

BX - O
 File No. KA EXI
 KA EXIA
 KA EXIB
 KA EXIC

BX - O
 BASIC EXCHANGE PARALLEL MAINTENANCE PROGRAM

September 1, 1961

1. Maintenance program. Used to test data paths to and from I/O units and to and from main memory independent of CPU.
2. Programs becoming obsolete. None.
3. KA EXI and KA EXIA are applicable to systems using 48 ECS printer code. KA EXIB and KA EXIC are applicable to systems using 48 BCD printer code.

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1. PURPOSE

The purpose of the BX-0 Maintenance Program is to test data paths to and from the I/O units and to and from Main Memory, independent of CPU.

2. EQUIPMENT REQUIREMENTS

- N- Necessary for Basic Testing
- A- Additional Requirements for Full Testing
- * - Exception

2.1 Testing Requirements

0-8K	8K-16K	16K-32K	32K-Above	Ops Console	Card Reader
		N		N	N

Punch	Printer	Disc	Tapes
N	N		N

2.2 Buffer Equipment Requirements

Disc	Tapes

3. MODE OF CONTROL

3.1 Self Control

BX-0 is exclusively a manually operated test, since it is independent of the CPU. It requires the operator to manually set the bits on the exchange maintenance console and manually execute all instructions. The output from each I/O unit test is indicated in the section containing the instructions for that test.

3.1.1 Procedure

I. INITIAL LOAD PROCEDURE

The program can be loaded by normal IPL procedure. If IPL is inoperative, the following can be used:

1. By BX manipulation, place the following CW in a main memory location not used by the program.

- Data Word Address - SLC Value
- Word Count - As shown in the program listing
- Refill - 0
- Chain flag - 0, Multiple flag - 1

2. Read by executing the CW in the location in which it was stored by step 1.

II. OVERALL PROCEDURE

All tests of BX-0 require the operator to manually execute control words in Main Memory and to execute various Control and Locate instructions. The following procedure should be followed in the execution of these instructions:

A. Reading or Writing

1. Place the BX mode switch in the TEST MODE position.
2. Depress CLEAR MEMORY pushbutton.
3. Set "Type of Test" to EX MEM.
4. From the BX-0 listing, obtain the main memory address of control word desired. Place this address in the REFILL ADDRESS of the panel keys.

5. In the EXCHANGE MEMORY ADDRESS switch register, enter the CHANNEL NUMBER desired and bit 128 (Control Word Memory). Make the total parity ODD.
6. Depress the "LOAD MEMORY" switch.
7. Depress SINGLE CYCLE pushbutton twice.
8. Turn OFF the load memory switch.
9. In the exchange memory address switch register, turn OFF bit 128. Parity should now be even.
10. Be sure the channel to be used is NOT blocked by the BLOCK CHANNEL switches. All data word transfer, service request, and channel signal simulation switches should be OFF.
11. Set type of test to Main Memory UNIT.
12. Depress the READ or WRITE pushbutton depending upon instruction desired.
13. Depress the SINGLE CYCLE pushbutton and check ACCEPT response.
14. Depress the START Key. The instruction entered will now be executed.
15. To insure proper operation, stop BX and SINGLE CYCLE through BX control word memory until the channel used is selected. At this time, examine the control word for proper interrupt status bits, data word address, and word count setting. Unless otherwise stated, the normal status bit setting is EOP. The flag bits (chain, multiple, and skip) should still be at their original setting.

B. Control or Locate Operations

1. Place the BX Mode switch in the TEST MODE position.
2. Depress CLEAR MEMORY pushbutton.

3. Set "type of test" to UNIT TEST.
4. Set the desired channel number in the EXCHANGE MEMORY ADDRESS switch register, even parity count. (Bit 128 must be OFF.)
5. In the C₀ - C_t panel switches, enter the CONTROL CODE or LOCATE NUMBER desired.
6. Depress the CONTROL or LOCATE pushbutton.
7. Depress SINGLE CYCLE pushbutton and check for ACCEPT response.
8. Depress the START pushbutton and the STOP.

III. INDIVIDUAL TEST PROCEDURE AND OUTPUT

A. Chain Printer Tests

1. Execute the control words as shown on the program listing following the overall test procedure.
2. Check printout for correct data as shown below.

PRT 1 operates with chain, multiple, and skip flags zero. Printout is:

THIS LINE OF PRINT CHECKS THE ABILITY TO
PRINT. AB -- YZ12-90%./- #&*%#

PRT 2 operates with multiple flag only set. Printout is an all character print, three lines, each identified. Failure will cause only one line to be printed.

PRT 3 operates with multiple flag set and tests the ability to recognize end codes. Printout is three lines each identified. On failure - All data will be on one line.

PRT 4 tests BX for word count of 1. Printout is WDCT 1- for success WDCT 1 FAILURE - on failure

PRT 4A tests BX for word count of 2. The printout is: WORD COUNT 2 - On success WORD COUNT 2 FAILURE - on failure.

PRT 5 operates with multiple and chain flags set. Printout is all data from the above tests, a total of 109 64-bit words.

PRT 6 is a scoping loop which prints the all character print data.

PRT 7 is a scoping loop which prints the end code print data.

PRT 8 is a Suppress Post Spacing test loop. It will suppress post spacing 4 times in each line. For success, all data will be on one line, with normal spacing.

PRT 8 - NOW IS A SUPPRESS POST SPACING TEST LOOP.

PRT 9 is a test of the Select Report functions. It prints according to the Select Report key depressed. If no Select Report keys are depressed all of the select report data will be printed.

The test operates in a continuous loop.

PRT 9 - THIS LINE SHOULD BE PRINTED IF SELECT REPORT 'a' IS DEPRESSED.

Where 'a' corresponds to the Select Report key depressed.

B. Card Reader Tests

1. Place reader test deck in card reader and make reader ready. The test deck is numbered octally in column 80.
2. Execute the control words to read in the test deck.
3. Execute the control words for printout or manually fetch the data and compare.

The first test operates with skip, chain, and multiple flags set. The sequence of data is as follows:

1. One Card Read

CARD 1 FIRST CARD READ ... DATA IS IN IQS FORMAT. WORD COUNT ON READ WAS 15. READER PATTERNS IN LATER TEST

2. Word Count 1 Test. On success - WDCT1 On failure - WDCT 1 FAILURE IF THIS PRINTS OR IS IN MEMORY WD CNT-1 was not handled by BX
3. Word Count 2 Test. On success - WORD COUNT - 2 - On failure - WORD COUNT - 2 - FAILURE
4. Skip Flag Test. On success - THIS IS THE SKIP READ AREA CARD 4 - SKIP FLAG TEST On failure - IF THIS PRINTS SKIP FLAG FAILED.
5. Multiple Flag Test - 3 cards read. Lines of print begin as follows:

CARD 5
CARD 6
CARD 7

If only one card reads, MF failed and remainder of test will be out of sequence.

6. Long Read Test - 10 cards read. Lines of print begin as follows:

CARD 8
CARD 9
CARD 10
CARD 11
CARD 12
CARD 13
CARD 14
CARD 15
CARD 16
CARD 17

7. Chain Flag Only Test. For success - CARD 18. TWO CARD READ WITH MF-0. ONLY ONE CARD SHOULD READ On failure - THIS CARD SHOULD NOT BE READ CARD 19

C. Tape Unit Tests

1. Execute the control words and control instructions at the proper time by following the program listing.

Since most tape operations require control conditions such as rewind, backspace, etc., the tape test requires that the operator perform these operations from BX following the program listing. Many of the tests are designed specifically to test a particular control function and, therefore, must be run as specified by the program listing. Correct operation is evidenced by the correct printout as shown under the description of each of the five tests.

Test 1. Simple Data and Rewind. Check read-in area manually.
Data: An all 1's 8-bit byte shifts left continuously until an all 0's word is reached. Following this an all 1's word, a 101010 word, and a 010101 word.

Test 2. Data and backspace test. Data checked by printing results on the printer. Data follows:

For Success - TEST 2. DATA AND BACKSPACE TEST THIS IS RECORD 1 - TEST TWO 10 WORDS, CDSC...

TEST 2. RECORD 2 - 15 WORDS, CDSC .. DATA FOLLOWS --- AB ... YZ01 ... 89 ----- RECORD 3 IS BKSP TEST.

TEST 2. BACKSPACE WORKED IF THIS LINE 3
TEST 2. TEST 2 RECORD 4. 10 WORDS CR.
XXXXXXXXXXXX

On Failure - IF THIS PRINTS, BACKSPACE FAILED ..

Test 3. Tape Mark Recognition Test. Data checked by printing results on the printer. Data follows:

For Success - TAPE MARK RECOGNITION RECORD 1.

On Failure - IF THIS PRINTS, TAPE MARK FAILED.

Test 4. Backspace file test. Data checked by printing results on the printer. Data follows:

For Success - TEST 4. BACKSPACE FILE TEST TEST 4.
BACKSPACE FILE TEST PASSED

On Failure - TEST 4. BACKSPACE FILE FAILED.

Test 5. Space File Test. Data checked by printing results on printer. Data follows:

For Success - TEST 5. SPACE FILE TEST PASSED.

On Failure - SPACE FILE, TEST 5. FAILED.
XXXXXXXXXXXX

Also included is a sequence of control words which reproduce the program on tape. The tape can then be loaded by IPL procedure.

D. Operator's Console Tests

In the operator's console tests the following is provided.

1. Constants for writing on the console display and typewriter.
2. Reserved locations for reading the console switches and typewriter.
3. Extended typewriter write operations tests.

The procedure for each test follows.

Test 1 and 2. Write Operation

1. Execute the control words - write having the console channel selected.
2. After each control word is executed, check the display for the data indicated.

Test 1. Chain, multiple and skip flags zero.

- Word one -
1. Byte number word which numbers the 8-bit bytes left to right 0-7.
 2. All 1's word
 3. All 0's word
 4. Alternate 1's and 0's 8 bit bytes.

- Word two -
1. All 8's word
 2. All 7's word
 3. Blank word

Word three - 1. All 1's word

Test 2. Chain flag set, multiple and skip flags zero.

Chaining two words - Word 1 - Byte pattern
 Word 2 - All 8's

Chaining three words - Word 1 - All 1's
 Word 2 - All 8's
 Word 3 - All 0's

Test 3 and 4. Read Operation

1. Set up data patterns in the console switches and digital pot.
2. Execute the control word to read the switches.
3. Execute the same control word to write the data for checking.
4. Change the patterns and repeat step 2 and 3 for a more complete test.

Test 3. All flag bits zero.

1. Read 1 word
2. Read 2 words
3. Read 3 words

Test 4. Chain flag set.

1. Chains 2 words
2. Chains 3 words

Tests 5, 6 and 7. Typewriter write operation.

1. Execute the control words.
2. Check the printout for correct results.

Test 5. Chain, multiple, and skip flags zero.

1. One word - on success TYP TST
 on failure TYP TST FAILED
2. End Code Test - on success - END CODE TEST
 on failure - END CODE TEST
 FAILED
3. One line which is A thru Z 1 thru 0

Test 6. Chain flag set.

1. Chain 2 words - on success - CHAINING TEST S
 on failure - FAILED
2. Chain 3 words - on success - CHAINING TEST SUCCESS
 on failure - FAILED

Test 7. Chain and Multiple flags set

1. Multiple flag and end code - on success - MULTIPLE
 TEST SUCCESSFUL
 On failure - Spaces between 'MULTIPLE' and 'TEST'.
2. Simultaneous end code and word count zero - on success -
 MC TST SUCCESS
 On failure - Spaces between 'TEST' and 'SUCCESS'.

Test 8 and 9. Typewriter Read Operation

1. Execute control words and read console.
2. Enter data from console typewriter.
3. Using the same control words and write out data for checking.

Test 8. Chain and multiple flags set.

1. Read 40 characters, no flags set.
2. Read 40 characters, chain, read 32 more.
3. Read 8 words multiple flag mode.
4. Read 25 words with multiple flag set.
5. Read 10 words with the multiple flag set, chain, read 8 more words.

Test 9. Chain, multiple and skip flags set.

1. Skip 5 words, read 3 with chain flag only set.
2. Skip 4 words in multiple block mode, chain, read 5 more words.

In the read tests with the multiple flag set, and an end code is entered, the next three words will be read from the console switches.

Typewriter Tests

1. Backspace test loop.

Loops and types - This is a BACKSPACE test.

2. Ripple test.

Types 26 lines upper case letters.

3. All character ball movement test.

Loops and types all characters.

E. Card Punch Tests

Tables of punch formats for checking pattern cards.

1. Non ECC-Mode, 15 words per card- Starting bit position.

<u>Word</u>	<u>Column</u>	<u>Row</u>
1	1	12
2	6	2
3	11	6
4	17	12
5	22	2
6	27	6
7	33	12
8	38	2
9	43	6
10	49	12
11	54	2
12	59	6
13	65	12
14	70	2
15	75	6

2. ECC Mode, 13 words per card.

All words begin with the C-bits in Row 12

<u>Word</u>	<u>Column</u>
1	1
2	7
3	13
4	19
5	25
6	31
7	37
8	43
9	49
10	55
11	61
12	67
13	73

3. Table of bits on which the ECC bits are based.

<u>ECC Bits</u>	<u>Data Bits</u>
C-0	0-32
C-1	1, 3, 5, ... 61, 63, & 32
C2	2-3, 6-7, 10-11, ... 62-63
C-4	4-7, 12-15, ... 60-63
C-8	8-15, 24-31, 40-47, 56-63
C-16	16-31, 48-63
C-32	0, 32-63

C-T is based on overall parity including ECC bits.

Card Punch Test Procedure

1. Make card punch ready.
2. Execute the control words with a write instruction to the card punch.
3. Examine the cards if in the pattern tests, or if in the extended tests use the control words provided for the card reader and printer to check the data.

1. Test 1. Punch Pattern Cards

Non ECC Mode - Punches a diagonal pattern from Column 1, Row 12, to Column 12, Row 9, a total of 13 cards punched.

ECC Mode

1. Punch 9 cards and floats a '1' in the C-bits.
2. Punch 9 cards and floats a '0' in the C-bits.

Test 2. Extended Punch Tests

This test uses printer data and the card reader and chain printer for checking. Each test card is identified with an octal number in the last column.

3.1.2. Success Indications

The success indications are indicated in the detailed test procedure.

3.1.3 Failure Indications

The failure indications are listed in the detailed test procedure.

3.1.4 Supplementary Information

I. Strap Code Control Word Format

The format for a Strap Coded Control Word is as follows:

CW(OP), Data Word Address, Word Count, Refill, where 'OP' is coded as in the table below:

<u>OP</u>	<u>Skip Flag</u>	<u>Multiple Flag</u>	<u>Chain Flag</u>	<u>Operation</u>
CR	0	0	0	Count Within Record
CCR	0	0	1	Chain Counts Within Record
CD	0	1	0	Count Disregarding Record
CDSC	0	1	1	Count Disregarding Record, Skip and Chain
SCR	1	0	0	Skip, Count Within Record
SCCR	1	0	1	Skip, Chain Counts Within Record
SCD	1	1	0	Skip, Count Disregarding Record
SCDSC	1	1	1	Skip, Count Disregarding Record, Skip and Chain

II. Explanation of File Numbers

Four versions of the BX-0 program are presently available. These programs differ only in the printer code used and in the starting location. The versions are:

<u>File No.</u>	<u>Printer Code</u>	<u>Starting Location</u>
KA EX1	48 ECS	50,000
KA EX1A	48 ECS	100,000
KA EX1B	48 BCD	50,000
KA EX1C	48 BCD	100,000

4. PROGRAM PHILOSOPHY

BX-0 is designed for parallel maintenance. It uses control word sequences to test data paths to and from main memory and to and from the I/O units. The test is independent of CPU and requires the ability to get to and from main memory to operate.

All tests start with the simplest control words and proceed to include the chain, multiple and skip flags. The test is executed completely from BX and, therefore does not test communication paths to and from CPU or all of the control functions.

Program: BX-0
File: KA EX1
EC Level: KA EX1A
 KA EX1B
 KA EX1C

PROGRAM SUMMARY

PROGRAMS OBSOLETED None.

FUNCTION To test the data paths to and from the I/O units and to and from main memory independent of CPU.

BASIC CONTROLS Controlled manually from the BX console.

MANUAL INTERVENTIONS Not applicable.

SUCCESS INDICATIONS Correct data in memory, and correct printouts.

FAILURE INDICATIONS Failure printouts and incorrect data in main memory.

PROGRAM OPTIONS

FIGURE 1

SLC,64.0

000100.00

PUNID,KA EX1C

KA EX1C

END,64.0

100.00

000100.00

18

15

2

8

5

4

PRNID,BX0 - BASIC EXCHANGE OFF LINE MAINTENANCE-E.W.JOHNSON

18

15

14

9

5

4

PRNS
PUNFUL

E. W. JOHNSON

SEPTEMBER 1, 1961
SLC, 88 77777.0
SEM, 6

077777.00

CW%CD, START, END-START&1., 0 @IPL CONTROL WORD
THIS CONTROL WORD IS USED TO READ IN PROGRAM
AUTOMATICALLY BY NORMAL - INITIAL PROGRAM LOAD -
PROCEDURES...IF IPL IS UNAVAILABLE, THE PROGRAM
DECK CAN BE MANUALLY READ-IN BY USING THE
FOLLOWING PROCEDURE.....

100000.00 20 070740.00 00 077777.00

1. BY BX MANIPULATION, PLACE THE FOLLOWING CW
IN MAIN MEMORY LOCATION 100.0...

DATA WD ADR - 7777.0
WORD COUNT -
REFILL - 0
CF-0, MF-1

2. READ BY EXECUTING STORED CW IN LOC. 100.0

THE FOLLOWING TABLE INDICATES STRAP CONTROL WORD
CODING.....

