

CONTROL DATA[®] SMM17

Program Listings

PTP

CONTROL DATA
CORPORATION

CUSTOMER ENGINEERING MANUAL

PTP003

PAGE 2

DATE: 10/20/75

0050
0051
0052
0053
0054
0055

```
*      11 0900    TAPE SUPPLY LOW    *  
*      12                *  
*      T0        NOT USED            *  
*      15                *  
*  
*****
```

00050
00051
00052
00053
00054
00055

0057

* ERROR CODES(HEXIDECIMAL)

00057

0059	* ERROR 1 - EXTERNAL REJECT ON A CLEAR EQUIPMENT FUNCTION. CHECK	00059
0060	*EQUIPMENT ADDRESS FOR CORRECT CODE.	00060
0061	* ERROR 2 - INTERNAL REJECT ON AN EQUIPMENT CLEAR FUNCTION. SEE	00061
0062	*ERROR 1.	00062
0063	*ERROR 3 - EXTERNAL REJECT ON STATUS. SEE ERROR 1.	00063
0064	*ERROR 4 - INTERNAL REJECT ON STATUS. SEE ERROR 1.	00064
0065	* ERROR 5 - AFTER AN EQUIPMENT CLEAR, ONLY POWER ON AND READY STATUS	00065
0066	*BITS SHOULD BE SET.	00066
0067	* ERROR 6 - EXTERNAL REJECT ON A DATA INTERRUPT REQUEST FUNCTION.	00067
0068	* ERROR 7 - INTERNAL REJECT ON A DATA INTERRUPT REQUEST FUNCTION.	00068
0069	* ERROR 8 - EXTERNAL REJECT ON A START MOTION FUNCTION.	00069
0070	* ERROR 9 - INTERNAL REJECT ON A START MOTION FUNCTION.	00070
0071	* ERROR A - EXTERNAL REJECT ON STATUS AFTER OUTPUTTING A START MOTION.	00071
0072	* ERROR B - INTERNAL REJECT ON STATUS AFTER OUTPUTTING A START MOTION.	00072
0073	* ERROR C - AFTER OUTPUTTING AN EQUIPMENT CLEAR AND START MOTION FUNCTIO	00073
0074	* ONLY POWER ON, BUSY, AND READY STATUS BITS SHOULD HAVE BEEN	00074
0075	*SET. CHECK STATUS.	00075
0076	* ON ERRORS 1 TO C	00076
0077	* THE TEST WILL REPEAT IN THE SAME LOOP UNTIL THE ERROR CONDITION IS	00077
0078	* CORRECTED. ON ERRORS 5 AND C STATUS BITS, TAPE LOW, ALARM AND PROTECT	00078
0079	*ARE NOT CHECKED. THE CHECKING OF THESE BITS IS DONE IN THE PUNCH FRAME	00079
0080	* DRIVER (SEE LISTING TAG PPT).	00080
0081	* ERROR D - EXTERNAL REJECT ON A CLEAR OR REQUEST INTERRUPT FUNCTION.	00081
0082	* ERROR E - INTERNAL REJECT ON A CLEAR OR REQUEST INTERRUPT FUNCTION.	00082
0083	* THIS ERROR WILL REPEAT ON THE SAME LOOP UNTIL THE ERROR	00083
0084	* CONDITION IS CORRECTED.	00084
0085	* ERROR F - EXTERNAL REJECT ON A STOP MOTION AND CLEAR INTERRUPT	00085
0086	* FUNCTION.	00086
0087	* ERROR 10 - INTERNAL REJECT ON A STOP MOTION AND CLEAR INTERRUPT	00087
0088	* FUNCTION.	00088
0089	* ERRORS 11 AND 12 ARE NOT USED.	00089
0090	* ERROR 13 - EXTERNAL REJECT ON STATUS AFTER OUTPUTTING A CLEAR INTERRUPT	00090
0091	* AND STOP MOTION FUNCTION.	00091
0092	* ERROR 14 - INTERNAL REJECT ON STATUS AFTER OUTPUTTING A CLEAR INTERRUPT	00092
0093	* AND STOP MOTION FUNCTION.	00093
0094	* ERROR 15 - AFTER OUTPUTTING A STOP MOTION AND CLEAR INTERRUPT FUNCTION	00094
0095	*ONLY POWER ON AND READY STATUS SHOULD HAVE BEEN SET.	00095
0096	* BEFORE ERRORS F TO 15 THE TEST DELAYS 10MS. TO ALLOW THE LAST FRAME TO	00096
0097	* BE PUNCHED AND BUSY STATUS TO DROP. ALSO THE TEST WILL REPEAT IN THE	00097
0098	* SAME LOOP UNTIL THE ERROR CONDITION IS CORRECTED. ERROR 15 DOES NOT	00098
0099	* CHECK FOR TAPE LOW, ALARM AND PROTECT STATUS BITS.	00099
0100	* ERROR 16 = EXTERNAL REJECT ON A CLEAR INTERRUPT FUNCTION.	00100
0101	* ERROR 17 - INTERNAL REJECT ON A CLEAR INTERRUPT FUNCTION.	00101
0102	* ERROR 18 - EXTERNAL REJECT ON A DATA INTERRUPT REQUEST FUNCTION.	00102
0103	* ERROR 19 - INTERNAL REJECT ON A DATA INTERRUPT REQUEST FUNCTION.	00103
0104	* ERRORS 1A TO 1F ARE NOT USED.	00104
0105	* ERROR 20 - EXTERNAL REJECT ON A CLEAR INTERRUPT OR DATA INTERRUPT	00105
0106	* REQUEST FUNCTION.	00106

0107	* ERROR 21 - INTERNAL REJECT ON A CLEAR INTERRUPT OR DATA INTERRUPT	00107
0108	* REQUEST FUNCTION.	00108
0109	* ERROR S 22 AND 23 ARE NOT USED.	00109
0110	* ERROR 24 - EXTERNAL REJECT ON STATUS JUST BEFORE OUTPUTTING THE	00110
0111	* NEXT FRAME OF DATA.	00111
0112	* ERROR 25 - INTERNAL REJECT ON STATUS JUST BEFORE OUTPUTTING THE	00112
0113	* NEXT FRAME OF DATA.	00113
0114	* ERROR 26 - EXTERNAL REJECT WHEN OUTPUTTING FRAME OF DATA.	00114
0115	* ERROR 27 - INTERRUPT STATUS (BIT 2) IS SET, ONLY DATA INTERRUPT	00115
0116	* REQUESTED BUT DATA READY STATUS IS NOT SET.	00116
0117	* ERROR 28 - INTERRUPT BIT IS SET, BUT DATA INTERRUPT AND ALARM INTERRUPT	00117
0118	* BITS ARE CLEAR.	00118
0119	* ERROR 29 - INTERRUPT AND DATA READY BITS SET, BUT INTERRUPT MODE IS NOT	00119
0120	* SELECTED BY THE PROGRAM.	00120
0121	* ERROR 2A = ALARM STATUS UP AND TAPE BREAD STATUS UP. THE TEST WILL	00121
0122	* HANG HERE UNTIL THE BREAK IS REPAIRED AND THE PUNCH MADE	00122
0123	* READY.	00123
0124	* ERROR 2B = ALARM STATUS IS SET BUT NO ALARM BIT CAN BE FOUND, POWER ON	00124
0125	* IS SET AND TAPE BREAD AND TAPE LOW ARE RESET.	00125
0126	* ERROR 2C - START MOTION HAS BEEN OUTPUTTED AND READY STATUS IS SET.	00126
0127	* BUT BUSY IS RESET.	00127
0128	* ERROR 2D - POWER ON STATUS NOT SET	00128
0129	* ERROR 2E - THE PUNCH HAS DROPPED READY AND WILL HANG HERE UNTIL IT IS	00129
0130	* MADE READY AGAIN BY THE OPERATOR.	00130
0131	* ERROR 2F - UNIDENTIFIED INTERRUPT.	00131
0132	* ERROR 30 - ALARM IS SET AND POWER ON IS RESET. CHECK STATUS.	00132
0133	* ERROR 31 - EXTERNAL REJECT ON STATUS.	00133
0134	* ERROR 32 - INTERNAL REJECT ON STATUS.	00134
0135	* ERROR 33 - EXTERNAL REJECT ON A START MOTION FUNCTION.	00135
0136	* ERROR 34 - INTERNAL REJECT ON A START MOTION FUNCTION.	00136
0137	* ERROR 35 - EXTERNAL REJECT ON STATUS WHEN ENTERING INTERRUPT PROCESSOR	00137
0138	* OR AFTER MAKING PUNCH READY AND STARTING MOTION FOLLOWING A TAPE BREAK.	00138
0139	* ERROR 36 - INTERNAL REJECT ON STATUS WHEN ENTERING INTERRUPT PROCESSOR	00139
0140	* OR AFTER MAKING PUNCH READY AND STARTING MOTION FOLLOWING A TAPE BREAK.	00140
0141	* ERROR 40 - TIMEOUT WAITING FOR AN INTERRUPT	PTC2 00141
0142	* ERROR 41 - VALIDATION ERROR- STATUS BIT 6 SET	***00142

0144	0001	EQU	CONTROL(1)	RETURN SMH CONTROL ADDRESS.	00144
0145	0002	EQU	STOPX(CONTROL+1)	ALL STOPS AND ERROR TYPEOUTS	00145
0146	0003	EQU	EXIT(STOPX+1)	END OF TEST-PASS EXIT	00146
0147	0004	EQU	NONDATAINT(EXIT+1)	REQUEST INTERRUPT ADDRESS	00147
0148	0005	EQU	FCLRINT(NONDATAINT+1)	FAKE INTERRUPT CLEAR ROUTINE	00148
0149	0006	EQU	JUMPX(NONDATAINT+2)	CHECK SKIPSWITCH FOR PARAM ENTRY	00149
0150	0007	EQU	GENRAN(JUMPX+1)	RANDOM NUMBER GENERATOR	00150
0151	0008	EQU	TYPEOUT(GENRAN+1)	MESSAGE TYPEOUT ROUTINE	00151
0152	0009	EQU	TTYBZY(TYPEOUT+1)	ROUTINE TO WAIT TTY NOT BUSY.	00152
0153	000A	EQU	HEXASC(TYPEOUT+2)	HEX TO ASCII CONVERSION	00153
0154	000B	EQU	OVRLAY(HEXASC+1)	OVERLAY CALL ROUTINE.	00154
0155	000C	EQU	RELPOS(OVRLAY+1)	A/Q RELATIVE POSITION TEST.	00155
0156	000D	EQU	MAINL(RELPOS+1)	MANUAL INTERRUPT ROUTINE.	00156
0157	0042	EQU	SETHASK(MAINL+53)	M REGISTER RESET VALUE.	00157
0158	0043	EQU	STJP(SETHASK+1)	STOP/JUMP PARAMETER WORD.	00158
0159	0044	EQU	LASTVALU(STJP+1)	MONITOR AREA LWA+1	00159
0160	0045	EQU	LASTAD(STJP+2)	AVAILABLE LOAD CORE FWA.	00160
0161	0047	EQU	LOLCORE(LASTAD+2)	BANK0 LAST ADDR	00161
0162	0048	EQU	LOL1COR(LOLCORE+1)	BANK1 LAST ADDR	00162
0163	0049	EQU	INFORM(LOL1COR+1)	BKO SIZE, MASK SIZE, BUSY SWITCH	00163
0164	0056	EQU	SMMCNT(INFORM+13)	SMH PARAMETER WORD.	00164
0165	0068	EQU	BIT00(SMMCNT+21)	XXXXXXXX CONSTANT TABLE XXXXXXXX	00165
0166	0069	EQU	BIT0(BIT00)		00166
0167	006C	EQU	BIT1(BIT0+1)		00167
0168	006D	EQU	BIT2(BIT1+1)		00168
0169	006E	EQU	BIT3(BIT2+1)		00169
0170	006F	EQU	BIT4(BIT3+1)		00170
0171	0070	EQU	BIT5(BIT4+1)		00171
0172	0071	EQU	BIT6(BIT5+1)		00172
0173	0072	EQU	BIT7(BIT6+1)		00173
0174	0073	EQU	BIT8(BIT7+1)		00174
0175	0074	EQU	BIT9(BIT8+1)		00175
0176	0075	EQU	BIT10(BIT9+1)		00176
0177	0076	EQU	BIT11(BIT10+1)		00177
0178	0077	EQU	BIT12(BIT11+1)		00178
0179	0078	EQU	BIT13(BIT12+1)		00179
0180	0079	EQU	BIT14(BIT13+1)		00180
0181	007A	EQU	BIT15(BIT14+1)		00181
0182	007B	EQU	H0000(BIT15+1)		00182
0183	007C	EQU	FFFF(H0000+1)		00183
0184	007D	EQU	H000F(HFFFF+1)		00184
0185	007E	EQU	H00F0(H000F+1)		00185
0186	007F	EQU	H0F00(H00F0+1)		00186
0187	0080	EQU	HF000(H0F00+1)		00187
0188	0081	EQU	H00FF(HF000+1)		00188
0189	0082	EQU	HFF00(H00FF+1)		00189
0190	0083	EQU	HFFF0(HFF00+1)		00190
0191	0084	EQU	H0FFF(HFFF0+1)		00191
0192	0085	EQU	HFF0F(H0FFF+1)		00192
0193	0086	EQU	HFOFF(HFF0F+1)		00193
0194	0087	EQU	H7FFF(HFOFF+1)		00194
0195	0088	EQU	H7F00(H7FFF+1)		00195
0196	0089	EQU	H0780(H7F00+1)		00196

0197	008A	EQU	H007F(H0780+1)		00197
0198	008B	EQU	H2020(H007F+1)		00198
0199	0091	EQU	TSACTV(H2020+6)	TABLE INDEX TO TEST IN CONTROL.	00199
0200	0092	EQU	TSFRFQ(TSACTV+1)	TEST, FREQUENCY TABLE	00200
0201	006B	EQU	CONST(BIT00)		00201
0202	0056	EQU	SMMPAR(SMMCNT)		00202
0203	0043	EQU	SJPAR(STJP)		00203
0204	0007	EQU	RANDOM(GENRAN)		00204
0205	000A	EQU	CONVERT(HEXASC)		00205
0206	0008	EQU	MESSAG(TYPEOUT)		00206
0207	0005	EQU	CLRND(FCLRINT)		00207
0208	0008	EQU	TYPE(TYPEOUT)		00208
0209	0043	EQU	SJ(STJP)		00209
0210	0003	EQU	TSEXIT(EXIT)		00210
0211	000A	EQU	CONV(HEXASC)		00211

0213	P0000	1808	PTP003	JMP*	START		00213
0214	P0001	5054		ALF	3,PTP003		00214
	P0002	5030					
	P0003	3033					
0215	P0004	0038	P	PARADR	ADC	CNTHRD-1	00215
0216	P0005	0929	P	RETURN	ADC	INITIAL	00216
0217	P0006	00C1		EQUIP	NUM	%C1	00217
0218	P0007	0002		INT1	NUM	%2	00218

0220	P0008	5823		START	RTJ* INPARA	RESTART FOR THE TEST	PTC2	00220
0221	P0009	1800		STWOP	JMP CNTRL	GET PARAMETERS AND GO TO CONTROL	PTC2	00221
	P000A	006A						

0223							PTC2	00223
0224							PTC2	00224
0225							PTC2	00225
0226							PTC2	00226
0227							PTC2	00227
0228							PTC2	00228
0229							PTC2	00229
0230							PTC2	00230

*****PTC2

* TRADE OFF CONTROL DURING

* WAIT FOR INTERRUPTS

* WILL ONLY TRADE OFF 1000 TIMES WAITING

* FOR THE INTERRUPT TO OCCURE - IF NOT

* THEN REPORT ERROR 40

*****PTC2

0232	P0008	C800		CHECK	LDA INTMODE	SMM WILL PASS CONTROL TO HERE	PTC2	00232
	P000C	0459						
0233	P000D	0105		SAZ	CHECK1	CHECK IF TEST IN INT MODE	PTC2	00233
0234	P000E	C81A		LDA*	COJNT1	TIMEOUT COUNTER	PTC2	00234
0235	P000F	0105		SAZ	CHECK2		PTC2	00235
0236	P0010	09FE		INA	-1		PTC2	00236
0237	P0011	6817		STA*	COJNT1		PTC2	00237
0238	P0012	5401		RTJ-	(CONTROL)	NO TIME OUT - RTN TO SMM	PTC2	00238
0239	P0013	1C00		CHECK1	JMP (DELAY)	TEST CURRENTLY IN CHARACTER MODE	PTC2	00239
	P0014	0391						
0240	P0015	C000		CHECK2	LDA =XCHECK4		00240	
	P0016	0026	P					
0241	P0017	E400		LDQ	STJP		00241	
	P0018	0043						
0242	P0019	0FA6		QLS	6		00242	
0243	P001A	0173		SQM	CHECK3	CHEK IF NO BIAS REQUIRED	00243	
0244	P001B	9000		SUB	=XPTP003		00244	
	P001C	0000	P					
0245	P001D	680A		STA*	CHECK4+1	SET DISPLAY RTN ADDR	00245	
0246	P001E	C800		CHECK3	LDA SECTIONS		00246	
	P001F	004F						

0247	P0020	8071	ADD- BIT6	SET ERROR 40	00247
0248	P0021	6805	STA* CHECK4	SET SECT/ERROR	00248
0249	P0022	0844	CLR A		00249
0250	P0023	5402	RTJ- (STOPX)	REPORT ERROR 40	00250
0251	P0024	18EE	JMP* CHECK1		00251
0252	P0025	0308	NUM \$308		00252
0253	P0026	0000	CHECK4 NUM 0	SECT/ERR	00253
0254	P0027	0024	ADC CHECK4-2	RTN ADDR	00254
0255	P0028	0000	COUNT1 NUM 0		PTC2 00255

0257			*****	PTC2	00257
0258			*	PTC2	00258
0259			*	PTC2	00259
0260			INITIALIZE AND GET PARAMETERS	PTC2	00260
0261			TEST PARAMETERS-	PTC2	00261
0262			CNTWRD-	PTC2	00262
0263			BITS-	PTC2	00263
0264			14 RUN TEST WITH 8 LEVEL PATTERNS	PTC2	00264
0265			13 RUN TEST WITH 7 LEVEL PATTERNS	PTC2	00265
0266			12 RUN TEST WITH 5 LEVEL PATTERNS	PTC2	00266
0267			ONLY ONE BIT MAY BE SET IN THIS GROUP	PTC2	00267
0268			11 1 = RUN TEST ENTIRELY IN INTERRUPT MODE	PTC2	00268
0269			0 = RUN TEST IN BLTH INT AND CHARACTER MODE	PTC2	00269
0270			10 1 = OMIT DELAY IN CHARACTER MODE	PTC2	00270
0271			0 = INCLUDE DELAY IN CHARACTER MODE	PTC2	00271
0272			7-0 TEST SECTIONS	PTC2	00272
0273			*	PTC2	00273
0274			*****	PTC2	00274

