

Diagnostic Engineering Publications

1410/7010

IBM POUGHKEEPSIE
December 31, 1965

Subject: Diagnostic Program W002G 1403 Forms Control Test

Sequence Number 545
Replaces W002F

This program uses System and Channel Control Cards -

System Control Card	W002	001
Channel One Control Card	W002	002
Channel Two Control Card	W002	003
Channel Three Control Card	W002	004
Channel Four Control Card	W002	005

The following changes were made to W002F to create W002G -

1. All references to channel 3 & 4 operation were deleted.
2. An error in the set up of a 100 character print buffer for channel 2 was corrected.
3. Changes & corrections were made to the Print Error and Forms Control Error Routines.
4. Changes and corrections to the "Time High Speed Skip" routine to increase timing accuracy, check for lower limit as well as upper limit and reduce the upper limit to detect skip time failures on the 1403 model 3.

Enclosures: 48

Pages

Card Deck for CARD ONLY SYSTEMS (as punched by UP51)

8 Cards - Card Loader (1-7) and 1 Core Clear

115 Cards No. 001-115 Data Cards

1 Card Execute Card

Distribution: X 1410 with 1403 Printer
X 7010

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W 0 0 2 G

1403 FORMS CONTROL TEST

12/31/64

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5.00.00.0 TEST DESCRIPTION

00.1 MODIFICATIONS

See Release Page for modifications to create this level.

00.2 DESCRIPTION

This diagnostic tests all possible forms control operations associated with a printed line such that a visual check for correctness can be made. High speed skip is also timed to insure that the carriage of the 1403 does enter a high speed skip on a skip of 29 lines.

The first sheet of the printed form will have a line of 100 nines, space 1 to 3 after print, space 1 to 3 immediate, skip 1 to 12 immediate and branch on channel 9 and 12. The second sheet of the form will have a line of 100 nines, space 1 to 3 after print, space 1 to 3 immediate, skip 1 to 12 after print, branch on channel 9 and 12, a test of the high speed skip, and (if applicable) a test of the space suppress feature.

Errors in spacing and skipping can be overlooked; therefore, it is suggested that the carriage tape be removed from the 1403 and compared carefully with the printed form. Sample printouts can be found in the appendix, section 5.00.07.0.

All error messages will occur on the typewriter because the numeric chain 1403 cannot print alphabetic information. Note also that the information printed during the test is entirely numeric and special characters when using a printer with a numeric chain (see appendix, section 5.00.07.0).

00.2 EQUIPMENT

1. 1414 Model III, IV or VIII.
2. 1403 Printer Model 1, 2, or 3 (with alpha or numeric chain).

00.4 CARD DECK

See bottom of Release Page for description of card deck.

00.5 E.C. LEVEL OF MACHINE

Not applicable.

5.00.01.0

LOADING PROCEDURES

01.1

FROM CARDS (Load Program L1A preceding Card Deck)

A. 1410 or 7010 without Load Button.

1. Display Memory Location 00000
2. Alter to
v v v
RL%1100011\$. Enter according to channel
v v v location of the card reader.
XL%1100011\$.
3. Set to Run, Computer Reset and Start.

B. 7010 with Load Button

1. Computer Reset
2. Depress Load Button

01.2

FROM TAPE

A. 1410 or 7010 without Load Button

1. Display Memory Location 00000
2. Alter to
v v v
RL%B000011\$. Enter according to channel
v v v location of the tape drive.
XL%B000011\$.
3. Set to Run, press Computer Reset.

B. 7010 with Load Button

1. Computer Reset
2. Depress Load Button

System and Channel control cards are used by this program. These cards must have the system and channel configuration in the proper columns of the cards before the program is loaded into core. (See listing of the program "1410/7010 INTRODUCTION vol 1.00, for punching information.)

5.00.01.3 **LOADING PROCEDURES (continued)**

A special printer carriage control tape must be used. It must be installed on the 1403 printer before the program is loaded into core. The tape should be punched as follows:

<u>Line</u>	<u>Channel</u>	<u>Line</u>	<u>Channel</u>
1	1	67	1
18	1	84	1
21	2	87	2
24	3	90	3
27	4	93	4
30	5	96	5
33	6	99	6
36	7	102	7
39	8	105	8
42	9	108	9
45	10	111	10
48	11	114	11
51	12	117	12
53	9	119	9
58	12	124	12

Cut off tape at line 132. Mount the tape in the 1403 and set the line spacing control for six lines per inch.

5.00.02.0

OPERATING PROCEDURES

For normal operation of the program no TADs or other information need be entered until the "REQ. SPACE SUPPRESS TAD" message occurs. At this time press Inquiry Request, enter a one to test space suppress or enter a blank to bypass space suppress test, and then press Inquiry Release.

If the program stops or hangs up during the pass, refer to section 5.00.04.0, Program Stops and Restarts, for information.

STANDARD TADs

TAD 0	Loc 01000	Off	1	Type all errors
		On	1	Bypass all error typeouts
TAD 1	Loc 01001	Off	1	Run complete program
		On	1	Loop in the same routine
TAD 2	Loc 01002	Off	1	Bypass all error halts
		On	1	Halt on all errors
TAD 3	Loc 01003	Off	1	One pass of program
		On	1	Repeat entire program

NOTE:

The "Program Alter Routine" is included in this test to allow the operator to alter any portion of the program, TADs, data fields, etc., with a minimum of effort at any time during the program pass. To use this routine press the 1415 INQUIRY REQUEST key and enter the five-digit address of the low order position of memory to be altered when the typewriter prints the letter "I" and spaces. After the address has been entered, press the Inquiry Release and the Inquiry Request again, the typewriter will again print an "I" and space. At this time the new information can be entered into memory. When the alterations are complete, press Inquiry Release and the program will resume the test.

If an error is made in typing in the address of core to be altered or the data, simply press Inquiry Cancel and press Inquiry Request once more.

5.00.03.0 OPERATING HINTS, COMMENTS

1. At the beginning of the test, the program identification will be typed. (If the program is repeated or restarted, the identification will not be retyped.) At the conclusion of the program pass a message, W002 EOJ, will be typed if tad 0 is Off. Therefore, a proper operation pass should appear on the console typewriter in the following format.

```
R      W002x. where x represents test level.  
R      REQ SPACE SUPPRESS TAD  
I      1  
R      W002 EOJ
```

2. If any messages occur other than listed in item 1., an error has been detected by the program.
3. If the message W002 EOJ does not occur, it is because either error typeouts have been bypassed (possibility of an error occurring which would not be indicated) or the program has not run to completion.
4. After a program pass, the 1403 output should be compared both with carriage tape and the sample printouts listed in the appendix section 5.00.07.0.
5. The 1403 output will be the same regardless of buffer size (100 or 132 characters).
6. If all of the following messages appear on a program pass; it indicates that the J (I) R (channel 1) instruction is not operating properly.

```
BRANCH ON CHANNEL 9 FAILED  
BRANCH ON CHANNEL 12 FAILED  
BRANCH ON CHANNEL 9 FAILED  
BRANCH ON CHANNEL 12 FAILED  
FORMS FAILED TO SKIP TO CHANNEL 12  
1403 FAILED TO ENTER HIGH SPEED SKIP
```

5.00.04.0 PROGRAM STOPS AND RESTARTS

PROGRAM STOPS

This program does not contain any normal STOPS. All error STOPS are preceded by error messages and are under program (TAD) control. After any error stop, press Start to continue.

PROGRAM RESTARTS

A program restart may be accomplished at any time by simply pressing Computer Reset and Start.