FORMAT.....CW%OP, DATA WD ADR, WD COUNT, REFILL

OP	SKIP	MF	CF	OPERATION
CR	0	0	0	COUNT WITHIN RECORD
CCR	0	0	1	CHAIN CNTS WITHIN RECORD
CD	0	1	0	COUNT DISREGARDING RECORD
CDSC	0	1	1	COUNT DISREGARDING RECORD
SCR	1	0	0	SKIP AND CHAIN SKIP, COUNT WITHIN RECORD
SCCR	1	0	1	SKIP, CHAIN COUNTS WITHIN RECORD
SCD	1	1	0	SKIP, COUNT, DISREGARDING RECORD
SCDSC	1	1	1	SKIP, COUNT, DISREGARDING RECORD, SKIP AND CHAIN

FOR A DETAILED PROGRAM DESCRIPTION, REFER TO
PROGRAM WRITE-UP

START	NOP	@START OF TEST	0.30 00	100000.00
	NOP	@PRINTER SECTION	0.30 00	100000.40
		PRINTER TEST CONTROL WORDS		
PRT1	CW%CR#,LINE1,17,0	@EXECUTE THIS CONTROL TO TEST @ABILITY OF PRINTER TO PRINT. @PRINTS ONE LINE OF PRINT INFO.	100016.00 00 000420.00 00	100001.00
PRT2	CW%CD#,LINE2,51,0	@MF TEST- ALL CHARACTER PRINT. @NO END CODE- 3 LINES OF PRINT.	100037.00 20 001460.00 00	100002.00
PRT3	CW%CD#,LINE3,31,0	@MF TEST,END CODE TEST- @PRINTS 3 LINES OF PRINT,EACH @IDENTIFIED.	100122.00 20 000760.00 00	100003.00
PRT4	CW%CR#,BXWC1,1,0	@BX WORD COUNT -1- TEST.- @USES PRINTER TO INDICATE @SUCCESS,PRINTS WDCT1 ON SUCCESS. @WDCT1 FAILURE-ON FAILURE	100161.00 00 000020.00 00	100004.00
PRT4A	CW%CR#,BXWC2,2,0	@BX WORD COUNT -2- TEST. @USES PRINTER TO INDICATE @SUCCESS,PRINTS WORD COUNT 2- @ON SUCCESS AND-WORD COUNT 2 @FAILURE-ON FAILURE.	100163.00 00 000040.00 00	100005.00
PRT5	CW%CDSC#,LINE1,17,\$61. CW%CDSC#,LINE2,51,\$61. CW%CDSC#,LINE3,31,\$61. CW%CDSC#,BXWC1,1,PRT4A	@CHAIN FLAG/MULTIPLE FLAG TEST @DO ALL ABOVE FUNCTIONS @WITH CF AND MF SET 1	100016.00 60 000422.00 07 100037.00 60 001462.00 08 100122.00 60 000762.00 09 100161.00 60 000022.00 05	100006.00 100007.00 100010.00 100011.00
PRT6	CW%CDSC#,LINE2,51,\$	@SCOPING LOOP-CONTINUOUS PRINT	100037.00 60 001462.00 0A	100012.00
PRT7	CW%CDSC#,LINE3,31,\$	@SCOPING LOOP-END CODE PRT	100122.00 60 000762.00 0B	100013.00
		SELECT REPORT PRINTER TEST		
		@THE PROGRAM LOOPS PRINTING ACCORDING TO THE @SELECT REPORT KEY DEPRESSED.		
		IF NO KEY IS DEPRESSED THE PROGRAM WILL LOOP PRINTING ALL DATA FROM THIS TEST.		
PRT8	CW%CDSC#,CCFC,32,\$	@LOOP FOR CARRIAGE @CONTROL FIELD TESTS.	100207.00 60 001002.00 0C	100014.00
		SUPPRESS POST-SPACING PRINTER TEST		
PRT9	CW%CDSC#,SPS1,17,\$	@LOOP FOR SUPPRESS	100166.00 60 000422.00 0D	100015.00

END OF PRINTER TESTS

18
15
14
12
11
9
5
4

● PRINT DATA

● CNOP

LINE1	%8DD%BU,8,8,000	@CHAR CONTROL BYTE	000	100016.00
	% AZDD%BU,8,8,THIS LINE OF PRINT CHECKS THE ABILITY TOZ			100016.10
	% AZDD%BU,8,8, PRINT. ABCDEFGHIJKLMNOPQRSTUVWXYZ			100023.10
	% AA0DD%BU,8,8,YZ1234567890A			100027.10
	%AZDD%BU,8,8,-%#@6\$*/,Z			100030.50
	%16DD%BU,8,8,1A		032	100032.00
	% AZDD%BU,8,8, ONLY ONE LINE SHOULD PRINT Z			100032.10
	% AZDD%BU,8,8,PRT1 Z			100036.10

● CNOP

LINE2	%8DD%BU,8,8,000	@CHAR CONTROL BYTE-LINE 1	000	100037.00
	% AZDD%BU,8,8, ABCDEFGHIJKLMNOPQRSTUVWXYZ			100037.10
	% ATDD%BU,8,8,WXYZ0123456789 ABCDEFGHIJKLMNOPQT			100042.00
	% AQDD%BU,8,8,RSTUVWXYZ0123456789 ALL CHARACTEQ			100046.00
	% AZDD%BU,8,8,R PRINT Z			100052.00
	%AZDD%BU,8,8,-%#@6\$*/,Z			100053.00
	%16DD%BU,8,8,1A		032	100054.30
	% AZDD%BU,8,8, THREE LINESZ			100054.40
	% AZDD%BU,8,8, FIRST LINE Z			100056.00

	%8DD%BU,8,8,000	@CHAR CONTROL BYTE-LINE 2	000	100060.00
	% AZDD%BU,8,8, ABCDEFGHIJKLMNOPQRSTUVWXYZ			100060.10
	% ATDD%BU,8,8,WXYZ0123456789 ABCDEFGHIJKLMNOPQT			100063.00
	% AQDD%BU,8,8,RSTUVWXYZ0123456789 ALL CHARACTEQ			100067.00
	% AZDD%BU,8,8,R PRINT Z			100073.00
	%AZDD%BU,8,8,-%#@6\$*/,Z			100074.00
	%16DD%BU,8,8,1A		032	100075.30
	% AZDD%BU,8,8, THREE LINESZ			100075.40
	% AZDD%BU,8,8, SECOND LINE Z			100077.00

	%8DD%BU,8,8,000	@CHAR CONTROL BYTE-LINE 3	000	100101.00
	% AZDD%BU,8,8, ABCDEFGHIJKLMNOPQRSTUVWXYZ			100101.10
	% ATDD%BU,8,8,WXYZ0123456789 ABCDEFGHIJKLMNOPQT			100104.00
	% AQDD%BU,8,8,RSTUVWXYZ0123456789 ALL CHARACTEQ			100110.00
	% AZDD%BU,8,8,R PRINT Z			100114.00
	%AZDD%BU,8,8,-%#@6\$*/,Z			100115.00
	%16DD%BU,8,8,1A		032	100116.30
	% AZDD%BU,8,8, THREE LINESZ			100116.40
	% AZDD%BU,8,8, THIRD LINE Z			100120.00

LINE3	%8DD%BU,8,8,000	@CHAR CONTROL BYTE	000	100122.00
	% AZDD%BU,8,8,MULTIPLE FLAG EQUAL 1 TEST WITH Z			100122.10
	% AZDD%BU,8,8,END CODE. THIS IS THE FIRST LINE.....Z			100126.10
	%8DD%BU,8,8,376	@FIRST END CODE END OF LINE 1	376	100132.70
	%8DD%BU,8,8,000	@CHAR CONTROL BYTE-2ND LINE	000	100133.00
	% AZDD%BU,8,8,THIS IS THE SECOND LINE OF MF/END CODE TZ			100133.10
	% AZDD%BU,8,8,EST. 376 IS USED FOR END CODE..Z			100140.10
	%8DD%BU,8,8,376,000		376	100144.00
	% AZDD%BU,8,8,FAILZ		000	100144.10
				100144.20

● CNOP

	%8DD%BU,8,8,000	@CHAR CONTROL BYTE-3RD LINE	000	100145.00
	% AZDD%BU,8,8,THIS IS THE THIRD AND LAST LINE OF END CZ			100145.10
	% AZDD%BU,8,8,ODE/MF TEST-PRT3-WD CNT 0 STOPS PRINTZ			100152.10
	% AZDD%BU,8,8, ON THIS LINE.....Z			100156.60

● CNOP

BXWC1	%8DD%BU,8,8,000	000	100161.00
	% AZDD%BU,8,8,WDCT1 Z		100161.10
	% AZDD%BU,8,8,FAILUREZ		100162.00
	CNOP		
BXWC2	%8DD%BU,8,8,000	000	100163.00
	% AZDD%BU,8,8,WORD COUNT -2- Z		100163.10
	% AZDD%BU,8,8,FAILURE Z		100165.00
	SUPPRESS POST SPACING TEST DATA		
SPS1	%8DD%BU,8,8,360,000	360	100166.00
		000	100166.10
	% AZDD%BU,8,8,NOW Z		100166.20
	%8DD%BU,8,8,376	376	100166.70
SPS2	%8DD%BU,8,8,360,000,000,000,000,000	360	100167.00
		000	100167.10
		000	100167.20
		000	100167.30
		000	100167.40
		000	100167.50
	% AZDD%BU,8,8,IS A SUPPZ		100167.60
	%8DD%BU,8,8,376	376	100170.70
SPS3	%8DD%BU,8,8,360,000,000,000,000,000,0J0	360	100171.00
		000	100171.10
		000	100171.20
		000	100171.30
		000	100171.40
		000	100171.50
		000	100171.60
	DD%BU,64,8,0	000000000000000000000000	100171.70
	% AZDD%BU,8,8,RESS POZ		100172.70
	%8DD%BU,8,8,376,000	376	100173.60
		000	100173.70
SPS4	%8DD%BU,8,8,360,000,000,000,000,000	360	100174.00
		000	100174.10
		000	100174.20
		000	100174.30
		000	100174.40
		000	100174.50
	DD%BU,64,8,0	000000000000000000000000	100174.60
	DD%BU,64,8,0	000000000000000000000000	100175.60
	% AZDD%BU,8,8,ST SPACING T Z		100176.60
	%8DD%BU,8,8,376,000,000,000	376	100200.40
		000	100200.50
		000	100200.60
		000	100200.70
SPS5	%8DD%BU,8,8,000	000	100201.00
	DD%BU,64,8,0	000000000000000000000000	100201.10
	DD%BU,64,8,0	000000000000000000000000	100202.10
	DD%BU,64,8,0	000000000000000000000000	100203.10
	DD%BU,64,8,0	000000000000000000000000	100204.10
	% AZDD%BU,8,8,EST LOOP..Z		100205.10
	%8DD%BU,8,8,376	376	100206.30
	CNOP	0.30 00	100206.40
	SELECT REPORT TEST DATA		
CCFC	%8DD%BU,8,8,341,000	341	100207.00
		000	100207.10
	% AZDD%BU,8,8,THIS LINE SHOULD BE PRINTED IF SELECT Z		100207.20
	% AZDD%BU,8,8,REPORT 1 IS DEPRESSED..Z		100214.00
	%8DD%BU,8,8,376	376	100216.70
	%8DD%BU,8,8,342,000	342	100217.00

% AZDD%BU,8,8, THIS LINE SHOULD BE PRINTED IF SELECT Z
% AZDD%BU,8,8,REPORT 2 IS DEPRESSED..Z
%8DD%BU,8,8,376
%8DD%BU,8,8,344,000

% AZDD%BU,8,8, THIS LINE SHOULD BE PRINTED IF SELECT Z
% AZDD%BU,8,8,REPORT 3 IS DEPRESSED..Z
%8DD%BU,8,8,376
%8DD%BU,8,8,350,000

% AZDD%BU,8,8, THIS LINE SHOULD BE PRINTED IF SELECT Z
% AZDD%BU,8,8,REPORT 4 IS DEPRESSED..Z
%8DD%BU,8,8,376

000 100217.10
100217.20
100224.00
376 100226.70
344 100227.00
000 100227.10
100227.20
100234.00
376 100236.70
350 100237.00
000 100237.10
100237.20
100244.00
376 100246.70

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CARD READER TESTS

*****OPERATOR*****

PLACE THE READER TEST DECK IN CARD READER
HOPPER AND MAKE READER READY. THE FIRST CONTROL
WORD SEQUENCE WILL READ IN THE ENTIRE TEST DECK.

....IF IT IS DESIRED TO RUN EACH TEST SEPARATELY,
THE ENTIRE CONTROL WORD SEQUENCE IS REPEATED WITHOUT
CHAIN FLAGS. RUN THIS SEQUENCE ONLY IF CHAIN FLAG
OPERATION IS QUESTIONABLE. ADDITIONAL TESTS ARE
INCLUDED, SEPARATE TO THE FIRST AND SECOND CW SEQUENCE,
WHICH CHECK VARIOUS OPTIONS OF READER SUCH AS SCOPING
FEATURES AND ECC TESTS.....

ONE TEST DECK IS AVAILABLE FOR THE READER TESTS.

TEST DECK ONE CONTAINS MOSTLY IQS DATA WHICH ARE
CHECKED BY EXECUTING CHKRDR CONTROL WORD SEQUENCE
AND PRINTING RESULTS ON CHAIN PRINTER. THE IQS DATA
WAS CHOSEN TO BE SELF EXPLANATORY. THE LAST WORD OF
EACH CARD IS IDENTIFIED AS DESCRIBED BEFORE IN BOTH DECKS

THE PUNCH TEST OUTPUT CAN ALSO BE USED FOR CHECKING THE
CARD READER.

RDR	CW%CDSC#,CARD1,15,\$61.0	@FIRST CARD-IDENTIFIED	100313.00	60	000362.00	A8	100247.00
	CW%CDSC#,CARD2,1,\$61.0	@SECOND CARD-WORD COUNT 1 TEST. @SHOULD SKIP TO THIRD CARD.	100332.00	60	000022.00	A9	100250.00
	CW%CDSC#,CARD3,2,\$61.0	@THIRD CARD-WORD COUNT 2 TEST. @SHOULD SKIP TO FOURTH CARD.	100351.00	60	000042.00	AA	100251.00
	CW%SCCR#,CARD4,4,\$61.0	@FIRST 4 WORDS OF CARD4 SHOULD BE @SKIPPED,WITH SKIP FLAG.	100370.00	50	000102.00	AB	100252.00
	CW%CDSC#,CARD4&4,0,11,\$61.0	@READ IN REMAINDER OF CARD 4.	100374.00	60	000262.00	AC	100253.00
	CW%CDSC#,CARD5,45,\$61.0	@READ IN 3 CARDS-MF READ.	100407.00	60	001322.00	AD	100254.00
	CW%CDSC#,CARD8,150,\$61.0	@LONG READ-10 CARDS.	100464.00	60	004542.00	AE	100255.00
	CW%CR#,CARD18,30,0	@SHOULD ONLY READ ONE CARD.	100712.00	00	000740.00	00	100256.00

THE RESULTS OF READER TEST CAN EASILY BE DETERMINED BY TWO MEANS.

1. EXECUTE CHKRDR CNT WDS AND PRINT RESULTS ON CHAIN PRINTER. OR,
2. MANUALLY FETCH READ IN DATA...THE LAST WORD OF EACH CARD HAS ITS OCTAL CARD NUMBER IN THE LAST 8 BIT POSITIONS.WHERE FULL CARD WAS NOT READ,COMPARE WITH IQS STATEMENTS.

THE ABOVE CONTROL WORD SEQUENCE IS NOW REPEATED WITHOUT CHAIN FLAGS

RDR1	CW%CR#,CARD1,15,0	@FIRST CARD	100313.00 00 000360.00 00	100257.00
RDR2	CW%CR#,CARD2,1,0	@SECOND CARD-WORD COUNT 1 TEST. @SHOULD SKIP TO THIRD CARD	100332.00 00 000020.00 00	100260.00
RDR3	CW%CR#,CARD3,2,0	@THIRD CARD-WORD COUNT 2 TEST.	100351.00 00 000040.00 00	100261.00
RDR4		@SHOULD SKIP TO FOURTH CARD.	0.00 00 000000.00 00	100262.00
RDR5	CW%SCR#,CARD4,4,0	@SKIP FIRST 4 WORDS WITH SKIP FLAG.	100370.00 10 000100.00 00	100263.00
RDR6	CW%CD#,CARD4&4,0,11,0	@READ-IN REMAINDER OF CARD 4.	100374.00 20 000260.00 00	100264.00
RDR7	CW%CD#,CARD5,45,0	@THREE CARD MF READ.	100407.00 20 001320.00 00	100265.00
RDR8	CW%CD#,CARD8,150,0	@LONG READ- 10 CARDS.	100464.00 20 004540.00 00	100266.00
RDR9	CW%CR#,CARD18,30,0	@SHOULD ONLY READ ONE CARD.	100712.00 00 000740.00 00	100267.00

MORE TESTS WILL BE ADDED AT A LATER DATE

THE FOLLOWING GROUP OF CONTROL WORDS PRINT READ IN DATA OF READER TEST. PROVISIONS ARE INCLUDED TO PRINT FAILURE INDICATIONS OF ALL TESTS.FOR EXPLANATION,REFER TO PROGRAM DESCRIPTION WRITE-UP...