0276	P0029	5800	INITIAL RTJ INIT1		00276
	P002A	0538			
0277	P002B	0000	INPARA NUM \$0	INPUT PARAMETERS	00277
0278	P002C	C800	LDA* CNTWRD		00278
0279	P002D	A810	AND* INPAR2	REMOVE BIT10	PTC2 00279
0280	P002E	E83E	LDQ* INMONLY	INTERRUPT MODE ONLY FLAG	PTC2 00280
0281	P002F	0141	SQZ 1		00281
0282	P0030	0874	EAQ A		00282
0283	P0031	6808	STA* CNTWRD		00283
0284	P0032	5800	RTJ CHCHM	SWITCH TO CHARACTER MODE	PTC2 00284
	P0033	02E8			
0285	P0034	C000	LDA =XPTP003		00285
	P0035	0000			
0286	P0036	5402	RTJ- (STOPX)	PARAMETER STOP	00286
0287	P0037	1808	JMP* INPAR1		00287
0288		0038	ORG *		00288
0289	P0038	0331	NUM \$0331	STOP ID	00289

0291	P0039	403F	CNTWRD	NUM	\$403F	CONTROL WORD		00291
0292	P003A	001E	REPEAT	NUM	30	REPEAT PATTERN CYCLE COUNT	PTC2	00292
0293	P0039	0C00	DELAYA	NUM	\$0C00	INCREASE DELAY CHAR TO INT MODE, LESS BETW	PTC2	00293
0294	P003C	0F00	DELAYB	NUM	\$0E00		PTC2	00294
0295	P003D	0400	DELAYC	NUM	\$0400	DECREASE DELAY INT TO CHAR MODE SWITCHING	PTC2	00295
0296	P003E	0002	INT11	NUM	2	INTERRUPT LINE ASSIGNMENT		***00296
0298	P003F	5800	INPAR1	RTJ	CHINH	SET UP FOR INT MODE IF IT WAS IN IT BEFORE		00298
	P0040	02FF						
0299	P0041	C8F7		LDA*	CNTWRD			00299
0300	P0042	A076		AND-	CONST+11		0800	00300
0301	P0043	6829		STA*	INMONLY	INITIALIZE INT ONLU FLAG	PTC2	00301
0302	P0044	C8F9		LDA*	INT11		PTC2	00302
0303	P0045	68C1		STA*	INT1	MOVE INT LINE BIT	PTC2	00303
0304	P0045	C8F2		LDA*	CNTWRD			00304
0305	P0047	A075		AND-	CONST+10		0400	00305
0306	P0048	6825		STA*	OMITDEL	INITIALIZE OMLU CHAR MODE DELAY	PTC2	00306
0307	P0049	1CE1		JMP*	(INPARA)			00307
0308	P004A	F7FF	INPAR2	NUM	\$F7FF			00308
0310	P004B	0000	CHJMP6	NUM	\$0	CHECK IF JUMP SWITCH 6 IS SET		00310
0311	P004C	C075		LDA-	CONST+10			00311
0312	P004D	5800		RTJ	JUMP	REDISPLAY PARAMETERS IF STOPD AND JMP 6 IS		00312
	P004E	02A6						
0313	P004F	1802		JMP*	CHJP1	YES JMUP 6 IS SET		00313
0314	P0050	1CFA		JMP*	(CHJMP6)	NO RETURN		00314
0315	P0051	58D9	CHJP1	RTJ*	INPARA			00315
0316	P0052	C81A	CHJP1A	LDA*	INMONLY			00316
0317	P0053	E800		LDQ	INTMODE			00317
	P0054	0411						
0318	P0055	0143		SQZ	CHJP2--*-1	INT MODE WAS SELECTED BEFORE **NO CHJP2		00318
0319	P0056	011C		SAN	CHJP4--*-1	YES INTS ONLY BEEN SELECTED NO CHJP4		00319
0320	P0057	0A02		ENA	2	NO CLEAR INTS REQUEST		00320
0321	P0058	1803		JMP*	CHJP3			00321
0322	P0059	0109	CHJP2	SAZ	CHJP4--*-1	INT ONLY BEEN SELECTED **NO CHJP4		00322
0323	P005A	0A04		ENA	4			00323
0324	P005B	E800	CHJP3	LDQ	PSTATUS	YES SELECT INTS		00324
	P005C	0447						
0325	P005D	0500		IIN	0	INHABIT INTERRUPT SO THAT YOU DONT GET		00325
0326			*			ONE RIGHT AFTER YOU REQUEST ONE		00326
0327	P005E	0800		NOP	0			00327
0328	P005F	0310		OUT	ERRD--*-1	REQUEST DATA INTERRUPT	**ER0E-0D**	00328
0329	P0060	0FC2		ALS	2			00329

PTP003

PAGE 10

DATE: 10/20/75

0330	P0061 6800	STA STATECH	IF INT SELECTED SET STATE CHANGE SW	00330
	P0062 0405			
0331	P0063 C8D5	CHJP4 LDA* CNTWRD		00331
0332	P0064 A076	AND- CONST+11		00332
0333	P0065 6800	STA INTMODE		00333
	P0066 03FF			
0334	P0067 0A10	ENA \$10	REPEAT CONDITIONS	00334
0335	P0068 5800	RTJ JUMP		00335
	P0069 0288			
0336	P006A 18E7	JMP* CHJP1A	YES	00336
0337	P006B 1CDF	JMP* (CHJMP6)		00337

0339	P006C 0000	INMONLY NUM \$0	RUN TEST IN INT MODE ONLY	00339
0340	P006D 0000	OMITDEL NUM \$0	OMIT DELAY IN CHAR MODE	00340
0341	P006E 0000	SECTION NUM \$0	SECTION NUMBER	00341

0343	P006F D37A	ERRE RAO* CTFRS		00343
0344	P0070 D879	ERRD RAO* CTFRS	IN REJECT	00344
0345	P0071 0A0C	ENA \$C		00345
0346	P0072 5878	RTJ* ERRORS		00346
0347	P0073 180E	JMP* CHJP1A		00347

0349	P0074	C892	CNTRL	LDA*	INT1		00349
0350	P0075	B06C		EOR-	CONST+1	CHECK INTERRUPT LINE	00350
0351	P0076	0115		SAN	CNTRL1--*--1	IS THIS PUNCH ON LOW SPEED	00351
0352	P0077	C88E		LDA*	EQUIP	MAYBE NOW CHECK EQUIP ADDR	00352
0353	P0078	A000		AND	=N\$FF80		00353
	P0079	FF80					
0354	P007A	B072		EOR-	CONST+7		00354
0355	P007B	010E		SAZ	CNTRL4--*--1	IS THIS PUNCH ON LOW SPEED	00355
0356	P007C	C88A	CNTRL1	LDA*	INT1	NO	00356
0357	P007D	0C0F		ENQ	15		00357
0358	P007E	0133	CNTRL2	SAM	CNTRL3--*--1		00358
0359	P007F	00FE		INQ	-1		00359
0360	P0080	0FC1		ALS	1	IN A TO INTERRUPT LINE	00360
0361	P0081	18FC		JMP*	CNTRL2	NUMBER IN Q	00361
0362	P0082	0814	CNTRL3	TRQ	A		00362
0363	P0083	0342		CLR	Q		00363
0364	P0084	206D		MUI-	CONST+2		00364
0365	P0085	8000		ADD	=N\$102	BUILD ADDRESS WHERE PROCESSOR	00365
	P0085	0102					
0366	P0087	0822		TRA	Q	ADDRESS WOULD BE STORED IF	00366
0367	P0088	C201		LDA-	1,0	THIS INT LINE WERE SELECTED	00367
0368	P0089	0119		SAN	CNTRL5--*--1	HAS THIS LINE BEEN SELECTED	00368
0369	P008A	6800	CNTRL4	STA	INTFLG	YES CLEAR FLG-NO OTHER	00369
	P0083	0384					
0370	P008C	E800		LJQ	EOJIP		00370
	P008D	FF78					
0371	P008E	C800		LDA	INT1		00371
	P008F	FF77					
0372	P0090	5404		RTJ-	(NONDATAINT)	REQUEST INTERRUPT LINE FROM SMM	00372
0373	P0091	0410	P REQINT	ADC	INTENTRY		00373
0374	P0092	1808		JMP*	CNT1B	CONTINUE	00374
0375	P0093	C201	CNTRL5	LOA-	1,0	YES	00375
0376	P0094	0822		TRA	Q		00376
0377	P0095	88FB		EOQ*	REQINT	DID THIS TEST ALREADY SELECT	00377
0378	P0095	0103		SAZ	CNT1B--*--1	THIS LINE	00378
0379	P0097	C8F9		LOA*	REQINT	NO	00379
0380	P0098	00FD		INQ	-2		00380
0381	P0099	6201		STA-	1,0		00381

0383	*****PTC2						00383
0384	*					PTC2	00384
0385	*					PTC2	00385
0386	*					PTC2	00386
0387	*					PTC2	00387
0388	*					PTC2	00388
0389	*					PTC2	00389
0390	*					PTC2	00390
0391	*					PTC2	00391
0392	*					PTC2	00392

CONTROL ROUTINE
 VERIFIES IF THE DEVICE ONLOW SPEED PKG OF TOHER CONFIGU
 BUILDS HEX INT LINE ASSIGNMENT
 REQUESTS INT LINE FROM MONITOR
 INITIALIZES MODE SWITCHES
 CLEARS THE PUNCH, CHECKS STATUS- ROY,RWR ON
 STARTS MOTIIN, CHECKS STATUS- ROY,BZY,DATA,PWR ON
 INITIALIZES INT WAIT COUNTER

0393	*	TRADES OFF TO SMM MONITOR	PTC2	00393
0394	*		PTC2	00394
0395	*	*****	PTC2	00395

0397	P009A	0844	CNT1B	CLR	A	YES			00397
0398	P0099	6800		STA	INTMODE	CLEAR INT MODE SWITCH-	INDICATE CHAR MODE	PTC2	00398
	P009C	03C9							
0399	P009D	6800		STA*	SECTION	CLEAR SECTION NUMBER		PTC2	00399
0400	P009E	C89A		LDA*	CNTWRD	START PUNCH IN INTERRUPT MODE			00400
0401	P009F	A8AA		AND*	INPAR2				00401
0402	P00A0	9076		EOR-	CONST+11	SET BIT 11 (INT MODE)		0800	00402
0403	P00A1	6897		STA*	CNTWRD				00403

0405	P00A2	E800	CNT1	LDQ	PSTATUS				00405
	P00A3	0400							
0406	P00A4	0A01		ENA	1				00406
0407	P00A5	033F		OUT	ERR1-*--1	CLEAR THE PUNCH	**ER01-02**		00407
0408	P00A6	023C		INP	ERR3-*--1		**ER03-04**		00408
0409	P00A7	6864		STA*	ERSTAT				00409
0410	P00A8	A000	CNT1A	AND	=N\$F75F	DO NOT CHECK PROTECT ALARM OR TAPE LOW BIT			00410
	P00A9	F75F							
0411	P00AA	0000		EOR	=N\$401	EXPECT POWER ON , READY		PTC2	00411
	P00AB	0401							
0412	P00AC	0101		SAZ	1				00412
0413	P00AD	1834		JMP*	ERR5	*** ERROR EXTER STATUS BITS	**ER05-****		00413
0414	P00AE	0A10		ENA	\$10				00414
0415	P00AF	5800		RTJ	JUMP	REPEAT CONDITIONS			00415
	P00B0	0244							

0416	P00B1	18F0		JMP*	CNT1	YES			00416
0417	P00B2	E800	CNT2	LDQ	PSTATUS	NO- CONTINUE		PTC2	00417
	P00B3	03F0							
0418	P00B4	0A20		ENA	\$20	START MOTION			00418
0419	P00B5	0325		OUT	ERR8-*--1		**ER08-09**		00419
0420	P00B6	0222		INP	ERRA-*--1		**ER0A-0B**		00420
0421	P00B7	6854		STA*	ERSTAT				00421
0422	P00B8	A8F0		AND*	CNT1A+1	DO NOT CHECK PROTECT ALARM OR TAPE LOW BIT			00422
0423	P00B9	8000		EOR	=N\$40B	EXPECT RDY, BZY, DATA, PWR ON		PTC2	00423
	P00BA	040B							

0424	P00B9	0101		SAZ	1				00424
0425	P00BC	181B		JMP*	ERRC	** ERROR EXTER STATUS BITS	**ER0C-****		00425
0426	P00BD	0A10		ENA	\$10				00426
0427	P00BE	5800		RTJ	JUMP	REPEAT CONDITIONS			00427
	P00BF	0235							
0428	P00C0	18F1		JMP*	CNT2	YES			00428
0429	P00C1	C000	CNT2A	LDA	=XCS00A	NO- SET UP FOR INT MODE		PTC2	00429
	P00C2	0113	P						

PTP003

PAGE 13

DATE: 10/20/75

0430	P00C3 6800	STA PPT	FORCE RTN ADDR FO SECTIONS START TO DRIVER	PTC2	00430
	P00C4 0339				
0431	P00C5 C987	LDA- H7FFF			00431
0432	P00C6 6800	STA COUNT1	SET INT WAIT LOOP COUNT	PTC2	00432
	P00C7 FF60				
0433	P00C8 C000	LDA =XCHECK	SET RETURN ADDR FOR AFTER TRADE OFF	PTC2	00433
	P00C9 0008 P				
0434	P00CA 6800	STA RETURN		PTC2	00434
	P00CB FF39				
0435	P00CC 6800	STA INTMODE	SET INT MODE SWITHC TO NON-ZERO (INT MODE)	PTC2	00435
	P00CD 0398				
0436	P00CE 6800	STA OKINT	OK FOR INT TO OCCURE-SET TO NON ZERO	PTC2	00436
	P00CF 0395				
0437	P00D0 6800	STA FIRSTINT	NON ZERO FOR FIRST INT FLAG	PTC2	00437
	P00D1 0392				
0438	P00D2 E800	LDQ PSTATUS			00438
	P00D3 0300				
0439	P00D4 0A04	ENA \$4	REQUEST DATA INTERRUPTS		00439
0440	P00D5 030A	OUT ERR6-* -1		**ER06-07**	00440
0441	P00D6 5401	RTJ- (CONTROL)	RETURN TO SHM		00441

PTP003

PAGE 14

DATE: 10/20/75

0443	P0007	D812	ERRC	RAO*	CTERS
0444	P0008	D811	ERRB	PAO*	CTERS
0445	P0009	D810	ERRA	RAO*	CTERS
0446	P000A	D80F	ERR9	RAO*	CTERS
0447	P000B	D80E	ERR8	RAO*	CTERS
0448	P000C	0A07		ENA	7
0449	P000U	580D		RTJ*	ERRORS
0450	P000E	1803		JMP*	CNT2

00443
00444
00445
00446
00447
00448
00449
00450

0452	P000F	D80A	EPR7	RAO*	CTERS
0453	P0009	D809	ERR6	RAO*	CTERS
0454	P00E1	D808	ERR5	RAO*	CTERS
0455	P00E2	D807	ERR4	RAO*	CTERS
0456	P00E3	D806	ERR3	RAO*	CTERS
0457	P00E4	D805	ERR2	RAO*	CTERS
0458	P00E5	D804	ERR1	RAO*	CTERS
0459	P00E6	0A00		ENA	0
0460	P00E7	5803		RTJ*	ERRORS
0461	P00E8	1899		JMP*	CNT1

00452
00453
00454
00455
00456
00457
00458
00459
00460
00461


```

0463 *****PTC2 00463
0464 * PTC2 00464
0465 * ERROR REPORTING PTC2 00465
0466 * PROCESS ERRORS 1 THROUGH C PTC2 00466
0467 * PTC2 00467
0468 *****PTC2 00468

```

```

0470 P00E9 0000 CTERS NUM $0 00470
0471 P00EA 0000 ERRORS NUM $0 00471
0472 P00EB 88FD ADD* CTERS 00472
0473 P00EC 68FC STA* CTERS FORM ERROR CODE PTC2 00473
0474 P00ED C800 LDA SECTIONS CUTRENT TEST SECTION PTC2 00474
      P00EE FF7F
0475 P00EF 88F9 ADD* CTERS 00475
0476 P00F0 6819 STA* SECERR FORM SSEE FOR MSG PTC2 00476
0477 P00F1 4800 STQ EREQUIP CURRENT HARDWARE ADDR PTC2 00477
      P00F2 001A
0478 P00F3 C800 LDA INTMODE 00478
      P00F4 0371
0479 P00F5 0101 SAZ 1 SKIP IF IN INT MODE PTC2 00479
0480 P00F6 0804 SET A 00480
0481 P00F7 6817 STA* MODE1 0= INT MODE, 1 = CHAR MODE PTC2 00481
0482 P00F8 0844 CLR A 00482
0483 P00F9 68EF STA* CTERS RESET ERROR COUNT PTC2 00483
0484 P00FA C8EF LDA* ERRORS 00484
0485 P00FB 680F STA* RETADR SET RTN ADDR IN MSG PTC2 00485
0486 P00FC C043 LDA- SJ 00486
0487 P00FD A074 AND- CONST+9 00487
0488 P00FE 0114 SAN OVER*-1 00488
0489 P00FF C80B LDA* RETADR 00489
0490 P0100 9000 SUB =XPTP003 BIAS IF NECESSARY PTC2 00490
      P0101 0000 P
0491 P0102 6808 STA* RETADR 00491
0492 P0103 5800 OVER RTJ CHCHM WAIT UNTILL PROGRAM CONTROL IS RETURN 00492
      P0104 0217
0493 P0105 0844 CLR A 00493
0494 P0106 5402 RTJ- (STOPX) 00494
0495 P0107 1808 JMP* ERROR1 00495
0496 P0108 0328 NUM $0328 STOP ID 00496
0497 P0109 0000 SECERR NUM $0 00497
0498 P010A 0000 RETADR NUM $0 00498
0499 P010B 0000 ERSTAT NUM $0 00499
0500 P010C 0000 EREQUIP NUM $0 0500
0501 P010D 0000 NUM $0 0501
0502 P010E 0000 MODE1 NUM $0 SET = INT MODE CLR = CHAR MODE 0502
0503 P010F 5800 ERROR1 RTJ CHINH SET UP FOR INT MODE IF IT WAS IN IT BEFORE 0503
      P0110 022F
0504 P0111 1CD8 JMP* (ERRORS) 00504

