136	J 01045
1427		DCW	CNTERR	5	03147	03309
1428		DC	NOTRODY	5	03152	03167
1429		DCW	a a	1	03153	
1430	NUOPCO	DC	a a	1	03154	
1431		DC	a a	1	03155	
1432		ZA	000237a,X5	11	03156	0 06885 00049
1433	NOTRODY	NOP		1	03167	N
1434		BNR1	CNTERR	7	03168	R 03309 1
1435		B	UPIX	7	03175	J 03340
1436	BUSY	NOP		1	03182	N
1437		BCB1	CNTERR	7	03183	R 03309 2
1438		B	UPIX	7	03190	J 03340
1439	DATAACK	NOP		1	03197	N
1440		BER1	CNTERR	7	03198	R 03309 4
1441		B	UPIX	7	03205	J 03340
1442	EXTCND	NOP		1	03212	N
1443		BEF1	CNTERR	7	03213	R 03309 8
1444		B	UPIX	7	03220	J 03340
1445	NOTRNS	NOP		1	03227	N
1446		BNT1	CNTERR	7	03228	R 03309 8
1447		B	UPIX	7	03235	J 03340
1448	WLR	NOP		1	03242	N
1449		BWL1	CNTERR	7	03243	R 03309 -
1450		B	UPIX	7	03250	J 03340
1451		SW	NOTRODY&1,BUSY&1	11	03257	03168 03183
1452		SW	DATAACK&1,EXTCND&1	11	03268	03198 03213
1453		SW	NOTRNS&1,WLR&1	11	03279	03228 03243
1454		MRCG	237,SAVIND	12	03290	D 00237 02609 \$
1455		B	ERRCTL	7	03302	J 02635
1456	CNTERR	SBR	X6	7	03309	G 00054 8
1457		A	07a,X6	11	03316	A 06880 00054
1458		CW	ERROSWE&1	6	03327	D 02913

I/O DICOST ERROR CONTROL

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1459		B	UPIX&I9	7	03333	J 03359
1460	UPIX	SBR	X6	7	03340	G 00054 B
1461		MLCS	@ @,0EX5	12	03347	D 06872 00#0 3
1462		A	@@,X5	11	03359	A 06886 00049
1463		B	0EX6	7	03370	J 00#0.0
1464						

STORE RETURN ADDR  
 REMOVE STATUS CHAR  
 UPDATE IND REG 5  
 RETURN TO PROGRAM

CT ADDR INSTRUCTION

I/O DICOST SEQUENCE CONTROL

OPCOD OPERAND

LABEL

PGLIN

1466	CTLFLD	EQU	201
1467		PST	

INITIALIZE FOR DA05  
OPCODE OPERAND

CT ADDR INSTRUCTION

PGLIN LABEL

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
\*\*\* INITIALIZE COUNTERS & DELAY CONSTANTS \*\*\*

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
1469						
1470	START	SW	ADDRESS1	6	03377	06677
1471		CM	COLD5W61	6	03383	03878
1472		S	LNGCNT	6	03389	06840
1473		S	WARMCT	6	03395	06839
1474		S	TIMCNT	6	03401	06834
1475		S	LOOP11	6	03407	06828
1476		S	CORR	6	03413	06836
1477		S	COUNT	6	03419	06825
1478		S	RUTCNT	6	03425	06814
1479		ZA	0013080,X10	11	03431	06891 00074
1480		ZA	000000,X15	11	03442	06896 00099
1481		BCE	C1410,1256,0	12	03453	03539 01256 0
1482		BCE	C1410I,1256,I	12	03465	03508 01256 I
1483		MLCA	LOOPX,LOOP11	12	03477	06855 06828 T
1484	C7010	MLCA	CORRX,CORR	12	03489	06857 06836 T
1485		B	GETSET	7	03501	J 03563
1486		MLCA	CORRI,CORR	12	03508	06862 06836 T
1487	C1410I	MLCA	LOOP1,LOOP11	12	03520	06860 06828 T
1488		B	GETSET	7	03532	J 03563
1489		MLCA	CORRO,CORR	12	03539	06867 06836 T
1490	C1410	MLCA	LOOPO,LOOP11	12	03551	06865 06828 T
1491		B	TYPI	7	03563	J 01593
1492	GETSET	DCW	0AUTO MODE,MAO SWITCH ON,G	23	03592	
1493		WCP	BLANK	10	03594	M XTO 06818 W
1494		BAI	*01	7	03604	R 03611 M
1495		WCP	BLANK	10	03611	M XTO 06818 W
1496	TIMEIT	BAI	*01	7	03621	R 03628 M
1497		BCB1	*08	7	03628	R 03642 2
1498		B	GOTEST	7	03635	J 03660
1499		A	003100,IOTIME	11	03642	A 06900 06823
1500		B	TIMEIT	7	03653	J 03611
1501		ZA	N13,X3	11	03660	M 06348 00039
1502	GOTEST	B	N13610	7	03671	J 06358
1503						
1504						



INITIALIZE FOR DA05

DA05 PAGE 245

CT ADDR INSTRUCTION

OPCOD OPERAND

LABEL

PGLIN

WARM UP HYDRAULIC OIL

CT ADDR INSTRUCTION

OPCOD OPERAND

LABEL

PGLIN

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1506				1	03678	N
1507				2	03680	
1508				7	03681	J 01593
1509				24	03711	
1510				6	03713	S 06839
1511				6	03719	S 06840
1512				12	03725	D 06677 06743 1
1513				12	03737	D 06677 06787 1
1514				10	03749	M 3FO 06676 R
1515				7	03759	R 03749 2
1516				7	03766	R 03773 M
1517				10	03773	M 3FO 06786 R
1518				7	03783	R 03773 2
1519				7	03790	R 03797 M
1520				10	03797	M 3FO 06742 R
1521				7	03807	R 03797 2
1522				7	03814	R 03821 M
1523				11	03821	A 06873 06839
1524				12	03832	B 03858 06837 5
1525				7	03844	J 02066
1526				7	03851	J 03749
1527				12	03858	B 03877 01004 1
1528				7	03870	J 03954
1529				1	03877	N
1530				7	03878	J 03912
1531						
1532						
1533						
1534						
1535						
1536						
1537						
1538						
1539						
1540						
1541						

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 \*\*\* WARM UP HYDRAULIC OIL \*\*\*  
 THIS ROUTINE OPERATES THE ACCESS FOR 5 MINUTES IN ORDER TO INSURE THAT THE OIL IS AT 105 DEGREES TEMPERATURE SO THAT THE SEEK TIMINGS MAY BE MADE USING THE FAST OSCILATOR. A MESSAGE INDICATES THE BEGINING AND END OF THE WARMUP PERIOD, IF POWER HAS JUST BEEN BROUGHT UP ON THE 1301 AN ADDITIONAL 20 MINUTE WARMUP PERIOD SHOULD BE TAKEN. THIS ADDITIONAL WARM-UP MAY BE SELECTED BY ALTERING SPECIAL TAD 0, LOC 1004 TO A 1. USE OPTION CODE 2 TO ALTER THE TAD WHILE IN THE FIRST 5 MINUTE WARM-UP PERIOD.