PROGRAM HANG UP CONDITIONS

After the message "REQ SPACE SUPPRESS TAD" occurs, press typewriter INQUIRY REQUEST, enter the proper digit (1 or 6) and then press INQUIRY RELEASE. The program will then continue.

Note: If a space or skip after print command is issued, a correct line must be printed before another forms control operation is attempted. If a restart is performed after a forms control operation (after print) and before the next line is printed, the program will hang up on busy.

5.00.05.0

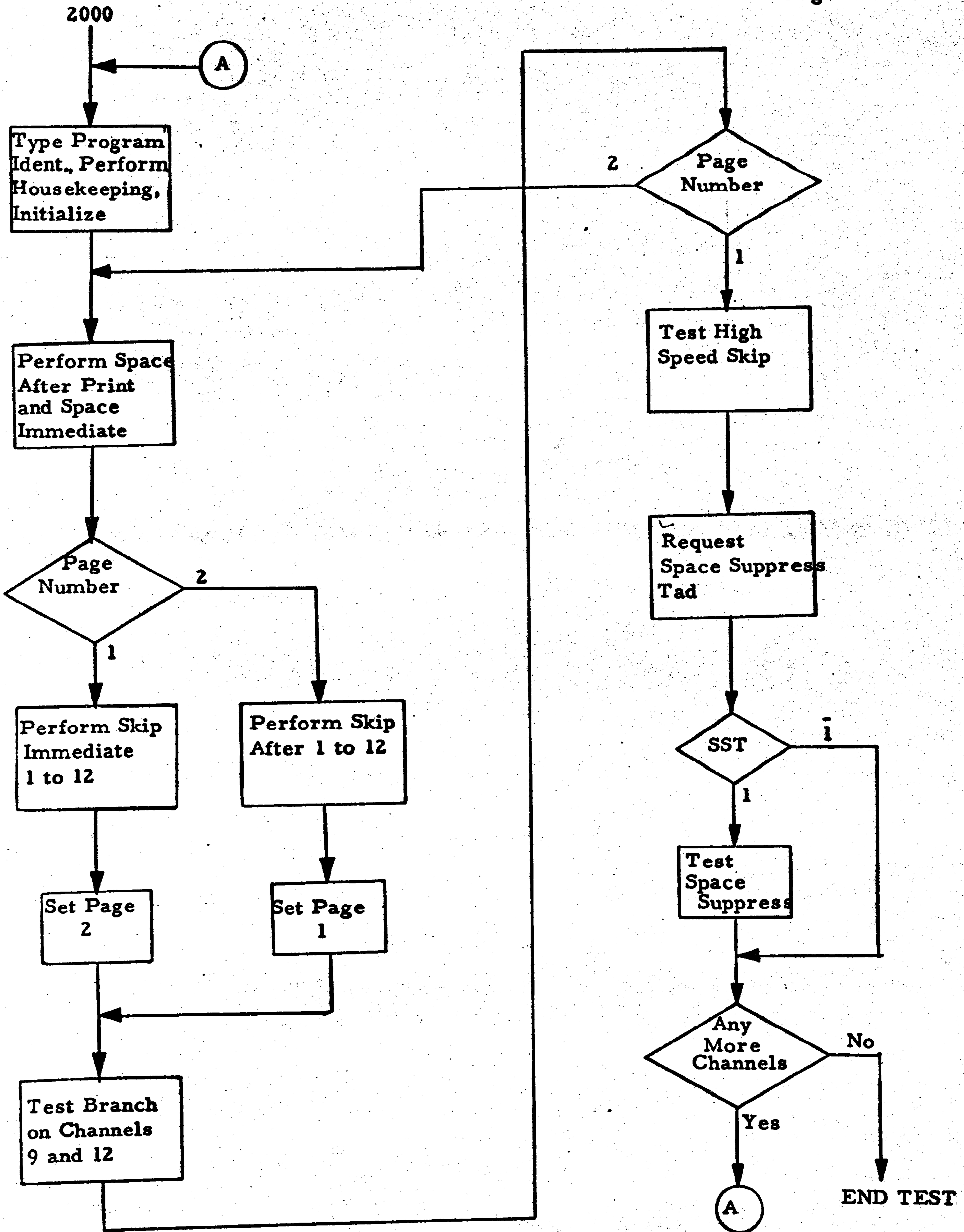
TYPEOUTS

NORMAL TYPEOUTS

1. W002x (x represents test level). This is the test identification. The identification is typed only once when the program is first loaded.
2. NO CHANNEL SET ON SYSTEM CONTROL CARD. This message indicates that a channel was not available as punched on the systems control card.
3. REQ SPACE SUPPRESS TAD. This is a request for a space suppress control tad. Press Inquiry Request, enter proper tad (see section 5.00.02.0), and press Inquiry Release.
4. W002 EOJ. This typeout indicates the completion of one complete program pass.

ERROR TYPEOUTS

All error typeouts are self-explanatory. See the program listing for further information.



5.00.07.0

APPENDIX

CORRECT 1403 OUTPUT

1. Figure I, sheets 1, 2, and 3 show the correct output on the 1403 printer with alpha chain and not entering a 1 for the Space Suppress TAD.
2. Figure II, sheet 1 shows page 3 of the correct output on the 1403 printer with alpha chain and entering a 1 for the Space Suppress TAD providing that your system does not have the Space Suppress Feature.

On systems with the space suppress feature, the last two lines of Figure II, sheet 1, should be superimposed upon one another so that it should appear as follows:

SPACE SUPPRESS PRINTER ~~KKKOR~~

W00Z
014

SPACE 1 IMMEDIATE

SPACE 2 IMMEDIATE

SPACE 3 IMMEDIATE

SKIP TO CHANNEL 1 AFTER PRINT

SKIP TO CHANNEL 2 AFTER PRINT

SKIP TO CHANNEL 3 AFTER PRINT

SKIP TO CHANNEL 4 AFTER PRINT

SKIP TO CHANNEL 5 AFTER PRINT

SKIP TO CHANNEL 6 AFTER PRINT

SKIP TO CHANNEL 7 AFTER PRINT

SKIP TO CHANNEL 8 AFTER PRINT

SKIP TO CHANNEL 9 AFTER PRINT

SKIP TO CHANNEL 10 AFTER PRINT

SKIP TO CHANNEL 11 AFTER PRINT

SKIP TO CHANNEL 12 AFTER PRINT

TFST BRANCH ON CHANNEL 9,1403

TFST BRANCH ON CHANNEL 12,1403

Figure
Sheet 2

Figure I.
Sheet 3.

TEST HIGH SPEED SKIP 2 TO 12

HIGH SPEED SKIP O.K.

Figure II
Sheet 1.

TEST HIGH SPEED SKIP 2 TO 12

HIGH SPEED SKIP O.K.
SPACE SUPPRESS PRINTER ERROR
SPACE SUPPRESS PRINTER XXXXX

CT ADDR INSTRUCTION

LABEL OPCOD OPERAND

LOAD
 LINES 37
 ORG 1000

STANDARD TADS

NOT 1
 TAD0 DC @ @ TYPE OUTPUT BYPASS TYPING
 TAD1 DC @ @ NO LOOPS LOOP ROUTINE
 TAD2 DC @ @ NO ERROR HALTS HALT ON ERR
 TAD3 DC @ @ ONE PROGRAM PASS REPEAT PRDG
 TAD4 DC @ @

PROGRAM ALTER ROUTINE

PALT SBR PALTEX&S
 DCW @N @
 RCP PALT2&4
 BEX1 *-16,M
 BNT1 PALTEX
 BAI *&I
 RCPW O S
 BEX1 *-16,M S
 BAI *&I G
 B O
 PALTEX B O

STANDARD TYPE ROUTINE

PRT1 SBR PRT2&S
 SBR PRT3&B
 SCNRG O,O
 SAR PRT4&S
 WCP O
 BCBI *-16
 BAI *&I
 B O
 H

1 01000
 1 01001
 1 01002
 1 01003
 1 01004

7 01005 G 01084 B
 12 01023
 10 01024 M XTO 01059 R
 7 01034 R 01024 M
 7 01041 R 01079 B
 7 01048 R 01055 M
 10 01055 L XTO 00000 R
 7 01065 R 01055 M
 7 01072 R 01079 M
 7 01079 J 00000

7 01086 G 01135 B
 7 01093 G 01127 B
 12 01100 D 00000 00000 Q
 7 01112 G 01148 A
 10 01119 M XTO 00000 M
 7 01129 R 01119 2
 7 01136 R 01143 M
 7 01143 J 00000
 1 01150 .