```

```

0506 *****PTC2 00506
0507 * PTC2 00507
0508 *          FORMAT TAPE LEADER PTC2 00508
0509 *          PTC2 00509
0510 *****PTC2 00510

```

```

0512 P0112 0000  FREQSW NUM *          FREQUENCY SWITCH          PTC2 00512
0513 P0113 0AF5  CS00A  ENA -10        SET FREQUENCY SWITCH FOR 10 FRAMES PTC2 00513
0514 P0114 68FD          STA* FREQSW          00514
0515 P0115 0844  CS00C  CLR  A          SET PUNCH CHARACTER TO ZERO        PTC2 00515
0516 P0116 5800          RTJ  PPT          WXIT TO DRIVER                    PTC2 00516
          P0117 02E6
0517 P0118 08F9          RAO* FREQSW          00517
0518 P0119 08F8          LDA* FREQSW          00518
0519 P011A 0101          SAZ  CS00D          SKIP AFTER 10 FRAMES              PTC2 00519
0520 P011B 18F9          JMP* CS00C          00520
0521 P011C E800  CS00D  LDQ          CNTWRD          ***00521
          P011D FF18
0522 P011E C977          LDA-          BIT12          ***00522
0523 P011F 08B4          LAQ          A          CHECK IF LEVEL 5 SELECTED        ***00523
0524 P0120 0102          SAZ          2          I3          ***00524
0525 P0121 0A1F          ENA          $1F          SET SECTION ID                    ***00525
0526 P0122 1807          JMP*          CS00D1          ***00526
0527 P0123 C078          LDA-          BIT13          ***00527
0528 P0124 08B4          LAQ          A          CHECK IF LEVEL 7 SELECTED        ***00528
0529 P0125 0102          SAZ          2          NO          ***00529
0530 P0126 0A7F          ENA          $7F          SET MASK IF YES                  ***00530
0531 P0127 1802          JMP*          CS00D1          ***00531
0532 P0128 C081          LDA-          H00FF          MUST BE 8 LEVEL SELECYED        ***00532
0533 P0129 5800  CS00D1  RTJ          PPT          PUNCH ONE FRAME OF ALL ONES     ***00533
          P012A 02D3

```

```

0535 P012B E800  CS00D  LDQ  CNTWRD          CONTROL WORD          00535
          P012C FF0C
0536 P012D C06B          LDA-  CONST          0001 00536
0537 P012E 0884          LAQ  A          00537
0538 P012F 0111          SAN  1          SECTION ONE ZIGZAG              00538
0539 P0130 1865          JMP*  CS200          NO          00539
0540 P0131 0844          CLR  A          CLEAR COMPLEMENT PATTERN SWITCH 00540
0541 P0132 6800          STA  COMPATEN          00541
          P0133 023B

```

0542 P0134 0C01
0543 P0135 C000
P0136 0195 P

ENQ 1
LDA =XCS200

00542
00543

0545

SECTION 1 ZIGZAG

00545

0547
0548 P0137 494B
0549 P0138 0FA8
0550 P0139 483C
0551 P013A 4800
P0139 FF32
0552 P013C 6845
0553 P013D E800
P013E FEFA
0554 P013F C077
0555 P0140 0884
0556 P0141 0104
0557 P0142 E000
P0143 0373 P
0558 P0144 0A1F
0559 P0145 180B
0560 P0146 C078
0561 P0147 0884
0562 P0148 0104
0563 P0149 E000
P014A 0371 P
0564 P014B 0A7F
0565 P014C 1804
0566 P014D E000
P014E 036F P
0567 P014F C081
0568 P0150 6800
P0151 021B
0569 P0152 4840
0570 P0153 5830
0571 P0154 0AF5
0572 P0155 683E
0573 P0156 C82C
0574 P0157 5800
P0158 02A5
0575 P0159 083A
0576 P015A C839
0577 P015B 0101
0578 P015C 18F9

*
CS100 STQ* CS10A
QLS 8
STQ* S107A
STQ SECTION

STA* CS109
LDQ CNTWRD

LDA- CONST+12
LAQ A
SAZ CS101-* -1
LDQ =XZZ5

ENA \$1F
JMP* CS103
LDA- CONST+13
LAQ A
SAZ CS102-* -1
LDQ =XZZ7

CS101

CS102 LDA- \$7F
JMP* CS103
LDQ =XZZ8

CS103 LDA- H00FF
STA PPEXL

CS104 STQ* LEVELCT
RTJ* RESTWD
ENA -10
STA* SPACERS
CS105 LDA* CS10A
RTJ PPT

RAO* SPACERS
LDA* SPACERS
SAZ 1
JMP* CS105

THIS PORTION IS USED BY BOTH SEC 1 AND 2
STORE PUNCH SECTION NUMBER

1000
5 LEVEL PATTERN **NO SKIP CS101
YES

EXTRACT VALUE

7 LEVEL PATTERN **NO SKIP CS102
YES

8 LEVEL PATTERN

LEVEL COUNT
RESTORE WORD, WORD+1, AND WORD+2

PUNCH 10 SECTION PUNCHES IN LEVEL ONE
LOAD WITH SECTION PUNCH NUMBER

LAST PUNCH
NO LOOP BACK

00547
00548
00549
00550
00551

00552
00553

00554
00555
00556
00557

00558
00559
00560
00561
00562
00563

00564
00565
00566

00567
00568

00569
00570
00571
00572
00573
00574

00575
00576
00577
00578

0579	P0150	C800	C105A	LDA REPEAT	YES	00579
	P015E	FEDB				
0580	P015F	0864		TCA A		00580
0581	P0160	6834		STA* CYCLES	NUMBER OF TIMES TO REPEAT ONE CYCLE	00581
0582	P0161	5800	CS106	RTJ GENPATT	OF ZIGZAG ZERO PATTERN	00582
	P0162	01E8				
0583	P0163	5800		PTJ PPT	PUNCH CHARACTER	00583
	P0164	0299				
0584	P0165	5800		RTJ DELAY	DELAY (SAW TOOTH)	00584
	P0166	023F				
0585	P0167	C800		LDA SECTENNSW		00585
	P0168	0205				
0586	P0169	0111		SAN 1	DONE WITH ONE CYCLE	00586
0587	P016A	18F6		JMP* CS106	NO	00587
0588	P0169	5818		RTJ* RESTWD	RESTORE WORD, WORD+1, AND WORD+2	00588
0589	P016C	0828		RAO* CYCLES		00589
0590	P016D	C827		LDA* CYCLES		00590
0591	P016E	0101		SAZ CS107--*--1	DONE WITH THE NUMBER OF CYCLES	00591
0592	P016F	18F1		JMP* CS106		00592
0593	P0170	5800	CS107	RTJ CHCHM	WAIT UNTILL PROGRAM CONTROL IS RETURN	00593
	P0171	01AA				
0594	P0172	5402		RTJ- (STOPX)	** STOP END OF SECTION	00594
0595	P0173	1803		JMP* CS108		00595
0596	P0174	0302		NUM \$302	ID	00596
0597	P0175	0100	S107A	NUM \$100	SECTION 1 OR 2	00597
0599	P0176	5800	CS108	RTJ CHINH	SET UP FOR INT MODE IF IT WAS IN IT BEFORE	00599
	P0177	01C8				
0600	P0178	5800		RTJ CHJMP6	CHECK FOR RE-ENTRY OF PARAMETERS	00600
	P0179	FED1				
0601	P017A	0A20		ENA \$20		00601
0602	P0178	5800		RTJ JUMP	REPEAT SECTION	00602
	P017C	0178				
0603	P017D	18DF		JMP* C105A	YES	00603
0604	P017E	E800		LDQ CNTWRD	NO	00604
	P017F	FEB9				
0605	P0180	1C91		JMP* (CS109)		00605
0606	P0181	0195	P CS109	ADC CS200	THIS EXIT IS CHANGED AT THE START OF SEC.	00606
0607	P0182	0001	CS10A	NUM \$1	SECTION PUNCH NUMBER	00607
0609	P0183	0000	RESTWD	NUM \$0	RESTORE WORDS IN GENERATE PATTERN	00609
0610	P0184	0C00		ENQ 0		00610
0611	P0185	CE0D		LDA* (LEVELCT),0	RESTORE WORD AND WORD+1	00611
0612	P0186	6800		STA WORD		00612
	P0187	01E1				
0613	P0188	6800		STA WORD+1		00613
	P0189	01E0				
0614	P018A	0001		INQ 1		00614

PTP003

PAGE 19

DATE: 10/20/75

0615	P0183	CE07	LDA* (LEVELCT),Q	RESTORE	WORD+2	00615
0616	P018C	6800	STA	WORD+2		00616
	P018D	0100				
0617	P018E	0804	SET	A		00617
0618	P018F	6800	STA	PPSW		00618
	P0190	010B				
0619	P0191	1CF1	JMP* (RESTWD)			00619

0621	P0192	0000	LEVELCT	NUM	\$0	00621
0622	P0193	0000	SPACEPS	NUM	\$0	00622
0623	P0194	0000	CYCLES	NUM	\$0	00623

0625	P0195	0A02	CS200	ENA	2	00625
0626	P0195	0884		LAQ	A	00626
0627	P0197	0111		SAN	1	00627
0628	P0198	1807		JMP*	CS400	00628
					SECTION 2	
					NO	

0630 ***** SECTION 2 COMPLEMENT ZIGZAG PATTERN 00630

0632	P0199	0C02	CS201	ENQ	2	00632
0633	P019A	4800		STQ	COMPATEN	00633
	P019B	0103				
0634	P019C	C000		LDA	=XCS400	00634
	P019D	019F				
0635	P019E	1898		JMP*	CS100	00635
					LOAD SECTION NUMBER IN Q	
					LOAD EXIT VALUE - BIAS IN A	

0637	P019F	0A04	CS400	ENA	4	00637
0638	P01A0	0884		LAQ	A	00638
0639	P01A1	0111		SAN	1	00639
0640	P01A2	1862		JMP*	CS800	00640
					SECTION 4	
					NO	

0642 ***** SECTION 4 PYRAMID PATTERN 00642

0644	P01A3	0844	CLR	A				00644
0645	P01A4	6800	STA	COMPATEN		CLEAR COMPLEMENT PATTERN SWITCH		00645
	P01A5	01C9						
0646	P01A6	0C03	ENQ	3		SET SECTION ID		***00646
0647	P01A7	C000	LDA	=XCS800				00647
	P01A8	0204	P					

0649			*			THIS PORTION IS USED BY BOTH SEC. 4 AND 8		00649
0650	P01A9	4859	CS401	STQ*	CS400	STORE PUNCH SECTION NUMBER		00650
0651	P01A4	0FA8		QLS	8			00651
0652	P01AB	4800		STQ	SECTION			00652
	P01AC	FEC1						
0653	P01AD	4848		STQ*	CS40A			00653
0654	P01AE	6853		STA*	CS40C			00654
0655	P01AF	0844		CLR	A			00655
0656	P01B0	6853		STA*	CS40E	CLEAR THE 8TH LEVEL SW		00656
0657	P01B1	EA00		LDQ	CNTWRD			00657
	P01B2	FE86						
0658	P01B3	C077		LDA-	CONST+12		1000	00658
0659	P01B4	08B4		LAQ	A			00659
0660	P01B5	0104		SAZ	CS402-* -1	5 LEVEL PATTERN		00660
0661	P01B6	E000		LDQ	=XPY5	YES		00661
	P01B7	0379	P					
0662	P01B8	0A1F		ENA	\$1F	EXTRACT VALUE		00662
0663	P01B9	180C		JMP*	CS404			00663
0664	P01BA	C078	CS402	LDA-	CONST+13			00664
0665	P01BB	08B4		LAQ	A			00665
0666	P01BC	0104		SAZ	CS403-* -1	7 LEVEL PATTERN		00666
0667	P01BD	E000		LDQ	=XPY7	YES		00667
	P01BE	0377	P					
0668	P01BF	0A7F		ENA	\$7F	EXTRACT VALUE		00668
0669	P01C0	1805		JMP*	CS404			00669
0670	P01C1	E000	CS403	LDQ	=XPY8	5 OR 7 NOT SELECTED SO PUNCH IN 8 LEVEL		00670
	P01C2	0375	P					
0671	P01C3	C081		LDA-	H00FF	MODE		00671
0672	P01C4	683F		STA*	CS40E	SET THE 8TH LEVEL SW		00672
0673	P01C5	6800	CS404	STA	PPEXL			00673
	P01C6	01A6						
0674	P01C7	48CA		STQ*	LEVELCT	LEVEL COUNT		00674
0675	P01C8	58BA		RTJ*	RESTWD	RESTORE WORD, WORD+1, AND WORD+2		00675
0676	P01C9	0AF5		ENA	-10			00676
0677	P01CA	68C8		STA*	SPACERS	PUNCH 10 SECTION PUNCHES		00677

0678	P01C3	C837	CS405	LDA* CS40D		00678
0679	P01CC	5800		RTJ PPT	PUNCH CHARACTER	00679
	P01CD	0230				
0680	P01CE	D8C4		RAO* SPAGERS		00680
0681	P01CF	C8C3		LDA* SPAGERS		00681
0682	P01D0	0101		SAZ 1	LAST CHAR PUNCHED	00682
0683	P01D1	18F9		JMP* CS405	NO	00683
0684	P01D2	C800	CS406	LDA REPEAT	YES	00684
	P01D3	FE66				
0685	P01D4	0864		TCA A		00685
0686	P01D5	688E		ST4* CYCLES	NUMBER OF TIMES TO REPEAT ONE CYCLE	00686
0687	P01D6	5800	CS407	RTJ GENPATT	OF PYRAMID PATTERN	00687
	P01D7	0176				
0688			*		A WILL CONTAIN THE PATTERN TO BE PUNCHED	00688
0689	P01D8	E800		LDQ SECTENDSW	Q WILL BE SET WHEN LAST CHAR OF CYCLE IS	00689
	P01D9	0194				
0690			*		IS IN A	00690
0691	P01DA	9148		SOZ CS408--*-1	LAST CHAR	00691
0692	P01DB	A000		AND =N\$7F	YES	00692
	P01DC	007F				
0693	P01DD	E800		LDQ COMPATEN		00693
	P01DE	0190				
0694	P01DF	0143		SOZ CS408--*-1	COMPLEMENT PATTERN	00694
0695	P01E0	E823		LDQ* CS40E		00695
0696	P01E1	0141		SOZ CS408--*-1	8TH LEVEL	00696
0697	P01E2	8072		ADD- CONST+7	YES	00697
0698	P01E3	5800	CS408	RTJ PPT	PUNCH CHARACTER	00698
	P01E4	0219				
0699	P01E5	5800		RTJ DELAY	DELAY (SAW TOOTH)	00699
	P01E6	01BF				
0700	P01E7	C800		LDA SECTENDSW		00700
	P01E8	0185				
0701	P01E9	0111		SAN 1	DONE WITH CYCLE	00701
0702	P01EA	18EB		JMP* CS407	NO	00702
0703	P01EB	5897		RTJ* RESTWD	YES RESTORE WORDS	00703
0704	P01EC	D8A7		RAO* CYCLES		00704
0705	P01ED	C8A6		LDA* CYCLES		00705
0706	P01EE	0101		SAZ CS409--*-1	DONE WITH THE NUMBER OF CYCLES	00706
0707	P01EF	18E6		JMP* CS407	NO	00707
0708	P01F0	5800	CS409	RTJ CHCHM	WAIT UNTILL PROGRAM CONTROL IS RETURN	00708
	P01F1	012A				
0709	P01F2	5402		RTJ- (STOPX)	** STOP END OF SECTION	00709
0710	P01F3	1803		JMP* CS408		00710
0711	P01F4	0302		NUM \$0302	STOP ID	00711
0712	P01F5	0000	CS40A	NUM \$0	SECTION 4 OR 8	00712
0714	P01F6	5800	CS40B	RTJ CHINH	SET UP FOR INT MODE IF IT WAS IN IT BEFORE	00714
	P01F7	0148				
0715	P01F8	5800		RTJ CHJMP6	CHECK FOR RE-ENTRY OF PARAMETERS	00715
	P01F9	FE51				
0716	P01FA	0A20		ENA \$20		00716
0717	P01FB	5800		RTJ JUMP	REPEAT SECTION	00717
	P01FC	00F8				

PTP003

PAGE 22

DATE: 10/20/75

0718 P01FD 18D4	JMP* CS406	YES	00718
0719 P01FE E800	LDQ CNTWRD	NO	00719
P01FF FE39			
0720 P0200 1C01	JMP* (CS40C)	NEXT SECTION	00720

0722 P0201 0204 P CS40C	ADC CS800		00722
0723 P0202 0004 CS40D	NUM \$4	SECTION PUNCH NUMBER	00723
0724 P0203 0000 CS40E	NUM \$0	8TH LEVEL SWITCH	00724

0726 P0204 0A08 CS80D	ENA 3		00726
0727 P0205 0884	LAQ A		00727
0728 P0206 0111	SAN 1	SECTION 8	00728
0729 P0207 1807	JMP* CS1000	NO	00729

0731 ***** SECTION 8 COMPLEMENT PYRAMID PATTERN 00731

0733 P0208 0C04	ENQ 4	SET SECTION ID	***00733
0734 P0209 4800	STQ COMPATEN	LOAD SECTION NUMBER IN Q	00734
P020A 0164			
0735 P020B C000	LDA =XCS1000	LOAD EXIT VALUE - BIAS IN A	00735
P020C 020E P			
0736 P020D 1898	JMP* CS401	AND SET COMPLEMENT PATTERN SWITCH	00736

0738 P020E 0A10 CS1000	ENA \$10		00738
0739 P020F 0884	LAQ A		00739
0740 P0210 0111	SAN 1	SECTION 10	00740
0741 P0211 1851	JMP* CS2000	NO	00741