N14 NOP  
 DC 0142 ROUTINE ID  
 B TYP1  
 DCH @BEGINING 5 MINUTE WARMUP@,G  
 S WARMCT  
 S LNGCNT  
 MLNS ADCR000E1,ADR249E1 SET MOD ADDR  
 MLNS ADCR000E1,ADR125E1 SET MOD ADDR  
 SD 1,ADDR00 SEEK CYL 0  
 BC81 --16  
 BA1 \*E1  
 SD 1,ADR125 SEEK CYL 125  
 BC81 --16  
 BA1 \*E1  
 SD 1,ADR249 SEEK CYL 249  
 BC81 --16  
 BA1 \*E1  
 A @1@,WARMCT ADD 1 TO PASS COUNT  
 BCE \*E15,WARMCT-2,5 BRCH ON 500TH PASS  
 B MONITR  
 B STAR16  
 BCE \*E8,SPTADO,1 BRCH IF IN MANUAL MD  
 B WARM  
 COLD5W NOPWM  
 B NOMSG BY PASS MESSAGE

PGLIN	LABEL	OPCOD	OPERAND	WARM UP HYDRAULIC OIL	CT	ADDRS	INSTRUCTION
1542		B	TYPI		7	03885	J 01593
1543		DCW	@BEGIN 20 MIN WARMUP@,G		19	03910	
1544	NONSG	SW	COLD SW@1		6	03912	, 03878
1545		S	WARMCT		6	03918	S 06839
1546		A	@1@,LNGCNT ADD 1 TO LONG COUNT		11	03924	A 06873 06840
1547		BCE	WARM,LNGCNT,5		12	03935	B 03954 06840 5
1548		B	STAR16		7	03947	J 03749
1549	WARM	B	TYPI		7	03954	J 01593
1550		DCW	@WARMUP COMPLETE,TEST BEGINING@,G		29	03989	
1551	MIEXIT	B	MONITR		7	03991	J 02066
1552							

CT ADDR INSTRUCTION

TEST PISTON ADDERS  
OPCOD OPERAND

PGLIN LABEL

1554 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*

1555 \*\*\* TEST PISTON ADDERS \*\*\*

1556 THE ACCESS IS POSITIONED AT CYLINDER ZERO, IT IS THEN SEEKED TO  
 1557 CYLINDER 9, ACTUATING PISTONS 5, 4, 1. THE POSITION IS CHECKED BY A  
 1558 READ OP AND A NO RECORD FOUND RESULTS IN SETTING ERROR 2 ON THE  
 1559 ACCESS IS RESET TO CYL ZERC AND THEN SEEKED TO CYL 2, ACTUATING  
 1560 PISTON 2. THE ACCESS POSITION IS VERIFIED BY A READ AND A NO REC-  
 1561 ORD FOUND CAUSES ERROR 4. THE ROUTINE IS REPEATED TEN TIMES.

PGLIN	NO1	NOP	ROUTINE ID	CT	ADDR	INSTRUCTION
1562				1	0398	N
1563		DC		2	0400	
1564	START1	SD	1, ADDR00	10	04001	M 8FO 06676 R
1565		BCB1	--16	7	04011	R 04001 Z
1566		BA1	STACHK	7	04018	R 03063 M
1567		MLNS	ADDR00E1,ACDR9E1	12	04025	D 06677 06688 1
1568		SD	1, ADDR9	10	04037	M 8FO 06687 R
1569		BCB1	--16	7	04047	R 04037 Z
1570		BA1	STACHK	7	04054	R 03063 M
1571		MU	8F5, ADDR9, R	10	04061	M 8F5 06687 R
1572		BCB1	--16	7	04071	R 04061 Z
1573		BEX1	ERROR2, Y	7	04078	R 04190 Y
1574	NINE	BA1	8E1	7	04085	R 04092 M
1575		SD	1, ADDR00	10	04092	M 8FO 06676 R
1576	NINE20	BCB1	--16	7	04102	R 04092 Z
1577		BA1	STACHK	7	04109	R 03063 M
1578		MLNS	ADDR00E1,ACDR2E1	12	04116	D 06677 06699 1
1579		SD	1, ADDR2	10	04128	M 8FO 06698 R
1580		BCB1	--16	7	04138	R 04128 Z
1581		BA1	STACHK	7	04145	R 03063 M
1582		MU	8F5, ADDR2, R	10	04152	M 8F5 06698 R
1583		BCB1	--16	7	04162	R 04152 Z
1584	TWO	BEX1	ERROR4, Y	7	04169	R 04203 Y
1585		BA1	8E1	7	04176	R 04183 M
1586		B	NOICNT	7	04183	J 04209
1587		*** SET ERROR 2 ON ***				
1588	ERROR2	SW	E2	6	04190	. 01803
1589			TURN ON ERROR IND			

TEST PISTON ADDRS

CT ADDR INSTRUCTION

PGLIN LABEL

OPCOD OPERAND

1590	ACCESS DID NOT ARRIVE AT CYLINDER 9, READ OP RESULTS IN EXT.COND.			7	04196	J 04092
1591	B NINE20					
1592	*** SET ERROR 4 ON ***					
1593	ERROR4 SM E4	TURN ON ERROR IND		6	04203	, 01805
1594	ACCESS DID NOT ARRIVE AT CYLINDER 2, READ OP RESULTS IN EXT.COND.					
1595	NOICNT A @12, RUTCNT	UPDATE PASS COUNT		11	04209	A 06873 06814
1596	BCE NOIXIT, RUTCNT, 0	BRCH WHEN CNT IS 10		12	04220	B 04239 06814 0
1597	B STARTI			7	04232	J 04001
1598	NOIXIT B MDNTR			7	04239	J 02066

1599

CT ADDR INSTRUCTION

TEST LO GLOBS  
OPCOD OPERAND

LABEL

PGLIN

1601 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1602 \*\*\* TEST LO GLOB ADDERS \*\*\*  
 1603 THE ACCESS IS POSITIONED AT CYLINDER ZERO, IT IS THEN SEEKED TO  
 1604 CYLINDER 10, ACTUATING GLOB 10, A READ OP VERIFIES THAT THE ACCESS  
 1605 ARRIVED AT CYL 10. ERROR 6 IS INDICATED IF THE READ OP RESULTS IN  
 1606 A NO RECORD FOUND. THE ACCESS IS RESET TO CYL ZERO AND SEEKED TO  
 1607 CYL 45. THE ACCESS ARRIVAL IS CHECKED BY A READ OP, A NO RECORD  
 1608 FOUND RESULTS IN ERROR 8 BEING INDICATED. THE ROUTINE IS REPEATED  
 1609 TEN TIMES.

PGLIN	LABEL	OPCOD	OPERAND	TEST LO GLOBS	CT	ADDR	INSTRUCTION
1601					1	04246	N
1602					2	04248	
1603					10	04249	M %FO 06676 R
1604					7	04259	R 04249 Z
1605					7	04266	R 03063 M
1606					12	04273	D 06677 06710 1
1607					10	04285	M %FO 06709 R
1608					7	04295	R 04285 Z
1609					7	04302	R 03063 M
1610					10	04309	M %F5 06709 R
1611					7	04319	R 04309 Z
1612					7	04326	R 04438 Y
1613					7	04333	R 04340 M
1614					10	04340	M %FO 06676 R
1615					7	04350	R 04340 Z
1616					7	04357	R 03063 M
1617					12	04364	D 06677 06721 1
1618					10	04376	M %FO 06720 R
1619					7	04386	R 04376 Z
1620					7	04393	R 03063 M
1621					10	04400	M %F5 06720 R
1622					7	04410	R 04400 Z
1623					7	04417	R 04451 Y
1624					7	04424	R 04431 M
1625					7	04431	J 04457
1626							
1627							
1628							
1629							
1630							
1631							
1632							
1633							
1634							
1635							
1636							

\*\*\* SET ERROR 6 ON \*\*\*

TEST LO GLOBS

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
1637	ERROR6	SW	E6	6	04438	01807
1638			TURN ON ERROR IND			
1639			ACCESS DID NOT ARRIVE AT CYL 10, READ RESULTS IN NO RECORD FOUND	7	04444	J 04340
1640		B	TEN20			
1641	ERROR8	SW	E8	6	04451	01809
1642			TURN ON ERROR IND			
1643			ACCESS DID NOT ARRIVE AT CYL 45, READ RESULTS IN NO RECORD FOUND	11	04457	A 06873 06814
1644	NOZCNT	A	Q10, RUTCNT	12	04468	B 04487 06814 0
1645		BCE	NOZXIT, RUTCNT, 0	7	04480	J 04249
1646		B	UPDATE PASS COUNT			
1647		B	BRCH WHEN COUNT IS 0			
1648	NOZXIT	B	MONITR	7	04487	J 02066

CT ADDR INSTRUCTION

TEST HI GLOBS  
OPCOD OPERAND

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*

\*\*\* TEST HI GLOB ADDRS \*\*\*

THE ACCESS IS POSITIONED AT CYL 0 AND THEN SEEKED TO CYL 200,  
ACTUATING GLOBS 100,50,50 .A READ OP VERIFIES THAT THE ACCESS HAS  
ARRIVED AT CYL 200,IF A NO-RECORD-FOUND RESULTS ERROR 10 IS IND-  
ICATED.FROM CYL 200 THE ACCESS IS SEEKED TO CYL 0,AND AGAIN A  
READ OP VERIFIES THE ARRIVAL.IF THE ACCESS DID NOT ARRIVE AT CYL  
0 ERROR 12 IS INDICATED.THE ROUTINE IS REPEATED 10 TIMES.