W002 - PRINTER FORMS CONTROL TEST

CT ADDR INSTRUCTION

LABEL OPCOD OPERAND

ORG	1239	CONTROL INFORMATION	01239
DCW	APH9PJ0545*9a		11 01249

ORG	1250	TEST IDENTIFICATION	01250
DCW	AW002Ga.G		5 01254

STANDARD SYSTEM CONTROL CARD.

SYS1	ORG	DC	1256	CHARACTER & PURPOSE	COL
				ALPHA O.I.X - 1410,1410ACC,7010	13
				0.1,3.5,7.9-10,20,40,60,80,100K	14
				SPARE	15
				1.2-CHNL1 100,132 CHAR PRINTER	16
				1.2-CHNL2 100,132 CHAR PRINTER	17
				1 - OVERLAP	20
				1 - PRIORITY ALERT	21
				SPARES	22-24
				1 - CHANNEL ONE PRESENT	25
				1 - CHANNEL TWO PRESENT	26
				NOT INTERROGATED	

01256	
1 01256	
1 01257	
1 01258	
1 01259	
1 01260	
2 01262	
1 01263	
1 01264	
3 01267	
1 01268	
1 01269	
18 01287	
1 01288	

LABEL OPCOD OPERAND

CT ADDR INSTRUCTION

STANDARD CHANNEL 1 CONTROL CARD.

CHN1	ORG	DC	1289	CHARACTER & PURPOSE	COL
			a	a NOT INTERROGATED	01289
616	DC	a	a	P - 1403 PRINTER	16 01289
617	DC	a	a	A,N - ALPHA,NUMERIC PRINT CHAIN 30	1 01305
618	DC	a	a	1,2 - 100,132 CHAR PRINT BUFFER 31	1 01306
	DC	a	a	a NOT INTERROGATED	1 01307
	DC	a	a	a	18 01325
	DC	a	a	a	18 01343
	DC	a	a	a	2 01345

STANDARD CHANNEL 2 CONTROL CARD.

CHN2	ORG	DC	1346	CHARACTER & PURPOSE	COL
			a	a NOT INTERROGATED	01346
616	DC	a	a	P - 1403 PRINTER	16 01346
617	DC	a	a	A,N - ALPHA,NUMERIC PRINT CHAIN 30	1 01362
618	DC	a	a	1,2 - 100,132 CHAR PRINT BUFFER 31	1 01363
	DC	a	a	a NOT INTERROGATED	1 01364
	DC	a	a	a	18 01382
	DC	a	a	a	18 01400
	DC	a	a	a	2 01402

LABEL

CT ADDR INSTRUCTION

TEST STARTS HERE

OPCODE	OPERAND	CT	ADDR	INSTRUCTION
ORG	2000		02000	
NOP		1	02000	N
B	INDID	7	02001	J 06057
CW	SW1	6	02008	B 02031
CS	99	6	02014	/ 00099
MRCWG	RSTART,1	12	02020	D 07025 00001 D
SW	30,35	11	02032	, 00030 00035
SW	40,45	11	02043	, 00040 00045
S	49	6	02054	S 00049
S		1	02060	S
S		1	02061	S
S		1	02062	S
S	CHSV	6	02063	S 06955
MLNA	ADD1,STARAD	12	02069	D 06950 06936 /
MLNA	ADD2,STOPAD	12	02081	D 06965 06941 /
BCE	CHAN1,SYS1&12,1	12	02093	B 02214 01268 1
BCE	CHAN2,SYS1&13,1	12	02105	B 02426 01269 1
BCE	END,CHSV,1	12	02117	B 06168 06955 1
B	PRT1	7	02129	J 01086
DCW	a NO CHANNEL SET ON SYS CTL CD0.G	29	02164	
RCP	SYS1&12	10	02166	M 01268 R
BEX1	*-16,M	7	02176	R 02166 M
G	*&1	7	02183	R 02190 M
G	2000	7	02190	J 02000
G	aN	17	02213	

a FILLER

W002 - PRINTER FORMS CONTROL TEST

LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
CHAN1	SBR	CHANR&S	7	02214	G 06166 B
	BCE	*&8,CHN1&16,P	12	02221	B 02240 01305 P
	B	CHANR	7	02233	J 06161
	MLCS	ONE,CHSV	12	02240	D 07034 06955 3
	S	X2	6	02252	S 00034
	NOP		1	02258	N
	BCE	*&20,CHN1&17,N	12	02259	B 02290 01306 N
	MLCA	ALPH,CHAIN	12	02271	D 06972 06971 T
	B	*&13	7	02283	J 02302
	MLCA	NUM,CHAIN	12	02290	D 06973 06971 T
	BCE	AAA1,CHN1&18,I	12	02302	B 02345 01307 1
	MLCWS	ABCD&6,POUT&100	12	02314	D 02344 09800 7
	MLCS	TWO,SIZE	12	02326	D 07035 06954 3
ABCD	B	AAA2	7	02338	J 02369
AAA1	MLCS	ONE,SIZE	12	02345	D 07034 06954 3
	MLCWS	WMGM,POUT&100	12	02357	D 07033 09800 7
AAA2	MLCS	ONE,BOLOM	12	02369	D 07034 06942 3
	MLCS	CH1U,CHCODE	12	02381	D 06946 06944 3
	MLCS	CH1S,CHSTAT	12	02393	D 06950 06943 3
	B	CHSTT	7	02405	J 06216
	B	TITLE	7	02412	J 04233
	B	START	7	02419	J 03062

BR IF CHAN.1 1403
 RETURN TO PROGRAM
 SET CHAN AVAIL
 RESET X2

BR IF NUMERIC CHAIN

BR IF 100 CHAR BUFF
 MOVE A BLANK

BOL MOD TO 1
 SET & TO CHAN ALTER
 SET R TO CHAN ALTER
 GO TO ALTER PROGRAM
 PRINT LINE OF 9 S
 GO TO START PRINTER

LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
CHAN2	SBR	CHANR&5	7	02426	G 06166 B
	BCE	*&8,CHN2&16,P	12	02433	B 02452 01362 P
	B	CHANR	7	02445	J 06161
	MLCS	ONE,CHSV	12	02452	D 07034 06955 3
	S	X2	6	02464	S 00034
	NOP		1	02470	N
	BCE	*&20,CHN2&17,N	12	02471	B 02502 01363 N
	MLCA	ALPH,CHAIN	12	02483	D 06972 06971 T
	B	*&13	7	02495	J 02514
	MLCA	NUM,CHAIN	12	02502	D 06973 06971 T
	BCE	AAA3,CHN2&18,1	12	02514	B 02557 01364 1
G	MLCWS	ABCD&6,POUT&100	12	02526	D 02344 09800 7
	MLCS	TWO,SIZE	12	02538	D 07035 06954 3
	B	AAA4	7	02550	J 02581
AAA3	MLCS	ONE,SIZE	12	02557	D 07034 06954 3
	MLCWS	WMGM,POUT&100	12	02569	D 07033 09800 7
AAA4	MLCS	TWO,BOLOM	12	02581	D 07035 06942 3
	MLCS	CH2U,CHCODE	12	02593	D 06947 06944 3
	MLCS	CH2S,CHSTAT	12	02605	D 06951 06943 3
	B	CHSTT	7	02617	J 06216
	B	TITLE	7	02624	J 04233
	B	START	7	02631	J 03062
G	H		1	02638	.
	ORG	3062		03062	