0743 ***** SECTION 10 ALL ONES AND ZEROS 00743

0745	*			THIS SECTION SET OMIT DELAY SWITCH SO	00745
0746	*			THAT PUNCHING IS DONE AT HIGH SPEED.	00746
0748	*			ONE CYCLE EQUALS 10 ALL ONES, 3 ALL ZEROS	00748
0749 P0212 0FC8	CS1001	ALS	8		***00749
0750 P0213 6800		STA	SECTION		00750
0751 P0215 0A05		ENA	5		***00751
0752 P0216 6840		STA*	CS1007	SET SECTION ID	***00752
0753 P0217 C075		LDA-	CONST+10	SET OMIT DELAY SW BUT DONT CHANGE BIT	00753
0754 P0218 6800		STA	OMITDEL	10 OF THE CONTROL WORD SO THAT OMITDELAY	00754
0755 P021A 0AFD		ENA	-2	MAY BE RESET.	00755
0756 P021B 6800		STA	GEN04	RESTORE PATTERN GENERATER	00756
0757 P021D 0AF5		ENA	-10		00757
0758 P021E 6800		STA	GEN03		00758
0759 P0220 6800		STA	SPACERS		00759
0760 P0222 5835		RTJ*	SETEXL	SET UP EXTRACT VALUE	00760
0761 P0223 C833	CS1002	LDA*	CS1007		00761
0762 P0224 5800		RTJ	PPT	PUNCH SECTION NUMBER 10 TIMES	00762
0763 P0225 0108		RAO	SPACERS		00763
0764 P0228 C800		LDA	SPACERS		00764
0765 P022A 0101		SAZ	1	DONE	00765
0766 P022B 18F7		JMP*	CS1002	NO	00766
0767 P022C C800	CS1003	LDA	REPEAT	YES	00767
0768 P022E 0864		TCA	A		00768
0769 P022F 6800		STA	CYCLES		00769
0770 P0231 5800	CS1004	RTJ	GEN0Z	SET UP PATTERNS	00770
0771 P0233 5800		PTJ	PPT	PUNCH	00771
0772 P0235 5800		RTJ	DELAY		00772
0773 P0237 C800		LDA	SECTENDSW		00773
0774 P0239 0111		SAN	1	DONE WITH ONE CYCLE	00774
0775 P023A 18F6		JMP*	CS1004	NO	00775
0776 P023B D800		RAO	CYCLES	YES	00776
0777 P023D C800		LDA	CYCLES		00777
0778 P023F 0101		SAZ	1	SECTION COMPLETED	00778
0779 P0240 18F0		JMP*	CS1004	NO ONE MORE CYCLE	00779

0780	P0241 5800		RTJ CHCHM	YES		00780
	P0242 00D9					
0781	P0243 5402		RTJ- (STOPX)			00781
0782	P0244 1803		JMP* CS1006			00782
0783	P0245 0302		NUM \$0302	STOP ID		00783
0784	P0246 1000	CS1005	NUM \$1000			00784
0786	P0247 5800	CS1006	RTJ CHINM			00786
	P0248 00F7					
0787	P0249 5800		RTJ CHJMP6	CHECK FOR RE-ENTRY OF PARAMETERS		00787
	P024A FE00					
0788	P024B 0A20		ENA \$20			00788
0789	P024C 5800		RTJ JUMP	REPEAT SECTION		00789
	P024D 00A7					
0790	P024E 1800		JMP* CS1003	YES		00790
0791	P024F E800		LDQ CNTWRD	NO		00791
	P0250 FDE8					
0792	P0251 0814		TRQ A			00792
0793	P0252 A075		AND- CONST+10	RESET OMIT DELAY SWITCH		00793
0794	P0253 6800		STA OMITDEL			00794
	P0254 FE18					
0795	P0255 1800		JMP* CS2000	NEXT SECTION		00795
0797	P0256 0910	CS1007	NUM \$10			00797
0799	P0257 0000	SETEXL	NUM 0			00799
0800	P0258 C081		LDA- H00FF	00FF		00800
0801	P0259 0FA1		QLS 1			00801
0802	P025A 0174		SQM SETEX1-*--1	LEVEL 8		00802
0803	P025B 0FA1		QLS 1			00803
0804	P025C 0F41		ARS 1			00804
0805	P025D 0171		SQM SETEX1-*--1			00805
0806	P025E 0F42		ARS 2			00806
0807	P025F 6800	SETEX1	STA PPEXL			00807
	P0260 010C					
0808	P0261 1CF5		JMP* (SETEXL)			00808
0810	P0262 0A20	CS2000	ENA \$20			00810

0811 P0263 08B4
0812 P0264 0111
0813 P0265 1847

LAQ A
SAN 1
JMP* CS4000

SECTION 20
NO

00811
00812
00813

0815

SECTION 20, C9, 36 PATTERN

00815

0817
0818
0819

*
*
*

THIS SECTION SET OMIT DELAY SWITCH SO THAT
PUNCHING IS DONE AT HIGH SPEED.
ONE CYCLE EQUALS 7 C9S AND 7, 36S

00817
00818
00819

0820 P0265 0FC8
0821 P0267 6800
P0268 FE05

CS2001 ALS 8
STA SECTION

***00820
00821

0822 P0269 0A06
0823 P026A 6841
0824 P026B C075
0825 P026C 6800
P026D F0FF

ENA 6
STA* CS2007 SET SECTION ID
LDA- CONST+10
STA OMITDEL

***00822
***00823
00824
00825

0826 P026E 0AF8
0827 P026F 6800
P0270 0133

ENA -7
STA GENC3

RESTORE GENERATE PATTERN

00826
00827

0828 P0271 0901
0829 P0272 6800
P0273 0131

INA 1
STA GENC4

00828
00829

0830 P0274 5AE2
0831 P0275 0AF5
0832 P0276 6800
P0277 FF18

RTJ* SETEXL
ENA -10
STA SPACERS

SET UP EXTRACT VALUE

00830
00831
00832

0833 P0278 C833
0834 P0279 5800
P027A 0183

CS2002 LDA* CS2007
RTJ PPT

PUNCH SECTION NUMBER 10 TIMES

00833
00834

0835 P027B 0800
P027C FF16
0836 P027D C800
P027E FF14

RAO SPACERS
LDA SPACERS

00835
00836

0837 P027F 0101
0838 P0280 18F7
0839 P0281 C800
P0282 FDB7

SAZ 1
JMP* CS2002
CS2003 LDA REPEAT

THAT ALL
NO LOOP BACK
YES

00837
00838
00839

0840 P0283 0864
0841 P0284 6800
P0285 FF0E

TCA A
STA CYCLES

00840
00841

0842 P0286 5800
P0287 0109
0843 P0288 5800
P0289 0174

CS2004 RTJ GENC9
RTJ PPT

00842
00843

0844	P028A 5800		RTJ DELAY		00844
	P028B 011A				
0845	P028C C800		LDA SECTENDSW		00845
	P028D 00E0				
0846	P028E 0111		SAN 1	DONE WITH CYCLE	00846
0847	P028F 18F6		JMP* CS2004	NO	00847
0848	P0290 D800		RAO CYCLES	YES	00848
	P0291 FF02				
0849	P0292 C800		LDA CYCLES		00849
	P0293 FF00				
0850	P0294 0101		SAZ 1		00850
0851	P0295 18F0		JMP* CS2004		00851
0852	P0296 5800		RTJ CHCHM		00852
	P0297 0084				
0853	P0298 5402		RTJ- (STOPX)		00853
0854	P0299 1803		JMP* CS2006	STOP AT END OF SECTION	00854
0855	P029A 0302		NUM \$0302	STOP ID	00855
0856	P029B 2000	CS2005	NUM \$2000	SECTION NUMBER	00856
0858	P029C 5800	CS2006	RTJ CHINM		00858
	P029D 00A2				
0859	P029E 5800		RTJ CHJMP6	CHECK FOR RE-ENTRY OF PARAMETERS	00859
	P029F FDAB				
0860	P02A0 0A20		ENA \$20		00860
0861	P02A1 5800		RTJ JUMP	REPEAT SECTION	00861
	P02A2 0052				
0862	P02A3 18DD		JMP* CS2003	YES	00862
0863	P02A4 E800		LDQ CNTWRD		00863
	P02A5 FD93				
0864	P02A6 0814		TRQ A		00864
0865	P02A7 A075		AND- CONST+10	RESET OMIT DELAY	00865
0866	P02A8 6800		STA OMITDEL		00866
	P02A9 F0C3				
0867	P02AA 1802		JMP* CS4000		00867
0869	P02AB 0020	CS2007	NUM \$20		00869

```

0871 *****PTC2 00871
0872 * PTC2 00872
0873 * PROCESS END OF TEST REQUIREMENTS PTC2 00873
0874 * PTC2 00874
0875 *****PTC2 00875

```

```

0877 P02AC 0A07 CS4000 ENA 7 SET END OF TAPE CODE ***00877
0878 P02AD 08B4 LAQ A 00878
0879 P02AE 0AF5 CSEN3 ENA -10 00879
0880 P02AF 6844 STA* DELAYS 00880
0881 P02B0 0A07 CSEN4 ENA 7 ***00881
0882 P02B1 5800 RTJ PPT PTC2 00882
      P02B2 0148
0883 P02B3 0840 RAO* DELAYS 00883
0884 P02B4 C83F LDA* DELAYS 00884
0885 P02B5 0101 SAZ 1 LAST END OF TAPE PUNCH 00885
0886 P02B6 18F9 JMP* CSEN4 NO 00886
0887 P02B7 E800 CSEN2 LDQ PSTATUS 00887
      P02B8 01EB
0888 P02B9 0A42 ENA $42 STOP MOTION AND CLEAR INT REQUEST 00888
0889 P02BA 034F OUT ERRF*-1 **ER0F-10** 00889
0890 P02BB 024A INP ERR13*-1 **ER13-14** 00890
0891 P02BC 6800 STA ERSTAT 00891
      P02BD FE40
0892 P02BE A000 AND =N$F75D 00892
      P02BF F75D
0893 P02C0 8000 EOR =N$401 00893
      P02C1 0401
0894 P02C2 0101 SAZ 1 00894
0895 P02C3 1841 JMP* ERR15 **ER15-**** 00895
0896 P02C4 0A10 ENA $10 00896
0897 P02C5 582F RTJ* JUMP REPEAT CONDITIONS 00897
0898 P02C6 18F0 JMP* CSEN2 YES 00898

```

```

0900 P02C7 5800 RTJ CHCHM CHANGE TO CHARACTER MODE PTC2 00900
      P02C8 0053
0901 P02C9 0804 RAO* PASSCOUNT 00901
0902 P02CA 5402 RTJ- (STOPX) END OF TEST STOP 00902
0903 P02CB 1803 JMP* CSEN1 00903
0904 P02CC 0304 NUM $0304 STOP ID 00904
0905 P02CD 0000 PASSCOUNT NUM 0 00905

```

```

0907 P02CE C000 CSEN1 LDA =N-200 00907
      P02CF FF37

```

0908	P02D0 680C		STA*	CTEN2+1		00908
0909	P02D1 C800		LDA	RETURN		00909
	P02D2 FD32					
0910	P02D3 6806		STA*	CTEN1		00910
0911	P02D4 C000	CSEFN1A	LDA	=XCSEFN1B		00911
	P02D5 020A					
0912	P02D6 6800		STA	RETURN		00912
	P02D7 FD20					
0913	P02D8 5401		RTJ-	(CONTROL)		00913
0914	P02D9 0000	CTEN1	NUM	0		00914
0915	P02DA D802	CSEFN1B	RAQ*	CTEN2+1		00915
0916	P02D9 C000	CTEN2	LDA	=NO		00916
	P02DC 0000					
0917	P02D0 0191		SAZ	CSEFN1C--1	HAS 10 MS BEEN DELAYED	00917
0918	P02DE 18F5		JMP*	CSEFN1A	NO	00918
0919	P02DF C8F9	CSEFN1C	LDA*	CTEN1	YES	00919
0920	P02E0 6800		STA	RETURN		00920
	P02E1 FD23					
0921	P02E2 0A40		ENA	\$40		00921
0922	P02E3 5811		RTJ*	JUMP	REPEAT TEST	00922
0923	P02E4 1802		JMP*	CSEFN6	YES	00923
0924	P02E5 1805		JMP*	CSEFN7	NO	00924
0925	P02E6 5800	CSEFN6	RTJ	CHJMP6	CHECK FOR RE-ENTRY OF PARAMETERS	00925
	P02E7 FD63					
0926	P02E8 1800		JMP	CNT1B		00926
	P02E9 FDB0					
0927	P02EA 5800	CSEFN7	RTJ	CHGHM		00927
	P02EB 0030					
0928	P02EC C000		LDA	=XPTP003		00928
	P02ED 0000					
0929	P02EE 5403		RTJ-	(TSEXIT)	DONE RETURN TO SMH WITH BIAS IN A	00929
0930	P02EF 5800		RTJ	CHJMP6	CHECK FOR RE-ENTRY OF PARAMETERS	00930
	P02F0 FD5A					
0931	P02F1 1800		JMP	CNT1B	REPEAT TEST-FREQUENCY NOT ZERO	00931
	P02F2 F0A7					
0933	P02F3 0000	DELAYS	NUM	0		00933

0935	P02F4	0000	JUMP	NUM \$0	CHECK TO MAKE SURE TEST IS NOT IN INT MODE	00935
0936	P02F5	6800		STA* JUMP2		00936
0937	P02F6	A043		AND- SJ	IS BIT SET IN STOP/JUMP WORD	00937
0938	P02F7	0113		SAN 3	IF NO DO NOT GO TO SMM UNLESS THE SKIP SW	00938
0939	P02F8	0182		SWS 2	IS SET MEANS OPERATER WANTS TO CHANGE	00939
0940	P02F9	D8FA		RAO* JUMP	THE STOP/JUMP WORD	00940
0941	P02FA	1CF9		JMP* (JUMP)		00941
0942	P02FB	5820		RTJ* CHCHM		00942
0943	P02FC	C306		LDA* JUMP2		00943
0944	P02FD	5406		RTJ- (JUMPX)	JUMP SWITCH SET	00944
0945	P02FE	1802		JMP* JUMP1	YES	00945
0946	P02FF	D3F4		RAO* JUMP	NO	00946
0947	P0300	583F	JUMP1	RTJ* CHINM		00947
0948	P0301	1CF2		JMP* (JUMP)		00948
0950	P0302	0000	JUMP2	NUM \$0		00950

0952	*****	PTC2	00952
0953	*	PTC2	00953
0954	*	PTC2	00954
0955	*	PTC2	00955
0956	*	PTC2	00956
0957	*****	PTC2	00957

ERROR PROCESSING
REPORT ERRORS F THROUGH 19

0959	P0303	00E9	P	C1ERS	ADC	CTERS	00959
0960	P0304	DCFE		ERR15	RAO*	(C1ERS)	00960
0961	P0305	DCFD		ERR14	PAO*	(C1ERS)	00961
0962	P0306	DCFC		ERR13	PAO*	(C1ERS)	00962
0963	P0307	DCFB		ERR12	RAO*	(C1ERS)	00963
0964	P0308	DCFA		ERR11	RAO*	(C1ERS)	00964
0965	P0309	DCF9		ERR10	RAO*	(C1ERS)	00965
0966	P030A	DCF8		ERRF	PAO*	(C1ERS)	00966
0967	P030B	0A0E			ENA	\$E	00967
0968	P030C	5800			RTJ	ERRORS	00968
		P030D				FDDC	
0969	P030E	18A8			JMP*	CSEN2	00969
0970	P030F	DCF3		ERR17	RAO*	(C1ERS)	00970
0971	P0310	DCF2		ERR16	RAO*	(C1ERS)	00971
0972	P0311	0A15			ENA	\$15	00972
0973	P0312	5800			RTJ	ERRORS	00973
		P0313				FDD6	

PTP003

PAGE 30

DATE: 10/20/75

0974 P0314 1810
0975 P0315 JCED
0976 P0316 DCEC
0977 P0317 0A17
0978 P0318 5800
P0319 FDD0
0979 P031A 182B

ERR19
ERR18

JMP* CHCHME
PAO* (C1ERS)
RAO* (C1ERS)
ENA \$17
RTJ ERRORS
JMP* CHINME

IN REJECT

00974
00975
00976
00977
00978
00979


```

0981 *****PTC2 00981
0982 * PTC2 00982
0983 * CHANGE TO CHARACTER MODE IF IN INT MODE PTC2 00983
0984 * PTC2 00984

0986 * CHECK IF IN INTERRUPT MODE IF SO WILL 00986
0987 * CLEAR THE INTERRUPT REQUEST AND THAN 00987
0988 * WAIT UNTIL SMM PASS CONTROL BACK TO THE 00988
0989 * PUNCH TEST BEFORE IT RETURN TO (CHCHM) 00989
0990 * PTC2 00990
0991 *****PTC2 00991

0993 P031B 0000 CHCHM NUM 0 PTC2 00993
0994 P031C C800 LDA INTMODE 1 = INT MODE, 0 = CHAR MODE PTC2 00994
      P031D 0148
0995 P031E 0111 SAN 1 SKIP IF IN INT MODE PTC2 00995
0996 P031F 181C JMP* CHCHM2 IN CHAR MODE, SO EXIT PTC2 00996
0997 P0320 C000 LDA =XCHCHM1 PTC2 00997
      P0321 0334 P
0998 P0322 6800 STA RETURN UPDATE RETURN ADDR FOR AFTER TRADEOFF PTC2 00998
      P0323 FCE1
0999 P0324 E800 CHCHME LDQ PSTATUS GET ADDR OF PUNCH PTC2 00999
      P0325 017E
1000 P0326 0A02 ENA 2 01000
1001 P0327 03E7 OUT ERR16--*-1 CLEAR INT REQUEST **ER16-17** 01001
1002 P0328 0844 CLR A CLEAR OK FOR INT SO THAT INTS GENERATED 01002
1003 P0329 6800 STA OKINT AFTER THIS TIME CAN BE CAUGHT AS ERRORS 01003
      P032A 013A
1004 P0329 C813 LDA* SVINTMO PTC2 01004
1005 P032C 8800 ADD STATECH 1 IF STATE CHANGE FROM CHAR TO INT MODE PTC2 01005
      P032D 013A
1006 P032E 0115 SAN CHCHM1--*-1 DOES THE TEST HAVE CONTROL 01006
1007 P032F C800 LDA INTMODE NO 01007
      P0330 0135
1008 P0331 6800 STA* SVINTMO 1ST TIME EXIT INT STATE 01008
1009 P0332 1800 JMP PPT1A RETURN TO SMM VIA INT EXIT 01009
      P0333 000A
1010 P0334 C000 CHCHM1 LDA =XCHECK THE PUNCH TEST NOW HAS CONTROL 01010
      P0335 000B P
1011 P0336 6800 STA RETURN 01011
      P0337 FCCD
1012 P0338 C079 LDA- BIT14 01012
1013 P0339 6800 STA COUNT1 SET INT WAIT LOOP COUNT PTC2 01013
      P033A FCE0
1014 P033B C000 CHCHM2 LDA =XPTP003 IA TO A GEG PTC2 01014
      P033C 0000 P
1015 P033D 1C00 JMP* (CHCHM) GO ON 01015
1016 P033C 0000 SVINTMO NUM 0 SAVE INT MODE SWITCH- 1=INT MODE, 0=CHARPTC2 01016