PGLIN	LABEL	OPCOD	OPERAND	TEST HI GLOBS	CT	ADDR	INSTRUCTION
1649	NOP				1	04494	M
1650	DC	0030			2	04496	
1651	START3	SD	1,ADDR00	ROUTINE ID	10	04497	M ZFO 06676 R
1652	BCB1	--16		RESET ACCESS	7	04507	R 04497 2
1653	BA1	STACHK		BRCH ON ANY ERROR	7	04514	R 03063 M
1654	PLNS	ADDR0001,ADR20001		SET MOD ADDR	12	04521	D 06677 06732 1
1655	SD	1,ADR200		SEEK CYL 200 FROM 0	10	04533	M ZFO 06731 R
1656	BCB1	--16			7	04543	R 04533 2
1657	BA1	STACHK		BRCH ON ANY ERROR	7	04550	R 03063 M
1658	MJ	ZF5,ADR200,R		CHECK ARRIVAL	10	04557	M ZF5 06731 R
1659	BCB1	--16			7	04567	R 04557 2
1660	BEX1	EROR10,Y		BRCH ON NO REC FOUND	7	04574	R 04650 Y
1661	BA1	0E1			7	04581	R 04588 M
1662	SD	1,ADDR00		SEEK CYL 0 FROM 200	10	04588	M ZFO 06676 R
1663	BCB1	--16			7	04598	R 04588 2
1664	BA1	STACHK		BRCH ON ANY ERROR	7	04605	R 03063 M
1665	MU	ZF5,ADDR00,R		CHECK ARRIVAL	10	04612	M ZF5 06676 R
1666	BCB1	--16			7	04622	R 04612 2
1667	BEX1	EROR12,Y		BRCH ON NO REC FOUND	7	04629	R 04663 Y
1668	BA1	0E1			7	04636	R 04643 M
1669	B	NO3CNT			7	04643	J 04669
1670				*** SET ERROR 10 ON ***	6	04650	, 01811
1671	EROR10	SW	E10	TURN ON ERROR IND	7	04656	J 04588
1672				ACCESS DID NOT ARRIVE AT CYL 200,READ RESULTS IN NO RECORD FOUND	6	04663	, 01813
1673	B	TOZERO					
1674				*** SET ERROR 12 ON ***			
1675	EROR12	SW	E12	TURN ON ERROR IND.			



PGLIN LABEL OPCOD OPERAND

DA05 PAGE 253  
CT ADDR INSTRUCTION

1585 ACCESS DID NOT ARRIVE AT CYL 0, READ RESULTS IN NO RECORD FOUND

1586 N03CNT A @12,RUCNT UPDATE PASS COUNT

1587 BCE N03XIT,RUCNT,0 BRCH WHEN COUNT IS 10

1588 8 START3

1589 N03XIT B MONITR

1590

11 04669 A 06873 06814

12 04680 B 04699 06814 0

7 04692 J 04497

7 04699 J 02066

CT ADDR INSTRUCTION

OPCOD OPERAND

PGLIN LABEL

1692 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1693 \*\*\* TEST WORST CASE SEEK \*\*\*  
 1694 THE ACCESS IS SEEKED BETWEEN CYL 0 AND 249,ACTUATING ON AND OFF  
 1695 GLOBSE&PISTONS,100,50,50 ,20,20 ,4,85.THE ACCESS ARRIVAL AT CYL249  
 1696 IS CHECKED BY A READ OP,IF THE ACCESS HAS REZERDED ERROR 13 IS  
 1697 IS CHECKE BY A READ OP,IF THE ACCESS HAS REZERDED ERROR 13 IS  
 1698 INDICATED,IF THE READ OP RESULTS IN A NO RECORD FOUND ERROR 14 IS  
 1699 INDICATED.THE ROUTINE IS REPEATED 10 TIMES.

1700	NOP					1	04706	N
1701	DC	3042	ROUTINE ID			2	04708	
1702	START4	SD	1,ADDR00	RESET ACCESS		10	04709	M %FO 06676 R
1703		BCB1	--16			7	04719	R 04709 Z
1704		BA1	STACHK	BRCH ON ANY ERROR		7	04726	R 03063 M
1705		MLNS	ADDR00&1,ADR249&1	SET MOD ADDR		12	04733	D 06677 06743 1
1706		SD	1,ADR249	SEEK CYL 249 FROM 0		10	04745	M %FO 06742 R
1707		BCB1	--16			7	04755	R 04745 Z
1708		BA1	STACHK	BRCH ON ANY ERROR		7	04762	R 03063 M
1709		MU	%F5,ADR249,R	CHECK ARRIVAL		10	04769	M %F5 06742 R
1710		BCB1	--16			7	04779	R 04769 Z
1711	TWO49	BEX1	EROR14,Y	BRCH ON NO REC FOUND		7	04786	R 04814 Y
1712		BA1	%61			7	04793	R 04800 M
1713		B	N04CNT			7	04800	J 04820
1714		B	TWO49			7	04807	J 04786
1715				*** SET ERROR 14 ON ***				
1716	EROR14	SW	E14	TURN ON ERROR COUNT		6	04814	, 01815
1717				ACCESS DID NOT ARRIVE AT CYL 249,READ RESULTS IN NO RECORD FOUND				
1718	N04CNT	A	%12,RUTCNT	UPDATE PASS COUNT		11	04820	A 06873 06814
1719		BCE	N04XIT,RUTCNT,0	BRCH IF COUNT IS 10		12	04831	B 04850 06814 0
1720		B	START4			7	04843	J 04709
1721	N04XIT	B	MONITR			7	04850	J 02066
1722								

RANDOM SEEK TEST  
 OPcod OPERAND  
 \*\*\* RANDOM SEEK TEST \*\*\*  
 THE SPEED OF THE CARRIAGE RETURN IS USED TO DEVELOPE A RANDOM  
 NUMBER WHICH IS USED TO DEVELOPE A RANDOM ADDRESS FOR THE FILE.  
 ONE HUNDRED SEEKS USING RANDOM ADDRESSES ARE ISSUED,EACH SEEK IS  
 CHECKED FOR CORRECT ACCESS POSITION WITH A READ OP.-IF THE ACCESS  
 HAS REZEROED ERROR 15 IS INDICATED,IF THE ACCESS HAS POSITIONED  
 INCORRECTLY ERROR 16 IS INDICATED.IN THE CASE OF ERROR 16 IF THE  
 PROGRAM IS IN MANUAL MODE,-SPECIAL TAD 0 IS 1-THE HAI ON THE FILE  
 WILL BE READ OFF AND DISPLAYED ON THE CONSOLE FOR ANALYSIS.