CHKRDR	CW%CDSC#,CARD1,15,\$61.0		100313.00 60 000362.00 B9	100270.00
	CW%CDSC#,CARD2,15,\$61.0		100332.00 60 000362.00 BA	100271.00
	CW%CDSC#,CARD3,15,\$61.0		100351.00 60 000362.00 BB	100272.00
	CW%CDSC#,CARD4,15,\$61.0		100370.00 60 000362.00 BC	100273.00
	CW%CDSC#,CARD5,15,\$61.0		100407.00 60 000362.00 BD	100274.00
	CW%CDSC#,CARD6,15,\$61.0		100426.00 60 000362.00 BE	100275.00
	CW%CDSC#,CARD7,15,\$61.0		100445.00 60 000362.00 BF	100276.00
	CW%CDSC#,CARD8,15,\$61.0		100464.00 60 000362.00 C0	100277.00
	CW%CDSC#,CARD9,15,\$61.0		100503.00 60 000362.00 C1	100300.00
	CW%CDSC#,CARD10,15,\$61.0		100522.00 60 000362.00 C2	100301.00
	CW%CDSC#,CARD11,15,\$61.0		100541.00 60 000362.00 C3	100302.00
	CW%CDSC#,CARD12,15,\$61.0		100560.00 60 000362.00 C4	100303.00
	CW%CDSC#,CARD13,15,\$61.0		100577.00 60 000362.00 C5	100304.00
	CW%CDSC#,CARD14,15,\$61.0		100616.00 60 000362.00 C6	100305.00
	CW%CDSC#,CARD15,15,\$61.0		100635.00 60 000362.00 C7	100306.00

CW%CDSC□,CARD16,15,\$61.0
CW%CDSC□,CARD17,15,\$61.0
CW%CDSC□,CARD18,15,\$61.0
CW%CD□,CARD19,15,0

100654.00 60 000362.00 C8 100307.00
100673.00 60 000362.00 C9 100310.00
100712.00 60 000362.00 CA 100311.00
100731.00 20 000360.00 00 100312.00

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•				
•		READ IN AREA FOR RDR AND RDR1-RDR9 TESTS		
•				
•		CNOP		
•	CARD1	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 1 IDENTITY	16.00 1.00
				100313.00 100331.00
•	CARD2	DR%BU,64,8□,1 DR%BU,64,8□,14	@WORD COUNT 1 DATA @THIS AREA SHOULD BE BLANK	1.00 16.00
				100332.00 100333.00
•	CARD3	DR%BU,64,8□,2 DR%BU,64,8□,13	@WORD COUNT 2 DATA @THIS AREA SHOULD BE BLANK	2.00 15.00
				100351.00 100353.00
•	CARD4	% AZ□DD%BU,8,8□, THIS IS THE SKIP READ AREA.....Z DR%BU,64,8□,10 DR%BU,64,8□,1	@CARD 4 DATA @CARD 4 IDENTITY	12.00 1.00
				100370.00 100374.00 100406.00
•	CARD5	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 5 DATA @CARD 5 IDENTITY	16.00 1.00
				100407.00 100425.00
•	CARD6	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 6 DATA @CARD 6 IDENTITY	16.00 1.00
				100426.00 100444.00
•	CARD7	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 7 DATA @CARD 7 IDENTITY	16.00 1.00
				100445.00 100463.00
•	CARD8	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 8 DATA @CARD 8 IDENTITY %OCTAL□	16.00 1.00
				100464.00 100502.00
•	CARD9	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 9 DATA @CARD 9 IDENTITY %OCTAL□	16.00 1.00
				100503.00 100521.00
•	CARD10	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 10 IDENTITY %OCTAL□	16.00 1.00
				100522.00 100540.00
•	CARD11	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 11 IDENTITY %OCTAL□	16.00 1.00
				100541.00 100557.00
•	CARD12	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 12 IDENTITY %OCTAL□	16.00 1.00
				100560.00 100576.00
•	CARD13	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 13 IDENTITY	16.00 1.00
				100577.00 100615.00
•	CARD14	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 14 IDENTITY	16.00 1.00
				100616.00 100634.00
•	CARD15	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 15 IDENTITY	16.00 1.00
				100635.00 100653.00
•	CARD16	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 16 IDENTITY	16.00 1.00
				100654.00 100672.00
•	CARD17	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 17 IDENTITY	16.00 1.00
				100673.00 100711.00
•	CARD18	DR%BU,64,8□,14 DR%BU,64,8□,1	@CARD 18 IDENTITY	16.00 1.00
				100712.00 100730.00
•	CARD19	DR%BU,64,8□,15	@CARD 19 SHOULD NOT HAVE READ	17.00
				100731.00

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729-IV- TAPE TESTS

BOTH DATA AND TAPE CONTROL ARE CHECKED IN THESE TESTS. INSTRUCTIONS ARE INCLUDED WITHIN THE TESTS INDICATING THE TYPE OF CONTROL INSTRUCTION NEEDED, ITS CODE FOR MANUAL EXECUTION, AND THE TIME OF WHICH IT SHOULD BE EXECUTED. EACH STEP OF A PARTICULAR TEST IS NUMBERED BY ORDER OF EXECUTION.

TEST 1.- SIMPLE DATA AND REWIND.
MANUALLY LOCATE DRIVE.

1.-REWIND TAPE. CONTROL CODE 01011110

2.-EXECUTE FOLLOWING CONTROL WORD-WRITE

CW%CR#,RCRDA,12,0

101004.00 00 000300.00 00

100750.00

3.-REWIND TAPE. CONTROL CODE 01011110

4.-EXECUTE FOLLOWING CONTROL WORD-READ

CW%CR#,TPRD1,12,0

101140.00 00 000300.00 00

100751.00

TO CHECK DATA, CHECK READ IN AREA MANUALLY. DATA IS IN A SIMPLE FORM. AN ALL ONES BYTE SHIFTS CONTINUALLY TO THE LEFT ONE FULL BYTE FOR EACH WORD READ UNTILL AN ALL ZEROS WORD IS REACHED. FOLLOWING THIS IS AN ALL ONES WORDS, A 10101.....WORD, AND A 01010.....WORD.

• TEST 2.- DATA AND BACKSPACE TEST
• TEST CHECKED BY PRINTING RESULTS
• ON CHAIN PRINTER.

- 1.-LOCATE DESIRED DRIVE.
- 2.-REWIND TAPE. CONTROL CODE 01011110
- 3.-EXECUTE FOLLOWING GROUP OF CONTROL WORDS-WRITE

CW%CDSC□,RCRD1,10,\$61.0	101020.00	60	000242.01	EB	100752.00
CW%CDSC□,RCRD2,15,\$61.0	101032.00	60	000362.01	EC	100753.00
CW%CR□,RCRD3,5,0	101051.00	00	000120.00	00	100754.00

- 4.-BACKSPACE TAPE. CONTROL CODE 01111110
- 5.-EXECUTE FOLLOWING CONTROL WORD-WRITE

CW%CDSC□,RCRD4,5,\$61.0	101056.00	60	000122.01	EE	100755.00
CW%CR□,RCRD5,10,0	101063.00	00	000240.00	00	100756.00

- 6.-REWIND TAPE. CONTROL CODE 01011110
- 7.-EXECUTE FOLLOWING CONTROL WORDS-READ.

CW%CDSC□,TPRD2,10,\$61.0	101154.00	60	000242.01	F0	100757.00
CW%CDSC□,TPRD3,15,\$61.0	101166.00	60	000362.01	F1	100760.00
CW%CDSC□,TPRD4,5,\$61.0	101205.00	60	000122.01	F2	100761.00
CW%CR□,TPRD5,10,\$61.0	101212.00	00	000242.01	F3	100762.00

- 8.-TO CHECK TESTS, USE ABOVE SET OF CONTROL WORDS AGAIN
- ONLY THIS TIME, PRINT READ IN AREA 0.1 PRINTER.

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● TEST 3. TAPE MARK RECOGNITION TEST.

- 1.-LOCATE DESIRED DRIVE.
- 2.-REWIND TAPE. CONTROL CODE 01011110
- 3.-EXECUTE FOLLOWING CONTROL WORD-WRITE

CW%CDR,RCRD10,5,\$61.0	@SHOULD NOT CHAIN.	101075.00 20 000122.01 F4	100763.00
CW%CRH,RCRD10,5,0		101075.00 00 000120.00 00	100764.00

- 4.-WRITE A TAPE MARK. CONTROL CODE 01001111
- 5.-EXECUTE FOLLOWING CONTROL WORD-WRITE.

CW%CRH,RCRD11,5,0		101102.00 00 000120.00 00	100765.00
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- 6.-REWIND TAPE. CONTROL CODE 01011110
- 7.-EXECUTE FOLLOWING CONTROL WORD-ONLY ONE RECORD
- -SHOULD READ. TAPE MARK SHOULD CAUSE DISCONNECT AT 6TH
- -WORD.

CW%CDR,TPRD6,15,0		101224.00 20 000360.00 00	100766.00
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- 8.-EXECUTE ABOVE CW WITH PRINTER WRITE TO OBSERVE RESULTS.

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● TEST 4.-BACKSPACE FILE TEST.

- 1.-LOCATE DESIRED DRIVE.
- 2.-REWIND TAPE. CONTROL CODE 01011110
- 3.-EXECUTE FOLLOWING CONTROL WORD-WRITE

● CW%CD#RCRD12,5,0 101107.00 20 000120.00 00 100767.00

- 4.-WRITE A TAPE MARK. CONTROL CODE 01001111
- 5.-EXECUTE FOLLOWING CW - WRITE

● CW%CD#RCRD13,5,0 101114.00 20 000120.00 00 100770.00

- 6.-BACKSPACE FILE. CONTROL CODE 01111111
- 7.-EXECUTE FOLLOWING CW-WRITE

● CW%CD#RCRD14,5,0 101121.00 20 000120.00 00 100771.00

- 8.-REWIND TAPE. CONTROL CODE 01011110
- 9.-EXECUTE FOLLOWING CONTROL WORDS-READ.

● CW%CD#TPRD7,10,0 101243.00 20 000240.00 00 100772.00

- 10.-EXECUTE FOLLOWING CW ON-PRINTER--PRINT,

● CW%CD#TPRD7,10,0 101243.00 20 000240.00 00 100773.00

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● TEST 5 SPACE FILE TEST
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● 1.-LOCATE DESIRED DRIVE.
● 2.-REWIND TAPE. CONTROL CODE 01011110
● 3.-EXECUTE FOLLOWING CONTROL WORD-WRITE
●
● CW%CDR,RCRD15,5,0 101126.00 20 000120.00 00 100774.00
●
● 4.-WRITE A TAPE MARK. CONTROL CODE 01001111
● 5.-REWIND TAPE. CONTROL CODE 01011110
● 6.-SPACE FILE. CONTROL CODE 00111111
● 7.-EXECUTE FOLLOWING CW WRITE.
●
● CW%CDR,RCRD16,5,0 101133.00 20 000120.00 00 100775.00
●
● 8.-REWIND TAPE. CONTROL CODE 01011110
● 9.-EXECUTE FOLLOWING CWS-READ.
●
● CW%CDSCR,TPRD8,5,561,0 101262.00 60 000122.01 FF 100776.00
● CW%CDR,TPRD865,0,1,0 @SKIP TAPE MARK 101267.00 20 000020.00 00 100777.00
●
● 9A.-EXECUTE FOLLOWING CW-READ
●
● CW%CDR,TPRD865,0,5,0 101267.00 20 000120.00 00 101000.00
●
● 10.-EXECUTE FOLLOWING CW ON PRINTER. -WRITE-
●
● CW%CRD,TPRD865,0,5,0 101267.00 00 000120.00 00 101001.00
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• THE FOLLOWING GROUP OF CONTROL WORDS REPRODUCE
• THIS PROGRAM USING TAPES AS A STORAGE DEVICE.

- 1.-LOCATE DESIRED DRIVE
- 2.-REWIND TAPE. CONTROL CODE 01011110
- 3.-EXECUTE FOLLOWING CONTROL WORDS-WRITE

• CW%CCRD,IPLCW,1,551,0 101003.00 40 000022.02 03 101002.00
IPLCW CW%CD,START,END-START&1,0,0 100000.00 20 070740.00 00 101003.00

- 4.-REWIND TAPE. CONTROL CODE 01011110

• TAPE CAN BE USED AS A PROGRAM TAPE.
• IPL FROM THIS TAPE WILL PRODUCE SAME DATA AS IF
• BX-0-WERE LOADED FROM CARDS. TO TRUELY TEST TAPE,
• CLEAR MEMORY AND IPL. RUN PRINTER TEST FOR A
• DATA TEST.

• ****TO CREATE A NEW BINARY DECK, USE ABOVE
• CONTROL WORDS ON A PUNCH WRITE.****
• CNOP

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● TAPE TESTS DATA

● TEST 1.

● RCRDA %8DD%BU,8,8,000,000,000,000,000,000,000,377

000 101004.00

000 101004.10

000 101004.20

000 101004.30

000 101004.40

000 101004.50

000 101004.60

377 101004.70

%8DD%BU,8,8,000,000,000,000,000,000,377,000

000 101005.00

000 101005.10

000 101005.20

000 101005.30

000 101005.40

000 101005.50

377 101005.60

%8DD%BU,8,8,000,000,000,000,000,377,000,000

000 101005.70

000 101006.00

000 101006.10

000 101006.20

000 101006.30

000 101006.40

377 101006.50

000 101006.60

%8DD%BU,8,8,000,000,000,000,377,000,000,000

000 101006.70

000 101007.00

000 101007.10

000 101007.20

000 101007.30

377 101007.40

000 101007.50

000 101007.60

%8DD%BU,8,8,000,000,000,377,000,000,000,000

000 101007.70

000 101010.00

000 101010.10

000 101010.20

377 101010.30

000 101010.40

000 101010.50

000 101010.60

%8DD%BU,8,8,000,000,377,000,000,000,000,000

000 101010.70

000 101011.00

000 101011.10

377 101011.20

000 101011.30

000 101011.40

000 101011.50

000 101011.60

%8DD%BU,8,8,000,377,000,000,000,000,000,000

000 101011.70

000 101012.00

377 101012.10

000 101012.20

000 101012.30

000 101012.40

000 101012.50

000 101012.60

%8DD%BU,8,8,377,000,000,000,000,000,000,000

000 101012.70

377 101013.00

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% AZDD%BU,8,8,XXXXXXXZ

101106.00

TEST4

RCRD12	%8DD%BU,8,8,000	@CHAR CONTROL BYTE FOR PRINTING.	000	101107.00
	% AZDD%BU,8,8,TEST 4.BACKSPACE FILE TEST. RECZ			101107.10
	% AZDD%BU,8,8,ORD 1...Z			101113.00

RCRD13	%8DD%BU,8,8,000	@CHAR CONTROL BYTE FOR PRINTING.	000	101114.00
	% AZDD%BU,8,8,IF THIS PRINTS,BACKSPACE FILE FZ			101114.10
	% AZDD%BU,8,8,AILED...Z			101120.00

RCRD14	%8DD%BU,8,8,000	@CHAR CONTROL BYTE FOR PRINTING.	000	101121.00
	% AZDD%BU,8,8,TEST 4.BACKSPACE FILE TEST PASSZ			101121.10
	% AZDD%BU,8,8,FD.....Z			101125.00

TEST 5.

RCRD15	%8DD%BU,8,8,000	@CHAR CONTROL BYTE FOR PRINTING.	000	101126.00
	% AZDD%BU,8,8,SPACE FILE,TEST 5, FAILED.XXXXXZ			101126.10
	% AZDD%BU,8,8,XXXXXXXXZ			101132.00

RCRD16	%8DD%BU,8,8,000	@CHAR CONTROL BYTE FOR PRINTING.	000	101133.00
	% AZDD%BU,8,8,TEST 5. SPACE FILE TEST PASSED.Z			101133.10
	% AZDD%BU,8,8,.....Z			101137.00

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●
● TAPE TESTS READ IN AREA
●

● TEST 1.
●

TPRD1	DR%BU,64,8□,8	@8 WORDS-ALL ONES BYTES STARTS AT @BYTE 7 AND SHIFTS LEFT ONE BYTE @FOR EACH WORD.	10.00	101140.00
	DR%BU,64,8□,2	@ALL ZEROS WORD @ALL ONES WORD	2.00	101150.00
	DR%BU,64,8□,1	@10101....WORD	1.00	101152.00
	DR%BU,64,8□,1	@01010....WORD	1.00	101153.00

● TEST 2.
●

TPRD2	DR%BU,64,8□,10		12.00	101154.00
TPRD3	DR%BU,64,8□,15		17.00	101166.00
TPRD4	DR%BU,64,8□,5		5.00	101205.00
TPRD5	DR%BU,64,8□,10		12.00	101212.00

● TEST 3.
●

TPRD6	DR%BU,64,8□,15		17.00	101224.00
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● TEST 4.
●

TPRD7	DR%BU,64,8□,15		17.00	101243.00
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● TEST 5.
●

TPRD8	DR%BU,64,8□,10		12.00	101262.00
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● REPEAT THIS TEST USING SEVERAL ANALOG TO DIGITAL
● POT SETTINGS....