PRINT LINE OF 9 S

LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
SPACE AFTER PRINT ROUTINE					
START	S	X3	6	03062	S 00039
	CS	POUT&50	6	03068	/ 09750
	BCE	*&13,CHAIN,A	12	03074	B 03098 06971 A
	MLNA	ADD4,X3	12	03086	D 06970 00039 /
	MLCHS	WMGM,POUT&132	12	03098	D 07033 09832 7
	BCE	*&13,SIZE,2	12	03110	B 03134 06954 2
	MLCHS	WMGM,POUT&100	12	03122	D 07033 09800 7
	MRCG	MESS1&X3,POUT	12	03134	D 070H2 09700 \$
SPAL	CC	/	2	03146	F /
	BCB1	*-8	7	03148	R 03146 2
	BA1	FORER	7	03155	R 05045 M
	BNQ	PALT	7	03162	J 01005 Q
	BCE	SPAL,TAD1,1	12	03169	B 03146 01001 1
WR1	W	POUT	10	03181	M &20 09700 W
	BCB1	*-16	7	03191	R 03181 2
	BA1	PERR	7	03198	R 05531 M
	BNQ	PALT	7	03205	J 01005 Q
	BCE	WR1,TAD1,1	12	03212	B 03181 01001 1
					PRINT SPACE 1 AFTER
SPA2	CS	POUT&50	6	03224	/ 09750
	MRCG	MESS3&X3,POUT	12	03230	D 07143 09700 \$
	CC	S	2	03242	F S
	BCB1	*-8	7	03244	R 03242 2
	BA1	FORER	7	03251	R 05045 M
	BNQ	PALT	7	03258	J 01005 Q
	BCE	SPA2,TAD1,1	12	03265	B 03242 01001 1
					CLEAR PRINT AREA
					MOVE SPACE 2 AFTER
WR2	W	POUT	10	03277	M &20 09700 W
	BCB1	*-16	7	03287	R 03277 2
	BA1	PERR	7	03294	R 05531 M
	BNQ	PALT	7	03301	J 01005 Q
	BCE	WR2,TAD1,1	12	03308	B 03277 01001 1
					PRINT SPACE 2 AFTER
					BR IF LOOP

LABEL	OPCODE	OPERAND	CLEAR PRINT AREA	CT	ADDRS	INSTRUCTION
SPA3	CS	POUT&50	CLEAR PRINT AREA	6	03320	/ 09750
	MRCG	MESS4&X3,POUT	MOVE SPACE 3 AFTER	12	03326	D 07184 09700 S
	CC	T		2	03338	F T
	BCB1	*-8		7	03340	R 03338 Z
	BAL	FORER		7	03347	R 05045 M
	BNQ	PALT		7	03354	J 01005 Q
WR3	BCE	SPA3,TAD1.1	BR IF LOOP	12	03361	B 03338 01001 I
	W	POUT	PRINT SPACE 3 AFTER	10	03373	M 320 09700 W
	BCB1	*-16		7	03383	R 03373 Z
	BAL	PERR		7	03390	R 05531 M
	BNQ	PALT		7	03397	J 01005 Q
	BCE	WR3,TAD1.1	BR IF LOOP	12	03404	B 03373 01001 I

W002 - PRINTER FOR MS CONTROL TEST

LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
		SPACE IMMEDIATE ROUTINE			
	CS	POUT&50	6	03416	/ 09750
	MRGG	MESS&X3,POUT	12	03422	D 071D5 09700 \$
SPI1	CC	J	2	03434	F J
	BCB1	*--8	7	03436	R 03434 Z
	BAL	FORER	7	03443	R 05045 M
	BNQ	PALT	7	03450	J 01005 Q
	BCE	SPI1,TAD1,1	12	03457	B 03434 01001 I
		BR IF LOOP			
WR4	W	POUT	10	03469	M &20 09700 W
	BCB1	*--16	7	03479	R 03469 Z
	BAL	PERR	7	03486	R 05531 M
	BNQ	PALT	7	03493	J 01005 Q
	BCE	WR4,TAD1,1	12	03500	B 03469 01001 I
		BR IF LOOP			
		PRINT SPACE 1 IMED.			
		CLEAR PRINT AREA	6	03512	/ 09750
	MRGG	MESS&X3,POUT	12	03518	D 071F6 09700 \$
SPI2	CC	K	2	03530	F K
	BCB1	*--8	7	03532	R 03530 Z
	BAL	FORER	7	03539	R 05045 M
	BNQ	PALT	7	03546	J 01005 Q
	BCE	SPI2,TAD1,1	12	03553	B 03530 01001 I
		BR IF LOOP			
		PRINT SPACE 2 IMED.			
WR5	W	POUT	10	03565	M &20 09700 W
	BCB1	*--16	7	03575	R 03565 Z
	BAL	PERR	7	03582	R 05531 M
	BNQ	PALT	7	03589	J 01005 Q
	BCE	WR5,TAD1,1	12	03596	B 03565 01001 I
		BR IF LOOP			

LABEL	OPCODE	OPERAND	CLEAR PRINT AREA	CT	ADDRS	INSTRUCTION
	CS	POUT&50	CLEAR PRINT AREA	6	03608	/ 09750
	MRCG	MESST&X3,POUT	MOVE SPACE 3 IMED.	12	03614	D 071H7 09700 \$
SPI3	CC	L		2	03626	F L
	BCB1	*-8		7	03628	R 03626 2
	BA1	FORER		7	03635	R 05045 H
	BNQ	PALT		7	03642	J 01005 Q
	BCE	SPI3,TAD1.1	BR IF LOOP	12	03649	B 03626 01001 1
WR6	W	POUT	PRINT SPACE 3 IMED.	10	03661	M &20 09700 W
	BCB1	*-16		7	03671	R 03661 2
	BA1	PERR		7	03678	R 05531 H
	BNQ	PALT		7	03685	J 01005 Q
	BCE	WR6,TAD1.1	BR IF LOOP	12	03692	B 03661 01001 1
FSPI	B	*&1	GO TO SKIP IMMED.OR AFTER	7	03704	J 03711

W002 -- PRINTER FOR MS CONTROL TEST

LABEL

OPCODE OPERAND

CT ADDR INSTRUCTION

SKIP IMMEDIATE ROUTINE

LABEL	OPCODE	OPERAND	CT	ADDR	INSTRUCTION
SKIPI	HLNA	ADD5,FSPI&5	12	03711	D 06988 03709 /
	S	X5	6	03723	S 00049
	S		1	03729	S
SKIR	MLCS	ONE&X4,SKIC1	12	03730	D 07434 03773 3
	CS	POUT&50	6	03742	/ 09750
	MRCG	MESS&X3,POUT	12	03748	D 07248 09700 4
	MLCA	MOOS&X5,POUT&18	12	03760	D 074J7 09718 T
SKI	CC	1	2	03772	F 1
	BCB1	*-8	7	03774	R 03772 2
	BA1	FORER	7	03781	R 05045 M
	W	POUT	10	03788	M 320 09700 W
	BCB1	*-16	7	03798	R 03788 2
	BA1	PERR	7	03805	R 05531 M
	BNQ	PALT	7	03812	J 01005 Q
	BCE	SKI,TAD1,1	12	03819	B 03772 01001 1
	A	TWO,X5	11	03831	A 07035 00049
	A		1	03842	A
	BCE	BCH912,SKIC1,3	12	03843	B 03862 03773 2
	B	SKIR	7	03855	J 03730

ALTER BRANCH ADDRESS
RESET X4

AND X5

MOVE SKIP MODIFIER
CLEAR PRINT AREA
MOVE MESSAGE
CHAN NO. TO PRINT
SKIP IMMED.