PGLIN	LABEL	OPcod	OPERAND	CT	ADDR	INSTRUCTION
1724	NOS	NOP		1	04857	N
1734	STARTS	DC	0050	2	04859	
1736		MLNWA	TOTIME,VARIAD&5	12	04860	D 06823 06802 V
1737		MLNS	ADROO&1,VARIAD&1	12	04872	D 06677 06798 I
1738		SD	1,VARIAD	10	04884	M &F0 06797 R
1739		BCB1	*-16	7	04894	R 04884 2
1740		BAL	STACHK	7	04901	R 03063 M
1741		MU	&F5,VARIAD,R	10	04908	M &F5 06797 R
1742		BCB1	*-16	7	04918	R 04908 2
1743		BEX1	EROR16,Y	7	04925	R 04992 Y
1744		BAL	*&1	7	04932	R 04939 M
1745	RANDCH	A	03000,TOTIME	11	04939	A 06903 06823
1746		SW	VARIAD&2	6	04950	, 06799
1747		A	TOTIME,VARIAD&5	11	04956	A 06823 06802
1748		A	010,COUNT	11	04967	A 06873 06825
1749		BZ	N05XIT	7	04978	J 05136 V
1750		B	STARTS	7	04985	J 04860
1751		***	SET ERROR 16 ON ***			
1752	EROR16	SW	E16,EXTRA&1	11	04992	, 01817 02982
1753		ACCESS DID NOT POSITION CORRECTLY,READ RESULTS IN NO RECORD FOUND				
1754		MRCBG	VARIAD,DATA	12	05003	D 06797 01710 L
1755		BAL	STACHK	7	05015	R 03063 M
1756		BCE	*&8,SPTAD0,1	12	05022	B 05041 01004 I
1757		B	RANDOM	7	05034	J 04939
1758		B	TYP1	7	05041	J 01593
1759		DCW	&CE-HAO ON&2,G	9	05056	CE-HAO BE TURNED ON

PGLIN	LABEL	RANDOM SEEK TEST OPCOD OPERAND	CT	ADDRS	INSTRUCTION
1760		H	1	05058	.
1761		MU	10	05059	M %F5 06797 R
1762		BC81	7	05069	R 05059 2
1763		BA1	7	05076	R 05083 M
1764		MLCA	12	05083	D 06812 05117 T
1765		B	7	05095	J 01593
1766	ADRMMSG	DCW	27	05102	
1767		H	6	05130	. 04939
1768	NOSXIT	B	7	05136	J 02066
1769					

WAIT FOR ACTION  
 READ FAILING ADDR  
 WAIT FOR ACTION  
 GO TYPE FAILING ADDR  
 ,CE--HAD OFF, G  
 WAIT FOR ACTION

CT ADDR INSTRUCTION

OPCOD OPERAND

PGLIN LABEL

1771 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1772 \*\*\* TIME 50 MILLIE SEC SEEKS,CYL 0 TO CYL 9 \*\*\*  
 1773 THE ACCESS IS POSITIONED AT CYL 0 AND THEN SEEKED TO CYL 9,THE  
 1774 ACCESS IS ISSUED ANOTHER SEEK AND THE BUSY LINE IS CHECKED.AS  
 1775 LONG AS THE BUSY LINE REMAINS UP THE PROGRAM STAYS IN A TIMING  
 1776 LOOP,WHEN BUSY DROPS THE PROGRAM STORES THE TIME THE BUSY LINE  
 1777 WAS UP AND GOES TO THE NEXT ROUTINE.ANY STATUS INDICATORS ENCOUNTE  
 1778 RERED WILL BE INDICATED.

PGLIN	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1779	NOP		1	05143	N
1780	DC	2062	2	05145	
1781	S	TIMCNT	6	05146	S 06834
1782	MLNS	ADDR0001,ADDR901	12	05152	D 06677 06688 1
1783	SD	1,ADDR00	10	05164	M 3FO 06676 R
1784	BC81	*-16	7	05174	R 05164 2
1785	BAL	STACHK	7	05181	R 03063 M
1786	SD	1,ADDR9	10	05188	M 3FO 06687 R
1787	BC81	*-16	7	05198	R 05188 2
1788	BAL	STACHK	7	05205	R 03063 M
1789	SD	1,ADDR9	10	05212	M 3FO 06687 R
1790	BC81	*015	7	05222	R 05243 2
1791	BAL	STACHK	7	05229	R 03063 M
1792	B	FIFTY	7	05236	J 05261
1793	A	LOOP11,TIMCNT	11	05243	A 06828 06834
1794	B	SHORT	7	05254	J 05212
1795	A	CORR,TIMCNT	11	05261	A 06836 06834
1796	MLNA	TIMCNT-3,OUT10020	12	05272	D 06831 06134 /
1797	B	MONITR	7	05284	J 02066
1798					
1799					

CT ADDR INSTRUCTION

LABEL

OPCOD OPERAND

PGLLN

\*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 \*\*\* TIME 110 MILLI SEC SEEKS,CYL 0 TO CYL 49 \*\*\*  
 WITH THE ACCESS POSITIONED AT CYL 0,A SEEK TO CYL 49 IS ISSUED  
 FOLLOWED BY A 2ND SEEK TO CYL 49.THE PROGRAM TIMES THE DURATION  
 OF THE BUSY FROM THE 1ST SEEK TO CYL 49,WHEN BUSY DROPS THE PROG-  
 RAM STORES THE TIME AND CONTINUES TO THE NEXT ROUTINE.ANY STATUS  
 INDICATORS WHICH ARE TURNED ON WILL BE INDICATED.

PGLLN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1801		NOP		1	05291	N
1802		DC	2072	2	05293	
1803		MLNS	ADDR00&1,ADDR49&1	12	05294	D 06677 06754 1
1804		S	TIMCNT	6	05306	S 06834
1805		SD	1,ADDR00	10	05312	M 3FO 06676 R
1806		BCB1	*-16	7	05322	R 05312 2
1807		BA1	STACHK	7	05329	R 03063 M
1808		SD	1,ADDR49	10	05336	M 3FO 06753 R
1809		BCB1	*-16	7	05346	R 05336 2
1810		BA1	STACHK	7	05353	R 03063 M
1811		SD	1,ADDR49	10	05360	M 3FO 06753 R
1812		BCB1	*&15	7	05370	R 05391 2
1813		BA1	STACHK	7	05377	R 03063 M
1814		B	ONEIO	7	05384	J 05409
1815		A	LOOP TI,TIMCNT	11	05391	A 06828 06834
1816		B	MEDIUM	7	05402	J 05360
1817		A	CORR,TIMCNT	11	05409	A 06836 06834
1818		MLNA	TIMCNT-3,OUT50&20	12	05420	D 06831 06173 /
1819		B	MONITR	7	05432	J 02066
1820						
1821						
1822						
1823						
1824						
1825						
1826						
1827						
1828						



PCLIN LABEL OPCOD OPERAND

1859 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1860 \*\*\* TEST 50 MILLI SEC SEEKS,CYL 239 TO CYL 230 \*\*\*  
 1861 THIS ROUTINE TIMES THE ACCESS ON A SEEK WHICH MOVES IT FROM AN  
 1862 INNER TRACK TO A TRACK FURTHER OUT ON THE DISK.THE ACCESS IS  
 1863 SET AT CYL 239 AND ISSUED A SEEK TO CYL 230.BY TESTING THE BUSY  
 1864 LINE THE PROGRAM TIMES THE SEEK,WHEN BUSY DROPS THE PROGRAM  
 1865 STORES THE TOTAL TIME AND CONTINUES TO THE NEXT ROUTINE.ANY  
 1866 STATUS INDICATORS THAT ARE TURNED ON WILL BE INDICATED.  
 1867