● CNSL4 CW%CCR□,WORD3.1,CNSL4&1 @CHAINING TWO WORD 101372.00 40 000022.02 CD 101314.00
CW%CR□,WORD3&1.,2.0 101373.00 00 000040.00 00 101315.00

● CW%CCR□,WORD4.1,CNSL4&3.0 @CHAINING THREE WORDS 101375.00 40 000022.02 CF 101316.00
● CW%CCR□,WORD4&1.0.1,CNSL4&4.0 @DATA WILL BEGIN AT WORD 4 101376.00 40 000022.02 D0 101317.00
● CW%CR□,WORD4&2.0.1.0 101377.00 00 000020.00 00 101320.00

● USE THE SAME CONTROL WORDS AND WRITE
● OUT DATA FOR CHECKING.
●

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● TEST FIVE-TESTS TYPEWRITER WRITE OPERATION
 ● AND END CODE
 ●
 ● CNSL5 CW%CR□,TYPW1-3.0,4,0 @TYPES ONE WORD 101400.00 00 000100.00 00 101321.00
 ● WHICH IS,CR,TYP TST
 ● CW%CR□,TYPW2-3.0,5,0 @END CODE TEST-TYPE 101405.00 00 000120.00 00 101322.00
 ● TWO WORDS AND END
 ● WORDS ARE, CR,END
 ● CODE TEST,END
 ●
 ● CW%CR□,TYPW3-3.0,14,0 @TYPE ONE LINE 101413.00 00 000340.00 00 101323.00
 ● WHICH IS-
 ● CR, A B C D E F G
 ● H I J K L M N O
 ● P Q R S T U V W X
 ● Y Z... 1 2 3 4 5 6
 ● 7 8 9 0 BS END CR

● TEST SIX-TESTS TYPEWRITER WRITE
 ● OPERATION AND CF
 ●
 ● CNSL6 CW%CCR□,TYPW4-3.0,4,CNSL6&1. @CHAINS TWO WORDS 101431.00 40 000102.02 D5 101324.00
 ● CW%CR□,TYPW4&2,1,0 @WORDS ARE-CHAINING 101434.02 00 000020.00 00 101325.00
 ● TEST S,ON FAILURE-FAIL
 ●
 ● CW%CCR□,TYPW4-3.0,4,CNSL6&3. @CHAINS THREE WORDS 101431.00 40 000102.02 D7 101326.00
 ● CW%CCR□,TYPW4&2,1,CNSL6&4. @WORDS ARE-CHAINING 101436.00 40 000022.02 D8 101327.00
 ● CW%CR□,TYPW4&4,1,0 @TEST SUCCESS,ON 101440.00 00 000020.00 00 101330.00
 ● FAILURE-FAIL

● TEST SEVEN-TESTS TYPWRITER WRITE
 ● OPERATION MF AND CF
 ●
 ● CNSL7 CW%CD□,TYPW5-3.0,9,0 @WRITE THREE WORDS 101441.00 20 000220.00 00 101331.00
 ● WITH END CODE
 ● BETWEEN WORDS
 ● WORDS ARE-MLTIPLE
 ● TEST SUCCESSFUL
 ● ON FAILURE-FAIL
 ●
 ● CW%CDSC□,TYPW6-3.0,4,CNSL7&2. @WRITE TWO WORDS ON TYPEWRITER 101452.00 60 000102.02 DB 101332.00
 ● CW%CR□,TYPW6&1,4,0 @THE END CODE AND COUNT ZERK 101456.00 00 000100.00 00 101333.00
 ● OCCUR SIMULTANEOUSLY

● TEST EIGHT-TESTS TYPEWRITER
 ● READ OPERATIO:1
 ●
 ● THE FOLLOWING CWS READ 40 CHARACTERS TYPED IN
 ●
 ● CNSL8 CW%CR□,TYPR1,8,0 101465.00 00 000200.00 00 101334.00
 ●
 ● THE FOLLOWING CWS READ 40 CHARACTERS TYPED IN---
 ● CHAINS AND READS 32 MORE..
 ●
 ● CW%CCR□,TYPR2,8,\$61. 101475.00 40 000202.02 DE 101335.00
 ● CW%CR□,TYPR3,4,0 101505.00 00 000100.00 00 101336.00
 ●
 ● USE THE SAME CONTROL WORDS AND WRITE
 ● OUT DATA FOR CHECKING.

THE FOLLOWING CWS TEST MF AND CF
 WHEN IN MF MODE AND AN END CODE IS
 ENTERED FROM THE CONSOLE TYPEWRITER THE
 NEXT 3 WORDS WILL BE READ FROM CNSL SWITCHES.

FOR ONE TEST-COUNT CHARACTERS AND
 HAVE THE END CODE AND COUNT ZERO OCCUR
 SIMULTANEOUSLY.....

CW%CD# TYPR4,8,0	@READ IN MF MODE	101511.00	20	000200.00	00	101337.00
CW%CD# TYPR5,25,0	@READ IN MF MODE	101521.00	20	000620.00	00	101340.00
CW%CDSC# TYPR7,10,6-2.	@MF AND CF SIM-TYPE 8 CHAR	101556.00	60	000257.77	FE	101341.00 C
CW%CDSC# TYPR8,20,CNSL8&8.0	@MORE MF AND CF CW	101570.00	60	000502.02	E4	101342.00
CW%CCR# TYPR9,20,CNSL8&9.0		101614.00	40	000502.02	E5	101343.00
CW%CR# TYPR10,20,0		101640.00	00	000500.00	00	101344.00

TEST NINE -TESTS READ OPERATION
 @WITH SF, MF, AND CF.

@THE FOLLOWING CWS ARE FOR READING
 @WITH MF, SF, AND CF.

EXECUTE THE FOLLOWING CW TO TEST CF AND SF.

CNSL9 CW%SCCR# TYPR11,5,CNSL9&1.0	@SF AND CF TEST, SKIP 5	101664.00	50	000122.02	E6	101345.00
CW%CR# TYPR12,3,0	@TYPE 3 WORDS	101667.00	00	000060.00	00	101346.00

CW TO PRINT OUT DATA ON CONSOLE.

CW%CR# TYPR12-3,6,0		101664.00	00	000140.00	00	101347.00
CW%CR# TYPR11,5,0	@CW FOR TEST SF AND CF	101664.00	00	000120.00	00	101350.00

EXECUTE THE FOLLOWING CW TO TEST CF, SF, AND MF.

CW%CDSC# TYPR13,4,5&1.	@SF CF, AND MF TEST	101672.00	70	000102.02	EA	101351.00
CW%CD# TYPR14,5,0	@DISREGARDS END CODES	101676.00	20	000120.00	00	101352.00

CW TO PRINT OUT DATA ON CONSOLE.

CW%CD# TYPR13,4,0	@CW FOR TEST SF, CF, AND MF	101672.00	20	000100.00	00	101353.00
CW%CD# TYPR14-3,6,0		101673.00	20	000140.00	00	101354.00

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	DR%BU,64,8,1		1.00	101355.00
WORD1	%8DD%BU,8,8,000,001,002,003,004,005,006,007	@BYTE NUMBER WD		000 101356.00
				001 101356.10
				002 101356.20
				003 101356.30
				004 101356.40
				005 101356.50
				006 101356.60
				007 101356.70
	%8DD%BU,8,8,377,377,377,377,377,377,377	@ALL ONES WORD		377 101357.00
				377 101357.10
				377 101357.20
				377 101357.30
				377 101357.40
				377 101357.50
				377 101357.60
				377 101357.70
	DD%BU,64,8,0	@ALL ZEROS WORD	00000000000000000000	000 101360.00
	%8DD%BU,8,8,377,000,377,000,377,000,377,000	@BYTE PATTERN		377 101361.00
				000 101361.10
				377 101361.20
				000 101361.30
				377 101361.40
				000 101361.50
				377 101361.60
				000 101361.70
	%8DD%BU,8,8,210,210,210,210,210,210,210	@ALL EIGHTS		210 101362.00
				210 101362.10
				210 101362.20
				210 101362.30
				210 101362.40
				210 101362.50
				210 101362.60
				210 101362.70
	%8DD%BU,8,8,167,167,167,167,167,167,167	@ALL SEVENS		167 101363.00
				167 101363.10
				167 101363.20
				167 101363.30
				167 101363.40
				167 101363.50
				167 101363.60
				167 101363.70
WORD2	DR%BU,64,8,6	@READ OPERATION	6.00	101364.00
WORD3	DR%BU,64,8,3	@DATA RESERVATIO	3.00	101372.00
WORD4	DR%BU,64,8,3		3.00	101375.00
TYPW0	DR%BU,64,8,3	@RESERVES LOCATIONS FOR @FIRST THREE WORDS IN @A TYPEWRITER OPERATION	3.00	101400.00
TYPW1	%16DD%BU,8,8,FD,53,5D,4B,00,53,51,53	@CR,TYP TEST		375 101403.00
				123 101403.10
				135 101403.20
				113 101403.30
				000 101403.40
				123 101403.50
				121 101403.60
				123 101403.70
	%16DD%BU,8,8,37,2D,3D,43,35,33,00,00	@FAILED		067 101404.00
				055 101404.10
				075 101404.20
				103 101404.30

TYPW2 DR%BU,64,8n,3 @DATA RESERVATION
%16nDD%BU,8,8n,FD,35,47,33,00,31,49,33 @END COD

3.00

%16nDD%BU,8,8n,35,00,53,35,51,53,00,FE @F TEST, END

%16nDD%BU,8,8n,37,2D,3D,43,35,33,00,00 @FAILED

TYPW3 DR%BU,64,8n,3 @DATA RESERVATION
%16nDD%BU,8,8n,FD,2D,00,2F,00,31,00,33 @CR, A B C D

3.00

%16nDD%BU,8,8n,00,35,00,37,00,39,00,3B @E F G H

%16nDD%BU,8,8n,00,3D,00,3F,00,41,00,43 @I J K L

%16nDD%BU,8,8n,00,45,00,47,00,49,00,4B @M N O P

%16nDD%BU,8,8n,00,4D,00,4F,00,51,00,53 @Q R S T

065 101404.40
063 101404.50
000 101404.60
000 101404.70
101405.00
375 101410.00
065 101410.10
107 101410.20
063 101410.30
000 101410.40
061 101410.50
111 101410.60
063 101410.70
065 101411.00
000 101411.10
123 101411.20
065 101411.30
121 101411.40
123 101411.50
000 101411.60
376 101411.70
067 101412.00
055 101412.10
075 101412.20
103 101412.30
065 101412.40
063 101412.50
000 101412.60
000 101412.70
101413.00
375 101416.00
055 101416.10
000 101416.20
057 101416.30
000 101416.40
061 101416.50
000 101416.60
063 101416.70
000 101417.00
065 101417.10
000 101417.20
067 101417.30
000 101417.40
071 101417.50
000 101417.60
073 101417.70
000 101420.00
075 101420.10
000 101420.20
077 101420.30
000 101420.40
101 101420.50
000 101420.60
103 101420.70
000 101421.00
105 101421.10
000 101421.20
107 101421.30
000 101421.40
111 101421.50
000 101421.60
113 101421.70
000 101422.00
115 101422.10
000 101422.20

				117	101422.30
				000	101422.40
				121	101422.50
				000	101422.60
				123	101422.70
				000	101423.00
				125	101423.10
				000	101423.20
				127	101423.30
				000	101423.40
				131	101423.50
				000	101423.60
				133	101423.70
				000	101424.00
				135	101424.10
				000	101424.20
				137	101424.30
				164	101424.40
				164	101424.50
				164	101424.60
				000	101424.70
				000	101425.00
				142	101425.10
				000	101425.20
				144	101425.30
				000	101425.40
				146	101425.50
				000	101425.60
				150	101425.70
				000	101426.00
				152	101426.10
				000	101426.20
				154	101426.30
				000	101426.40
				156	101426.50
				000	101426.60
				160	101426.70
				000	101427.00
				162	101427.10
				000	101427.20
				140	101427.30
				000	101427.40
				000	101427.50
				374	101427.60
				375	101427.70
				065	101430.00
				107	101430.10
				063	101430.20
				375	101430.30
				000	101430.40
				000	101430.50
				000	101430.60
				000	101430.70
					101431.00
				375	101434.00
				061	101434.10
				073	101434.20
				055	101434.30
				075	101434.40
				107	101434.50
				075	101434.60
				107	101434.70
				067	101435.00
				055	101435.10
				075	101435.20
				103	101435.30

%16DD%BU,8,8,00,55,00,57,00,59,00,5B @U V W X

%16DD%BU,8,8,00,5D,00,5F,74,74,74,00 @Y Z...

%16DD%BU,8,8,00,62,00,64,00,66,00,68 @1 2 3 4

%16DD%BU,8,8,00,6A,00,6C,00,6E,00,70 @5 6 7 8

%16DD%BU,8,8,00,72,00,60,00,00,FC,FD @9 0 BS, CR

%16DD%BU,8,8,35,47,33,FD,00,00,00,00 @END,CR

DR%BU,64,8,3 @DATA RESERVATION 3.00
TYPW4 %16DD%BU,8,8,FD,31,3B,2D,3D,47,3D,47 @CHAININ

%16DD%BU,8,8,37,2D,3D,43,35,33,00,00 @FAIL

%16DD%BU,8,8,39,00,53,35,51,53,00,51 @G TEST S

065 101435.40
063 101435.50
000 101435.60
000 101435.70
071 101436.00
000 101436.10
123 101436.20
065 101436.30
121 101436.40
123 101436.50
000 101436.60
121 101436.70

%16DD%BU,8,8,37,2D,3D,43,35,33,00,00 @FAIL

067 101437.00
055 101437.10
075 101437.20
103 101437.30
065 101437.40
063 101437.50
000 101437.60
000 101437.70

%16DD%BU,8,8,55,31,31,35,51,51,74,74 @UCCESS..

125 101440.00
061 101440.10
061 101440.20
065 101440.30
121 101440.40
121 101440.50
164 101440.60
164 101440.70

DR%BU,64,8,3 @DATA RESERVATION 3.00
TYPW5 %16DD%BU,8,8,FD,45,43,53,48,43,35,FE @CR, MLTPLE, END

101441.00
375 101444.00
105 101444.10
103 101444.20
123 101444.30
110 101444.40
103 101444.50
065 101444.60
376 101444.70

DR%BU,64,8,3 @DATA RESERVATION 3.00
%16DD%BU,8,8,53,35,51,53,00,51,55,31 @TEST SUC

101445.00
123 101450.00
065 101450.10
121 101450.20
123 101450.30
000 101450.40
121 101450.50
125 101450.60
061 101450.70

%16DD%BU,8,8,31,35,51,51,37,55,43,74 @CESSFUL.

061 101451.00
065 101451.10
121 101451.20
121 101451.30
067 101451.40
125 101451.50
103 101451.60
164 101451.70

DR%BU,64,8,3 @DATA RESERVATION 3.00
TYPW6 %16DD%BU,8,8,FD,45,31,00,53,51,53,FE @CR, MC IST, END

101452.00
375 101455.00
105 101455.10
061 101455.20
000 101455.30
123 101455.40
121 101455.50
123 101455.60
376 101455.70

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DR%BU,64,8,3
%16DD%BU,8,8,51,55,31,31,35,51,FE,5F @SUCCESS,END,Z

3.00

121 101458.00
125 101461.10
061 101461.20
061 101461.30
065 101461.40
121 101461.50
376 101461.60
137 101461.70
101462.00
067 101464.00
055 101464.10
075 101464.20
103 101464.30
065 101464.40
063 101464.50
000 101464.60
000 101464.70

DR%BU,64,8,2
%16DD%BU,8,8,37,2D,3D,43,35,33,00,00 @FAILEED

2.00

TYPR1 DR%BU,64,8,8 @RESERVED FOR
TYPR2 DR%BU,64,8,8 @TYPEWRITER
TYPR3 DR%BU,64,8,4 @READ TESTS
TYPR4 DR%BU,64,8,8
TYPR5 DR%BU,64,8,25
TYPR6 DR%BU,64,8,4
TYPR7 DR%BU,64,8,10
TYPR8 DR%BU,64,8,20
TYPR9 DR%BU,64,8,20
TYPR10 DR%BU,64,8,20
TYPR11 DR%BU,64,8,3
TYPR12 DR%BU,64,8,3
TYPR13 DR%BU,64,8,4
TYPR14 DR%BU,64,8,5

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10.00
31.00
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24.00
24.00
24.00
3.00
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101465.00
101475.00
101505.00
101511.00
101521.00
101552.00
101556.00
101570.00
101614.00
101640.00
101664.00
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101672.00
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●
 ● TYPEWRITER TESTS
 ● TEST ONE-BACKSPACE TEST
 ● TEST TWO-RIPPLE TEST
 ● TEST THREE-BALL MOVEMENT TEST
 ● TEST FOUR - ALL CHARACTER PRINT
 ●

● BACKSPACE TEST LOOP

TWT1	CW%CCR□,BST1,11,TWT1&1.	@BACKSPACE TEST	102041.00	40	000262.03	C4	101703.00
	CW%CCR□,BST1&3.,8,TWT1&2.	@TYPES 3 LINES	102044.00	40	000202.03	C5	101704.00
	CW%CDSC□,BST1&3.,8,TWT1	@LOOP	102044.00	60	000202.03	C3	101705.00