```

1018	P033F	0000	CHINM	NUM	\$0	CHANGE BACK TO INT MODE		01018
1019	P0340	C800		LDA	INTMODE			01019
		P0341						
1020	P0342	0111		SAN	1	SKIP IF IN INT MODE	PTC2	01020
1021	P0343	1C00		JMP	(CHINM)	HERE TO EXIT IF IN CHAR MODE	PTC2	01021
		P0344						
1022	P0345	E800	CHINME	LDQ	PSTATUS	YES THAN RESELECTED INTERRUPTS		01022
		P0346						
1023	P0347	0A14		ENA	\$14	ALSO SELECT ALARM INTERRUPT		01023
1024	P0348	0500		IIN	0			01024
1025	P0349	03C8		OUT	ERR18-**-1			01025
1026	P034A	6800		STA	STATECH	GO SET UP CHAR BUT DONT PUNCH UNTIL		01026
		P034B						
1027	P034C	1CF2		JMP*	(CHINM)	INT OCCURS.		01027

1029	P034D	0000	GENPATT	NUM	0	GENERATE PATTERN FOR 8, 7, OR 5 LEVEL	01029
1030	P034E	0844		CLR	A	EXIT WITH PATTERN IN A	01030
1031	P034F	681E		STA*	SECTENDSW	SECTION END SWITCH	01031
1032	P0350	E818		LDQ*	WORD		01032
1033	P0351	C81A		LDA*	PPSW	PATTERN SWITCH	01033
1034	P0352	0106		SAZ	GEN2--*-1	LEFT PATTERN DONE	01034
1035	P0353	0FA1		QLS	1	**NO SKIP TO GEN2	01035
1036	P0354	0161		SQP	GEN1--*-1	LAST PATTERN + 1	01036
1037	P0355	180C		JMP*	PPOUT	NO	01037
1038	P0356	0844	GEN1	CLR	A	YES	01038
1039	P0357	6814		STA*	PPSW		01039
1040	P0358	E812		LDQ*	WORD+2		01040
1041	P0359	0F21	GEN2	QRS	1	RIGHT PATTERN	01041
1042	P035A	0814		TRQ	A		01042
1043	P035B	A082		AND-	HFF00		01043
1044	P035C	0114		SAN	PPOUT--*-1		01044
1045	P035D	C80C		LOA*	WORD+1		01045
1046	P035E	680A		STA*	WORD		01046
1047	P035F	680C		STA*	PPSW		01047
1048	P0360	6800		STA*	SECTENDSW		01048
1049	P0361	4807	PPOUT	STQ*	WORD		01049
1050	P0362	C80C		LOA*	COMPATEN		01050
1051	P0363	0101		SAZ	1	COMPLEMENT PATTERN	01051
1052	P0364	0852		TCQ	Q	YES SECTION 2 AND 8	01052
1053	P0365	C807		LDA*	PPEXL		01053
1054	P0366	0804		LAQ	A		01054
1055	P0367	1CE5		JMP*	(GENPATT)	EXIT WITH PATTERN IN A	01055

1057	P0368	7F7F	WORD	NUM	\$7F7F		01057
1058	P0369	7F7F		NUM	\$7F7F		01058
1059	P036A	3EFF		NUM	\$3EFF		01059
1060	P036B	FFFF	PPSW	NUM	-\$0	LEVEL EXTRACT	01060
1061	P036C	00FF	PPEXL	NUM	\$FF		01061
1062	P036D	0000	SECTENDSW	NUM	0	SECTION END SWITCH	01062
1063	P036E	0000	COMPATEN	NUM	0	COMPLEMENT PATTERN	01063

1065			**			ZIGZAG PATTERN LEVEL GENERATE WORDS	01065
1066	P036F	7F7F	ZZ8	NUM	\$7F7F	LEVEL 8	01066
1067	P0370	7EFF		NUM	\$7EFF	STORE IN WORD AND WORD+1	01067
1068	P0371	7EFF	ZZ7	NUM	\$7EFF	LEVEL 7	01068
1069	P0372	3F7F		NUM	\$3F7F		01069
1070	P0373	78FF	ZZ5	NUM	\$78FF	LEVEL 5	01070
1071	P0374	0FDF		NUM	\$0FDF		01071
1072			**			PYRAMID PATTERN LEVEL GENERATE WORDS	01072
1073	P0375	FF00	PY8	NUM	\$FF00	LEVEL 8	01073

PTP003

PAGE 34

DATE: 10/20/75

1074 P0376 41FE
1075 P0377 FE00
1076 P0378 20FE
1077 P0379 FB00
1078 P037A 083E

PY7
PY5

NUM \$41FE
NUM \$FE00
NUM \$20FE
NUM \$FB00
NUM \$083E

LEVEL 7
LEVEL 5

01074
01075
01076
01077
01078

1080	P0378	0000	GENOZ	NUM \$0	GENERATE ONES AND ZEROS PATTERN	01080
1081	P037C	0844		CLR A	ONE CYCLE EQUAL 10 ONES AND 3 ZEROS WORD	01081
1082	P037D	68EF		STA* SECTENDSW		01082
1083	P037E	C810		LDA* GENO3		01083
1084	P037F	0103		SAZ GENO1-*--1		01084
1085	P0380	080E		RAO* GENO3		01085
1086	P0381	0AFF		ENA -0		01086
1087	P0382	180A		JMP* GENEX		01087
1088	P0383	C30C	GENO1	LDA* GENO4		01088
1089	P0384	0115		SAN GENO2-*--1		01089
1090	P0385	0AF5		ENA -10	SET END OF CYCLE SWITCH	01090
1091	P0386	68E6		STA* SECTENDSW		01091
1092	P0387	6807		STA* GENO3		01092
1093	P0388	0AFC		ENA -3		01093
1094	P0389	6806		STA* GENO4		01094
1095	P038A	0805	GENO2	RAO* GENO4		01095
1096	P038B	0A00		ENA \$0		01096
1097	P038C	A8DF	GENEX	AND* PPEXL	EXTRACT LEVELS WANTED	01097
1098	P038D	1CED		JMP* (GENOZ)		01098
1099	P038E	FFF5	GENO3	NUM -10		01099
1100	P038F	FFFC	GENO4	NUM -3		01100

1102	P0390	0000	GENC9	NUM \$0	GENERATE C9 AND 36 PATTERN	01102
1103	P0391	0844		CLR A	ONE CYCLE EQUAL 7 C9S AND 7 36S	01103
1104	P0392	680A		STA* SECTENDSW		01104
1105	P0393	C810		LDA* GENC3		01105
1106	P0394	0104		SAZ GENC1-*--1		01106
1107	P0395	D80E		RAO* GENC3		01107
1108	P0396	C000		LDA =N\$C9		01108
	P0397	00C9				
1109	P0398	1809		JMP* GENCEX		01109
1110	P0399	C808	GENC1	LDA* GENC4		01110
1111	P039A	0114		SAN GENC2-*--1		01111
1112	P039B	0AF8		ENA -7		01112
1113	P039C	6800		STA* SECTENDSW	SET END OF CYCLE SWITCH	01113
1114	P039D	6806		STA* GENC3		01114
1115	P039E	6806		STA* GENC4		01115
1116	P039F	D805	GENC2	RAO* GENC4		01116
1117	P03A0	0A36		ENA \$36		01117
1118	P03A1	A8CA	GENCEX	AND* PPEXL	EXTRACT LEVELS WANTED	01118
1119	P03A2	1CED		JMP* (GENC9)		01119
1120	P03A3	FFF8	GENC3	NUM -\$7		01120
1121	P03A4	FFF8	GENC4	NUM -\$7		01121

1123	P03A5	0000	DELAY	NUM	\$0				01123
1124			*					THIS ROUTINE WILL GENERATE A RANDOM NUM.	01124
1125			*					IF THE NUM IS NEG IT WILL COMPLEMENT BIT 11	01125
1126			*					OF THE CONTROL WORD (INT MODE =1 DELAY =0	01126
1127			*					AND SELECTED THE INT IF 1, AND CLEAR THE	01127
1128			*					INT REQUEST IF ZERO.	01128
1129			*					THE DELAY IS A SAW TOOTH DELAY WITH A	01129
1130			*					RANDOM HIGH SPEED PUNCH WITHIN THE DELAY	01130
1131	P03A6	C800		LDA	INMONLY				01131
	P03A7	FCC4							
1132	P03A8	8900		ADD	STATECH			ALSO CHECK TO SEE IF CHANGING MODE TOO	01132
	P03A9	00BE							
1133	P03AA	0101		SAZ	1			RUN TEST IN INT MODE ONLY	01133
1134	P03AB	1CF9		JMP*	(DELAY)			YES	01134
1135	P03AC	5844	DELAY0	RTJ*	MINUS				01135
1136	P03AD	013A		SAM	DELAY1--*-1				01136
1137	P03AE	C800		LDA	CNTWRD				01137
	P03AF	FC89							
1138	P03B0	A076		AND-	CONST+11		0800		01138
1139	P03B1	0101		SAZ	1			DELAY OR INT MODE (DELAY IS IN CHAR MODE)	01139
1140	P03B2	1CF2		JMP*	(DELAY)			INT THAN EXIT	01140
1141	P03B3	C800		LDA	OMITDEL				01141
	P03B4	FC88							
1142	P03B5	0101		SAZ	1			OMIT DELAY IN CHAR MODE	01142
1143	P03B6	1CEE		JMP*	(DELAY)			YES	01143
1144	P03B7	181F		JMP*	DELAY2				01144
1145	P03B8	C800	DELAY1	LDA	CNTWRD				01145
	P03B9	FC7F							
1146	P039A	B076		EOR-	CONST+11		0800		01146
1147	P039B	6800		STA	CNTWRD			COMPLEMENT BIT 11	01147
	P039C	FC7C							
1148	P038D	A076		AND-	CONST+11		0800		01148
1149	P03BE	0F4A		ARS	10				01149
1150	P03BF	6800		STA	INTMODE				01150
	P03C0	00A5							
1151	P03C1	E800		LDQ	PSTATUS				01151
	P03C2	00E1							
1152	P03C3	0101		SAZ	1			REQUEST INT OR CLEAR INT REQUEST	01152
1153	P03C4	0910		INA	\$10			REQUEST ALARM INTERRUPT	01153
1154	P03C5	0902		INA	\$2			CLEAR INTS	01154
1155	P03C6	030A		OUT	ERR20--*-1			REQUEST INT	01155
1156	P03C7	C800		LDA	INTMODE		**ER20-21**		01156
	P03C8	009D							
1157	P03C9	6800		STA	STATECH				01157
	P03CA	009D							
1158	P03CB	0101		SAZ	1			NOW IS IT CHAR MODE	01158
1159	P03CC	1C08		JMP*	(DELAY)			NO	01159
1160	P03CD	1800		JMP	PPT1A			YES RETURN TO SMM VIA INT EXIT AND WAIT	01160
	P03CE	003F							
1161			*					UNTILL THE PUNCH RECEIVES PROGRAM CONTROL	01161

1163	P03CF	00E9	P	G2ERS	ADC	CTERS			01163
1165	P03D0	DCFE		ERR21	RAO*	(G2ERS)	IN	REJECT	01165
1166	P03D1	DCFD		ERR20	RAO*	(G2ERS)			01166
1167	P03D2	0A19			ENA	\$19			01167
1168	P03D3	5800			RTJ	ERRORS			01168
1169	P03D5	18E2			JMP*	DELAY1			01169
1171	P03D6	C817		DELAY2	LDA*	TIME			01171
1172	P03D7	0816			RAO*	TIME			01172
1173	P03D8	0108			SAZ	DELAY3--1	COUNT	UP TO ZERO	01173
1174	P03D9	8800			ADD	DELAYA	ADD	DELAY PARAMETERS	01174
		P03DA				FC60			
1175	P03D8	0131			SAM	1			01175
1176	P03DC	18F9			JMP*	DELAY2			01176
1177	P03DD	5813			RTJ*	MINUS			01177
1178	P03DE	0121			SAP	1			01178
1179	P03DF	13CD			JMP*	DELAY0+1			01179
1180	P03E9	18F5			JMP*	DELAY2			01180
1181	P03E1	C80D		DELAY3	LDA*	TIME+1			01181
1182	P03E2	880D			ADD*	TIME+2			01182
1183	P03E3	680A			STA*	TIME	CHANGE	NEGATIVE NUMBER	01183
1184	P03E4	680A			STA*	TIME+1			01184
1185	P03E5	8800			ADD	DELAYB			01185
		P03E6				FC55			
1186	P03E7	01A0			SOV	0			01186
1187	P03E8	0123			SAP	DELAY4--1	STILL	POSITIVE ** YES SKIP DELAY4	01187
1188	P03E9	C806			LDA*	TIME+2	NO	THAN RESET THE DELAYS	01188
1189	P03EA	6803			STA*	TIME			01189
1190	P03E9	6803			STA*	TIME+1			01190
1191	P03EC	1CB8		DELAY4	JMP*	(DELAY)	EXIT	AFTER DELAY	01191
1192	P03ED	FFBF		TIME	NUM	-\$40			01192
1193	P03EE	FFBF			NUM	-\$40			01193
1194	P03EF	FFBF			NUM	-\$40			01194
1195	P03F0	0000		MINUS	NUM	\$0			01195
1196	P03F1	C000		MIN1	LDA	=N\$AB	RANDOM	NUMBER GENERATOR	01196
		P03F2				00AB			
1197	P03F3	8800			ADD	DELAYC	WILL	GENERATE A NEGATIVE NUM EVERY 3 OR MO	01197
		P03F4				FC48			
1198	P03F5	68FC			STA*	MIN1+1			01198
1199	P03F6	0131			SAM	1			01199
1200	P03F7	1CF8			JMP*	(MINUS)	EXIT		01200
1201	P03F8	0F48			ARS	8			01201
1202	P03F9	A081			AND-	H00FF			01202
1203	P03FA	68F7			STA*	MIN1+1			01203
1204	P03FB	0804			SET	A			01204

PTP003

PAGE 38

DATE: 10/20/75

1205 P03FC 1CF3

JMP* (MINUS)

EXIT

01205


```

1207 *****PTC2 01207
1208 * PTC2 01208
1209 * PUNCH DRIVER PTC2 01209
1210 * PTC2 01210
1211 * PUNCH THE CHAR IN A ** AFTER 01211
1212 * INTERRUPT MODE OR CHAR MODE 01212
1213 * A CHECK OF ALL STATUS BITS ** PUNCHS IN 01213
1214 * PTC2 01214
1215 *****PTC2 01215

```

```

1217 PPT NUM 0 ENTRY PTC2 01217
1218 P03FD 0000 STA PCHAR SET PUNCH CHARACTER PTC2 01218
1219 P03FE 6800 P03FF 00A5
1219 PPT1C CLR A 01219
1220 P0401 6800 STA SVINTMO CLEAR INT MODE SWITCH PTC2 01220
1221 P0402 FF39
1221 SET A PTC2 01221
1222 P0403 0804 STA* OKINT OK FOR NEXT INT TO OCCURE PTC2 01222
1223 P0404 6860 LDA* INTMODE CHECK MODE SWITCH PTC2 01223
1224 P0405 C860 SAN PPT8B SKIP IF IN INT MODE PTC2 01224
1225 P0406 0111 JMP* PPT1 HERE IF CHAR MODE PTC2 01225
1226 P0407 182E PPT8B LDA* STATECH VERIFY THAT MODE HAS CHANGED - CHAR TO INTPTC2 01226
1227 P0408 C85F SAZ PPT1A 1=INT MODE, 0=CHAR MODE PTC2 01227
1228 P0409 0103 CLR A RETURN TO SMH AND WAIT FOR NEXT INT PTC2 01228
1229 P040A 0844 STA* STATECH INDICATE CHAR MODE PTC2 01229
1230 P040B 685C RTJ- (CONTROL) 01230
1231 P040C 5401 PPT1A LDQ* INTXVA YES 01231
1232 P040D E85B JMP* (INTENTRY) RETURN TO SMH AND WAIT FOR INTERRUPT 01232

```

```

1234 *****PTC2 01234
1235 * PTC2 01235
1236 * DRIVER INTERRUPT PROCESSOR PTC2 01236
1237 * PTC2 01237
1238 *****PTC2 01238

```

```

1240 INTFLG NUM 0 01240
1241 INTENTRY NUM 0 INT ENTRY 01241
1242 P040F 0000 STQ* INTXVA 01242
1243 P0410 0000 INTENO CLR A 01243
1244 P0411 4857 LDQ PSTATUS ***01244
1245 P0412 0844 P0413 E800 P0414 008F
1245 INP E3536--1 01245
1246 P0415 020F AND- CONST+2 01246
1247 P0416 A060 SAZ INTENA--1 DID THIS EQUIPMENT INTERRUPT 01247
1248 P0417 0101 JMP* INTEN2 YES 01248

```

1249	P0419	E8F5	INTENA	LDQ*	INTFLG	NO		01249
1250	P041A	0151		SQN	INTENB--1	IS THIS ONLY STATION ON INT LINE		01250
1251	P041B	1816		JMP*	INTEN2	YES		01251
1252	P041C	C8F3	INTENB	LDA*	INTENTRY	NO		01252
1253	P041D	6600		STA+	0,Q	PASS RETURN ADDRESS TO PTR		01253
		P041E						
1254	P041F	0D01		INQ	1	INTERRUPT ROUTINE		01254
1255	P0420	4803		STQ*	INTEN1+1			01255
1256	P0421	E847		LDQ*	INTEXVA	ALSO PASS Q ALONG		01256
1257	P0422	1400	INTEN1	JMP*	0	GO TO INT PROCESSOR IN PTR TEST		01257
		P0423						

1259						*****PTC2		01259
1260						* PTC2		01260
1261					REPLY - REJECT PROCESSOR	* PTC2		01261
1262						* PTC2		01262
1263						*****PTC2		01263

1265	P0424	0901		INA	1			01265
1266	P0425	0901	E3536	INA	1			01266
1267	P0426	0934		INA	\$34			01267
1268	P0427	8800		ADD	SECTION			01268
		P0428						
1269	P0429	6805		STA*	ERR35A			01269
1270	P042A	0844		CLR	A			01270
1271	P042B	5402		RTJ-	(STOPX)	ERRORS 35 AND 36		01271
1272	P042C	1804		JMP*	ERR35B			01272
1273	P042D	0308		NUM	\$308			01273
1274	P042E	0000	ERR35A	NUM	0			01274
1275	P042F	0430	P	ADC	ERR35B			01275
1276	P0430	18E1	ERR35B	JMP*	INTEN0			01276

1278						*****PTC2		01278
1279						* PTC2		01279
1280					DRIVER STATUS PROCESSOR	* PTC2		01280
1281						* PTC2		01281
1282						*****PTC2		01282

1284	P0431	E837	INTEN2	LDQ*	INTEXVA			01284
1285	P0432	C832		LDA* OKINT				01285
1286	P0433	0111		SAN PPT1--1	HAS CONTROL PASSED BACK TO SMM BEFORE INT			01286