PCLIN	LABEL	OPCOD	OPERAND	TIME 50 MILLI SEC SEEK CYL 239 TO 230	DA05	PAGE 260
1859			*** TEST ROUTINE DESCRIPTION ***			
1860			*** TEST 50 MILLI SEC SEEKS,CYL 239 TO CYL 230 ***			
1861			THIS ROUTINE TIMES THE ACCESS ON A SEEK WHICH MOVES IT FROM AN			
1862			INNER TRACK TO A TRACK FURTHER OUT ON THE DISK.THE ACCESS IS			
1863			SET AT CYL 239 AND ISSUED A SEEK TO CYL 230.BY TESTING THE BUSY			
1864			LINE THE PROGRAM TIMES THE SEEK,WHEN BUSY DROPS THE PROGRAM			
1865			STORES THE TOTAL TIME AND CONTINUES TO THE NEXT ROUTINE.ANY			
1866			STATUS INDICATORS THAT ARE TURNED ON WILL BE INDICATED.			
1867						
1868						
1869		DC	2092 ROUTINE ID		1 05587 N	
1870		MLNS	ADDR00E1,ADR219E1 SET MOD ADDR		2 05589	
1871		MLNS	ADDR00E1,ADR210E1 SET MOD ADDR		12 05590 D 06677 06765 1	
1872		S	TIMCNT RESET TIME COUNT		12 05602 D 06677 06776 1	
1873		SD	1,ADR219 POSITION ACCESS		6 05614 S 06834	
1874		BC81	0-16		10 05620 M 3FO 06764 R	
1875		BA1	STACHK BRCH ON ANY ERROR		7 05630 R 05620 2	
1876		SD	1,ADR210 SEEK TO CYL 210		7 05637 R 03063 M	
1877		BC81	0-16		10 05644 M 3FO 06775 R	
1878		BA1	STACHK BRCH ON ANY ERROR		7 05654 R 05644 2	
1879		SD	1,ADR210 TIME THE SEEK		7 05661 R 03063 M	
1880		BC81	0E15		10 05668 M 3FO 06775 R	
1881		BA1	STACHK BRCH ON ANY ERROR		7 05678 R 05699 2	
1882		B	FIVE0		7 05685 R 03063 M	
1883		A	LOPTI,TIMCNT ADD LOOP TIME TO		7 05692 J 05717	
1884		B	SMALL TOTAL SEEK TIME		11 05699 A 06828 06834	
1885		A	CORR,TIMCNT ADD CORRECTION		7 05710 J 05668	
1886		MLNA	TIMCNT-3,OFF10E20 MOVE TIME		11 05717 A 06836 06834	
1887		B	MONITR		12 05728 D 06831 06251 /	
1888					7 05740 J 02066	



TIME 110 MILLI SEC SEEK CYL 249 TO 200

CT ADDR INSTRUCTION

OPCOD OPERAND

PGLIN

1890 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1891 \*\*\* TIME 110 MILLI SEC SEEKS,CYL 249 TO CYL 200 \*\*\*  
 1892 THIS ROUTINE TIMES THE ACCESS WHEN IT IS MOVED OUT AWAY FROM  
 1893 THE CENTER OF THE DISK.WITH THE ACCESS POSITIONED AT CYL 249 A  
 1894 SEEK TO 200 IS ISSUED,THE BUSY LINE IS BROUGHT UP BY A 2ND SEEK  
 1895 SEEK TO 200,AND THE BUSY LINE UP TIME IS CALCULATED BY THE PROG-  
 1896 RAM.THIS TIME STORED AND THE PROGRAM CONTINUES WITH THE NEXT  
 1897 ROUTINE.STATUS ERRORS ARE INDICATED.

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
1898	N10	NOP		1	05747	N
1899		DC	21C2	2	05749	
1900		MLNS	ADDR00E1,ADR249E1	12	05750	D 06677 06743 1
1901		MLNS	ADDR00E1,ADR200E1	12	05762	D 06677 06732 1
1902		S	TIMCNT	6	05774	S 06834
1903		SD	1,ADR249	10	05780	M 2FO 06742 R
1904		BCB1	--16	7	05790	R 05780 2
1905		BA1	STACHK	7	05797	R 03063 M
1906		SD	1,ADR200	10	05804	M 2FO 06731 R
1907		BCB1	--16	7	05814	R 05804 2
1908		BA1	STACHK	7	05821	R 03063 M
1909		SD	1,ADR200	10	05828	M 2FO 06731 R
1910	BIG	BCB1	*E15	7	05838	R 05859 2
1911		BA1	STACHK	7	05845	R 03063 M
1912		B	ONETEN	7	05852	J 05877
1913		A	LOCPT1,TIMCNT	11	05859	A 06828 06834
1914		B	BIG	7	05870	J 05828
1915	CNETEN	A	CORR,TIMCNT	11	05877	A 06836 06834
1916		MLNA	TIMCNT-3,OFF50E20	12	05888	D 06831 06290 /
1917	N10XIT	B	MONITR	7	05900	J 02066
1918						
1919						

CT ADDR INSTRUCTION

OPCOD OPERAND

PGLIN LABEL

1921 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1922 \*\*\* TIME 185 MILLI SEC SEEKS,CYL 249 TO CYL 0  
 1923 THIS ROUTINE TIMES A 185 MILLI SEC SEEK WITH THE ACCESS MOVING  
 1924 FROM THE CENTER OF DISK TO THE OUTER TRACKS ON THE DISK.THE ACC-  
 1925 ESS IS SET AT CYL 249 AND IS ISSUED 2 SEEKS TO CYL 0.THE FIRST  
 1926 SEEK STARTS THE ACCESS MOVING THE SECOND BRINGS UP BUSY.THE DURA-  
 1927 TION OF THE BUSY IS TIMED AND THE  
 1928 TION OF THE BUSY IS TIMED AND THIS TIME IS STORED BEFORE THE  
 1929 PROGRAM CONTINUES.ALL STATUS ERRORS WILL BE INDICATED.  
 1930

PGLIN	Label	OPCOD	Operand	CT	ADDR	INSTRUCTION
1931	NOP			1	05907	N
1932	DC	0110	ROUTINE ID	2	05909	
1933	MLNS	ADDR0001,ADR24901	SET MOD ADDR	12	05910	D 06677 05743 I
1934	S	TIMCNT	RESET TIME COUNT	6	05922	S 06834
1935	SD	1,ADR249	POSITION ACCESS	10	05928	M 06742 R
1936	BCBI	--16		7	05938	R 05928 Z
1937	BAI	STACHK	BRCH ON ANY ERROR	7	05945	R 03063 M
1938	SD	1,ADDR00	SEEK TO CYL 000	10	05952	M 06876 R
1939	BCBI	--16		7	05962	R 05952 Z
1940	BAI	STACHK	BRCH ON ANY ERROR	7	05969	R 03063 M
1941	LARGE	1,ADDR00	TRY AGAIN	10	05976	M 06876 R
1942	BCBI	015	BRCH BUSY	7	05986	R 06007 Z
1943	BAI	STACHK	BRCH ON ANY ERROR	7	05993	R 03063 M
1944	B	ONE80		7	06000	J 06025
1945	A	LOOP11,TIMCNT	ADD LOOP TIME TO	11	06007	A 06828 05834
1946	B	LARGE	TOTAL SEEK TIME	7	06018	J 05976
1947	A	CORR,TIMCNT	ADD CORRECTION	11	06025	A 06836 05834
1948	MLNA	TIMCNT-3,OFF249020	MOVE TIME	12	06036	D 06831 05329 /
1949	NIXIT	B	MONITR	7	06048	J 02066
1950						

CT ADDR INSTRUCTION

TYPE SEEK TIME RESULTS  
OPCOD OPERAND

PGLLN LABEL

1952 \*\*\* TEST ROUTINE DESCRIPTION \*\*\*  
 1953 \*\*\* TYPE SEEK TIME RESULTS \*\*\*  
 1954 USING THE RESULTS STORED BY THE SIX TIMING ROUTINES, A TABLE IS  
 1955 COMPILED AND TYPED OUT.  
 1956