● RIPPLE TEST

		@RIPPLE 26 LINES					
TWT2	CW%CCR□,RIPL,14,TWT2&1.	@AB...	102054.00	40	000342.03	C7	101706.00
	CW%CCR□,RIPL0,1,TWT2&2.		102057.00	40	000022.03	C8	101707.00
	CW%CCR□,RIPL3,10,TWT2&3.	@BC...	102075.00	40	000242.03	C9	101710.00
	CW%CCR□,RIPL0,1,TWT2&4.		102057.00	40	000022.03	CA	101711.00
	CW%CCR□,RIPL2&2.,3,TWT2&5.	@CD...	102072.00	40	000062.03	CB	101712.00
	CW%CCR□,RIPL1,7,TWT2&6.		102060.00	40	000162.03	CC	101713.00
	CW%CCR□,RIPL0,1,TWT2&7.		102057.00	40	000022.03	CD	101714.00
	CW%CCR□,RIPL4&2.,3,TWT2&8.	@DE...	102107.00	40	000062.03	CE	101715.00
	CW%CCR□,RIPL3,7,TWT2&9.		102075.00	40	000162.03	CF	101716.00
	CW%CCR□,RIPL0,1,TWT2A		102057.00	40	000022.03	D0	101717.00
TWT2A	CW%CCR□,RIPL1&7.,6,TWT2A&1.	@EF...	102067.00	40	000142.03	D1	101720.00
	CW%CCR□,RIPL1,4,TWT2A&2.		102060.00	40	000102.03	D2	101721.00
	CW%CCR□,RIPL0,1,TWT2A&3.		102057.00	40	000022.03	D3	101722.00
	CW%CCR□,RIPL3&7.,6,TWT2A&4.	@FG...	102104.00	40	000142.03	D4	101723.00
	CW%CCR□,RIPL3,4,TWT2A&5.		102075.00	40	000102.03	D5	101724.00
	CW%CCR□,RIPL0,1,TWT2A&6.		102057.00	40	000022.03	D6	101725.00
	CW%CCR□,RIPL1&4.,9,TWT2A&7.	@GH...	102064.00	40	000222.03	D7	101726.00
	CW%CCR□,RIPL1,1,TWT2A&8.		102060.00	40	000022.03	D8	101727.00
	CW%CCR□,RIPL0,1,TWT2A&9.		102057.00	40	000022.03	D9	101730.00
	CW%CCR□,RIPL3&4.,9,TWT2B	@HI...	102101.00	40	000222.03	DA	101731.00
TWT2B	CW%CCR□,RIPL3,1,TWT2B&1.		102075.00	40	000022.03	DB	101732.00
	CW%CCR□,RIPL0,1,TWT2B&2.		102057.00	40	000022.03	DC	101733.00
	CW%CCR□,RIPL1&1.,10,TWT2B&3.	@IJ...	102061.00	40	000242.03	DD	101734.00
	CW%CCR□,RIPL0,1,TWT2B&4.		102057.00	40	000022.03	DE	101735.00
	CW%CCR□,RIPL3&1.,10,TWT2B&5.	@JK...	102076.00	40	000242.03	DF	101736.00
	CW%CCR□,RIPL0,1,TWT2B&6.		102057.00	40	000022.03	E0	101737.00
	CW%CCR□,RIPL2&3.,2,TWT2B&7.	@KL...	102073.00	40	000042.03	E1	101740.00
	CW%CCR□,RIPL1,8,TWT2B&8.		102060.00	40	000202.03	E2	101741.00
	CW%CCR□,RIPL0,1,TWT2B&9.		102057.00	40	000022.03	E3	101742.00
	CW%CCR□,RIPL4&3.,2,TWT2C	@LM...	102110.00	40	000042.03	E4	101743.00
TWT2C	CW%CCR□,RIPL3,8,TWT2C&1.		102075.00	40	000202.03	E5	101744.00
	CW%CCR□,RIPL0,1,TWT2C&2.		102057.00	40	000022.03	E6	101745.00
	CW%CCR□,RIPL2,5,TWT2C&3.	@MN...	102070.00	40	000122.03	E7	101746.00
	CW%CCR□,RIPL1,5,TWT2C&4.		102060.00	40	000122.03	E8	101747.00
	CW%CCR□,RIPL0,1,TWT2C&5.		102057.00	40	000022.03	E9	101750.00
	CW%CCR□,RIPL4,5,TWT2C&6.	@NO...	102105.00	40	000122.03	EA	101751.00
	CW%CCR□,RIPL3,5,TWT2C&7.		102075.00	40	000122.03	EB	101752.00
	CW%CCR□,RIPL0,1,TWT2C&8.		102057.00	40	000022.03	EC	101753.00
	CW%CCR□,RIPL1&5.,8,TWT2C&9.	@OP...	102065.00	40	000202.03	ED	101754.00
	CW%CCR□,RIPL1,2,TWT2D		102060.00	40	000042.03	EE	101755.00
TWT2D	CW%CCR□,RIPL0,1,TWT2D&1.		102057.00	40	000022.03	EF	101756.00
	CW%CCR□,RIPL3&5.,8,TWT2D&2.	@PQ...	102102.00	40	000202.03	FO	101757.00
	CW%CCR□,RIPL3,2,TWT2D&3.		102075.00	40	000042.03	F1	101760.00
	CW%CCR□,RIPL0,1,TWT2D&4.		102057.00	40	000022.03	F2	101761.00

	CW%CCR#,RIPL162.,10,TWT2D65.	@GR...	102062.00	40	000242.03	F3	101762.00
	CW%CCR#,RIPL0.,1,TWT2D66.		102057.00	40	000022.03	F4	101763.00
	CW%CCR#,RIPL362.,10,TWT2D67.	@RS...	102077.00	40	000242.03	F5	101764.00
	CW%CCR#,RIPL0.,1,TWT2D68.		102057.00	40	000022.03	F6	101765.00
	CW%CCR#,RIPL264.,1,TWT2D69.	@ST...	102074.00	40	000022.03	F7	101766.00
	CW%CCR#,RIPL1.,9,TWT2E		102060.00	40	000222.03	F8	101767.00
TWT2E	CW%CCR#,RIPL0.,1,TWT2E61.		102057.00	40	000022.03	F9	101770.00
	CW%CCR#,RIPL464.,1,TWT2E62.	@TU...	102111.00	40	000022.03	FA	101771.00
	CW%CCR#,RIPL3.,9,TWT2E63.		102075.00	40	000222.03	FB	101772.00
	CW%CCR#,RIPL0.,1,TWT2E64.		102057.00	40	000022.03	FC	101773.00
	CW%CCR#,RIPL261.,4,TWT2E65.	@UV...	102071.00	40	000102.03	FD	101774.00
	CW%CCR#,RIPL1.,6,TWT2E66.		102060.00	40	000142.03	FE	101775.00
	CW%CCR#,RIPL0.,1,TWT2E67.		102057.00	40	000022.03	FF	101776.00
	CW%CCR#,RIPL461.,4,TWT2E68.	@VW...	102106.00	40	000102.04	00	101777.00
	CW%CCR#,RIPL3.,6,TWT2E69.		102075.00	40	000142.04	01	102000.00
	CW%CCR#,RIPL0.,1,TWT2F		102057.00	40	000022.04	02	102001.00
TWT2F	CW%CCR#,RIPL166.,7,TWT2F61.	@WX...	102066.00	40	000162.04	03	102002.00
	CW%CCR#,RIPL1.,3,TWT2F62.		102060.00	40	000062.04	04	102003.00
	CW%CCR#,RIPL0.,1,TWT2F63		102057.00	40	000022.04	05	102004.00
	CW%CCR#,RIPL366.,7,TWT2F64.	@XY...	102103.00	40	000162.04	06	102005.00
	CW%CCR#,RIPL3.,3,TWT2F65.		102075.00	40	000062.04	07	102006.00
	CW%CCR#,RIPL0.,1,TWT2F66.		102057.00	40	000022.04	08	102007.00
	CW%CCR#,RIPL163.,10,TWT2F67.	@YZ..	102063.00	40	000242.04	09	102010.00
	CW%CCR#,RIPL0.,1,TWT2F68.		102057.00	40	000022.04	0A	102011.00
	CW%CCR#,RIPL363.,10,TWT2F69.	@ZA..	102100.00	40	000242.04	0B	102012.00
	CW%CCR#,RIPL5.,4,0		102112.00	00	000100.00	00	102013.00

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BALL MOVEMENT TEST LOOP

TWT3	CW%CCR#,BMT0.,15,TWT361.	@BALL MOVEMENT TEST	102022.00	40	000362.04	0D	102014.00
	CW%CCR#,BMT1.,12,TWT362.	@PRINTS 10-44 CHAR-	102025.00	40	000302.04	0E	102015.00
	CW%CCR#,BMT1.,12,TWT363.	@ACTER LINES AND	102025.00	40	000302.04	0F	102016.00
	CW%CCR#,BMT1.,12,TWT364.	@ALL CHARACTERS	102025.00	40	000302.04	10	102017.00
	CW%CDSC#,BMT1.,12,TWT3	@LOOP	102025.00	60	000302.04	0C	102020.00

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TEST FOUR

EXECUTE THIS CONTROL WORD FOR AN ALL CHARACTER PRINT

	CW%CCR#,ALLC.,27,0		102116.00	00	000660.00	00	102021.00
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● TYPEWRITER TEST DATA
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BMT0	DR%BU,64,8□,3	@RESERVE 3 LOC.	3.00		102022.00
BMT1	%16□DD%BU,8,8□,FD,70,2F,60,3F,50,4F,40	@CR,8B0JSRK		375	102025.00
				160	102025.10
				057	102025.20
				140	102025.30
				077	102025.40
				120	102025.50
				117	102025.60
				100	102025.70
	%16□DD%BU,8,8□,5F,30,6F,20,27,68,37,58	@ZC7 4FW		137	102026.00
				060	102026.10
				157	102026.20
				040	102026.30
				047	102026.40
				150	102026.50
				067	102026.60
				130	102026.70
	%16□DD%BU,8,8□,47,48,57,38,67,28,77,71	@NOVG3, 8		107	102027.00
				110	102027.10
				127	102027.20
				070	102027.30
				147	102027.40
				050	102027.50
				167	102027.60
				161	102027.70
	%16□DD%BU,8,8□,76,61,66,51,56,41,46,31	@-03SVKNC		166	102030.00
				141	102030.10
				146	102030.20
				121	102030.30
				126	102030.40
				101	102030.50
				106	102030.60
				061	102030.70
	%16□DD%BU,8,8□,36,21,26,69,6E,59,5E,49	@F6/47WZO		066	102031.00
				041	102031.10
				046	102031.20
				151	102031.30
				156	102031.40
				131	102031.50
				136	102031.60
				111	102031.70
	%16□DD%BU,8,8□,4E,39,3E,29,2E,00,00,FD	@RGJ B ,CR		116	102032.00
				071	102032.10
				076	102032.20
				051	102032.30
				056	102032.40
				000	102032.50
				000	102032.60
				375	102032.70
	%16□DD%BU,8,8□,74,2B,64,3B,54,4B,44,5B	@. 2HUPMX		164	102033.00
				053	102033.10
				144	102033.20
				073	102033.30
				124	102033.40
				113	102033.50
				104	102033.60
				133	102033.70
	%16□DD%BU,8,8□,34,6B,24,23,6C,33,5C,43	@E5 6DYL		064	102034.00

				000	102047.10
				000	102047.20
				000	102047.30
				000	102047.40
				000	102047.50
				000	102047.60
				000	102047.70
				000	102050.00
				122	102050.10
				064	102050.20
				120	102050.30
				122	102050.40
				164	102050.50
				374	102050.60
				374	102050.70
				374	102051.00
				374	102051.10
				374	102051.20
				374	102051.30
				374	102051.40
				374	102051.50
				374	102051.60
				374	102051.70
				374	102052.00
				374	102052.10
				374	102052.20
				374	102052.30
				374	102052.40
				017	102052.50
				015	102052.60
				021	102052.70
				201	102053.00
				221	102053.10
				213	102053.20
				015	102053.30
				021	102053.40
				025	102053.50
				000	102053.60
				000	102053.70
				000	102054.00
				374	102057.00
				000	102057.10
				000	102057.20
				374	102057.30
				374	102057.40
				000	102057.50
				000	102057.60
				375	102057.70
				055	102060.00
				057	102060.10
				061	102060.20
				063	102060.30
				065	102060.40
				067	102060.50
				071	102060.60
				073	102060.70
				075	102061.00
				077	102061.10
				101	102061.20
				103	102061.30
				105	102061.40
				107	102061.50
				111	102061.60
				113	102061.70
				115	102062.00
				117	102062.10

%16DD%BU,8,8,00,52,34,50,52,74,FC,FC @TEST

%16DD%BU,8,8,FC,FC,FC,FC,FC,FC,FC,FC

%16DD%BU,8,8,FC,FC,FC,FC,FC,0F,0D,11 @ BAC

%16DD%BU,8,8,81,91,8B,0D,11,15,00,00 @KSPACE

RIPL DR%BU,64,8,3 3.00
 RIPL0 %16DD%BU,8,8,FC,00,00,FC,FC,00,00,FD @CARR-RET

RIPL1 %16DD%BU,8,8,2D,2F,31,33,35,37,39,3B @ABCDEFGH

%16DD%BU,8,8,3D,3F,41,43,45,47,49,4B @IJKLMNOP

%16DD%BU,8,8,4D,4F,51,53,55,57,59,5B @QRSTUVWXYZ

			121	102062.20
			123	102062.30
			125	102062.40
			127	102062.50
			131	102062.60
			133	102062.70
	%16□DD□BU,8,8□,5D,5F,2D,2F,31,33,35,37	@YZABCDEF	135	102063.00
			137	102063.10
			055	102063.20
			057	102063.30
			061	102063.40
			063	102063.50
			065	102063.60
			067	102063.70
	%16□DD□BU,8,8□,39,3B,3D,3F,41,43,45,47	@GHIJKLMN	071	102064.00
			073	102064.10
			075	102064.20
			077	102064.30
			101	102064.40
			103	102064.50
			105	102064.60
			107	102064.70
	%16□DD□BU,8,8□,49,4B,4D,4F,51,53,55,57	@OPQRSTUW	111	102065.00
			113	102065.10
			115	102065.20
			117	102065.30
			121	102065.40
			123	102065.50
			125	102065.60
			127	102065.70
	%16□DD□BU,8,8□,59,5B,5D,5F,2D,2F,31,33	@WXYZABCD	131	102066.00
			133	102066.10
			135	102066.20
			137	102066.30
			055	102066.40
			057	102066.50
			061	102066.60
			063	102066.70
	%16□DD□BU,8,8□,35,37,39,3B,3D,3F,41,43	@EFGHIJKL	065	102067.00
			067	102067.10
			071	102067.20
			073	102067.30
			075	102067.40
			077	102067.50
			101	102067.60
			103	102067.70
	RIPL2 %16□DD□BU,8,8□,45,47,49,4B,4D,4F,51,53	@MNOPQRST	105	102070.00
			107	102070.10
			111	102070.20
			113	102070.30
			115	102070.40
			117	102070.50
			121	102070.60
			123	102070.70
	%16□DD□BU,8,8□,55,57,59,5B,5D,5F,2D,2F	@UVWXYZAB	125	102071.00
			127	102071.10
			131	102071.20
			133	102071.30
			135	102071.40
			137	102071.50
			055	102071.60
			057	102071.70
	%16□DD□BU,8,8□,31,33,35,37,39,3B,3D,3F	@CDEFGHIJ	061	102072.00
			063	102072.10
			065	102072.20
			067	102072.30

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%16DD%BU,8,8H,41,43,45,47,49,4B,4D,4F @KLMNOPQR

071 102072.40
073 102072.50
075 102072.60
077 102072.70
101 102073.00
103 102073.10
105 102073.20
107 102073.30
111 102073.40
113 102073.50
115 102073.60
117 102073.70

%16DD%BU,8,8H,51,53,55,57,59,5B,5D,5F @STUVWXYZ

121 102074.00
123 102074.10
125 102074.20
127 102074.30
131 102074.40
133 102074.50
135 102074.60
137 102074.70

RIPL3 %16DD%BU,8,8H,2F,31,33,35,37,39,3B,3D @BCDEFGHI

057 102075.00
061 102075.10
063 102075.20
065 102075.30
067 102075.40
071 102075.50
073 102075.60
075 102075.70

%16DD%BU,8,8H,3F,41,43,45,47,49,4B,4D @JKLMNO PQ

077 102076.00
101 102076.10
103 102076.20
105 102076.30
107 102076.40
111 102076.50
113 102076.60
115 102076.70

%16DD%BU,8,8H,4F,51,53,55,57,59,5B,5D @RSTUVWXY

117 102077.00
121 102077.10
123 102077.20
125 102077.30
127 102077.40
131 102077.50
133 102077.60
135 102077.70

%16DD%BU,8,8H,5F,2D,2F,31,33,35,37,39 @ZABCDEFG

137 102100.00
055 102100.10
057 102100.20
061 102100.30
063 102100.40
065 102100.50
067 102100.60
071 102100.70

%16DD%BU,8,8H,3B,3D,3F,41,43,45,47,49 @HIJKLMNO

073 102101.00
075 102101.10
077 102101.20
101 102101.30
103 102101.40
105 102101.50
107 102101.60
111 102101.70

%16DD%BU,8,8H,4B,4D,4F,51,53,55,57,59 @PQRSTUVWXYZ

113 102102.00
115 102102.10
117 102102.20
121 102102.30
123 102102.40

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%16DD%BU,8,8,5B,5D,5F,2D,2F,31,33,35 @XYZABCDE

%16DD%BU,8,8,37,39,3B,3D,3F,41,43,45 @FGHIJKLM

RIPL4 %16DD%BU,8,8,47,49,4B,4D,4F,51,53,55 @NOPQRSTU

%16DD%BU,8,8,57,59,5B,5D,5F,2D,2F,31 @VWXYZABC

%16DD%BU,8,8,33,35,37,39,3B,3D,3F,41 @DEFGHIJK

%16DD%BU,8,8,43,45,47,49,4B,4D,4F,51 @LMNOPQRS

%16DD%BU,8,8,53,55,57,59,5B,5D,5F,2D @TUVWXYZA

RIPL5 %16DD%BU,8,8,FD,53,3B,3D,51,00,3D,51 @CR, THIS IS

125 102102.50
127 102102.60
131 102102.70
133 102103.00
135 102103.10
137 102103.20
055 102103.30
057 102103.40
061 102103.50
063 102103.60
065 102103.70
067 102104.00
071 102104.10
073 102104.20
075 102104.30
077 102104.40
101 102104.50
103 102104.60
105 102104.70
107 102105.00
111 102105.10
113 102105.20
115 102105.30
117 102105.40
121 102105.50
123 102105.60
125 102105.70
127 102106.00
131 102106.10
133 102106.20
135 102106.30
137 102106.40
055 102106.50
057 102106.60
061 102106.70
063 102107.00
065 102107.10
067 102107.20
071 102107.30
073 102107.40
075 102107.50
077 102107.60
101 102107.70
103 102110.00
105 102110.10
107 102110.20
111 102110.30
113 102110.40
115 102110.50
117 102110.60
121 102110.70
123 102111.00
125 102111.10
127 102111.20
131 102111.30
133 102111.40
135 102111.50
137 102111.60
055 102111.70
375 102112.00
123 102112.10
073 102112.20
075 102112.30
121 102112.40
000 102112.50
075 102112.60

%16DD%BU,8,8,53,3B,35,00,35,47,33,00 @THE END

121 102112.70
123 102113.00
073 102113.10
065 102113.20
000 102113.30
065 102113.40
107 102113.50
063 102113.60
000 102113.70
111 102114.00
067 102114.10
000 102114.20
117 102114.30
075 102114.40
113 102114.50
113 102114.60
103 102114.70
065 102115.00
000 102115.10
123 102115.20
065 102115.30
121 102115.40
123 102115.50
164 102115.60
164 102115.70

%16DD%BU,8,8,49,37,00,4F,3D,4B,4B,43 @OF RIPPL

%16DD%BU,8,8,35,00,53,35,51,53,74,74 @E TEST..