1287	P0434	184F		JMP* ERR2F	NO ERROR	**ER2F-***	01287
1288	P0435	0844	PPT1	CLR A			01288
1289	P0436	E82D		LOQ* FIRSTINT	FIRST INT AFTER START MOTION		01289
1290	P0437	0142		SQZ 2	YES		01290
1291	P0438	6829		STA* FIRSTINT	THAN DONT PUNCH THE CHARACTER		01291
1292	P0439	1CC3		JMP* (OPT)	EXIT OF FIRST INT TO CS00A	PTC2	01292
1293	P043A	682A		STA* OKINT			01293
1294	P0439	682B		STA* WAIT			01294
1295	P043C	E867	PPT19	LOQ* PSTATUS		***	01295
1296	P043D	0250		INP ERR24--*1	INPUT STATUS	**ER24-25**	01296
1297	P043E	6864		STA* STATUS		***	01297
1298	P043F	A071		AND- BIT6	LOOK FOR VALIDATIO ERROR	***	01298
1299	P0440	0101		SAZ 1	SKIP IF STATUS OK	***	01299
1300	P0441	5829		RTJ* VALERR	REPORT ERROR	***	01300
1301	P0442	C860		LDA* STATUS	RESTORE STATUS	***	01301
1302	P0443	8826		EOR* RBDP	ONLY READY,BUSY,DATA AND POWER ON STATUS		01302
1303			*		BITS SET		01303
1304	P0444	0103		SAZ PPT2--*1			01304
1305	P0445	806E		EOR- BIT3	NO		01305
1306	P0445	010C		SAZ PPT4--*1	WAS JUST THE DATA BIT MISSING		01306
1307	P0447	1863		JMP* CH8T	NO THAN CHECK OTHER BITS		01307
1308	P0448	0DFE	PPT2	INQ -1	YES	0009	01308
1309	P0449	C85B	PPT3	LDA* PCHAP	NO- THEN CHECK OTHER BITS	***	01309
1310	P044A	0307		OUT PPT4A--*1	PUNCH CHARACTER		01310
1311	P044B	0A10		ENA \$10			01311
1312	P044C	A043		AND- SJ			01312
1313	P044D	0103		SAZ PPT3A--*1			01313
1314	P044E	5800		RTJ JUMP	REPEAT CONDITIONS		01314
1315	P0450	18EB		JMP* PPT1B	YES		01315
1316	P0451	1CAB	PPT3A	JMP* (PPT)	EXIT CHAR HAS BEEN PUNCHED		01316
1317	P0452	183A	PPT4	JMP* ERR26	EXTERNAL REJECT		01317
1318	P0453	C812		LDA* INTMODE	PUNCH NOT READY TO PUNCH CHAR.		01318
1319	P0454	011B		SAN PPT5--*1	IF IT IS IN INT MODE ERROR		01319
1320	P0455	C80C		LDA* PPTRET	NO - CHAR. MODE		01320
1321	P0456	6900		STA RETURN		PTC2	01321
1322	P0458	C077		LDA- BIT12		PTC2	01322
1323	P0459	6800		STA COUNT1	SET INT WAIT LOOP COUNT	PTC2	01323
1324	P045B	5401		RTJ- (CONTROL)		PTC2	01324
1325	P045C	C806	PPT4B	LDA* PPTCHK	SMM WILL RETURN HERE		01325
1326	P045D	6800		STA RETURN			01326
1327	P045F	18DC		JMP* PPT1B	HAS PUNCH REJECTED OVER 10MS		01327
1328	P0460	192B	PPT5	JMP* ERR27		**ER27-****	01328
1330	P0461	045C	P PPTRET	ADC PPT4B	BIASED		01330
1331	P0462	090B	P PPTCHK	ADC CHECK	BIASED		01331

1332	P0463	FFFF	FIRSTINT	NUM	-\$0				01332
1333	P0464	0000	OKINT	NUM	\$0				01333
1334	P0465	0000	INTMODE	NUM	\$0	OK FOR INT SW	SET = ON		01334
1335	P0466	0000	WAIT	NUM	\$0	INT MODE SW	SET = ON		01335
1336	P0467	0000	STATECH	NUM	\$0	STATE CHANGE FROM CHAR TO INT	=ONE		01336
1337	P0468	0000	INTEXVA	NUM	\$0				01337
1338	P0469	040B	RBDP	NUM	\$040B	READY, BUSY, MORE DATA, POWER ON			01338
1339			*			TAPE LOW, AND PROTECT MAY BE ADDED IN IF S			01339

1341	P046A	0000	VALERR	NUM	0				***01341
1342	P046B	4811		STQ*	VALER4	SAVE Q			***01342
1343	P046C	C800		LDA	SECTION				***01343
		P046D		FC00					
1344	P046E	0941		INA	\$41	FORM SSEE			***01344
1345	P046F	6809		STA*	VALER1				***01345
1346	P0470	C8F9		LDA*	VALERR				***01346
1347	P0471	6808		STA*	VALER2	SET TTN ADDR			***01347
1348	P0472	C830		LDA*	STATUS				***01348
1349	P0473	6807		STA*	VALER3	SET ACT STATUS			***01349
1350	P0474	0844		CLR	A				***01350
1351	P0475	5402		RTJ-	(STOPX)	REPRT ERROR 41			***01351
1352	P0476	1807		JMP*	VALER5				***01352
1353	P0477	0328		NUM	\$0328				***01353
1354	P0478	0000	VALER1	NUM	0	SSEE			***01354
1355	P0479	0000	VALER2	NUM	0	RTN ADDR			***01355
1356	P047A	0000	VALER3	NUM	0	ACT STATUS			***01356
1357	P047B	040B		NUM	\$40B	EXP STATUS			***01357
1358	P047C	0000	VALER4	NUM	0	SAVE Q CELL			***01358
1360	P047D	E8FE	VALER5	LDQ*	VALER4	RESTORE Q			***01360
1361	P047E	0A01		ENA	1				***01361
1362	P047F	03FE		OUT	-1	DO COR CONTROLLER			***01362
1363	P0480	18C7		JMP*	PPT2				***01363

1365			*****			PTC2		01365
1366			*			PTC2		01366
1367			*		ERROR PROCESSOR	PTC2		01367
1368			*		ERRORS 24 THROUGH 30	PTC2		01368
1369			*****			PTC2		01369

1371	P0481	0000	CTER	NUM	\$0				01371
1372	P0482	D8FE	ERR30	RAO*	CTER				01372

1373	P0483	D8FD	ERR2F	RAO* CTER					01373
1374	P0484	D8FC		RAO* CTER					01374
1375	P0485	D8F8	ERR2D	RAO* CTER					01375
1376	P0486	D8FA	ERR2C	RAO* CTER					01376
1377	P0487	D8F9	ERR2B	RAO* CTER					01377
1378	P0488	D8F8		RAO* CTER					01378
1379	P0489	D8F7	ERR29	RAO* CTER					01379
1380	P048A	D8F6	ERR28	RAO* CTER					01380
1381	P048B	D8F5	ERR27	RAO* CTER					01381
1382	P048C	D8F4	ERR26	RAO* CTER					01382
1383	P048D	D8F3	ERR25	RAO* CTER					01383
1384	P048E	D8F2	ERR24	RAO* CTER					01384
1385	P048F	C8F1		LDA* CTER					01385
1386	P0490	0923		INA \$23					01386
1387	P0491	8800		ADD SECTION					01387
	P0492	F8DB							
1388	P0493	6800		STA* SEGER					01388
1389	P0494	0844		CLR A					01389
1390	P0495	68EB		STA* CTER					01390
1391	P0496	C800		LDA INTMODE					01391
	P0497	FFC0							
1392	P0498	0101		SAZ 1					01392
1393	P0499	0804		SET A					01393
1394	P049A	680B		STA* MODE					01394
1395	P049B	5800		RTJ CHCHM					01395
	P049C	FE7E							
1396	P049D	5402		RTJ- (STOPX)					01396
1397	P049E	1808		JMP* ER1					01397
1398	P049F	0328		NUM \$0328	STOP ID				01398
1399	P04A0	0000	SEGER	NUM \$0					01399
1400	P04A1	0000		NUM 0					01400
1401	P04A2	0000	STATUS	NUM \$0	STATUS				01401
1402	P04A3	0000	PSTATUS	NUM \$0	PUNCH CONNECTED CODE FOR STATUS				01402
1403	P04A4	0000	PCHAR	NUM \$0	PUNCH CHAR				01403
1404	P04A5	0000	MODE	NUM \$0	SET = INT MODE CLR = CHAR MODE				01404
1405	P04A6	5800	ER1	RTJ CHINN	CHANGE BACK FROM CHAR TO INT MODE	PTC2			01405
	P04A7	FE97							
1406	P04A8	1800		JMP PPT1	TO DRIVER TO BEGIN DATA OUPUT	PTC2			01406
	P04A9	FF8B							
1407	P04AA	C8BE	CHRT	LDA* RB0P	CLEAR THESE BITS FROM STATUS				01407
1408	P04AB	09F7		INA -38	BUT NO BIT 3				01408
1409	P04AC	8800		EOR STATUS					01409
	P04AD	FFF4							
1410	P04AE	68B7		STA* WAIT					01410
1411	P04AF	0822		TRA Q					01411
1412	P04B0	0A04		ENA 4					01412
1413	P04B1	08B4		LAQ A					01413
1414	P04B2	0111		SAN CHBT1--1	INT BIT SET				01414
1415	P04B3	1813		JMP* CH9T8	NO				01415
1416	P04B4	0A08	CHBT1	ENA \$8	YES				01416
1417	P04B5	08B4		LAQ A					01417
1418	P04B6	0116		SAN CHOT2--1	DATA INTERRUPT MUST BE SET				01418
1419	P04B7	0A20		ENA \$20					01419

1420	P04B8	08B4	LAQ	A			01420
1421	P04B9	0102	SAZ	CHBT1A--*-1	ALARM INT SET		01421
1422	P04BA	0A08	ENA	\$A	YES NO ERROR		01422
1423	P04BB	1805	JMP*	CHBTST	CLEAR INT BIT FROM STATUS		01423
1424	P04BC	18CD	CHBT1A	JMP* ERR28	NO ** ERROR	**ER28-****	01424
1425	P04BD	C8A7	CHBT2	LDA* INTMODE	YES		01425
1426	P04BE	0106		SAZ CHBT3--*-1	INT MODE SELECTED		01426
1427	P04BF	0A0C		ENA SC	YES	**NO SKIP CHBT3	01427
1428	P04C0	0876	CHBTST	EAQ A,Q			01428
1429	P04C1	48A4		STQ* WAIT			01429
1430	P04C2	0113		SAN CHBT8--*-1	ANY OTHER BITS SET		01430
1431	P04C3	E8DF		LDQ* PSTATUS			01431
1432	P04C4	1883		JMP* PPT2	PUNCH CHAR		01432
1433	P04C5	18C3	CHBT3	JMP* ERR29			01433
1434			*		** ERROR INT BUT DID NOT SELECT IT**		01434
1435	P04C6	C072	CHBT8	LDA- CONST+7		0080	01435
1436	P04C7	08B4		LAQ A			01436
1437	P04C8	0111		SAN 1	PROTECT BIT SET		01437
1438	P04C9	1811		JMP* CHBT9	NO		01438
1439	P04CA	B89E		EOR* R9DP	YES		01439
1440	P04CB	689D		STA* R9DP	CLEAR OR SET BIT IN RBDP		01440
1441	P04CC	A072		AND- CONST+7		0080	01441
1442	P04CD	0116		SAN CHBT8B--*-1	PROTECT SW JUST SET		01442
1443	P04CE	C000		LDA =XMESSPC	NO JUST CLEARED		01443
	P04CF	0549	P				
1444	P04D0	0C0B		ENQ MESPCE-MESSPC+1			01444
1445	P04D1	585B		RTJ* OUTNESS			01445
1446	P04D2	C072		LDA- CONST+7	0080		01446
1447	P04D3	1856		JMP* CHBT6A	CHECK FOR OTHER BITS IN STATUS		01447
1448	P04D4	C000	CHBT9B	LDA =XMESSPS	SW JUST SET		01448
	P04D5	0553	P				
1449	P04D6	0C0A		ENQ MESPSE-MESSPS+1			01449
1450	P04D7	5855		RTJ* OUTNESS			01450
1451	P04D8	C072		LDA- CONST+7			01451
1452	P04D9	1850		JMP* CHBT6A			01452
1453	P04DA	0A20	CHBT9	ENA \$20	NO		01453
1454	P04DB	08B4		LAQ A			01454
1455	P04DC	0111		SAN 1	ALARM BIT SET		01455
1456	P04DD	1860		JMP* CHBT12	NO		01456
1457	P04DE	C074		LDA- CONST+9	YES	0200	01457
1458	P04DF	08B4		LAQ A			01458
1459	P04E0	0111		SAN 1	ALARM IS SET, IS TAPE BREAK SET		01459
1460	P04E1	1831		JMP* CHBT10	NO		01460
1461	P04E2	0A2A		ENA \$2A	YES	**ER2A-****	01461
1462	P04E3	E8BE	CHBT15	LDQ* STATUS	MOVE RIGHT STATUS TO ERROR ROUTINE		01462
1463	P04E4	4800		STQ ERSTAT			01463
	P04E5	FC25					
1464	P04E6	E800		LDQ PSTATUS			01464
	P04E7	FFBB					
1465	P04E8	5800		RTJ ERRORS	OUTPUT ERROR		01465
	P04E9	FC00					
1466	P04EA	5800		RTJ CHCHM	CHANGE TO CHAR MODE AND GET BACK CONTROL		01466
	P04EB	FE2F					

1467	P04EC C000	LDA =XCHBT16		PTC2	01467
	P04ED 04F3 P				
1468	P04EE 6800	STA RETURN	RESET RTN ADDR FOR AFTER TRADEOFF	PTC2	01468
	P04EF FB15				
1469	P04F0 C077	LDA- BIT12		PTC2	01469
1470	P04F1 6800	STA COUNT1	SET INT WAIT LOOP COUNT	PTC2	01470
	P04F2 FB35				
1471	P04F3 E8AF	CHBT16 LDQ* PSTATUS	SMM WILL RETURN TO HERE		01471
1472	P04F4 021A	INP ERR31--1		**ER31-32**	01472
1473	P04F5 A06B	AND- CONST	0001		01473
1474	P04F6 0111	SAN 1	WAIT UNTIL OPERATOR MAKES PUNCH READY		01474
1475	P04F7 5401	RTJ- (CONTROL)	NOT READY - RETURN TO SMM	PTC2	01475
1476	P04F8 0A20	ENA \$20	READY		01476
1477	P04F9 0313	OUT ERR33--1	START MOTION	**ER33-34**	01477
1478	P04FA 0210	INP ERR35--1			01478
1479	P04FB A06E	AND- CONST+3	0008		01479
1480	P04FC 0111	SAN 1	DATA READY TO BE PUNCHED		01480
1481	P04FD 5401	RTJ- (CONTROL)	NO - RETURN TO SMM	PTC2	01481
1482	P04FE C000	LDA =XCHECK			01482
	P04FF 000B P				
1483	P0500 6800	STA RETURN		PTC2	01483
	P0501 FB03				
1484	P0502 C077	LDA- BIT12		PTC2	01484
1485	P0503 6800	STA COUNT1	SET INT WAIT LOOP COUNT	PTC2	01485
	P0504 FB23				
1486	P0505 5800	RTJ CHINM			01486
	P0506 FE38				
1487	P0507 1800	JMP PPT1C			01487
	P0508 FEF7				
1488	P0509 00E9 P	C3ERS	ADC CTERS		01488
1489	P050A DCFE	ERR36	RAO* (C3ERS)		01489
1490	P050B DCFD	ERR35	RAO* (C3ERS)		01490
1491	P050C DCFB	ERR34	RAO* (C3ERS)		01491
1492	P050D DCFB	ERR33	RAO* (C3ERS)		01492
1493	P050E DCFA	ERR32	RAO* (C3ERS)		01493
1494	P050F DCF9	ERR31	RAO* (C3ERS)		01494
1495	P0510 0A30		ENA \$30		01495
1496	P0511 1801		JMP* CHBT15		01496
1497	P0512 C075	CHBT10	LDA- CONST+10	NO THEN IS POWER OFF	0400
1498	P0513 0804		LAQ A		01498
1499	P0514 0102		SAZ CHBT4--1	POWER OFF	01499
1500	P0515 1800		JMP ERR30	YES ** ERROR	**ER30-**
	P0516 FF6B				01500
1501	P0517 C076	CHBT4	LDA- CONST+11		0800
1502	P0518 08B4		LAQ A		01501
1503	P0519 0112		SAN CHBT5--1	PUNCH TAPE SUPPLY LOW BIT SET	01502
1504	P051A 1800		JMP ERR2B	NO **ERROR BUT ALARM WAS SET	**ERR2B-**
	P051B FF6B				01503
1505	P051C 0920	CHBT5	INA \$20	ADD IN ALARM BIT	01504
1506	P051D 8800		EOR RBDP		01505
	P051E FF4A				01506
1507	P051F 6800		STA RBDP	SET OR CLEAR BITS IN RBDP	01507
	P0520 FF48				

1508	P0521	A076	AND- CONST+11					
1509	P0522	0104	SAZ CHBT6--*--1	MESSAGE BEEN TYPE-OUT	0800		01508	
1510	P0523	C000	LDA =XMESSL	NO			01509	
	P0524	055C					01510	
1511	P0525	0C09	ENQ MESTLE-MESSTL+1				01511	
1512	P0526	5806	RTJ* OUTMESS				01512	
1513	P0527	C000	CHBT6 LDA =V\$0C20	YES RETURN			01513	
	P0528	0C20						
1514	P0529	E800	CHBT6A LDQ WAIT				01514	
	P052A	FF3B						
1515	P052B	1894	JMP* CHBTST	CHECK FOR OTHER STATUS BITS			01515	
1516	P052C	0000	OUTMESS NUM \$0	OUTPUT MESSAGE			01516	
1517	P052D	680E	STA* AMESS				01517	
1518	P052E	480E	STQ* QMESS				01518	
1519	P052F	5800	RTJ CHGHM				01519	
	P0530	FDEA						
1520	P0531	0A01	MESS1 ENA 1				01520	
1521	P0532	A049	AND- INFORM				01521	
1522	P0533	0101	SAZ 1	TELETYPE BUSY			01522	
1523	P0534	18FC	JMP* MESS1	WAIT UNTILL ITS NOT BUSY			01523	
1524	P0535	C806	LDA* AMESS				01524	
1525	P0536	E806	LDQ* QMESS				01525	
1526	P0537	5408	RTJ- (TYPE)	TYPE/OUT			01526	
1527	P0538	5800	RTJ CHINM				01527	
	P0539	FE05						
1528	P053A	1CF1	JMP* (OUTMESS)				01528	
1529	P053B	0000	AMESS NUM \$0				01529	
1530	P053C	0000	QMESS NUM \$0				01530	
1531	P053D	0A01	CHBT12 ENA 1				01531	
1532	P053E	0884	LAQ A				01532	
1533	P053F	0102	SAZ CHBT13--*-1	READY			01533	
1534	P0540	0A2E	ENA \$2E	NOT READY MUST GIVE A START MOTION			01534	
1535	P0541	18A1	JMP* CHBT15	AFTER ERROR OUTPUT	**ER2E-****		01535	
1536	P0542	0A02	CHBT13 ENA 2				01536	
1537	P0543	0884	LAQ A				01537	
1538	P0544	0102	SAZ CHBT14--*-1	BUSY BIT NOT SET			01538	
1539	P0545	1800	JMP ERR2C	YES	**ERR2C-****		01539	
	P0546	FF3F						
1540	P0547	1800	CHBT14 JMP ERR2D	COULD NOT FIND BIT	***ERR2D-***		01540	
	P0548	FF3C						
1541	P0549	800A	MESSPC NUM \$800A				01541	
1542	P054A	5055	ALF 9,PUNCH PROTECT OFF				01542	
	P054B	4E43						
	P054C	4820						
	P054D	5052						
	P054E	4F54						
	P054F	4543						
	P0550	5420						
	P0551	4F46						
	P0552	4620						
1543	P0553	800A	MESPGE NUM \$800A				01543	
1544		0553	EQU MESSPS(MESPGE)				01544	
1545	P0554	5055	ALF 8,PUNCH PROTECTED				01545	
	P0555	4E43						