PGLLN	LABEL	OPCOD	OPERAND	ROUTINE ID	CT	ADDR	INSTRUCTION
1957	N12	NOP			1	06055	N
1958		DC	@12@		2	06057	
1959		B	TYPI		7	06058	J 01593
1960		DCW	@SEEK FROM TO TIME WAS, SHOULD BE L BIN MSEC@,G		41	06105	
1961		B	TYPI		7	06107	J 01593
1962		DCW	@ 0000 0360	50@,G	31	06114	
1963		B	TYPI		7	06146	J 01593
1964		DCW	@ 0000 1960	110@,G	31	06153	
1965		B	TYPI		7	06185	J 01593
1966		DCW	@ 0000 9960	185@,G	31	06192	
1967		B	TYPI		7	06224	J 01593
1968		DCW	@ 8760 8400	50@,G	31	06231	
1969		B	TYPI		7	06263	J 01593
1970		DCW	@ 9960 8000	110@,G	31	06270	
1971		B	TYPI		7	06302	J 01593
1972		DCW	@ 9960 0000	185@,G	31	06309	
1973	N12XIT	B	MONITR		7	06341	J 02066
1974							

UPDATE CHANNEL & MODULE ROUTINE

CT ADDR INSTRUCTION

PGLIN	LABEL	OPCOD	OPERAND	ROUTINE DESCRIPTION	CT	ADDR	INSTRUCTION
1976				*** TEST ROUTINE DESCRIPTION ***			
1977				*** UPDATE CHANNEL & MODULE ROUTINE ***			
1978				THIS ROUTINE STARTS WITH MODULE 0 ON CHANNEL 1 AND TESTS FOR A			
1979				READY FILE, WHEN A READY FILE IS LOCATED THE PROGRAM IS ALTERED			
1980				ACCORDING TO THE CHANNEL THE FILE IS ON, THE ROUTINE TYPES OUT THE			
1981				MODULE AND CHANNEL NUMBER FOR EACH FILE FOUND READY.			
1982							
1983	N13	NOP			1	06348	N
1984		DC	0130	ROUTINE ID	2	06350	
1985		B	TOP07		7	06351	J 06440
1986		BCE	*08,00X10,F	FILES ON THIS CHNL	12	06358	B 06377 0000 F
1987		B	UPCHNL	GO UPDATE FOR NEXT	7	06370	J 06465
1988		MLCA	CODE30X15,INCODE	MOVE CHANNEL CODES	12	06377	D 06403 06408 T
1989		B	CHALTR	GO TO CHANNEL ALTER	7	06389	J 01045
1990		DCW	TOP	HIGH LIMIT	5	06400	06433
1991		DC	BOTTOM	LOW LIMIT	5	06405	03737
1992		DCW	0 0		1	06406	
1993		DC	0 0		1	06407	
1994		DC	0 0		1	06408	
1995	INCODE	SD	1,ADDR00	SEEK THE ACCESS	10	06409	M 0F0 06676 R
1996	RDYFIL	BNR1	*015	BRCH NOT READY	7	06419	R 06440 I G
1997		BAI	*01		7	06426	R 06433 M
1998	TOP	B	GOTIT	BRCH FOUND A RDY MOD	7	06433	J 06506
1999		A	010,ADDR0001	UPDATE MOD ADDR	11	06440	A 06873 06677
2000		BZ	*08	BRCH IF TEN MOD TRID	7	06451	J 06465 V
2001		B	RDYFIL		7	06458	J 06409
2002	UPCHNL	A	0570,X10	UPDATE	11	06465	A 06905 00074
2003		A	030,X15	IND REG 10015	11	06476	A 06879 00099
2004		BCE	ENDTST,X10,F	BRCH IF ALL CHL CHK	12	06487	B 06576 00074 F
2005		B	N10010	GO SEARCH FOR RDY MD	7	06499	J 06358
2006	GOTIT	MLNS	ADDR0001,RDYNMG08	MOVE MOD ADDR	12	06506	D 06677 06545 I
2007		MLNS	INCODE,RDYNMG012	MOVE CHANNEL NUMBER	12	06518	D 06408 06549 I
2008		B	TYPI		7	06530	J 01593
2009	RDYMSG	DCW	0TST MOD CH 00G		13	06537	
2010		ZA	EN14,X3	LOAD IX 3	11	06551	M 06910 00039 Q
2011		B	00X3		7	06562	J 00040

UPDATE CHANNEL & MODULE ROUTINE

DA05 PAGE 265

PGLIN LABEL

OPCOD OPERAND

CT ADDR INSTRUCTION

2012 N13XIT

8 MONITR

7 06569 J 02066

CT ADDR INSTRUCTION

END TEST ROUTINE  
OPCOD OPERAND

PGLIN LABEL

2014						
2015	ENDTST	B	TYPI	7	06576	J 01593
2016		DCH	@PASS@,C	4	06586	
2017		BCE	2000,TAD3,1	12	06588	B 02000 01003 1
2018		B	400	7	06600	J 00400
2019						

\*\*\* END TEST ROUTINE

BRCH IF REPEATING  
GO TO LOADER

PREPARE 1 INST LOOP & DATA FIELD

CT ADDR INSTRUCTION

OPCOD OPERAND

LABEL

PGLIN

2021					
2022	PREP	8	TYP1	7	06607 J 01593
2023		DCM	@ONE INST. LOOP OPTION NOT AVAILABLE@	35	06648
2024		DC	@,TRY ANOTHER OPTION@,G	19	06667
2025		8	PRGCIL	7	06669 J 02238
2026					

\*\*\* PREPARE ONE INSTRUCTION LOOP \*\*\*

PGLIN	LABEL	CONSTANTS OPCOD OPERAND	CT	ADDRS	INSTRUCTION
2028		*** PROGRAM CONSTANTS ***			
2029	ADDR00	DCW 200000882,G	8	06676	
2030		DCW 2 2,G	1	06685	
2031	ADDR9	DCW 2000360882,G	8	06687	
2032		DCW 2 2,G	1	06696	
2033	ADDR2	DCW 2000080882,G	8	06698	
2034		DCW 2 2,G	1	06707	
2035	ADDR10	DCW 2000400882,G	8	06709	
2036		DCW 2 2,G	1	06718	
2037	ADDR45	DCW 2001800882,G	8	06720	
2038		DCW 2 2,G	1	06729	
2039	ADR200	DCW 2008000882,G	8	06731	
2040		DCW 2 2,G	1	06740	
2041	ADR249	DCW 2009960882,G	8	06742	
2042		DCW 2 2,G	1	06751	
2043	ADDR49	DCW 2001960882,G	8	06753	
2044		DCW 2 2,G	1	06762	
2045	ADR219	DCW 2008760882,G	8	06764	
2046		DCW 2 2,G	1	06773	
2047	ADR210	DCW 2008400882,G	8	06775	
2048		DCW 2 2,G	1	06784	
2049	ADR125	DCW 2005000882,G	8	06786	
2050		DCW 2 2,G	1	06795	
2051	VARIAD	DCW 2000000882,G	8	06797	
2052	VARFLD	DCW 200000002,G	7	06806	
2053	RUTCNT	DCW 2 2	1	06814	
2054	BLANK	DCW 2 2,G	4	06818	
2055	TOTIME	DCW 2 2	4	06823	
2056	COUNT	DCW 2 2	2	06825	
2057	LOOPTI	DCW 20002	3	06828	
2058	TIMCNT	DCW 20000002	6	06834	
2059	CORR	DCW 2002	2	06836	
2060	WARMCT	DCW 20002	3	06839	
2061	LNGCNT	DCW 202	1	06840	
2062	CODE3	DCW 22R12	3	06843	
2063		DCW 22X22	3	06846	

ADDRESSES  
USED  
IN  
DA05C



INSTRUCTION

CONSTANTS

PCLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
2064		DCW	2M33a	3	06849	
2065		DCW	2.14a	3	06852	
2066	LOOPX	DCW	2201a	3	06855	
2067	CORAX	DCW	224a	2	06857	
2068	LOOP1	DCW	2316a	3	06860	
2069	CORR1	DCW	268a	2	06862	
2070	LOOP0	DCW	2355a	3	06865	
2071	CORR0	DCW	276a	2	06867	
2072		END				J
2072		AND		1	06868	
2072		2+a		1	06869	
2072		D		1	06870	
2072		2La		1	06871	
2072		G		1	06872	
2072		2Ma		1	06873	
2072		2 a		5	06878	
2072		21a		1	06879	
2072		20C209a		1	06880	
2072		23a		5	06885	
2072		27a		1	06886	
2072		200237a		5	06891	
2072		22a		5	06896	
2072		201308a		4	06900	
2072		200000a		3	06903	
2072		20315a		2	06905	
2072		2300a		5	06910	
2072		257a				03678
2072		N14				

END OF ASSEMBLY



6.06.00 7631-1301 PACKAGE SUMMARY

The following few pages have been laid out so that information on them may be cut out and pasted onto IBM cards. In this way the CE may carry with him some of the important data required for the successful use of the programs in this package.