PRINT SKIP IMMED. X

BR IF LOOP
ADD 2 TO X5
ADD 1 TO X4
BR IF SKIPPED 1-12
BR IF NOT

W002 - PRINTER FOR MS CONTROL TEST

CT ADDR INSTRUCTION

LABEL OPCOD OPERAND

BRANCH ON CHANNEL 9 AND 12

LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
BCH912	CS	POUT&99	6	03862	/ 09799
	BNQ	PALT	7	03868	J 01005 Q
SKIP9	CC	9	2	03875	F 9
	BCB1	*-8	7	03877	R 03875 Z
	BA1	FORER	7	03884	R 05045 M
	BPCB	*-6	7	03891	J 03891 R
	BC9	CH9DK	7	03898	J 03971 9
	BCE	CH9H.TAD0.1	12	03905	B 03951 01000 1
	B	PRT1	7	03917	J 01086
	DCM	@BRANCH ON CHANNEL 9 FAILED@.G	26	03949	
CH9H	BCE	*E2.TAD2.	12	03951	B 03964 01002
	H		1	03963	.
	BNQ	PALT	7	03964	J 01005 Q
CH9DK	BCE	BCH912.TAD1.1	12	03974	B 03862 01001 1
	MRCG	MESS9&X3.POUT	12	03983	D 072D0 09700 S
NR7	W	POUT	10	03995	M S20 09700 W
	BCB1	*-16	7	04005	R 03995 Z
	BA1	PERR	7	04012	R 05531 H
	BNQ	PALT	7	04019	J 01005 Q
	BCE	WR7.TAD1.1	12	04026	B 03995 01001 1
SKIPI2	CC	@	2	04038	F @
	BCB1	*-8	7	04040	R 04038 Z
	BA1	FORER	7	04047	R 05045 M
	BPCB	*-6	7	04054	J 04054 R
	BCV	@ CH12OK	7	04061	J 04128 @
	BCE	CH12H.TAD0.1	12	04068	B 04115 01000 1
	B	PRT1	7	04080	J 01086
	DCM	@BRANCH ON CHANNEL 12 FAILED@.G	27	04113	
CH12H	BCE	*E2.TAD2.	12	04115	B 04128 01002
	H		1	04127	.
CH12OK	BNQ	PALT	7	04128	J 01005 Q
	BCE	SKIPI2.TAD1.1	12	04135	B 04038 01001 1

W002 - PRINTER FOR MS CONTROL TEST

LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
	CS	POUT699	6	04147	/ 09799
	MRCG	MESS106X3,POUT	12	04153	D 07262 09700 3
WR6	W	POUT	10	04165	M 320 09700 M
	BCB1	*-16	7	04175	R 04165 Z
	BAL	PERR	7	04182	R 05531 M
	BNQ	PALT	7	04189	J 01035 Q
	BCE	WR6,TA01,1	12	04196	B 04165 01001 1
	C	FSP165,ADD6	11	04208	C 03709 06993
	BU	TITLE	7	04219	J 04233 /
	B	TIMES	7	04226	J 04457

CLEAR PRINT AREA
 MOVE CHAN 12 BR MESS
 PRINT BR ON CHAN 12
 BR IF LOOP
 SEE IF PAGE 2
 BR IF NOT
 GO TO TIME HIGH SPD

COME HERE TO PRINT LINE OF 9 S

TITLE	CS	OPCODE	CT	ADDRS	INSTRUCTION
	CS	POUT699	6	04233	/ 09799
	SM	POUT	6	04239	. 09700
	MLCS	NINE,POUT699	12	04245	D 07042 09790 3
	MLCB	POUT699,POUT698	12	04257	D 09799 09790 L
	W	POUT	10	04269	M 320 09700 M
	BCB1	*-16	7	04279	R 04269 Z
	BAL	PERR	7	04286	R 05531 M
	CS	POUT699	6	04293	/ 09799
	B	START	7	04299	J 03062

CLEAR PRINT AREA
 SET WM TO STOP MOVE
 MOVE A NINE
 MOVE 99 MORE
 PRINT LINE OF NINES
 GO TO DO NEXT PAGE

CT ADDR INSTRUCTION

LABEL OPCOD OPERAND

SKIP AFTER PRINT

LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
SKIPA	MLNA	ADD6,FSPI&S	12	04306	D 06993 03709 /
	S	X5	6	04318	S 00049
	S	AND X4	1	04324	S
SKAR	MLCS	AMOD&X4,SKA&I	12	04325	D 07470 04368 3
	CS	POUT&SO	6	04337	/ 09750
	MRCG	MESS11&X3,POUT	12	04343	D 073M4 09700 3
	MLCA	MOD&X5,POUT&I8	12	04355	D 074J7 09718 T
SKA	CC	A	2	04367	F A
	BCB1	*-8	7	04369	R 04367 2
	BA1	FORER	7	04376	R 05045 M
	W	POUT	10	04383	M 220 09700 W
	BCB1	*-16	7	04393	R 04383 2
	BA1	PERR	7	04400	R 05531 M
	BNQ	PALT	7	04407	J 01005 Q
	BCE	SKA,TAD1,1	12	04414	B 04367 01001 1
	A	TWO,X5	11	04426	A 07035 00049
	A	ADD 1 TO X4	1	04437	A
	BCE	BCH912,SKA&I,B	12	04438	B 03862 04368 B
	B	SKAR	7	04450	J 04325

RESET X5

AND X4

MOVE SKIP MODIFIER

CLEAR PRINT AREA

MOVE SKIP AFTER X MESSAGE

MOVE CHAN NO.TO PRINT

SET SKIP AFTER

PRINT SKIP AFTER MESS

BR IF LOOP

ADD 2 TO X5

ADD 1 TO X4

BR IF SKIPPED TO 12

BR IF NOT

W002 - PRINTER FOR MS CONTROL TEST

LABEL OPCOD OPERAND CT ADDR INSTRUCTION

• TIME HIGH SPEED SKIP

TIMES	S	ACCU	RESET TIME ACCUM.
	BAL	*E1	
	CC	2	SKIP IMMED. TO 2
	BCB1	*-8	
	BAL	FORER	
	CS	POUT&50	
	MRCG	MESS12&X3,POUT	MOVE TEST HIGH SPEED
	W	POUT	PRINT MESSAGE
	BCB1	*-16	
	BAL	PERR	
	MLCA	TIMX,TIMC	MOVE 7010 TIME CONST.
	BCE	*E37,SYSL,X	BR IF 7010
	MLCA	TIM10,TIMC	MOVE 1410 TIME CONST.
	BCE	*E13,SYSL,0	BR IF
	MLCA	TIM1,TIMC	MOVE 1410 ACCELERATOR
	S	ACCU	
	BPCB	*-6	WAIT FOR NOT BUSY
	CC	@	SKIP IMMED. TO 12
	BCB1	*-8	
G	A	TIMC,ACCU	ADD LOOP TIME TO ACCUMULATOR
G	BPCB	*-17	KEEP ADDING WHILE CARRIAGE BUSY
	BAL	*E1	
G	BCV	CKTIME	CHECK ON TIME ACCUMULATED
	BCE	HS12H,TAD0,1	BR IF BYPASS ERROR
	B	PRT1	
G	DCW	@ FAILED TO SKIP TO CHANNEL 120,G	
G	DCW	@N3	
	BCE	*E2,TAD2,	BR IF BYPASS HALT
HS12H	H		
	BNQ	PALT	