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• CNOP

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• RED ALPHABET

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• ALLC DR%BU,64,8,3 3.00
%16DD%BU,8,8,FD,0C,0D,0E,0F,10,11,12

375 102116.00
014 102121.00
015 102121.10
016 102121.20
017 102121.30
017 102121.40
020 102121.50
021 102121.60
022 102121.70
023 102122.00
024 102122.10
025 102122.20
026 102122.30
027 102122.40
030 102122.50
031 102122.60
032 102122.70

%16DD%BU,8,8,13,14,15,16,17,18,19,1A

033 102123.00
034 102123.10
035 102123.20
036 102123.30
037 102123.40
200 102123.50
201 102123.60
202 102123.70

%16DD%BU,8,8,1B,1C,1D,1E,1F,80,81,82

%16DD%BU,8,8,83,84,85,86,87,88,89,8A

203 102124.00
204 102124.10
205 102124.20
206 102124.30
207 102124.40
210 102124.50
211 102124.60
212 102124.70

%16DD%BU,8,8,8B,8C,8D,8E,8F,90,91,92

213 102125.00
214 102125.10
215 102125.20

18
15
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13
12
11
10
9
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5
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%16DD%BU,8,8,93,94,95,96,97,98,99,9A

216 102125.30
217 102125.40
220 102125.50
221 102125.60
222 102125.70
223 102126.00
224 102126.10
225 102126.20
226 102126.30
227 102126.40
230 102126.50
231 102126.60
232 102126.70
233 102127.00
234 102127.10
235 102127.20
236 102127.30
237 102127.40
000 102127.50
000 102127.60
000 102127.70

%16DD%BU,8,8,9B,9C,9D,9E,9F,00,00,00

●
● BLACK ALPHABET
●

%16DD%BU,8,8,FD,2C,2D,2E,2F,30,31,32

375 102130.00
054 102130.10
055 102130.20
056 102130.30
057 102130.40
060 102130.50
061 102130.60
062 102130.70
063 102131.00
064 102131.10
065 102131.20
066 102131.30
067 102131.40
070 102131.50
071 102131.60
072 102131.70

%16DD%BU,8,8,33,34,35,36,37,38,39,3A

073 102132.00
074 102132.10
075 102132.20
076 102132.30
077 102132.40
100 102132.50
101 102132.60
102 102132.70

%16DD%BU,8,8,3B,3C,3D,3E,3F,40,41,42

18 %16DD%BU,8,8,43,44,45,46,47,48,49,4A

103 102133.00
104 102133.10
105 102133.20
106 102133.30
107 102133.40
110 102133.50
111 102133.60
112 102133.70

15
14 %16DD%BU,8,8,4B,4C,4D,4E,4F,50,51,52

113 102134.00
114 102134.10
115 102134.20
116 102134.30
117 102134.40
120 102134.50
121 102134.60
122 102134.70

9
5
4 %16DD%BU,8,8,53,54,55,56,57,58,59,5A

123 102135.00
124 102135.10

	125	102135.20
	126	102135.30
	127	102135.40
	130	102135.50
	131	102135.60
	132	102135.70
%16DD%BU,8,8H,5B,5C,5D,5E,5F,00,00,00	133	102136.00
	134	102136.10
	135	102136.20
	136	102136.30
	137	102136.40
	000	102136.50
	000	102136.60
	000	102136.70

•
• RED NUMBERS & SPECIALS
•

%16DD%BU,8,8H,FD,01,02,03,04,05,06,07	375	102137.00
	001	102137.10
	002	102137.20
	003	102137.30
	004	102137.40
	005	102137.50
	006	102137.60
	007	102137.70

%16DD%BU,8,8H,08,09,0A,0B,0C,0D,0E,0F,10,11,12,13	010	102140.00
	011	102140.10
	012	102140.20
	013	102140.30
	240	102140.40
	241	102140.50
	242	102140.60
	243	102140.70

%16DD%BU,8,8H,A4,A5,A6,A7,A8,A9,AA,AB	244	102141.00
	245	102141.10
	246	102141.20
	247	102141.30
	250	102141.40
	251	102141.50
	252	102141.60
	253	102141.70

%16DD%BU,8,8H,AC,AD,AE,AF,B0,B1,B2,B3	254	102142.00
	255	102142.10
	256	102142.20
	257	102142.30
	260	102142.40
	261	102142.50
	262	102142.60

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%16DD%BU,8,8H,B4,B5,B6,B7,00,00,00,00	263	102142.70
	264	102143.00
	265	102143.10
	266	102143.20
	267	102143.30
	000	102143.40
	000	102143.50
	000	102143.60
	000	102143.70

•
• BLACK NUMBERS & SPECIALS
•

%16DD%BU,8,8H,FD,20,21,22,23,24,25,26	375	102144.00
	040	102144.10
	041	102144.20
	042	102144.30
	043	102144.40
	044	102144.50

%16DD%BU,8,8,27,28,29,2A,2B,60,61,62

045 102144.60
046 102144.70
047 102145.00
050 102145.10
051 102145.20
052 102145.30
053 102145.40
140 102145.50
141 102145.60
142 102145.70

%16DD%BU,8,8,63,64,65,66,67,68,69,6A

143 102146.00
144 102146.10
145 102146.20
146 102146.30
147 102146.40
150 102146.50
151 102146.60
152 102146.70

%16DD%BU,8,8,6B,6C,6D,6E,6F,70,71,72

153 102147.00
154 102147.10
155 102147.20
156 102147.30
157 102147.40
160 102147.50
161 102147.60
162 102147.70

%16DD%BU,8,8,73,74,75,76,77,00,00,00

163 102150.00
164 102150.10
165 102150.20
166 102150.30
167 102150.40
000 102150.50
000 102150.60
000 102150.70

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● CARD PUNCH TEST

● TEST ONE-NON-ECC MODE
 ● TEST TWO-ECC MODE

● TEST ONE-NON-ECC MODE-15 WORDS PER CARD
 ● TABLE OF STARTING POSITION OF WORDS PUNCHED

WORD	COLUMN	ROW	WORD	COLUMN	ROW
1	1	12	2	6	2
3	11	6	4	17	12
5	22	2	6	27	6
7	33	12	8	38	2
9	43	6	10	49	12
11	55	2	12	59	6
13	65	12	14	70	2
15	75	6			

● PCH1 CW%CR□,PWD1,15,0 @PUNCH ONE CARD 102450.00 00 000360.00 00 102151.00

● THE FOLLOWING CWS PUNCH 13 CARDS DIAGONAL PATTERN

CW%CCR□,PWD1,13,\$61.		102450.00	40	000322.04	6B	102152.00
CW%CDSC□,PWD1,2,\$61.	@PATTERN TEST-PUNCH 13 CARDS	102450.00	60	000042.04	6C	102153.00
CW%CCR□,PWD161.,12,\$61.	@TOTAL OF 13 CARDS.	102451.00	40	000302.04	6D	102154.00
CW%CDSC□,PWD1,3,\$61.		102450.00	60	000062.04	6E	102155.00
CW%CCR□,PWD162.,11,\$61.	@CARD 3	102452.00	40	000262.04	6F	102156.00
CW%CDSC□,PWD1,4,\$61.		102450.00	60	000102.04	70	102157.00
CW%CCR□,PWD163.,10,\$61.	@CARD 4	102453.00	40	000242.04	71	102160.00
CW%CDSC□,PWD1,5,\$61.		102450.00	60	000122.04	72	102161.00
CW%CCR□,PWD164.,9,\$61.	@CARD 5	102454.00	40	000222.04	73	102162.00
CW%CDSC□,PWD1,6,\$61.		102450.00	60	000142.04	74	102163.00
CW%CCR□,PWD165.,8,\$61.	@CARD 6	102455.00	40	000202.04	75	102164.00
CW%CDSC□,PWD1,7,\$61.		102450.00	60	000162.04	76	102165.00
CW%CCR□,PWD166.,7,\$61.	@CARD 7	102456.00	40	000162.04	77	102166.00
CW%CDSC□,PWD1,8,\$61.		102450.00	60	000202.04	78	102167.00
CW%CCR□,PWD167.,6,\$61.	@CARD 8	102457.00	40	000142.04	79	102170.00
CW%CDSC□,PWD1,9,\$61.		102450.00	60	000222.04	7A	102171.00
CW%CCR□,PWD168.,5,\$61.	@CARD 9	102460.00	40	000122.04	7B	102172.00
CW%CDSC□,PWD1,10,\$61.		102450.00	60	000242.04	7C	102173.00
CW%CCR□,PWD169.,4,\$61.	@CARD 10	102461.00	40	000102.04	7D	102174.00
CW%CDSC□,PWD1,11,\$61.		102450.00	60	000262.04	7E	102175.00
CW%CCR□,PWD1610.,3,\$61.	@CARD 11	102462.00	40	000062.04	7F	102176.00
CW%CDSC□,PWD1,12,\$61.		102450.00	60	000302.04	80	102177.00
CW%CCR□,PWD1611.,2,\$61.	@CARD 12	102463.00	40	000042.04	81	102200.00
CW%CDSC□,PWD1,13,\$61.		102450.00	60	000322.04	82	102201.00
CW%CCR□,PWD1612.,1,\$61.		102464.00	40	000022.04	83	102202.00
CW%CCR□,PWD1,13,\$61.		102450.00	40	000322.04	84	102203.00
CW%CD□,PWD1,1,0		102450.00	20	000020.00	00	102204.00

TEST TWO-ECC MODE-13 WORDS PER CARD

TABLE OF STARTING POSITION OF WORDS PUNCHED
ALL WORDS BEGIN IN ROW 12.

WORD	COLUMN	WORD	COLUMN
1	1	2	7
3	13	4	19
5	25	6	31
7	37	8	43
9	49	10	55
11	61	12	67
13	73		

TABLE OF BITS ON WHICH ECC BIT IS BASED

ECC BITS	DATA BITS
C-0	0-32
C-1	1, 3, 5, ..., 61, 63 → 32
C-2	2-3, 6-7, 10-11, ... 62-63 → ?
C-4	4-7, 12-15, ... 60-63 -
C-8	8-15, 24-31, 40-47, 56-63 -
C-16	16-31, 48-63 -
C-32	0, 32-63 -

C-T IS BASED ON OVERALL PARITY INCLUDING ECC BITS

SET PUNCH TO ECC MODE. CONTROL CODE 00101111

PCH2 CW%CR#,PWD2,13,0 @PUNCH 1 ECC-CARD 102465.00 00 000320.00 00 102205.00

THE FOLLOWING CWS PUNCH 9 CARDS ECC MODE

FLOATING ONE C-BIT PATTERN

PUNCH NINE CARDS	CARD	FIRST WORD	C-BITS
	1		200
	2		010
	3		000
	4		020
	5		001
	6		040
	7		002
	8		100
	9		004

CW%CCR#,PWD2,9,\$61.	102465.00	40	000222.04	87	102206.00
CW%CDSC#,PWD2,4,\$61.	102465.00	60	000102.04	88	102207.00
CW%CCR#,PWD2&4.,5,\$61.	102471.00	40	000122.04	89	102210.00
CW%CDSC#,PWD2,8,\$61.	102465.00	60	000202.04	8A	102211.00
CW%CCR#,PWD2&8.,1,\$61.	102475.00	40	000022.04	8B	102212.00
CW%CCR#,PWD2,9,\$61.	102465.00	40	000222.04	8C	102213.00
CW%CDSC#,PWD2,3,\$61.	102465.00	60	000062.04	8D	102214.00
CW%CCR#,PWD2&3.,6,\$61.	102470.00	40	000142.04	8E	102215.00
CW%CDSC#,PWD2,7,\$61.	102465.00	60	000162.04	8F	102216.00
CW%CCR#,PWD2&7.,2,\$61.	102474.00	40	000042.04	90	102217.00
CW%CCR#,PWD2,9,\$61.	102465.00	40	000222.04	91	102220.00

CW%CDSC□,PWD2,2,\$61.	102465.00	60	000042.04	92	102221.00
CW%CCR□,PWD262.,7,\$61.	102467.00	40	000162.04	93	102222.00
CW%CDSC□,PWD2,6,\$61.	102465.00	60	000142.04	94	102223.00
CW%CCR□,PWD266.,3,\$61.	102473.00	40	000062.04	95	102224.00
CW%CCR□,PWD2,9,\$61.	102465.00	40	000222.04	96	102225.00
CW%CDSC□,PWD2,1,\$61.	102465.00	60	000022.04	97	102226.00
CW%CCR□,PWD261.,8,\$61.	102466.00	40	000202.04	98	102227.00
CW%CDSC□,PWD2,5,\$61.	102465.00	60	000122.04	99	102230.00
CW%CCR□,PWD265.,4,\$61.	102472.00	40	000102.04	9A	102231.00
CW%CD□,PWD2,9,\$61.	102465.00	20	000222.04	9B	102232.00

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THE FOLLOWING CWS PUNCH 9 CARDS ECC MODE

FLOATING ZERO C-BIT PATTERN

PUNCH NINE CARDS

CARD	FIRST WORD	C-BITS
1		377
2		357
3		376
4		337
5		375
6		277
7		373
8		177
9		367

SET PUNCH TO ECC MODE. CONTROL CODE 00101111

CW%CCR□,PWD3,9,\$61.	102502.00	40	000222.04	9C	102233.00
CW%CDSC□,PWD3,4,\$61.	102502.00	60	000102.04	9D	102234.00
CW%CCR□,PWD364.,5,\$61.	102506.00	40	000122.04	9E	102235.00
CW%CDSC□,PWD3,8,\$61.	102502.00	60	000202.04	9F	102236.00
CW%CCR□,PWD368.,1,\$61.	102512.00	40	000022.04	A0	102237.00
CW%CCR□,PWD3,9,\$61.	102502.00	40	000222.04	A1	102240.00
CW%CDSC□,PWD3,3,\$61.	102502.00	60	000062.04	A2	102241.00
CW%CCR□,PWD363.,6,\$61.	102505.00	40	000142.04	A3	102242.00
CW%CDSC□,PWD3,7,\$61.	102502.00	60	000162.04	A4	102243.00
CW%CCR□,PWD263.,2,\$61.	102470.00	40	000042.04	A5	102244.00
CW%CCR□,PWD3,9,\$61.	102502.00	40	000222.04	A6	102245.00
CW%CDSC□,PWD3,2,\$61.	102502.00	60	000042.04	A7	102246.00
CW%CCR□,PWD362.,7,\$61.	102504.00	40	000162.04	A8	102247.00
CW%CDSC□,PWD3,6,\$61.	102502.00	60	000142.04	A9	102250.00
CW%CCR□,PWD366.,3,\$61.	102510.00	40	000062.04	AA	102251.00
CW%CCR□,PWD3,9,\$61.	102502.00	40	000222.04	AB	102252.00
CW%CDSC□,PWD3,1,\$61.	102502.00	60	000022.04	AC	102253.00
CW%CCR□,PWD361.,8,\$61.	102503.00	40	000202.04	AD	102254.00
CW%CDSC□,PWD3,5,\$61.	102502.00	60	000122.04	AE	102255.00
CW%CCR□,PWD365.,4,\$61.	102507.00	40	000102.04	AF	102256.00
CW%CD□,PWD3,9,0	102502.00	20	000220.00	00	102257.00

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●
 ● PUNCH TEST USING IQS DATA
 ●
 ● TO CHECK CARDS PUNCHED, A PRINTOUT OF READ
 ● IN AREA AND WRITE AREA IS PROVIDED. WRITE
 ● AREA WORDS ARE PRINTED FIRST.
 ●

PCH3	CW%CD□,PWD4,30,0	@NON-ECC MODE.					
	CW%CD□,PRES3,30,0	@PUNCH 2 CARDS NON-ECC MODE	102513.00	20	000740.00	00	102260.00
	CW%CDSC□,PRES1,7,\$61.	@READ 2 CARDS NON-ECC MODE	102715.00	20	000740.00	00	102261.00
	CW%CDSC□,PWD4,15,\$61.	@IDENTIFICATION	102677.00	60	000162.04	B3	102262.00
	CW%CDSC□,PWD4&15.,15,\$61.		102513.00	60	000362.04	B4	102263.00
			102532.00	60	000362.04	B5	102264.00
	CW%CDSC□,PRES2,7,\$61.	@IDENTIFICATION WORD	102706.00	60	000162.04	B6	102265.00
	CW%CDSC□,PRES3,15,\$61.		102715.00	60	000362.04	B7	102266.00
	CW%CR□,PRES3&15.,15,0		102734.00	00	000360.00	00	102267.00

●
 ●
 ● SET PUNCH AND READER TO ECC MODE. CONTROL CODE 00101111
 ●

PCH4	CW%CD□,PWD5,26,0	@PUNCH 2 CARDS ECC MODE	102551.00	20	000640.00	00	102270.00
	CW%CD□,PRES3A,26,0	@READ 2 CARDS ECC MODE	102753.00	20	000640.00	00	102271.00
	CW%CDSC□,PRES1,7,\$61.	@IDENTIFICATION	102677.00	60	000162.04	BB	102272.00
	CW%CDSC□,PWD5,13,\$61.		102551.00	60	000322.04	BC	102273.00
	CW%CDSC□,PWD5&13.,\$61.		102566.00	62	045720.00	00	102274.00
	CW%CDSC□,PRES2,7,\$61.	@IDENTIFICATION WORD	102706.00	60	000162.04	BE	102275.00
	CW%CDSC□,PRES3A,13,\$61.		102753.00	60	000322.04	BF	102276.00
	CW%CR□,PRES3A&13.,\$61.		102770.00	02	046000.00	00	102277.00

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* EXTENDED PUNCH TEST
 * CONTROL WORDS ARE PROVIDED FOR FCC OR NON-ECC MODE
 * FOR CHECKING, THE FOLLOWING IS INCLUDED-
 * 1. CONTROL WORDS FOR READING PUNCH TEST OUTPUT.
 * ...CARDS MUST BE READ IN SAME MODE AS PUNCHED.
 * 2. CONTROL WORDS TO PRINT OUT CORRECT DATA
 * AND TEST DATA, EACH IDENTIFIED, CORRECT DATA
 * WILL BE PRINTED FIRST..