In concluding this package it is important to stress the fact that the programs are only as useful as the CE wants them to be. These programs and this package are a tool and a good knowledge of how to use this tool, and how it works will add to its usefulness. This knowledge is available in the write-ups and comments in the program listings, READ THEM CAREFULLY.



DA01, DA03  
DA04, DA05

Page 269B

NOTES



<p><u>DA01, DA03</u> <u>DA04, DA05</u></p> <p><u>System and Channel Cards</u></p> <p>System Card No. 009 Channel 1 Card No. 010 Channel 2 Card No. 011 Channel 3 Card No. 012 Channel 4 Card No. 013</p> <p>Insure the proper data is punched in these cards.</p>	<p><u>Standard TADS 0-3</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Loc.</u></th> <th style="text-align: center;"><u>Not 1</u></th> <th style="text-align: center;"><u>1</u></th> </tr> </thead> <tbody> <tr> <td>1000 TAD 0</td> <td>Allow Error Typeout</td> <td>Bypass Errors</td> </tr> <tr> <td>1001 TAD 1</td> <td>Do not Req Loop after Error</td> <td>Request Loop</td> </tr> <tr> <td>1002 TAD 2</td> <td>Not Used</td> <td></td> </tr> <tr> <td>1003 TAD 3</td> <td>Single Prog. Pass</td> <td>Repeat Prog.</td> </tr> </tbody> </table> <p>* These TADs are set to 1 when the programs are loaded.</p> <p><u>Special TADS</u></p> <p>Memory locations 1004-1012 are set aside for special TADS and are set to 1 when the programs are loaded. Refer to individual write-ups for details.</p>	<u>Loc.</u>	<u>Not 1</u>	<u>1</u>	1000 TAD 0	Allow Error Typeout	Bypass Errors	1001 TAD 1	Do not Req Loop after Error	Request Loop	1002 TAD 2	Not Used		1003 TAD 3	Single Prog. Pass	Repeat Prog.
<u>Loc.</u>	<u>Not 1</u>	<u>1</u>														
1000 TAD 0	Allow Error Typeout	Bypass Errors														
1001 TAD 1	Do not Req Loop after Error	Request Loop														
1002 TAD 2	Not Used															
1003 TAD 3	Single Prog. Pass	Repeat Prog.														

<p><u>DA01, DA03</u> <u>DA04, DA05</u></p> <p><u>Program Control Options</u></p> <p>These options are available through use of the console.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Enter</u></th> <th style="text-align: left;"><u>To</u></th> <th style="text-align: left;"><u>Additional Data Entered</u></th> </tr> </thead> <tbody> <tr> <td>6</td> <td>Terminate Test</td> <td>None</td> </tr> <tr> <td>1</td> <td>Reset All Standard TADS</td> <td>Four New TAD Settings 1 or 1</td> </tr> <tr> <td>2</td> <td>Alter Memory</td> <td>Five Digit Memory Addr.</td> </tr> <tr> <td>3</td> <td>Alter Routine Sec.</td> <td>Routine Numbers in Order Desired</td> </tr> <tr> <td>4</td> <td>Loop a Routine</td> <td>Starting Address of Routine</td> </tr> <tr> <td>5</td> <td>Loop an Inst.</td> <td>Inst. Code, Data for Desired Field</td> </tr> <tr> <td>6</td> <td>Restart at Desired Location</td> <td>Five Digit Mem Addr to Start at</td> </tr> <tr> <td>7</td> <td>Continue from Point of Interruption</td> <td>None</td> </tr> </tbody> </table> <p>* Read package write-up for details on control options.</p>	<u>Enter</u>	<u>To</u>	<u>Additional Data Entered</u>	6	Terminate Test	None	1	Reset All Standard TADS	Four New TAD Settings 1 or 1	2	Alter Memory	Five Digit Memory Addr.	3	Alter Routine Sec.	Routine Numbers in Order Desired	4	Loop a Routine	Starting Address of Routine	5	Loop an Inst.	Inst. Code, Data for Desired Field	6	Restart at Desired Location	Five Digit Mem Addr to Start at	7	Continue from Point of Interruption	None	<p>READ THE PROGRAM WRITE-UPS</p>
<u>Enter</u>	<u>To</u>	<u>Additional Data Entered</u>																										
6	Terminate Test	None																										
1	Reset All Standard TADS	Four New TAD Settings 1 or 1																										
2	Alter Memory	Five Digit Memory Addr.																										
3	Alter Routine Sec.	Routine Numbers in Order Desired																										
4	Loop a Routine	Starting Address of Routine																										
5	Loop an Inst.	Inst. Code, Data for Desired Field																										
6	Restart at Desired Location	Five Digit Mem Addr to Start at																										
7	Continue from Point of Interruption	None																										

<p><u>DA01, DA03</u> <u>DA04, DA05</u></p> <p><u>Automatic Restart</u></p> <p>If the check control switch is set to reset and restart, the programs will automatically continue after a machine alarm condition.</p> <p><u>Manual Restart</u></p> <p>If the check control switch is not used, pressing Computer Reset and Start will get the program running after an alarm.</p>	<p><u>Loading Procedure</u></p> <p>Use Universal Loaders and procedure with all "DA" programs.</p> <p><u>Error Typeout Standard Format</u></p> <ol style="list-style-type: none"> <li>1. 'Routine N00' Routine number in which error occurred.</li> <li>2. '*Error 00 0000 M% F0 0000 W 1248AB'</li> </ol> <table style="width: 100%; border-collapse: collapse; margin-left: 20px;"> <tr> <td style="text-align: center;">Error Flag</td> <td style="text-align: center;">Starting Addr of Routine</td> <td style="text-align: center;">Status Ind. is Found on</td> </tr> <tr> <td style="text-align: center;">Error No.</td> <td style="text-align: center;">Failing Inst.</td> <td></td> </tr> </table> <ol style="list-style-type: none"> <li>3. 'Pertinent Data' Failing Addr, sample of data field, etc.</li> <li>4. 'Req Error Action' Given if TAD 1=1 CE now requests any one of the program control options.</li> </ol>	Error Flag	Starting Addr of Routine	Status Ind. is Found on	Error No.	Failing Inst.	
Error Flag	Starting Addr of Routine	Status Ind. is Found on					
Error No.	Failing Inst.						