HS12H

W002 - PRINTER FOR MS CONTROL TEST

LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
CKTIME	G	C	11	04712	C 06999 05289
	G	BE	7	04723	J 04748 S
	G	C	11	04730	C 06999 07005
	G	BH	7	04741	J 04832 U
	BCE	HSFH,TAD0,1	12	04748	B 04805 01000 1
	B	PRT1	7	04760	J 01086
	DCW	2 1403 FAILED TO ENTER	21	04787	
	DC	2 HIGH SPEED SKIP2,G	16	04803	
HSFH	BCE	*62,TAD2.	12	04805	B 04818 01002
	H		1	04817	.
	BNQ	PALT	7	04818	J 01005 Q
	B	SSUP	7	04825	J 06095
MSOK	CS	POUT650	6	04832	/ 09750
	MRCG	MESS13&X3,POUT	12	04838	D 073F8 09700 S
WR9	W	POUT	10	04850	M 320 09700 W
	BC81	*-16	7	04860	R 04850 Z
	BAL	PERR	7	04867	R 05531 M
	BNQ	PALT	7	04874	J 01005 Q
	G	BCE	12	04881	B 04457 01001 1
	B	SSUP	7	04893	J 06095

BE SURE ACCUMULATOR NOT ZERO
 IF SO IT FAILED
 COMPARE TO 180 MILLISECS
 TOOK LESS THAN 180 MILLISECS
 BR IF BYPASS ERRORS

BR BACK IF LOOP TAD SET TO 1

LABEL OPCOD OPERAND CT ADDR INSTRUCTION

SPACE SUPPRESS ROUTINE

SPSUP SBR SPSUP&5 7 04900 G 05043 B
 CS POUT&50 6 04907 / 09750
 MRCG MESS14&X3,POUT 12 04913 D 07410 09700 \$
 W POUT 10 04925 M 220 09700 M

 BCBI *-16 7 04935 R 04925 Z
 BAI PERR 7 04942 R 05531 M
 CC - 2 04949 F -
 BCBI *-8 7 04951 R 04949 Z
 BAI FORER 7 04958 R 05045 M

CLEAR PRINT AREA

 CS POUT&50 6 04965 / 09750
 MRCG MESS15&X3,POUT 12 04971 D 074C2 09700 \$
 W POUT 10 04983 M 220 09700 M
 BCBI *-16 7 04993 R 04983 Z
 BAI PERR 7 05000 R 05531 M
 BNQ PALT 7 05007 J 01005 Q
 BCE SPSUP&7,TAD1,1 12 05014 B 04907 01001 I
 MLCS 9999,SST 12 05026 D 09999 07018 3

SPSUPR B 0 7 05038 J 00000

W002 - PRINTER FOR MS CONTROL TEST

CT ADDR INSTRUCTION

LABEL OPCOD OPERAND

FORMS CONTROL ERROR ROUTINE

FORER	SBR	MLCA	SAR	A	MLNA	B	MLCB	BCE	B	DCM	G	STIND	G	BCE	DCW	G	MLNA	H	H	G	ZERDS	G	DCW	ORG
FORER	FORERR&5																							
	MOVEI&5																							
MOVEI	S	&15,MOVEI&5																						
	MLCA	O,FMESS&9																						
	SAR	LOC																						
	A	&1,LOC																						
	MLNA	LOC,FMESS&20																						
	B	TINDI																						
	MLCB	WKAI,STIND																						
	BCE	FHALT,TADO,1																						
	B	PRT1																						
	DCM	@ INSTR. LOC.																						
FMESS	G	@ IND SET @																						
	G	@ @,G																						
STIND	G	NRDY,WKAI-4,1																						
	G	@N @																						
	G	@N @																						
FHALT	BCE	*&2,TAD2,																						
	H																							
FORERR	B	0																						
NRDY	B	PRT1																						
	DCW	@ 1403 NOT READY@,G																						
	MLNA	LOC,*&6																						
	H	0																						
	H																							
	G																							
ZERDS	G	DCW	000000																					

GO TO SAVE INDICATORS
SET STATUS IND SET IN MESSAGE

STATUS INDICATORS SET

FIELD OF ZEROS

W002 - PRINTER FOR MS CONTROL TEST

LABEL OPCOD OPERAND

PRINT ERROR-ERROR ROUTINE

CT	ADDRS	INSTRUCTION
7	05531	G 05732 B
7	05538	G 05561 B
11	05545	S 09606 05561
12	05556	D 00000 05641 T
7	05568	G 07023 A
11	05575	A 09607 07023
12	05586	D 07023 05652 /
7	05598	J 05936
12	05605	B 05714 01000 1
7	05617	J 01086
29	05624	
12	05654	B 05242 06979 1.
12	05666	B 05734 06980 4
12	05678	B 05782 06981 8
12	05690	B 05857 06983 B
12	05702	B 05897 06982 A
12	05714	B 05727 01002
1	05726	.
7	05727	J 00000

GO TO SAVE INDICATORS

LOC. 0.6

PERR

SBR

PERREX&5

MOVEP

S

&15,MOVEP&5

PHALT

BCE

PHALT,TAD0,1

PHALT

B

*&2,TAD2,

PERREX

B

0

W002 - PRINTER FOR MS CONTROL TEST

LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
PDCK	B	PRT1	7	05734	J 01086
	DCW	@ CPU TO 1414 III DATA XFER ERROR @,G	33	05773	
	B	PHALT	7	05775	J 05714
PCOND G	MLCB	POUT&30,LIMSS	12	05782	D 09730 05836 L
	B	PRT1	7	05794	J 01086
G	DCW	@ S/B @	5	05805	
		@	31	05836	@,G
LIMSSG G	DCW	@N @	12	05849	
	B	PHALT	7	05850	J 05714
PWLR	B	PRT1	7	05857	J 01086
	DCW	@ 1403 WRONG LENGTH RECORD@,G	25	05888	
	B	PHALT	7	05890	J 05714
PNT	B	PRT1	7	05897	J 01086
	DCW	@ 1403 NO TRANSFER ERROR@,G	23	05926	
	B	PHALT	7	05928	J 05714
	H		1	05935	.

STATUS INDICATOR TEST ROUTINE

TIND1	SBR	TINDIR&5	MOVE INDICATORS
	MLCA	INDS,WKAI	
	BNR1	*&13	
	MLCS	9999,WKAI-4	SUBTRACT NOT READY
	BER1	*&13	
	MLCS	9999,WKAI-3	SUBTRACT DATA CK
	BEF1	*&13	
	MLCS	9999,WKAI-2	SUBTRACT CONDITION
	BNT1	*&13	
	MLCS	9999,WKAI-1	SUBTRACT NO XFER
	BWLI	*&13	
	MLCS	9999,WKAI	SUBTRACT WLR
TINDLR	B	0	

7 05936 G 06055 B
 12 05943 D 06978 06983 T
 7 05955 R 05974 1
 12 05962 D 09999 06979 3
 7 05974 R 05993 4
 12 05981 D 09999 06980 3
 7 05993 R 06012 8
 12 06000 D 09999 06981 3
 7 06012 R 06031 B
 12 06019 D 09999 06982 3
 7 06031 R 06050 -
 12 06038 D 09999 06983 3
 7 06050 J 00000

W002 - PRINTER FOR MS CONTROL TEST

CT ADDR INSTRUCTION

LABEL OPCOD OPERAND

* COME HERE TO TYPE IDENT

INDID SBR INDIR&S
 BAI *&I
 WCP 1250
 BAI *-16
 INDIR B 0

TYPE IDENT.