P0556	4820					
P0557	5052					
P0558	4F54					
P0559	4543					
P055A	5445					
P055B	4420					
1546	P055C	800A	MESPSE	NUM	8800A	01546
1547		055C	P	EQU	MESSTL(MESPSE)	01547
1548	P055D	5055		ALF	7,PUNCH TAPE LOW	01548
	P055E	4E43				
	P055F	4820				
	P0560	5441				
	P0561	5045				
	P0562	204C				
	P0563	4F57				
1549	P0564	800A	MESTLE	NUM	8800A	01549

```

1551 *****PTC2 01551
1552 * PTC2 01552
1553 * INITIALIZE ROUTINE PTC2 01553
1554 * TYPE MESSAGES, INPUT PARAMETERS, SET SOME SWITCHES PTC2 01554
1555 * PTC2 01555
1556 *****PTC2 01556

```

```

1558 P0565 0000 INIT1 NUM * PTC2 01558
1559 P0566 C000 LDA =XPTP003 PTC2 01559
P0567 0000 P
1560 P0568 540A RTJ- (CONV) CONVERN ROUTINE FOR TESTS IA PTC2 01560
1561 P0569 4848 STQ* IA 01561
1562 P056A 6848 STA* IA+1 01562
1563 P056B E091 LDQ- TSACTV PTC2 01563
1564 P056C C291 LDA- TSFREQ-1,0 PTC2 01564
1565 P056D 540A RTJ- (CONV) CONVERT NUMBER OF PASSES PTC2 01565
1566 P056E 6849 STA* HEAOE-1 TO MSG BUFFER PTC2 01566
1567 P056F 0A01 INIT1B ENA 1 01567
1568 P0570 A049 AND- INFORM 01568
1569 P0571 0500 IIN 0 01569
1570 P0572 0102 SAZ 2 SKIP IF NOT BUSY PTC2 01570
1571 P0573 0400 EIN 0 TELETYPE BUSY SW IS SET WIAT 01571
1572 P0574 18FA JMP* INIT1B LOOP IF BUSY PTC2 01572
1573 P0575 C000 LDA =XHEAD 01573
P0576 0594 P
1574 P0577 E81C LDQ* HCOUNT 01574
1575 P0578 5408 RTJ- (TYPE) TYPEOUT INITIALIZE MSG PTC2 01575
1576 P0579 0A01 INIT1C ENA 1 01576
1577 P057A A049 AND- INFORM 01577
1578 P057B 0500 IIN 0 01578
1579 P057C 0102 SAZ 2 01579
1580 P057D 0400 EIN 0 01580
1581 P057E 18FA JMP* INIT1C WAIT FOR TTY BUSY TO DROP PTC2 01581
1582 P057F C800 INIT1A LDA EQUIP 01582
P0580 FA85
1583 P0581 6800 STA PSTATUS SET PUNCH CONNECTED CODE FOR STATUS PTC2 01583
P0582 FF20
1584 P0583 C000 LDA =XINIT2A PTC2 01584
P0584 0588 P
1585 P0585 6800 STA RETURN SET RETURN ADDR FOR AFTER TRADEOFF PTC2 01585
P0586 FA7E
1586 P0587 5401 RTJ- (CONTROL) RETURNR TO SMM PTC2 01586
1587 P0588 5800 INIT2A RTJ INPARA INPUT PARAMETERS PTC2 01587
P0589 FAA1
1588 P058A C800 LDA INT11 MOVE INTERRUPT LINE ASSIGNMENT PTC2 01588
P058B FAB2
1589 P058C 6800 STA INT1 TO FRONT OF THE TEST PTC2 01589
P058D FA79
1590 P058E C000 LDA =XCNTL PTC2 01590
P058F 0074 P
1591 P0590 6800 STA RETURN SET RETURN ADDR PTC2 01591
P0591 FA73

```

1592	P0592	5401		RTJ- (CONTROL)	RETURN TO SHM		PTC2	01592
1593	P0593	0025	HCOUNT	ADC	HEADE-HEAD+1			01593
1594	P0594	800A	HEAD	NUM	\$800A			01594
1595	P0595	2050		ALF	X, PTP003, 1723/77 PUNCH TEST.X			01595
	P0596	5450						
	P0597	3030						
	P0598	332C						
	P0599	2031						
	P059A	3732						
	P059B	332F						
	P059C	3737						
	P059D	2050						
	P059E	554E						
	P059F	4348						
	P05A0	2054						
	P05A1	4553						
	P05A2	542E						
1596	P05A3	800A		NUM	\$800A			01596
1597	P05A4	2043		ALF	X, CP2F, VER. 3.1-1 X			***01597
	P05A5	5032						
	P05A6	462C						
	P05A7	2056						
	P05A8	4552						
	P05A9	2E20						
	P05AA	332E						
	P05AB	312D						
	P05AC	3120						
1598	P05AD	800A		NUM	\$800A			01598
1599	P05AE	2049		ALF	3, IA =			01599
	P05AF	4120						
	P05B0	3020						
1600	P05B1	0000	IA	NUM	\$0			01600
1601	P05B2	0000		NUM	\$0			01601
1602	P05B3	2C20		NUM	\$2C20			01602
1603	P05B4	2046		ALF	4, FC =			01603
	P05B5	4320						
	P05B6	3020						
	P05B7	2020						
1604	P05B8	8D0A	HEADE	NUM	\$800A			01604
1605				END				01605

L

PTP003

PAGE 50

DATE: 10/20/75

PGM= 0589 (1465) COM = 0000 (0) DAT = 0000 (0)

ME Q U I V A L E N C E S

M	DEF. LINE	NAME	VALUE	REFERENCED AT LINE NUMBER
0000	I	00FF	(000255)	
0144	CONTRO	0001	(000001)	, 0145, 0238, 0441, 0913, 1230, 1324 , 1475, 1481, 1586, 1592
0145	STOPX	0002	(000002)	, 0146, 0250, 0286, 0494, 0594, 0709 , 0781, 0853, 0902, 1271, 1351, 1396
0146	EXIT	0003	(000003)	, 0147, 0210
0147	NONDAT	0004	(000004)	, 0148, 0149, 0372
0148	FCLRIN	0005	(000005)	, 0207
0149	JUMPX	0006	(000006)	, 0150, 0944
0150	GENRAN	0007	(000007)	, 0151, 0204
0151	TYPEOU	0008	(000008)	, 0152, 0153, 0206, 0208
0152	TTYBZY	0009	(000009)	
0153	HEXASC	000A	(000010)	, 0154, 0205, 0211
0154	OVRLAY	000B	(000011)	, 0155
0155	RELPOS	000C	(000012)	, 0156
0156	MAINL	000D	(000013)	, 0157
0157	SETMAS	0042	(000066)	, 0158
0158	STJP	0043	(000067)	, 0159, 0160, 0203, 0209, 0241
0159	LASTVA	0044	(000068)	
0160	LASTAD	0045	(000069)	, 0161
0161	LDLCOR	0047	(000071)	, 0162
0162	LDL1CO	0048	(000072)	, 0163
0163	INFORM	0049	(000073)	, 0164, 1521, 1568, 1577
0164	SMHCNT	0056	(000086)	, 0165, 0202
0165	BIT00	006B	(000107)	, 0166, 0201
0166	BIT0	006B	(000107)	, 0167
0167	BIT1	006C	(000108)	, 0168
0168	BIT2	006D	(000109)	, 0169
0169	BIT3	006E	(000110)	, 0170, 1305
0170	BIT4	006F	(000111)	, 0171
0171	BIT5	0070	(000112)	, 0172
0172	BIT6	0071	(000113)	, 0173, 0247, 1298
0173	BIT7	0072	(000114)	, 0174
0174	BIT8	0073	(000115)	, 0175
0175	BIT9	0074	(000116)	, 0176
0176	BIT10	0075	(000117)	, 0177
0177	BIT11	0076	(000118)	, 0178
0178	BIT12	0077	(000119)	, 0179, 0522, 1322, 1469, 1484
0179	BIT13	0078	(000120)	, 0180, 0527
0180	BIT14	0079	(000121)	, 0181, 1012
0181	BIT15	007A	(000122)	, 0182

0182	H0000	007B	(000123)	, 0183
0183	HFFFF	007C	(000124)	, 0184
0184	H000F	007D	(000125)	, 0185
0185	H00F0	007E	(000126)	, 0186
0186	H0F00	007F	(000127)	, 0187
0187	HF000	0080	(000128)	, 0188
0188	H00FF	0081	(000129)	, 0189, 0532, 0567, 0671, 0800, 1202
0189	HFF00	0082	(000130)	, 0190, 1043
0190	HFFFF	0083	(000131)	, 0191
0191	H0FFF	0084	(000132)	, 0192
0192	HFF0F	0085	(000133)	, 0193
0193	HF0FF	0086	(000134)	, 0194
0194	H7FFF	0087	(000135)	, 0195, 0431
0195	H7F00	0088	(000136)	, 0196
0196	H0780	0089	(000137)	, 0197
0197	H007F	008A	(000138)	, 0198
0198	H2020	008B	(000139)	, 0199
0199	TSACTV	0091	(000145)	, 0200, 1563
0200	TSFREQ	0092	(000146)	, 1564
0201	CONST	006B	(000107)	, 0300, 0305, 0311, 0332, 0350, 0354, , 0364, 0402, 0487, 0536, 0554, 0560, , 0658, 0664, 0697, 0753, 0793, 0824, , 0865, 1138, 1146, 1148, 1246, 1435, , 1441, 1446, 1451, 1457, 1473, 1479, , 1497, 1501, 1508
0202	SMMPAR	0056	(000086)	
0203	SJPAR	0043	(000067)	
0204	RANDOM	0007	(000007)	
0205	CONVER	000A	(000010)	
0206	MESSAG	0008	(000008)	
0207	CLRND	0005	(000005)	
0208	TYPE	0008	(000008)	, 1526, 1575
0209	SJ	0043	(000067)	, 0486, 0937, 1312
0210	TSEXIT	0003	(000003)	, 0929
0211	CONV	000A	(000010)	, 1560, 1565

M S Y M B O L S

M	DEF.LINE	NAME	ADDRESS	REFERENCED AT LINE NUMBER
	0213	PTP003	0000	, 0244, 0285, 0490, 0928, 1014, 1559
	0215	PARADR	0004	
	0216	RETURN	0005	, 0434, 0909, 0912, 0920, 0998, 1011 , 1321, 1326, 1468, 1483, 1585, 1591
	0217	EQUIP	0006	, 0352, 0370, 1582
	0218	INT1	0007	, 0303, 0349, 0356, 0371, 1589
	0220	START	0008	, 0213
	0221	STWOP	0009	
	0232	CHECK	0008	, 0433, 1010, 1331, 1482
	0239	CHECK1	0013	, 0233, 0251
	0240	CHECK2	0015	, 0235
	0246	CHECK3	001E	, 0243
	0253	CHECK4	0026	, 0240, 0245, 0248, 0254
	0255	COUNT1	0028	, 0234, 0237, 0432, 1013, 1323, 1470 , 1485
	0276	INITIA	0029	, 0216
	0277	INPARA	0028	, 0220, 0307, 0315, 1587
	0291	GNTWRD	0039	, 0215, 0278, 0283, 0299, 0304, 0331 , 0400, 0403, 0521, 0535, 0553, 0604 , 0657, 0719, 0791, 0863, 1137, 1145 , 1147
	0292	REPEAT	003A	, 0579, 0684, 0767, 0839
	0293	DELAYA	003B	, 1174
	0294	DELAYB	003C	, 1185
	0295	DELAYC	003D	, 1197
	0296	INT11	003E	, 0302, 1588
	0298	INPAR1	003F	, 0287
	0308	INPAR2	004A	, 0279, 0401
	0310	CHJMP6	004B	, 0314, 0337, 0600, 0715, 0787, 0859 , 0925, 0930
	0315	CHJP1	0051	, 0313
	0316	CHJP1A	0052	, 0336, 0347
	0322	CHJP2	0059	, 0318
	0324	CHJP3	005B	, 0321
	0331	CHJP4	0063	, 0319, 0322
	0339	INMONL	006C	, 0280, 0301, 0316, 1131
	0340	OMITDE	006D	, 0306, 0754, 0794, 0825, 0866, 1141
	0341	SECTIO	006E	, 0246, 0399, 0474, 0551, 0652, 0750 , 0821, 1268, 1343, 1387
	0343	ERRE	006F	
	0344	ERRD	0070	, 0328
	0349	GNTRL	0074	, 0221, 1590

0356	CNTRL1	007C	, 0351
0358	CNTRL2	007E	, 0361
0362	CNTRL3	0082	, 0358
0369	CNTRL4	008A	, 0355
0373	REQINT	0091	, 0377, 0379
0375	CNTRL5	0093	, 0368
0397	CNT1B	009A	, 0374, 0378, 0926, 0931
0405	CNT1	00A2	, 0416, 0461
0410	CNT1A	00A8	, 0422
0417	CNT2	00B2	, 0428, 0450
0429	CNT2A	00C1	
0443	ERRC	00D7	, 0425
0444	ERRB	00D8	
0445	ERRA	00D9	, 0420
0446	ERP9	00DA	
0447	ERR8	00DB	, 0419
0452	ERR7	00DF	
0453	ERP6	00E0	, 0440
0454	ERR5	00E1	, 0413
0455	ERR4	00E2	
0456	ERR3	00E3	, 0408
0457	ERR2	00E4	
0458	ERR1	00E5	, 0407
0470	CTERS	00E9	, 0343, 0344, 0443, 0444, 0445, 0446
			, 0447, 0452, 0453, 0454, 0455, 0456
			, 0457, 0458, 0472, 0473, 0475, 0483
			, 0959, 1163, 1488
0471	ERRORS	00EA	, 0346, 0449, 0460, 0484, 0504, 0968
			, 0973, 0978, 1168, 1465
			, 0488
0492	OVER	0103	, 0476
0497	SECERR	0109	, 0485, 0489, 0491
0498	RETADR	010A	, 0409, 0421, 0891, 1463
0499	ERSTAT	010B	, 0477
0500	EREQUI	010C	, 0481
0502	MODE1	010E	, 0495
0503	ERROR1	010F	, 0514, 0517, 0518
0512	FREQSW	0112	, 0429
0513	CS00A	0113	, 0520
0515	CS00C	0115	, 0519
0521	CS00D	011C	, 0526, 0531
0533	CS00D1	0129	
0535	CS000	0128	
0548	CS100	0137	, 0635
0560	CS101	0146	, 0556
0566	CS102	014D	, 0562
0568	CS103	0150	, 0559, 0565
0571	CS104	0154	
0573	CS105	0156	, 0578
0579	C105A	015D	, 0603
0582	CS106	0161	, 0587, 0592
0593	CS107	0170	, 0591
0597	S107A	0175	, 0550
0599	CS108	0176	, 0595

0606	CS109	0181	, 0552, 0605
0607	CS10A	0182	, 0548, 0573
0609	RESTWD	0183	, 0570, 0588, 0619, 0675, 0703
0621	LEVELC	0192	, 0569, 0611, 0615, 0674
0622	SPACER	0193	, 0572, 0575, 0576, 0677, 0680, 0681
			, 0759, 0763, 0764, 0832, 0835, 0836
0623	CYCLES	0194	, 0581, 0589, 0590, 0686, 0704, 0705
			, 0769, 0776, 0777, 0841, 0848, 0849
0625	CS200	0195	, 0539, 0543, 0606
0632	CS201	0199	
0637	CS400	019F	, 0628, 0634
0650	CS401	01A9	, 0736
0664	CS402	01BA	, 0660
0670	CS403	01C1	, 0666
0673	CS404	01C5	, 0663, 0669
0678	CS405	01C8	, 0683
0684	CS406	01D2	, 0718
0687	CS407	01D6	, 0702, 0707
0698	CS408	01E3	, 0691, 0694, 0696
0708	CS409	01F0	, 0706
0712	CS40A	01F5	, 0653
0714	CS40B	01F6	, 0710
0722	CS40C	0201	, 0654, 0720
0723	CS400	0202	, 0650, 0678
0724	CS40E	0203	, 0656, 0672, 0695
0726	CS800	0204	, 0640, 0647, 0722
0738	CS1000	020E	, 0729, 0735
0749	CS1001	0212	
0761	CS1002	0223	, 0766
0767	CS1003	022C	, 0790
0770	CS1094	0231	, 0775, 0779
0784	CS1005	0246	
0786	CS1006	0247	, 0782
0797	CS1007	0256	, 0752, 0761
0799	SETEXL	0257	, 0760, 0808, 0830
0807	SETEX1	025F	, 0802, 0805
0810	CS2000	0262	, 0741, 0795
0820	CS2001	0266	
0833	CS2002	0278	, 0838
0839	CS2003	0281	, 0862
0842	CS2004	0286	, 0847, 0851
0856	CS2005	029B	
0858	CS2006	029C	, 0854
0869	CS2007	02AB	, 0823, 0833
0877	CS4000	02AC	, 0813, 0867
0879	CSEND	02AE	
0881	CSEN4	0280	, 0886
0887	CSEN2	0287	, 0898, 0969
0905	PASSCO	02CD	, 0901
0907	CSEN1	02CE	, 0903
0911	CSEN1A	02D4	, 0918