DA01, DA03  
DA04, DA05

Page 270



<p>DA01</p> <p><u>CAUTION: This Prog. destroys customer data.</u></p> <p><u>Switch Settings Previous to Running Program</u></p> <ol style="list-style-type: none"> <li>1. Write Format On (on every 1301 to be tested)</li> <li>2. Write HAO On</li> <li>3. All 1301 not to be tested set inop.</li> </ol>	<p><u>Special Requests</u></p> <p>1. "Sel. Mode" Enter X 0000          Mode-Test Code _____ ↑          Start Test at this HAI Addr. _____</p> <p style="text-align: center;">Mode-Test Codes</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Test</th> <th style="text-align: center;">Entire Mod.</th> <th style="text-align: center;">One Cyl.</th> <th style="text-align: center;">One Track</th> <th style="text-align: center;">One Sur</th> </tr> </thead> <tbody> <tr> <td>Write HAI's and Verify Addr.</td> <td style="text-align: center;">1</td> <td style="text-align: center;">A</td> <td style="text-align: center;">J</td> <td style="text-align: center;">/</td> </tr> <tr> <td>Verify Addr</td> <td style="text-align: center;">2</td> <td style="text-align: center;">B</td> <td style="text-align: center;">K</td> <td style="text-align: center;">S</td> </tr> <tr> <td>Analyze Surface</td> <td style="text-align: center;">3</td> <td style="text-align: center;">C</td> <td style="text-align: center;">L</td> <td style="text-align: center;">T</td> </tr> <tr> <td>Write HAI's, Analyze Surface, Verify Addr.</td> <td style="text-align: center;">4</td> <td style="text-align: center;">D</td> <td style="text-align: center;">M</td> <td style="text-align: center;">U</td> </tr> <tr> <td>Analyze Surface and Verify Addr</td> <td style="text-align: center;">5</td> <td style="text-align: center;">E</td> <td style="text-align: center;">N</td> <td style="text-align: center;">V</td> </tr> </tbody> </table>	Test	Entire Mod.	One Cyl.	One Track	One Sur	Write HAI's and Verify Addr.	1	A	J	/	Verify Addr	2	B	K	S	Analyze Surface	3	C	L	T	Write HAI's, Analyze Surface, Verify Addr.	4	D	M	U	Analyze Surface and Verify Addr	5	E	N	V
Test	Entire Mod.	One Cyl.	One Track	One Sur																											
Write HAI's and Verify Addr.	1	A	J	/																											
Verify Addr	2	B	K	S																											
Analyze Surface	3	C	L	T																											
Write HAI's, Analyze Surface, Verify Addr.	4	D	M	U																											
Analyze Surface and Verify Addr	5	E	N	V																											
<p><u>Special TAD 0 (Location 1004)</u></p> <p>1̄ Do not display failing addr.          1 Display failing addr.</p> <p>* Set to 1̄ when program is loaded.</p>																															

<p>DA01</p> <p><u>Special Requests (continued)</u></p> <ol style="list-style-type: none"> <li>2. "Test Mod X CHX"              Enter 1 if correct              Enter 1̄ if incorrect</li> <li>3. "Turn On CE-HAO"              "Turn Off CE-HAO"              Turn switch On or Off              press start</li> <li>4. "Trck Flgd OK"              Select next desired program option              (Only given if track is flagged)</li> </ol>	<p><u>Special Option Flag-A-Track</u></p> <p>The program will flag a track only at the CE's request.</p> <p>To Flag-A-Track          Press Inquiry          Enter 8 0000 1          _____   Flag-A-Track option code          Press Release _____   (HAI of the track to be Flgd)          _____   Flag Char to be used</p> <p>Flagging is complete when "Trck Flgd OK" is typed. CE must now select next option desired.</p>
--	---

<p>DA03</p> <p><u>Switch Settings Previous to Running Program</u></p> <ol style="list-style-type: none"> <li>1. Write Format On (on all 1301 to be tested)</li> <li>2. Write HAO On (on all 7631 to be tested)</li> <li>3. All 1301 not being tested are set inop.</li> </ol>	<p><u>Special TAD 0 (Location 1004)</u></p> <p>1̄ Program is not run in manual mode          1 Program is run in manual mode          * TAD 0 set to 1̄ when program is loaded.</p> <p><u>Special Request (Manual Mode Only)</u></p> <p>"CYO Avail" Enter 1 if it is available          Enter 1̄ if it is not available</p> <p>"CE-HAO ON"          "Addr Read, 0000000, CE-HAO OFF"          Turn switch on or off          Press start to continue</p>
<p>Files - Tapes Overlapped</p> <p>Run program in manual mode with tape drive "1" ready on all channels that don't have files.</p>	<p><u>Standard Options</u></p> <p>All standard options are available in this program.</p>



DA01, DA03  
DA04, DA05

Page 272



<p><u>DA03</u></p> <p><u>Reliability Run</u></p> <p>Load program Alter normal TAD 0 (Loc 1000) to 1 - Bypass typeouts Alter normal TAD 3 (Loc 1003) to 1 - Repeat test</p> <p>Summary of errors will be given after each pass of the program.</p> <p>Terminate test by altering normal TAD 3 (Loc 1003) to 1</p>	<p><u>Alter Routine Sequence</u></p> <p>The sequence in which the test routines run may be altered by selecting program control option Code 3.</p> <p>Read package write-up for details.</p>
--	--

<p><u>DA04</u></p> <p><u>Switch Settings Previous to Running Program</u></p> <ol style="list-style-type: none"> <li>1301 Mod 0 ready on each channel being tested (Wrt Fmt On)</li> <li>HAO and CE-HAO On (on every 7631 being tested)</li> <li>1301 Mod 1-9 set inop on all channels being tested</li> <li>Check Control Switch set to reset and restart (1410)</li> </ol>	<p><u>Special Requests</u></p> <ol style="list-style-type: none"> <li>'HAO, Wrt Fmt On, Sel Mode' Enter 1 to run manual mode Enter 1 to run automatic mode</li> <li>'Comp Reset, Chk 7631' Press Computer Reset Check condition of 7631, press start if 7631 is OK.</li> <li>'ACC to Cyl 000' 'ACC to Cyl 110' 'ACC to Cyl 194' } Manual Mode Only Manually position access to cylinder specified, press start.</li> </ol>
---	--

<p><u>DA04</u></p> <p><u>Special Requests (continued)</u></p> <ol style="list-style-type: none"> <li>'ACC to Cyl 253' Insure access is positioned at cylinder 253, press start.</li> <li>'# of Spare Heads' Enter number of heads avail- able for alter. tracks</li> <li>'CE-HAO Off' Turn off CE-HAO switch, press start</li> <li>'CYO' Enter 1 if it is Enter 1 if it is not</li> </ol>	<ol style="list-style-type: none"> <li>'MOD 3' Enter 1 if 7631 is a model 3 Enter 1 if 7631 is not</li> <li>'HAO and Wrt Fmt Sws Off' (Manual Mode only) Turn switches off, press start</li> <li>'Write Inhibit and HAO Sws On' (Manual Mode Only) Turn switches on, press start</li> <li>'Wrt Inhibit Off, HAO and CE-HAO On' Turn switches off and on, press start.</li> <li>'Pass, SWS OFF' Test is complete, reset all switches, press start.</li> </ol>
---	--





DA01, DA03  
DA04, DA05

Page 274



Cut along lines and paste on IBM cards.

<p><u>DA05</u></p> <p><u>Switch Settings Previous to Running Program</u></p> <ol style="list-style-type: none"> <li>1. Write HAO On (on all 7631 being used)</li> <li>2. Write Inhibit On (Only if in manual mode)</li> <li>3. All 1301 not being tested are set inop.</li> </ol>	<p><u>Special Requests</u> (Made in Manual Mode only)</p> <ol style="list-style-type: none"> <li>1. "CE-HAO On" Turn on switch, press start</li> <li>2. "Addr Read, 0000000, CE-HAO Off" Turn off switch, press start</li> </ol>
<p><u>Special TAD 0 (Location 1004)</u></p> <p>1 Do not display failing Addr Do not take additional 20 min warm up</p> <p>1 Display failing Addr, take ) Manual additional 20 min warm up ) Mode</p>	<p><u>Standard Options</u></p> <p>Two standard options are not available in this program.</p> <p>Alter routine sequence Code 3 One instruction loop Code 5</p>