* SPACE SUPPRESS ROUTINE

SSUP B PRTI
 DCW @REQ.SPACE SUPPRESS TAD&.G
 RCP SST
 BEXI *-16,M S
 BAI *&I
 BCE SPSUP.SST.1

GO TO TEST NEXT CHAN

CHANR B 0

END
 BCE 2000.TAD3.1
 BCE 400.TAD0.1
 B PRTI
 DCW @W002 EOJ&.G
 B 400

7 06057 G 06093 B
 7 06064 R 06071 M
 10 06071 M 3T0 01250 W
 7 06081 R 06071 M
 7 06088 J 00000

7 06095 J 01086
 22 06123
 10 06125 M 3T0 07018 R
 7 06135 R 06125 M
 7 06142 R 06149 M
 12 06149 B 04900 07018 I
 7 06161 J 00000

12 06168 B 02000 01003 I
 12 06180 B 00400 01000 I
 7 06192 J 01086
 9 06207
 7 06209 J 00400

0002 - PRINTER FOR MS CONTROL TEST

CT ADDR INSTRUCTION

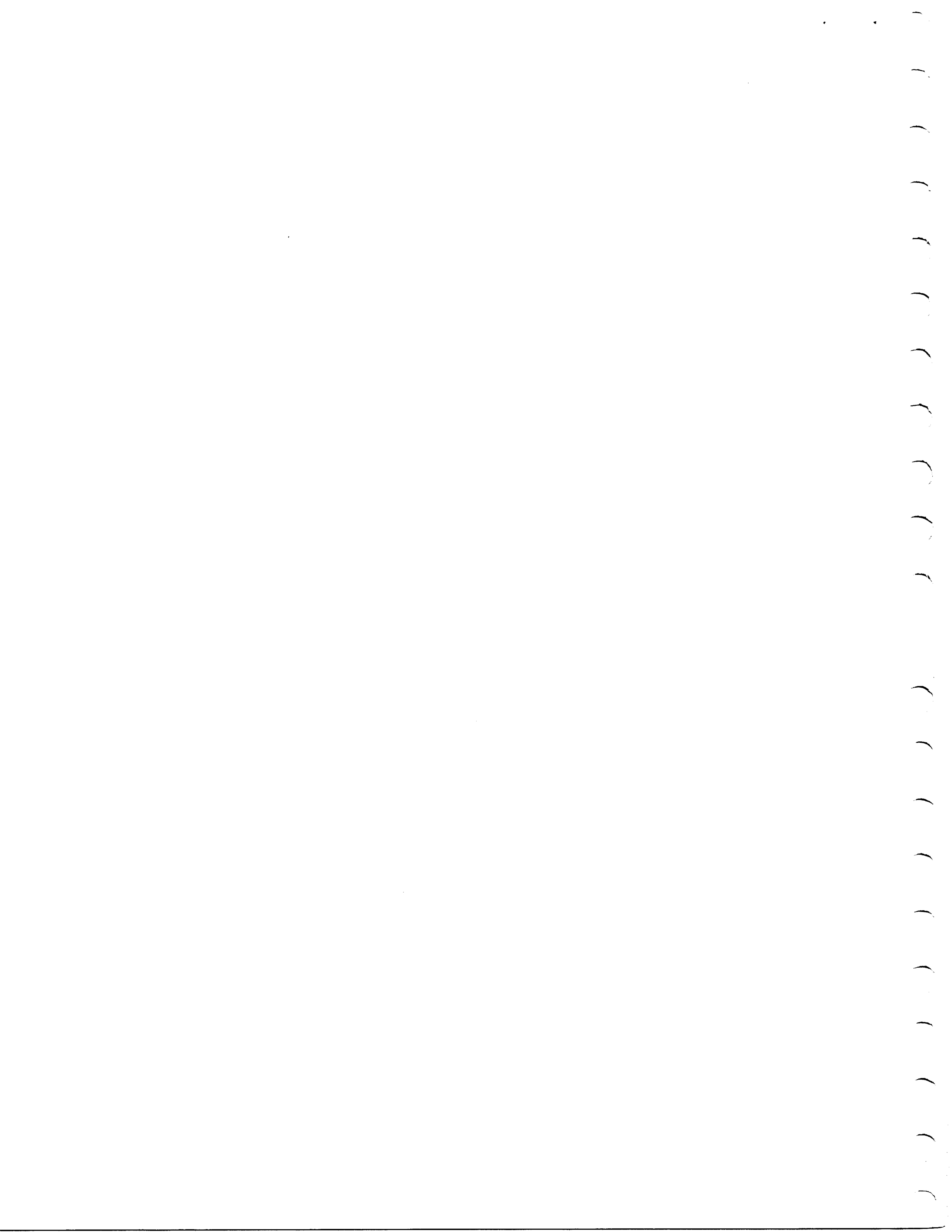
LABEL OPCODE OPERAND

* CHANNEL ALTER ROUTINE

Label	Opcode	Operand	CT	Addr	Instruction
CHSTT	SBR	CHSTTR&S	7	06216	G 06591 B
	MLNA	STARAD,SCAN&10	12	06223	D 06936 06268 /
	SW	25	6	06235	. 00025
	S	29	6	06241	S 00029
	A	&1,29	11	06247	A 09607 00029
SCAN	SCANLB	9999,0	12	06258	D 09999 00000 -
	SBR	ADDHLD	7	06270	G 06931 B
	A	ONE,ADDHLD	11	06277	A 07034 06931
	C	ADDHLD,STOPAD	11	06288	C 06931 06941
	BE	CHSTTR	7	06299	J 06586 S
	MLNA	ADDHLD,*&6	12	06306	D 06931 06323 /
	MLCS	0,*&12	12	06318	D 00000 06341 3
	BCE	CHINS,K1,M	12	06330	B 06397 06906 M
	BCE		1	06342	B
	BCE		6	06343	B 06428
	BCE	STINS	1	06349	B
	BCE		1	06350	B
	BCE		1	06351	B
	BCE		6	06352	B 06459
	BCE	OLINS	6	06358	B 06822
	BCE	FORMS	1	06364	B
	BCE		1	06365	B
	BCE		1	06366	B
UPDATE	S	&1,ADDHLD	11	06367	S 09607 06931
	MLNA	ADDHLD,SCAN&10	12	06378	D 06931 06268 /
	B	SCAN	7	06390	J 06258
CHINS	MLNA	ADDHLD,*&11	12	06397	D 06931 06419 /
	MLCS	CHCODE,0&X1	12	06409	D 06944 000#0 3
	B	UPDATE	7	06421	J 06367
STINS	MLNA	ADDHLD,*&11	12	06428	D 06931 06450 /
	MLCS	CHSTAT,0	12	06440	D 06943 00000 3
	B	UPDATE	7	06452	J 06367
OLINS	A	&6,ADDHLD	11	06459	A 09608 06931
	MLNA	ADDHLD,*&6	12	06470	D 06931 06487 /