0914	CTEN1	0209	, 0910, 0919
0915	CSEN18	02DA	, 0911
0916	CTEN2	02D8	, 0908, 0915
0919	CSEN1C	02DF	, 0917
0925	CSEN6	02E6	, 0923
0927	CSEN7	02EA	, 0924
0933	DELAYS	02F3	, 0880, 0883, 0884
0935	JUMP	02F4	, 0312, 0335, 0415, 0427, 0602, 0717
			, 0789, 0861, 0897, 0922, 0940, 0941
			, 0946, 0948, 1314
0947	JUMP1	0300	, 0945
0950	JUMP2	0302	, 0936, 0943
0959	C1ERS	0303	, 0960, 0961, 0962, 0963, 0964, 0965
			, 0966, 0970, 0971, 0975, 0976
0960	ERR15	0304	, 0895
0961	ERR14	0305	
0962	ERR13	0306	, 0890
0963	ERR12	0307	
0964	ERR11	0308	
0965	ERR10	0309	
0966	ERRF	030A	, 0889
0970	ERR17	030F	
0971	ERR16	0310	, 1001
0975	ERR19	0315	
0976	ERR18	0316	, 1025
0993	CHCHM	0318	, 0284, 0492, 0593, 0708, 0780, 0852
			, 0900, 0927, 0942, 1015, 1395, 1466
			, 1519
0999	CHCHME	0324	, 0974
1010	CHCHM1	0334	, 0997, 1006
1014	CHCHM2	0338	, 0996
1016	SVINTM	033E	, 1004, 1008, 1220
1018	CHINM	033F	, 0298, 0503, 0599, 0714, 0786, 0858
			, 0947, 1021, 1027, 1405, 1486, 1527
1022	CHINME	0345	, 0979
1029	GENPAT	034D	, 0582, 0687, 1055
1038	GEN1	0356	, 1036
1041	GEN2	0359	, 1034
1049	PPOUT	0361	, 1037, 1044
1057	WORD	0368	, 0612, 0613, 0616, 1032, 1040, 1045
			, 1046, 1049
1060	PPSW	036B	, 0618, 1033, 1039, 1047
1061	PPEXL	036C	, 0568, 0673, 0807, 1053, 1097, 1118
1062	SECTEN	036D	, 0585, 0689, 0700, 0773, 0845, 1031
			, 1048, 1082, 1091, 1104, 1113
1063	COMPAT	036E	, 0541, 0633, 0645, 0693, 0734, 1050
1066	ZZ8	036F	, 0566
1068	ZZ7	0371	, 0563
1070	ZZ5	0373	, 0557
1073	PY8	0375	, 0670

1075	PY7	0377	, 0667
1077	PY5	0379	, 0661
1080	GENOZ	037B	, 0770, 1098
1088	GENO1	0383	, 1084
1095	GENO2	038A	, 1089
1097	GENEX	038C	, 1087
1099	GENO3	038E	, 0758, 1083, 1085, 1092
1100	GENO4	038F	, 0756, 1088, 1094, 1095
1102	GENC9	0390	, 0842, 1119
1110	GENC1	0399	, 1106
1116	GENC2	039F	, 1111
1118	GENCEX	03A1	, 1109
1120	GENC3	03A3	, 0827, 1105, 1107, 1114
1121	GENC4	03A4	, 0829, 1110, 1115, 1116
1123	DELAY	03A5	, 0239, 0584, 0699, 0772, 0844, 1134
			, 1140, 1143, 1159, 1191
1135	DELAY0	03AC	, 1179
1145	DELAY1	03BB	, 1136, 1169
1163	C2ERS	03CF	, 1165, 1166
1165	ERR21	03D0	
1166	ERR20	03D1	, 1155
1171	DELAY2	03D6	, 1144, 1176, 1180
1181	DELAY3	03E1	, 1173
1191	DELAY4	03EC	, 1187
1192	TIME	03ED	, 1171, 1172, 1181, 1182, 1183, 1184
			, 1188, 1189, 1190
1195	MINUS	03FD	, 1135, 1177, 1200, 1205
1196	MIN1	03F1	, 1198, 1203
1217	PPT	03FD	, 0430, 0516, 0533, 0574, 0583, 0679
			, 0698, 0762, 0771, 0834, 0843, 0882
			, 1292, 1316
1219	PPT1C	0400	, 1487
1226	PPT8B	0408	, 1224
1231	PPT1A	0400	, 1009, 1160, 1227
1240	INTFLG	040F	, 0369, 1249
1241	INTENT	0410	, 0373, 1232, 1252
1243	INTEN0	0412	, 1276
1249	INTENA	0419	, 1247
1252	INTENB	041C	, 1250
1257	INTEN1	0422	, 1255
1266	E3536	0425	, 1245
1274	ERR35A	042E	, 1269
1276	ERR35B	0430	, 1272, 1275
1284	INTEN2	0431	, 1248, 1251
1288	PPT1	0435	, 1225, 1286, 1406
1295	PPT1B	043C	, 1315, 1327
1308	PPT2	0448	, 1304, 1363, 1432
1309	PPT3	0449	
1316	PPT3A	0451	, 1313
1317	PPT4A	0452	, 1310
1318	PPT4	0453	, 1306
1325	PPT4B	045C	, 1330
1328	PPT5	0460	, 1319

1330	PPTRET	0461	, 1320
1331	PPTCHK	0462	, 1325
1332	FIRSTI	0463	, 0437, 1289, 1291
1333	OKINT	0464	, 0436, 1003, 1222, 1285, 1293
1334	INTMOD	0465	, 0232, 0317, 0333, 0398, 0435, 0478
			, 0994, 1007, 1019, 1150, 1156, 1223
			, 1318, 1391, 1425
1335	WAIT	0466	, 1294, 1410, 1429, 1514
1336	STATFC	0467	, 0330, 1005, 1026, 1132, 1157, 1226
			, 1229
1337	INTEXV	0468	, 1231, 1242, 1256, 1284
1338	RBDP	0469	, 1302, 1407, 1439, 1440, 1506, 1507
1341	VALERR	046A	, 1300, 1346
1354	VALER1	0478	, 1345
1355	VALER2	0479	, 1347
1356	VALER3	047A	, 1349
1358	VALER4	047C	, 1342, 1360
1360	VALER5	047D	, 1352
1371	CTER	0481	, 1372, 1373, 1374, 1375, 1376, 1377
			, 1378, 1379, 1380, 1381, 1382, 1383
			, 1384, 1385, 1390
			, 1500
1372	ERR30	0482	, 1287
1373	ERR2F	0483	, 1540
1375	ERR2D	0485	, 1539
1376	ERR2C	0486	, 1504
1377	ERR2B	0487	, 1433
1379	ERR29	0489	, 1424
1380	ERR28	048A	, 1328
1381	ERR27	048B	, 1317
1382	ERR26	048C	
1383	ERR25	048D	
1384	ERR24	048E	, 1296
1399	SECEP	04A0	, 1388
1401	STATUS	04A2	, 1297, 1301, 1348, 1409, 1462
1402	PSTATU	04A3	, 0324, 0405, 0417, 0438, 0887, 0999
			, 1022, 1151, 1244, 1295, 1431, 1464
			, 1471, 1583
			, 1218, 1309
1403	PCHAR	04A4	, 1394
1404	MODE	04A5	, 1397
1405	ER1	04A6	, 1307
1407	CHDT	04AA	, 1414
1416	CHBT1	04B4	, 1421
1424	CHBT1A	04BC	, 1418
1425	CHBT2	04B0	, 1423, 1515
1428	CHBTES	04C0	, 1426
1433	CHBT3	04C5	, 1415, 1430
1435	CHBT8	04C6	, 1442
1448	CHBT8B	04D4	, 1438
1453	CHBT9	04DA	, 1496, 1535
1462	CHBT15	04E3	, 1467
1471	CHBT16	04F3	, 1489, 1490, 1491, 1492, 1493, 1494
1488	C3ERS	0509	

1489	ERR36	050A	
1490	ERR35	050B	, 1478
1491	ERR34	050C	
1492	ERR33	050D	, 1477
1493	ERR32	050E	
1494	ERR31	050F	, 1472
1497	CHBT10	0512	, 1460
1501	CHBT4	0517	, 1499
1505	CHBT5	051C	, 1503
1513	CHBT6	0527	, 1509
1514	CHBT6A	0529	, 1447, 1452
1516	OUTMES	052C	, 1445, 1450, 1512, 1528
1520	MESS1	0531	, 1523
1529	AMESS	053B	, 1517, 1524
1530	QMESS	053C	, 1518, 1525
1531	CHBT12	053D	, 1456
1536	CHBT13	0542	, 1533
1540	CHBT14	0547	, 1538
1541	MESSPC	0549	, 1443, 1444
1543	MESPCE	0553	, 1444, 1544
1544	MESSPS	0553	, 1448, 1449
1546	MESPSE	055C	, 1449, 1547
1547	MESSTL	055C	, 1510, 1511
1549	MESTLE	0564	, 1511
1558	INIT1	0565	, 0276
1567	INIT1B	056F	, 1572
1576	INIT1C	0579	, 1581
1582	INIT1A	057F	
1587	INIT2A	0588	, 1584
1593	HCGOUNT	0593	, 1574
1594	HEAD	0594	, 1573, 1593
1600	IA	05B1	, 1561, 1562
1604	HEADE	0588	, 1566, 1593

*** ALPHABETICAL SORT OF SYMBOLS *** MMM

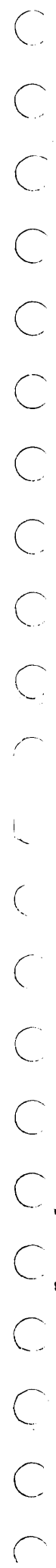
AMESS	1529	BIT0	0166	BIT00	0165	BIT1	0167	BIT10	0176
BIT11	0177	BIT12	0178	BIT13	0179	BIT14	0180	BIT15	0181
BIT2	0168	BIT3	0169	BIT4	0170	BIT5	0171	BIT6	0172
BIT7	0173	BIT8	0174	BIT9	0175	C105A	0579	C1ERS	0959
C2ERS	1163	C3EPS	1488	CHBT	1407	CHBT1	1416	CHBT10	1497
CHBT12	1531	CHBT13	1536	CHBT14	1540	CHBT15	1462	CHBT16	1471
CHBT1A	1424	CHBT2	1425	CHBT3	1433	CHBT4	1501	CHBT5	1505
CHBT6	1513	CHBT6A	1514	CHBT8	1435	CHBT8B	1448	CHBT9	1453
CHBTES	1428	CHCHM	0993	CHCHM1	1010	CHCHM2	1014	CHCHME	0999
CHECK	0232	CHECK1	0239	CHECK2	0240	CHECK3	0246	CHECK4	0253
CHINM	1018	CHINME	1022	CHJMP6	0310	CHJP1	0315	CHJP1A	0316
CHJP2	0322	CHJP3	0324	CHJP4	0331	CLRND	0207	CNT1	0405
CNT1A	0410	CNT1B	0397	CNT2	0417	CNT2A	0429	CNTRL	0349
CNTRL1	0356	CNTRL2	0358	CNTRL3	0362	CNTRL4	0369	CNTRL5	0375
CNTWR0	0291	COMPAT	1063	CONST	0201	CONTR0	0144	CONV	0211
CONVER	0205	COUNT1	0255	CS000	0535	CS00A	0513	CS00C	0515
CS000	0521	CS0001	0533	CS100	0548	CS1000	0738	CS1001	0749
CS1002	0761	CS1003	0767	CS1004	0770	CS1005	0784	CS1006	0786
CS1007	0797	CS101	0560	CS102	0566	CS103	0568	CS104	0571
CS105	0573	CS106	0582	CS107	0593	CS108	0599	CS109	0606
CS10A	0607	CS200	0625	CS2000	0810	CS2001	0820	CS2002	0833
CS2003	0839	CS2004	0842	CS2005	0856	CS2006	0858	CS2007	0869
CS201	0632	CS400	0637	CS4000	0877	CS401	0650	CS402	0664
CS403	0670	CS404	0673	CS405	0678	CS406	0684	CS407	0687
CS408	0698	CS409	0708	CS40A	0712	CS40B	0714	CS40C	0722
CS40D	0723	CS40E	0724	CS800	0726	CSEN1	0907	CSEN1A	0911
CSEN1B	0915	CSEN1C	0919	CSEN2	0887	CSEN4	0881	CSEN6	0925
CSEN7	0927	CSEND	0879	CTEN1	0914	CTEN2	0916	CTER	1371
CTERS	0470	CYCLES	0623	DELAY	1123	DELAY0	1135	DELAY1	1145
DELAY2	1171	DELAY3	1181	DELAY4	1191	DELAYA	0293	DELAYB	0294
DELAYC	0295	DELAYS	0933	EJ536	1266	EQUIP	0217	ER1	1405
EREQUI	0500	ERR1	0458	ERR10	0965	ERR11	0964	ERR12	0963
ERR13	0962	ERR14	0961	ERR15	0960	ERR16	0971	ERR17	0970
ERR18	0976	ERR19	0975	ERR2	0457	ERR20	1166	ERR21	1165
ERR24	1384	ERR25	1383	ERR26	1382	ERR27	1381	ERR28	1380
ERR29	1379	ERR2B	1377	ERR2C	1376	ERR2D	1375	ERR2F	1373
ERR3	0456	ERR30	1372	ERR31	1494	ERR32	1493	ERR33	1492
ERR34	1491	ERR35	1490	ERR35A	1274	ERR35B	1276	ERR36	1489
ERR4	0455	ERR5	0454	ERR6	0453	ERR7	0452	ERR8	0447
ERR9	0446	ERRA	0445	ERRB	0444	ERRC	0443	ERRD	0344
ERRE	0343	ERRF	0966	ERROR1	0503	ERRORS	0471	ERSTAT	0499
EXIT	0146	FCLPIN	0148	FIRSTI	1332	FREQSW	0512	GEN1	1038
GEN2	1041	GENC1	1110	GENC2	1116	GENC3	1120	GENC4	1121
GENC9	1102	GENCEX	1118	GENEX	1097	GEN01	1088	GEN02	1095
GEN03	1099	GEN04	1100	GEN0Z	1080	GENPAT	1029	GENRAN	0150
H0000	0182	H000F	0184	H007F	0197	H00F0	0185	H00FF	0188
H0780	0196	H0F00	0186	H0FFF	0191	H2020	0198	H7F00	0195
H7FFF	0194	HCOUNT	1593	HEAD	1594	HEADE	1604	HEXASC	0153
HFO00	0187	HFOFF	0193	HFF00	0189	HFF0F	0192	HFFFO	0190
HFFFF	0183	I	0000	IA	1600	INFORM	0163	INIT1	1558

PTP003

PAGE 61

DATE: 10/20/75

INIT1A	1582	INIT1B	1567	INIT1C	1576	INIT2A	1587	INITIA	0276
INMONL	0339	INPAR1	0298	INPAR2	0308	INPARA	0277	INT1	0218
INT11	0296	INTENO	1243	INTEN1	1257	INTEN2	1284	INTENA	1249
INTENB	1252	INTENT	1241	INTEXV	1337	INTFLG	1240	INTMOD	1334
JUMP	0935	JUMP1	0947	JUMP2	0950	JUMPX	0149	LASTAD	0160
LASTVA	0159	LDL1CO	0162	LDLCOR	0161	LEVELC	0621	MAINL	0156
MESPC	1543	MESPSE	1546	MESS1	1520	MESSAG	0206	MESSPC	1541
MESSPS	1544	MESSTL	1547	MESTLE	1549	MIN1	1196	MINUS	1195
MODE	1404	MODE1	0502	NONDAT	0147	OKINT	1333	ONITDE	0340
OUTMES	1516	OVER	0492	OVRLAY	0154	PARADR	0215	PASSCO	0905
PCHAR	1403	PPEXL	1061	PPOUT	1049	PPSW	1060	PPT	1217
PPT1	1288	PPT1A	1231	PPT1B	1295	PPT1C	1219	PPT2	1308
PPT3	1309	PPT3A	1316	PPT4	1318	PPT4A	1317	PPT4B	1325
PPT5	1328	PPTBB	1226	PPTCHK	1331	PPTRET	1330	PSTATU	1402
PTP003	0213	PY5	1077	PY7	1075	PY8	1073	QMESS	1530
RANDOM	0204	RBDP	1338	RELPOS	0155	REPEAT	0292	REQINT	0373
RESTWD	0609	RETADR	0498	RETURN	0216	S107A	0597	SECER	1399
SECERR	0497	SECTEN	1062	SECTIO	0341	SETEX1	0807	SETEXL	0799
SETMAS	0157	SJ	0209	SJPAR	0203	SHMCNT	0164	SHMPAR	0202
SPACER	0622	START	0220	STATEG	1336	STATUS	1401	STJP	0158
STOPX	0145	STWOP	0221	SVINTM	1016	TIME	1192	TSACTV	0199
TSEXIT	0210	TSFREQ	0200	TTYBZY	0152	TYPE	0208	TYPEOU	0151
VALER1	1354	VALER2	1355	VALER3	1356	VALER4	1358	VALER5	1360
VALERR	1341	WAIT	1335	WORD	1057	ZZ5	1070	ZZ7	1068
ZZ8	1066								



COMMENT SHEET

MANUAL TITLE CONTROL DATA SMM17 PROGRAM LISTINGS PTP

Customer Engineering Manual

PUBLICATION NO. 60220300

REVISION E

FROM:

NAME: _____

BUSINESS

ADDRESS: _____

COMMENTS:

This form is not intended to be used as an order blank. Your evaluation of this manual will be welcomed by Control Data Corporation. Any errors, suggested additions or deletions, or general comments may be made below. Please include page number references and fill in publication revision level as shown by the last entry on the Record of Revision page at the front of the manual. Customer engineers are urged to use the TAR.

CUT ALONG LINE

PRINTED IN U.S.A.

AA3419 REV. 11/69

NO POSTAGE STAMP NECESSARY IF MAILED IN U. S. A.

FOLD ON DOTTED LINES AND STAPLE

STAPLE

STAPLE

FOLD

FOLD

FIRST CLASS
PERMIT NO. 8241
MINNEAPOLIS, MINN.

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN U.S.A.

POSTAGE WILL BE PAID BY

CONTROL DATA CORPORATION

Technical Publications Department
4201 North Lexington Avenue
Arden Hills, Minnesota 55112



CUT ALONG LINE

FOLD

FOLD





▶▶ CUT OUT FOR USE AS LOOSE-LEAF BINDER TITLE TAB

CONTROL DATA
CORPORATION

8100 34th AVE. SO., MINNEAPOLIS, MINN. 55440

PRINTED IN U.S.A.