*NON-ECC MODE-CF-1, 10 CARDS

PCH5	CW%CDSC□,PWD6,15,\$61.	@CARD 6	102603.00	60	000362.04	C1	102300.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	C2	102301.00
	CW%CDSC□,PWD6C,5,\$61.	@CARD 7	102622.00	60	000122.04	C3	102302.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	C4	102303.00
	CW%CDSC□,PWD6D,5,\$61.	@CARD 10	102627.00	60	000122.04	C5	102304.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	C6	102305.00
	CW%CDSC□,PWD6E,5,\$61.	@CARD 11	102634.00	60	000122.04	C7	102306.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	C8	102307.00
	CW%CDSC□,PWD6F,5,\$61.	@CARD 12	102641.00	60	000122.04	C9	102310.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	CA	102311.00
	CW%CDSC□,PWD6G,5,\$61.	@CARD 13	102646.00	60	000122.04	CB	102312.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	CC	102313.00
	CW%CDSC□,PWD6H,5,\$61.	@CARD 14	102653.00	60	000122.04	CD	102314.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	CE	102315.00
	CW%CDSC□,PWD6J,5,\$61.	@CARD 15	102660.00	60	000122.04	CF	102316.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	CO	102317.00
	CW%CDSC□,PWD6K,5,\$61.	@CARD 16	102665.00	60	000122.04	D1	102320.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	D2	102321.00
	CW%CD□,PWD6L,5,0	@CARD 17	102672.00	20	000120.00	00	102322.00
	CW%CD□,PRES2,150,0	@USE THIS CW TO READ @CARDS	102706.00	20	004540.00	00	102323.00

USE THE FOLLOWING CONTROL WORDS FOR PRINTOUT

	CW%CDSC□,PRES1,7,\$61.	@IDENTIFICATION	102677.00	60	000162.04	D5	102324.00
	CW%CDSC□,PWD6,15,\$61.		102603.00	60	000362.04	D6	102325.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	D7	102326.00
	CW%CDSC□,PWD6C,5,\$61.		102622.00	60	000122.04	D8	102327.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	D9	102330.00
	CW%CDSC□,PWD6D,5,\$61.		102627.00	60	000122.04	DA	102331.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	DB	102332.00
	CW%CDSC□,PWD6E,5,\$61.		102634.00	60	000122.04	DC	102333.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	DD	102334.00
	CW%CDSC□,PWD6F,5,\$61.		102641.00	60	000122.04	DE	102335.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	DF	102336.00
	CW%CDSC□,PWD6G,5,\$61.		102646.00	60	000122.04	E0	102337.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	E1	102340.00
	CW%CDSC□,PWD6H,5,\$61.		102653.00	60	000122.04	E2	102341.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	E3	102342.00
	CW%CDSC□,PWD6J,5,\$61.		102660.00	60	000122.04	E4	102343.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	E5	102344.00
	CW%CDSC□,PWD6K,5,\$61.		102665.00	60	000122.04	E6	102345.00
	CW%CCR□,PWD6,10,\$61.		102603.00	40	000242.04	E7	102346.00
	CW%CDSC□,PWD6L,5,\$61.		102672.00	60	000122.04	E8	102347.00
	CW%CDSC□,PRES2,7,\$61.	@IDENTIFICATION WORD	102706.00	60	000162.04	E9	102350.00
	CW%CDSC□,PRES4,15,\$61.	@FROM READ AREA	103005.00	60	000362.04	EA	102351.00
	CW%CDSC□,PRES5,15,\$61.		103024.00	60	000362.04	EB	102352.00
	CW%CDSC□,PRES6,15,\$61.		103043.00	60	000362.04	EC	102353.00
	CW%CDSC□,PRES7,15,\$61.		103062.00	60	000362.04	ED	102354.00

CW%CDSCa,PRES8,15,\$61.
CW%CDSCa,PRES9,15,\$61.
CW%CDSCa,PRES10,15,\$61.
CW%CDSCa,PRES11,15,\$61.
CW%CDSCa,PRES12,15,\$61.
CW%CRa,PRES13,15,0

103101.00 60 000362.04 EE 102355.00
103120.00 60 000362.04 EF 102356.00
103137.00 60 000362.04 FO 102357.00
103156.00 60 000362.04 F1 102360.00
103175.00 60 000362.04 F2 102361.00
103214.00 00 000360.00 00 102362.00

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●
● SET PUNCH AND READER TO ECC MODE. CONTROL CODE 00101111
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●
● @ECC MODE-CF-1,10 CARDS
●

PCH6	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.04	F4	102363.00
	CW%CDSC□,PWD6B,5,\$61.	@CARD 6	102615.00	60	000122.04	F5	102364.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.04	F6	102365.00
	CW%CDSC□,PWD6C,5,\$61.	@CARD 7	102622.00	60	000122.04	F7	102366.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.04	F8	102367.00
	CW%CDSC□,PWD6D,5,\$61.	@CARD 10	102627.00	60	000122.04	F9	102370.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.04	FA	102371.00
	CW%CDSC□,PWD6E,5,\$61.	@CARD 11	102634.00	60	000122.04	FB	102372.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.04	FC	102373.00
	CW%CDSC□,PWD6F,5,\$61.	@CARD 12	102641.00	60	000122.04	FD	102374.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.04	FE	102375.00
	CW%CDSC□,PWD6G,5,\$61.	@CARD 13	102646.00	60	000122.04	FF	102376.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	00	102377.00
	CW%CDSC□,PWD6H,5,\$61.	@CARD 14	102653.00	60	000122.05	01	102400.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	02	102401.00
	CW%CDSC□,PWD6J,5,\$61.	@CARD 15	102660.00	60	000122.05	03	102402.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	04	102403.00
	CW%CDSC□,PWD6K,5,\$61.	@CARD 16	102665.00	60	000122.05	05	102404.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	06	102405.00
	CW%CDSC□,PWD6L,5,\$61.	@CARD 17	102672.00	20	000122.05	07	102406.00

●
● CW%CD□,PRES14,130,0 @CONTROL WORD TO READ CARDS 103233.00 20 004040.00 00 102407.00
●

● USE THE FOLLOWING CONTROL WORDS FOR PRINTOUT
●

	CW%CDSC□,PRES1,7,\$61.	@IDENTIFICATION	102677.00	60	000162.05	09	102410.00
	CW%CCR□,PWD6,8,\$61.	@WRITE AREA	102603.00	40	000202.05	0A	102411.00
	CW%CDSC□,PWD6B,5,\$61.		102615.00	60	000122.05	0B	102412.00
	CW%CCR□,PWD6,8,\$61.	@WRITE AREA	102603.00	40	000202.05	0C	102413.00
	CW%CDSC□,PWD6C,5,\$61.		102622.00	60	000122.05	0D	102414.00
	CW%CCR□,PWD6,8,\$61.	@WRITE AREA	102603.00	40	000202.05	0E	102415.00
	CW%CDSC□,PWD6D,5,\$61.		102627.00	60	000122.05	0F	102416.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	10	102417.00
	CW%CDSC□,PWD6E,5,\$61.		102634.00	60	000122.05	11	102420.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	12	102421.00
	CW%CDSC□,PWD6F,5,\$61.		102641.00	60	000122.05	13	102422.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	14	102423.00
18	CW%CDSC□,PWD6G,5,\$61.		102646.00	60	000122.05	15	102424.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	16	102425.00
15	CW%CDSC□,PWD6H,5,\$61.		102653.00	60	000122.05	17	102426.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	18	102427.00
14	CW%CDSC□,PWD6J,5,\$61.		102660.00	60	000122.05	19	102430.00
	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	1A	102431.00
12	CW%CDSC□,PWD6K,5,\$61.		102665.00	60	000122.05	1B	102432.00
11	CW%CCR□,PWD6,8,\$61.		102603.00	40	000202.05	1C	102433.00
10	CW%CDSC□,PWD6L,5,\$61.		102672.00	60	000122.05	1D	102434.00
9	CW%CDSC□,PRES2,7,\$61.	@IDENTIFICATION WORD	102706.00	60	000162.05	1E	102435.00
	CW%CDSC□,PRES14,13,\$61.	@READ AREA	103233.00	60	000322.05	1F	102436.00
	CW%CDSC□,PRES15,13,\$61.		103250.00	60	000322.05	20	102437.00
	CW%CDSC□,PRES16,13,\$61.		103265.00	60	000322.05	21	102440.00
8	CW%CDSC□,PRES17,13,\$61.		103302.00	60	000322.05	22	102441.00
7	CW%CDSC□,PRES18,13,\$61.		103317.00	60	000322.05	23	102442.00
6	CW%CDSC□,PRES19,13,\$61.		103334.00	60	000322.05	24	102443.00
5	CW%CDSC□,PRES20,13,\$61.		103351.00	60	000322.05	25	102444.00
4	CW%CDSC□,PRES21,13,\$61.		103366.00	60	000322.05	26	102445.00

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PUNCH TEST DATA

NON-ECC MODE DATA

PWD1 %8DD%BU, 8, 8, 200, 004, 000, 040, 001, 000, 010, 000

200 102450.00
004 102450.10
000 102450.20
040 102450.30
001 102450.40
000 102450.50
010 102450.60
000 102450.70

%8DD%BU, 8, 8, 100, 002, 000, 020, 000, 200, 004, 000

100 102451.00
002 102451.10
000 102451.20
020 102451.30
000 102451.40
200 102451.50
004 102451.60
000 102451.70

%8DD%BU, 8, 8, 040, 001, 000, 010, 000, 100, 002, 000

040 102452.00
001 102452.10
000 102452.20
010 102452.30
000 102452.40
100 102452.50
002 102452.60
000 102452.70

%8DD%BU, 8, 8, 020, 000, 200, 004, 000, 040, 001, 000

020 102453.00
000 102453.10
200 102453.20
004 102453.30
000 102453.40
040 102453.50
001 102453.60
000 102453.70

%8DD%BU, 8, 8, 010, 000, 100, 002, 000, 020, 000, 200

010 102454.00
000 102454.10
100 102454.20
002 102454.30
000 102454.40
020 102454.50
000 102454.60
200 102454.70

%8DD%BU, 8, 8, 004, 000, 040, 001, 000, 010, 000, 100

004 102455.00
000 102455.10
040 102455.20
001 102455.30
000 102455.40
010 102455.50
000 102455.60
100 102455.70

%8DD%BU, 8, 8, 002, 000, 020, 000, 200, 004, 000, 040

002 102456.00
000 102456.10
020 102456.20
000 102456.30
200 102456.40
004 102456.50
000 102456.60
040 102456.70

18
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%8DD%BU,8,8,001,000,010,000,100,002,000,020

001 102457.00
000 102457.10
010 102457.20
000 102457.30
100 102457.40
002 102457.50
000 102457.60
020 102457.70

%8DD%BU,8,8,000,200,004,000,040,001,000,010

000 102460.00
200 102460.10
004 102460.20
000 102460.30
040 102460.40
001 102460.50
000 102460.60
010 102460.70

%8DD%BU,8,8,000,100,002,000,020,000,200,004

000 102461.00
100 102461.10
002 102461.20
000 102461.30
020 102461.40
000 102461.50
200 102461.60
004 102461.70

%8DD%BU,8,8,000,040,001,000,010,000,100,002

000 102462.00
040 102462.10
001 102462.20
000 102462.30
010 102462.40
000 102462.50
100 102462.60
002 102462.70

%8DD%BU,8,8,000,020,000,200,004,000,040,001

000 102463.00
020 102463.10
000 102463.20
200 102463.30
004 102463.40
000 102463.50
040 102463.60
001 102463.70

%8DD%BU,8,8,000,010,000,100,002,000,020,000

000 102464.00
010 102464.10
000 102464.20
100 102464.30
002 102464.40
000 102464.50
020 102464.60
000 102464.70

18 @ THE FOLLOWING ARE DATA WORDS FOR THE ECC
@ MODE-THE CHECK BITS ARE IN OCTAL NOTATION
@

15 @ FLOATING ZERO PATTERN @ C-BITS
14 PWD2 %8DD%BU,8,8,301,200,000,000,101,200,000,000 @377

301 102465.00
200 102465.10
000 102465.20
000 102465.30
101 102465.40
200 102465.50
000 102465.60
000 102465.70

9 %8DD%BU,8,8,350,200,200,000,230,200,200,000 @177

350 102466.00
200 102466.10
200 102466.20
000 102466.30
230 102466.40
200 102466.50

18
15
14
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	%8DD%BU,8,8,020,000,000,000,240,000,000,000	@277		200	102466.60
				000	102466.70
				020	102467.00
				000	102467.10
				000	102467.20
				000	102467.30
				240	102467.40
				000	102467.50
				000	102467.60
				000	102467.70
	%8DD%BU,8,8,002,000,000,000,210,000,000,000	@337		002	102470.00
				000	102470.10
				000	102470.20
				000	102470.30
				210	102470.40
				000	102470.50
				000	102470.60
				000	102470.70
	%8DD%BU,8,8,000,010,000,000,200,200,000,000	@357		000	102471.00
				010	102471.10
				000	102471.20
				000	102471.30
				200	102471.40
				200	102471.50
				000	102471.60
				000	102471.70
	%8DD%BU,8,8,000,000,000,200,200,000,200,000	@367		000	102472.00
				000	102472.10
				000	102472.20
				200	102472.30
				200	102472.40
				000	102472.50
				200	102472.60
				000	102472.70
	%8DD%BU,8,8,000,000,000,200,200,200,000,000	@373		000	102473.00
				000	102473.10
				000	102473.20
				200	102473.30
				200	102473.40
				200	102473.50
				000	102473.60
				000	102473.70
	%8DD%BU,8,8,140,000,000,000,020,000,000,000	@375		140	102474.00
				000	102474.10
				000	102474.20
				000	102474.30
				020	102474.40
				000	102474.50
				000	102474.60
				000	102474.70
	DD%BU,64,8,0			000000000000000000000000	102475.00
	DD%BU,64,8,0			000000000000000000000000	102476.00
	DD%BU,64,8,0			000000000000000000000000	102477.00
	DD%BU,64,8,0			000000000000000000000000	102500.00
	DD%BU,64,8,0			000000000000000000000000	102501.00
	@ FLOATRNG ONE PATTERN		C-BITS		
	PWD3 %8DD%BU,8,8,350,200,200,000,000,000,000,000	@200		350	102502.00
				200	102502.10
				200	102502.20
				000	102502.30
				000	102502.40
				000	102502.50
				000	102502.60
				000	102502.70
	%8DD%BU,8,8,050,200,000,000,000,000,200,000	@100		050	102503.00
				200	102503.10

		000	102503.20
		000	102503.30
		000	102503.40
		000	102503.50
		200	102503.60
		000	102503.70
	%8DD%BU,8,8,110,200,000,000,000,200,000	110	102504.00
		200	102504.10
		000	102504.20
		000	102504.30
		000	102504.40
		000	102504.50
		200	102504.60
		000	102504.70
	%8DD%BU,8,8,140,200,000,000,000,200,000	140	102505.00
		200	102505.10
		000	102505.20
		000	102505.30
		000	102505.40
		000	102505.50
		200	102505.60
		000	102505.70
	%8DD%BU,8,8,160,000,000,000,000,200,000	160	102506.00
		000	102506.10
		000	102506.20
		000	102506.30
		000	102506.40
		000	102506.50
		200	102506.60
		000	102506.70
	%8DD%BU,8,8,160,000,000,000,200,000,000	160	102507.00
		000	102507.10
		000	102507.20
		000	102507.30
		000	102507.40
		200	102507.50
		000	102507.60
		000	102507.70
	%8DD%BU,8,8,350,200,000,000,000,200,000,000	350	102510.00
		200	102510.10
		000	102510.20
		000	102510.30
		000	102510.40
		200	102510.50
		000	102510.60
		000	102510.70
	%8DD%BU,8,8,030,200,000,000,000,200,000,000	030	102511.00
		200	102511.10
		000	102511.20
		000	102511.30
		000	102511.40
		200	102511.50
		000	102511.60
		000	102511.70
	%8DD%BU,8,8,350,000,000,200,000,000,000,000	350	102512.00
		000	102512.10
		000	102512.20
		200	102512.30
		000	102512.40
		000	102512.50
		000	102512.60
		000	102512.70