W002 - PRINTER FOR MS CONTROL TEST

LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
	MLCS	0,*&12	12	06482	D 00000 06505 3
	BCE	OL,K2,1	12	06494	B 06555 06926 1
	BCE		1	06506	B
	BCE		1	06507	B
	BCE		1	06508	B
	BCE	BPCB0	6	06509	B 06593
	BCE		1	06515	B
	BCE	BCB0	6	06516	B 06815
	BCE		1	06522	B
	BCE	CH12	6	06523	B 06667
	BCE		1	06529	B
	BCE	CH9	6	06530	B 06741
	BCE		1	06536	B
REDUCE	S	&6,ADDHLD	11	06537	S 09608 06931
	B	UPDATE	7	06548	J 06367
OL	MLNA	ADDHLD,*&11	12	06555	D 06931 06577 /
	MLCS	BOLOM,0	12	06567	D 06942 00000 3
	B	REDUCE	7	06579	J 06537
CHSTTR	B	0	7	06586	J 00000
BPCB0	BCE	*&32,BOLOM,2	12	06593	B 06636 06942 2
	MLNA	ADDHLD,*&11	12	06605	D 06931 06627 /
	MLCS	K2-4,0	12	06617	D 06922 00000 3
	B	REDUCE	7	06629	J 06537
	MLNA	ADDHLD,*&11	12	06636	D 06931 06658 /
	MLCS	K2-5,0	12	06648	D 06921 00000 3
	B	REDUCE	7	06660	J 06537
CH12	BCE	*&32,BOLOM,2	12	06667	B 06710 06942 2
	MLNA	ADDHLD,*&11	12	06679	D 06931 06701 /
	MLCS	K2-8,0	12	06691	D 06918 00000 3
	B	REDUCE	7	06703	J 06537
	MLNA	ADDHLD,*&11	12	06710	D 06931 06732 /
	MLCS	K2-9,0	12	06722	D 06917 00000 3
	B	REDUCE	7	06734	J 06537
CH9	BCE	*&32,BOLOM,2	12	06741	B 06784 06942 2
	MLNA	ADDHLD,*&11	12	06753	D 06931 06775 /
	MLCS	K2-10,0	12	06765	D 06916 00000 3
	B	REDUCE	7	06777	J 06537



CT ADDR INSTRUCTION

LABEL OPCOD OPERAND

LABEL	OPCOD	OPERAND	CT	ADDR	INSTRUCTION
•					
•		PROGRAM CONSTANTS			
•					
CH1U	DCH	axa	1	06946	
CH2U		axa	1	06947	
	G	00	2	06949	
CH1S		axa	1	06950	
CH2S		axa	1	06951	
	G	00	2	06953	
SIZE		0	1	06954	
CHSV		0	1	06955	
ADD1		TINDIR	5	06960	06050
ADD2		START	5	06965	03062
ADD4		00382	5	06970	
CHAIN		0	1	06971	
ALPH		axa	1	06972	
NUM		ana	1	06973	
INDS		a148ABa	5	06978	
WKAL		a a a	5	06983	
ADD5		SKIPA	5	06988	04306
ADD6		SKIPI	5	06993	03711
ACCUM		000000	6	05999	
TOTAL	G	180000	6	07005	
TIMX	G	042	3	07008	
TIMI	G	121	3	07011	
TIM10	G	149	3	07014	
TIMC		000	3	07017	
SST		a a	1	07018	
LOC		00000	5	07023	
ORER		0	1	07024	
RSTART		aJ02000 a.g	7	07025	
WMGM		axa	1	07033	
ONE		1	1	07034	
TWO		2	1	07035	
THREE		3	1	07036	
FOUR		4	1	07037	
FIVE		5	1	07038	

CT ADDR INSTRUCTION

LABEL OPCOD OPERAND

SIX	6	1	07039	
SEVEN	7	1	07040	
EIGHT	8	1	07041	
NINE	9	1	07042	
ZERO	0	1	07043	
	a#0	1	07044	
	a00	1	07045	
MODS	a 10	2	07047	
	a 20	2	07049	
	a 30	2	07051	
	a 40	2	07053	
	a 50	2	07055	
	a 60	2	07057	
	a 70	2	07059	
	a 80	2	07061	
	a 90	2	07063	
	a100	2	07065	
	a110	2	07067	
	a120	2	07069	
AMODS	aA0	1	07070	
	aB0	1	07071	
	aC0	1	07072	
	aD0	1	07073	
	aE0	1	07074	
	aF0	1	07075	
	aG0	1	07076	
	aH0	1	07077	
	aI0	1	07078	
	aM0	1	07079	
	a.a	1	07080	
	a00	1	07081	

INSTRUCTION

CT ADDR

OPCOD OPERAND

MESS1	DCH	@ SPACE 1 AFTER PRINT@,G	20	07082
MESS3		@ SPACE 2 AFTER PRINT@,G	20	07103
MESS4		@ SPACE 3 AFTER PRINT@,G	20	07124
MESS5		@ SPACE 1 IMMEDIATE @,G	20	07145
MESS6		@ SPACE 2 IMMEDIATE @,G	20	07166
MESS7		@ SPACE 3 IMMEDIATE @,G	20	07187
MESS8		@ SKIP TO CHANNEL IMMEDIATE @,G	31	07208
MESS9		@ TEST BRANCH ON CHANNEL 9,1403 @,G	31	07240
MESS10		@ TEST BRANCH ON CHANNEL 12,1403@,G	31	07272
MESS11		@ SKIP TO CHANNEL AFTER PRINT@,G	31	07304
MESS12		@ TEST HIGH SPEED SKIP 2 TO 12 @,G	31	07336
MESS13		@ HIGH SPEED SKIP O.K. @,G	31	07368
MESS14		@ SPACE SUPPRESS PRINTER ERROR @,G	31	07400
MESS15		@ SPACE SUPPRESS PRINTER XXXX @,G	31	07432
MESS2		@ 00000 1 00000 00000@,G	20	07464
		@ 00000 2 0000000000@,G	20	07504
		@ 00000 3 0000000000@,G	20	07525
		@ 11111 1 1111111111@,G	20	07546
		@ 11111 2 1111111111@,G	20	07567
		@ 11111 3 1111111111@,G	20	07588
		@ 2222 22 222222 22222222 @,G	31	07620
		@ 7777 777777 77 7777777 9,7777 @,G	31	07652
		@ 8888 888888 88 8888888 12,8888@,G	31	07684
		@ 3333 33 3333333 3333333333@,G	31	07716
		@ ---- - - - - - - - - - - 2 -- 12 @,G	31	07748
		@ ##### ##### ##### @,G	31	07780
		@ ///// ///// ///// ///// ///// @,G	31	07812
		@ ///// ///// ///// ///// ///// \$\$\$ @,G	31	07844

9700 09700 09600

ORG 9700
DA 1X132,G
ORG 9600

POUT

PST
END 2000
ORER
L15
L1
L6

J02000
5 09604 07024
2 09606
1 09607
1 09608

046

SUMMARY**TITLE**

W002 1403 Forms Control Test

PURPOSE

To test all possible forms control operations associated with a printed line such that a visual check for correctness can be made.

LOADING PROCEDURES

See Loading Procedures.

SYSTEM AND CHANNEL CONTROL CARDS

This program must have the system and channel configuration punched correctly. (See instruction in INTRODUCTORY MATERIAL.)

TADS

Do not enter any TADs for normal operation. Normally set OFF (1).

STANDARD TADS

<u>TAD</u>	<u>Location</u>			
TAD 0	01000	OFF	1	Typeout
		ON	1	Bypass typeouts
TAD 1	01001	OFF	1	Proceed to next routine
		ON	1	Repeat the routine
TAD 2	01002	OFF	1	Bypass error halts
		ON	1	Halt on error
TAD 3	01003	OFF	1	One pass of program
		ON	1	Repeat program

NO SPECIAL TADS ARE USED

UNITS TESTED

1403 Printer

SEE PROGRAM WRITE-UP FOR DETAILS.