CNOP

EXTENDED PUNCH TEST DATA

PWD4	%8DD%BU,8,8,000	@CCB#CARRIAGE CONTROL BYTE	000	102513.00
	% AZDD%BU,8,8,PUNCH TEST USING IQS - DATA-THIS IS Z			102513.10
	% AZDD%BU,8,8,CARD ONE OF PWD4 DATA WORDS. Z			102517.50
	% AZDD%BU,8,8,IDENTIFIED BY A 1 IN COLUMN 80,Z			102523.20
	% AZDD%BU,8,8,ROW 9. ECC MODEZ			102527.10
	%8DD%BU,8,8,000,000,000,000,000,000,000,001		000	102531.00
			000	102531.10
			000	102531.20
			000	102531.30
			000	102531.40
			000	102531.50
			000	102531.60
			001	102531.70
	%8DD%BU,8,8,000	@CCB	000	102532.00
	% AZDD%BU,8,8, THIS IS CARD TWO OF PWD4 DATA Z			102532.10
	% AZDD%BU,8,8,WORDS. IT IS IDENTIFIED WITH A 1Z			102536.10
	% AZDD%BU,8,8, IN COLUMN 80, ROW 8...ECC MODEZ			102542.10
	DD%BU,64,8,0	0000000000000000000000000000		102546.00
	DD%BU,64,8,0	0000000000000000000000000000		102547.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,002		000	102550.00
			000	102550.10
			000	102550.20
			000	102550.30
			000	102550.40
			000	102550.50
			000	102550.60
			002	102550.70
PWD5	%8DD%BU,8,8,000	@CCB	000	102551.00
	% AZDD%BU,8,8, THIS IS CARD ONE OF PWD5 DATA Z			102551.10
	% AZDD%BU,8,8,WORDS. IT IS IDENTIFIED WITH A 1Z			102555.00
	% AZDD%BU,8,8, IN COLUMN 78, ROW 869. NO-ECC. Z			102561.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,003		000	102565.00
			000	102565.10
			000	102565.20
			000	102565.30
			000	102565.40
			000	102565.50
			000	102565.60
			003	102565.70
	%8DD%BU,8,8,000		000	102566.00
	% AZDD%BU,8,8, THIS IS CARD TWO OF PWD5 DATA Z			102566.10
	% AZDD%BU,8,8,WORDS. IT IS IDENTIFIED WITH A 1Z			102572.00
	% AZDD%BU,8,8, IN COLUMN 78, ROW 7.NO-ECC MODEZ			102576.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,004		000	102602.00
			000	102602.10
			000	102602.20
			000	102602.30
			000	102602.40
			000	102602.50
			000	102602.60
			004	102602.70
PWD6	%8DD%BU,8,8,000		000	102603.00
	% AZDD%BU,8,8,XTENDED CF-1 PUNCH TESTZ			102603.10
PWD6A	% AZDD%BU,8,8, CARD IS NUMBERED OCTAL IN LAST Z			102606.00
	% AZDD%BU,8,8,COLUMN. NON-ECC MODE...Z			102612.00
PWD6B	% AZDD%BU,8,8,CARD ONE OF EXTENDED CF-1 TEST..Z			102615.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,006		000	102621.00
			000	102621.10
			000	102621.20
			000	102621.30
			000	102621.40

		000	102621.50
		000	102621.60
		006	102621.70
			102622.00
PWD6C	% AZDD%BU,8,8,CARD TWO OF EXTENDED CF-1 TEST,Z	000	102626.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,007	000	102626.10
		000	102626.20
		000	102626.30
		000	102626.40
		000	102626.50
		000	102626.60
		007	102626.70
			102627.00
PWD6D	% AZDD%BU,8,8,CARD THREE OF EXTENDED CF1 TEST,Z	000	102633.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,010	000	102633.10
		000	102633.20
		000	102633.30
		000	102633.40
		000	102633.50
		000	102633.60
		010	102633.70
			102634.00
PWD6E	% AZDD%BU,8,8,CARD FOUR OF EXTENDED CF-1 TEST,Z	000	102640.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,011	000	102640.10
		000	102640.20
		000	102640.30
		000	102640.40
		000	102640.50
		000	102640.60
		011	102640.70
			102641.00
PWD6F	% AZDD%BU,8,8,CARD FIVE OF EXTENDED CF-1 TEST,Z	000	102645.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,012	000	102645.10
		000	102645.20
		000	102645.30
		000	102645.40
		000	102645.50
		000	102645.60
		012	102645.70
			102646.00
PWD6G	% AZDD%BU,8,8,CARD SIX OF EXTENDED CF-1 TEST,Z	000	102652.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,013	000	102652.10
		000	102652.20
		000	102652.30
		000	102652.40
		000	102652.50
		000	102652.60
		013	102652.70
			102653.00
PWD6H	% AZDD%BU,8,8,CARD SEVEN OF EXTENDED CF1 TEST,Z	000	102657.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,014	000	102657.10
		000	102657.20
		000	102657.30
		000	102657.40
		000	102657.50
		000	102657.60
		014	102657.70
			102660.00
PWD6J	% AZDD%BU,8,8,CARD EIGHT OF EXTENDED CF1 TEST,Z	000	102664.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,015	000	102664.10
		000	102664.20
		000	102664.30
		000	102664.40
		000	102664.50
		000	102664.60
		015	102664.70

PWD6K	% AZDD%BU,8,8,CARD NINE OF EXTENDED CF-1 TEST.Z		000	102665.00
	%8DD%BU,8,8,000,000,000,000,000,000,016		000	102671.00
			000	102671.10
			000	102671.20
			000	102671.30
			000	102671.40
			000	102671.50
			000	102671.60
			016	102671.70
PWD6L	% AZDD%BU,8,8,CARD TEN OF EXTENDED CF-1 TEST.Z			102672.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,017		000	102676.00
			000	102676.10
			000	102676.20
			000	102676.30
			000	102676.40
			000	102676.50
			000	102676.60
			017	102676.70
PRES1	%8DD%BU,8,8,001		001	102677.00
	% AZDD%BU,8,8,THIS IS THE DATA FROM THE WRITEZ			102677.10
	% AZDD%BU,8,8, AREA OF THE PUNCH TEST.Z			102703.00
PRES2	%8DD%BU,8,8,001		001	102706.00
	% AZDD%BU,8,8,THIS IS THE DATA FROM THE READ Z			102706.10
	% AZDD%BU,8,8, AREA OF THE PUNCH TEST.Z			102712.00
PRES3	DR%BU,64,8,30	@READ-IN AREA	36.00	102715.00
PRES3A	DR%BU,64,8,26	@READ-IN AREA-ECC	32.00	102753.00
PRES4	DR%BU,64,8,15	@NON-ECC MODE	17.00	103005.00
PRES5	DR%BU,64,8,15		17.00	103024.00
PRES6	DR%BU,64,8,15		17.00	103043.00
PRES7	DR%BU,64,8,15		17.00	103062.00
PRES8	DR%BU,64,8,15		17.00	103101.00
PRES9	DR%BU,64,8,15		17.00	103120.00
PRES10	DR%BU,64,8,15		17.00	103137.00
PRES11	DR%BU,64,8,15		17.00	103156.00
PRES12	DR%BU,64,8,15		17.00	103175.00
PRES13	DR%BU,64,8,15		17.00	103214.00
PRES14	DR%BU,64,8,13	@READ-IN AREA	15.00	103233.00
PRES15	DR%BU,64,8,13	@NON-ECC MODE	15.00	103250.00
PRES16	DR%BU,64,8,13		15.00	103265.00
PRES17	DR%BU,64,8,13		15.00	103302.00
PRES18	DR%BU,64,8,13		15.00	103317.00
PRES19	DR%BU,64,8,13		15.00	103334.00
PRES20	DR%BU,64,8,13		15.00	103351.00
PRES21	DR%BU,64,8,13		15.00	103366.00
PRES22	DR%BU,64,8,13		15.00	103403.00
PRES23	DR%BU,64,8,13		15.00	103420.00
END	DR%BU,64,8,1		1.00	103435.00
	END,START		10000.00	103436.00

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SLC,64.0

000100.00

PUNID,BX0-RDR

BX0-RDR

END,64.0

100.00

000100.00

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SLC,64.0

000100.00

- SLC VALUE IS MEANINGLESS
- PUNFUL
- THIS IS TEST PATTERN DECK 1. RESULTS CAN BE
- EASILY DETERMINED BY USING CHKRDR CONTROL WORD
- SEQUENCE,AND/OR DATA DISPLAY.
- A SECOND PATTERN DECK WILL BE MADE AVAILABLE
- WHICH CONTAINS SPECIAL PATTERN CARDS.CHECKS ARE
- MADE BY DISPLAYING MEMORY,USE TEST DECK 2 IF
- PRINTER OPERATION IS DOUBTFUL.....

CARD1 %8DD%BU,8,8,000 000 000100.00

% AZDD%BU,8,8,CARD1FIRST CARD READ...DATA IS INZ 000100.10

% AZDD%BU,8,8, IQS FORMAT. WORD COUNT ON READ WAS 15 .Z 000105.00

% AZDD%BU,8,8,READER PATTERNS IN LATER TEST...Z 000112.00

%8DD%BU,8,8,000,000,000,000,000,000,000,001 @CRD 1 IDENT 000 000116.00

000 000116.10

000 000116.20

000 000116.30

000 000116.40

000 000116.50

000 000116.60

001 000116.70

CARD2 %8DD%BU,8,8,000 000 000117.00

% AZDD%BU,8,8,WDCT1 Z 000117.10

% AZDD%BU,8,8,FAILURE Z 000120.00

% AZDD%BU,8,8,IF THIS PRINTS OR IS IN MEM, WD Z 000121.00

% AZDD%BU,8,8,CNT-1-WAS NOT HANDLED BY BX.....Z 000125.00

DR%BU,64,8,4 @WORDS 11-14 CARD 2 ARE ZERO. 4.00 000131.00

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	%8DD%BU,8,8,000,000,000,000,000,000,000,000,002 @CRD 2 IDENT		000	000135.00
			000	000135.10
			000	000135.20
			000	000135.30
			000	000135.40
			000	000135.50
			000	000135.60
			002	000135.70
	CARD3 %8DD%BU,8,8,000 @		000	000136.00
	% AZDD%BU,8,8,WORD COUNT -2- Z			000136.10
	% AZDD%BU,8,8,FAILURE Z			000140.00
	DR%BU,64,8,11 @CARD 3 BLANK LOCATIONS	13.00		000141.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,003 @CRD 3 IDENT		000	000154.00
			000	000154.10
			000	000154.20
			000	000154.30
			000	000154.40
			000	000154.50
			000	000154.60
			003	000154.70
	CARD4 %8DD%BU,8,8,000		000	000155.00
	% AZDD%BU,8,8,IF THIS PRINTS SKIP FLAG FAILEDZ			000155.10
	% AZDD%BU,8,8,CARD4-SKIP FLAG TEST....Z			000161.00
	DR%BU,64,8,7	7.00		000164.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,004 @CRD 4 IDENT		000	000173.00
			000	000173.10
			000	000173.20
			000	000173.30
			000	000173.40
			000	000173.50
			000	000173.60

		004	000173.70
CARD5	%8DD%BU,8,8,000	000	000174.00
	% AZDD%BU,8,8,CARD 5 THREE CARD READ, ABCDEFGHIJKLMNOZ		000174.10
	% ABDD%BU,8,8,PQRSTUVWXYZ 0123456789 CARD 5 THREE CARDB		000201.00
	% A9DD%BU,8,8, READ ABCDEFGHIJKLMNOPQRSTUVWXYZ9		000206.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,005 @CRD 5 IDENT	000	000212.00
		000	000212.10
		000	000212.20
		000	000212.30
		000	000212.40
		000	000212.50
		000	000212.60
		005	000212.70
CARD6	%8DD%BU,8,8,000	000	000213.00
	% AZDD%BU,8,8,CARD 6 ...3 CARD READ, CARD 2 HIJKLMNOZ		000213.10
	% ABDD%BU,8,8,PQRSTUVWXYZ 0123456789 CARD 6 THREE CARDB		000220.00
	% A9DD%BU,8,8, READ ABCDEFGHIJKLMNOPQRSTUVWXYZ9		000225.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,006 @CRD 6 IDENT	000	000231.00
		000	000231.10
		000	000231.20
		000	000231.30
		000	000231.40
		000	000231.50
		000	000231.60
		006	000231.70
CARD7	%8DD%BU,8,8,000	000	000232.00
	% AZDD%BU,8,8,CARD 7 ...3 CARD READ, CARD 3 HIJKLMNOZ		000232.10
	% ABDD%BU,8,8,PQRSTUVWXYZ 0123456789 CARD 7 THREE CARDB		000237.00
	% A9DD%BU,8,8, READ ABCDEFGHIJKLMNOPQRSTUVWXYZ9		000244.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,007 @CRD 7 IDENT	000	000250.00

000 000250.10
000 000250.20
000 000250.30
000 000250.40
000 000250.50
000 000250.60
007 000250.70

CARD8 %8DD%BU,8,8,000

000 000251.00

% AZDD%BU,8,8,CARD 8 TEN CARD READ.838888888888888888Z

000251.10

% AZDD%BU,8,8,888Z

000256.00

% AZDD%BU,8,8, TEN CARD READ.-CARD 1 Z

000263.00

DR%BU,64,8,1

1.00

000266.00

%8DD%BU,8,8,000,000,000,000,000,000,000,010 @CRD 8 IDENT

000 000267.00

000 000267.10

000 000267.20

000 000267.30

000 000267.40

000 000267.50

000 000267.60

010 000267.70

CARD9 %8DD%BU,8,8,000

000 000270.00

% AZDD%BU,8,8,CARD 9 TEN CARD READ. 999999999999999999Z

000270.10

% AZDD%BU,8,8,999Z

000275.00

% AZDD%BU,8,8, -TEN CARD READ.-CARD 2 Z

000302.00

DR%BU,64,8,1

1.00

000305.00

%8DD%BU,8,8,000,000,000,000,000,000,000,011 @CRD 9 IDENT

000 000306.00

000 000306.10

000 000306.20

000 000306.30

000 000306.40

000 000306.50

000 000306.60

011 000306.70

CARD10 %8DD%BU,8,8,000

000 000307.00 6

% AZDD%BU,8,8,CARD 10 TEN CARD READ. Z

000307.10

DR%BU,64,8,7

7.00

000312.00

% AZDD%BU,8,8, TEN CARD READ.-CARD 3 Z

000321.00

DR%BU,64,8,1

1.00

000324.00

%8DD%BU,8,8,000,000,000,000,000,000,000,012 @CRD 10 IDENT

000 000325.00

000 000325.10

000 000325.20

000 000325.30

000 000325.40

000 000325.50

000 000325.60

012 000325.70

CARD11 %8DD%BU,8,8,000

000 000326.00 6

% AZDD%BU,8,8,CARD 11 TEN CARD READ. Z

000326.10

DR%BU,64,8,7

7.00

000331.00

% AZDD%BU,8,8, TEN CARD READ.-CARD 4 Z

000340.00

DR%BU,64,8,1

1.00

000343.00

%8DD%BU,8,8,000,000,000,000,000,000,000,013 @CRD 11 IDENT

000 000344.00

000 000344.10

000 000344.20

000 000344.30

000 000344.40

000 000344.50

000 000344.60

013 000344.70

CARD12 %8DD%BU,8,8,000

000 000345.00 6

% AZDD%BU,8,8,CARD 12 TEN CARD READ. Z

000345.10

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	000	000421.20
	000	000421.30
	000	000421.40
	000	000421.50
	000	000421.60
	016	000421.70

CARD15	%8DD%BU,8,8,000		000	000422.00 6
	% AZDD%BU,8,8,CARD 15 TEN CARD READ. Z			000422.10
	DR%BU,64,8,7	7.00		000425.00
	% AZDD%BU,8,8, TEN CARD READ.-CARD 8 Z			000434.00
	DR%BU,64,8,1	1.00		000437.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,000,017 @CRD 15 IDENT		000	000440.00
			000	000440.10
			000	000440.20
			000	000440.30
			000	000440.40
			000	000440.50
			000	000440.60
			017	000440.70

CARD16	%8DD%BU,8,8,000		000	000441.00 6
	% AZDD%BU,8,8,CARD 16 TEN CARD READ. Z			000441.10
	DR%BU,64,8,7	7.00		000444.00
	% AZDD%BU,8,8, TEN CARD READ.-CARD 9 Z			000453.00
	DR%BU,64,8,1	1.00		000456.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,000,021 @CRD 16 IDENT		000	000457.00
			000	000457.10
			000	000457.20
			000	000457.30
			000	000457.40
			000	000457.50
			000	000457.60

			021	000457.70
CARD17	%8DD%BU,8,8,000		000	000460.00 6
	% AZDD%BU,8,8,CARD 17 TEN CARD READ. Z			000460.10
	DR%BU,64,8,7	7.00		000463.00
	% AZDD%BU,8,8, TEN CARD READ.-CARD 10Z			000472.00
	DR%BU,64,8,1	1.00		000475.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,022 @CRD 17 IDENT		000	000476.00
			000	000476.10
			000	000476.20
			000	000476.30
			000	000476.40
			000	000476.50
			000	000476.60
			022	000476.70
CARD18	%8DD%BU,8,8,000		000	000477.00 6
	% AZDD%BU,8,8,CARD 18. TWO CARD READ WITH MF-0. ONLY Z			000477.10
	% AZDD%BU,8,8,ONE CARD SHOULD READ....Z			000504.00
	DR%BU,64,8,6	6.00		000507.00
	%8DD%BU,8,8,000,000,000,000,000,000,000,023 @CRD 18 IDENT		000	000515.00
			000	000515.10
			000	000515.20
			000	000515.30
			000	000515.40
			000	000515.50
			000	000515.60
			023	000515.70
CARD19	%8DD%BU,8,8,000		000	000516.00 6
	% AZDD%BU,8,8,THIS CARD SHOULD NOT BE READ Z			000516.10
	% AZDD%BU,8,8,CARD 19 Z			000522.00
	DR%BU,64,8,10	12.00		000523.00

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