

CLEAR STORAGE 1	,008015,022026,030037,044,049,053053N000000N00001026	1
CLEAR STORAGE 2	L068116,105106,110117B101/I9I#071029C029056B026/B001/0991,001/001117I0?	2
BOOTSTRAP	,008015,022029,036040,047054,061068,072/061039,0010011040	3
0	MULTIPLE TAPE UTILITY PROGRAM 1401-UT-039	PAGE 1
0	SEQ PG LIN LABEL OP OPERANDS	SFX CT LOCN INSTRUCTION TYPE CARD A-ADDR B-ADDR


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101          JOB  MULTIPLE TAPE UTILITY PROGRAM 1401-UT-039
102          CTL  6311
103          *
104          * CARD-TO-TAPE, TAPE-TO-PRINT, AND TAPE-TO-CARD OPERATIONS,
105          * ONE AT A TIME OR ALL AT ONCE.
106          *
107          * SENSE SWITCHES:
108          *   B FOR BCD CARD-TO-TAPE
109          *   C FOR TAPE-TO-PRINT
110          *   D FOR BCD TAPE-TO-CARD
111          *   E INTERRUPT OPERATIONS FOR NEW SENSE-SWITCH SETTINGS
112          *     OR NEW CONTROL CARD
113          *   F FOR COLUMN-BINARY TAPE-TO-CARD
114          *   G FOR COLUMN-BINARY CARD-TO-TAPE
115          *   B&G FOR MIXED COLUMN-BINARY AND BCD CARD-TO-TAPE.
116          *
117          * CARD-TO-TAPE IS ALWAYS TO UNIT 1
118          * TAPE-TO-PRINT IS ALWAYS UNIT 2.  RECORDS CAN BE OF VARIABLE
119          * LENGTH WITH VARIABLE BLOCKING.  LINES ARE SEPARATED BY RECORD
120          * MARKS.
121          * TAPE-TO-CARD IS ALWAYS UNIT 3.  RECORDS ARE UNBLOCKED, 80
122          * CHARACTERS FOR BCD AND 160 CHARACTERS FOR COLUMN BINARY.
123          *
124          * CONTROL CARD
125          *
126          * COLUMN 1: PUNCH A ONE (1) IN COLUMN 1 WHEN COLUMN 2 IS PUNCHED
127          * OR THE PRINT STORAGE FEATURE IS NOT INSTALLED.  IF COLUMN 2
128          * IS NOT PUNCHED AND PRINT STORAGE FEATURE IS INSTALLED, LEAVE
129          * COLUMN 1 BLANK.
130          *
131          * COLUMN 2: TAPE-TO-PRINT FORMS CONTROL
132          * BLANK - SINGLE SPACE
133          * 2 - DOUBLE SPACE
134          * 3 - TRIPLE SPACE
135          * 4 - PROGRAM GOVERNS FORMS CONTROL -- SPACE-SUPPRESS
136          *   CHARACTER CAUSES SINGLE SPACING
137          * 5 - PROGRAM GOVERNS FORMS CONTROL -- SPACE-SUPPRESS
138          *   CHARACTER CAUSES RECORD BYPASS
139          * FOR 4 OR 5, THE FIRST CHARACTER OF EACH RECORD DETERMINES
140          * LINE SPACING.
141          * CHARACTER      OPERATION
142          *   &            SUPPRESS SPACING
143          *   BLANK        SINGLE SPACE
144          *   0            DOUBLE SPACE
145          *   - (11 PUNCH) TRIPLE SPACE
146          *   1-9 OR J-R  SKIP TO CHANNELS 1-9 BEFORE PRINTING
147          *
1
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1	MULTIPLE TAPE UTILITY PROGRAM 1401-UT-039	PAGE 2
0	SEQ PG LIN LABEL OP OPERANDS	SFX CT LOCN INSTRUCTION TYPE CARD A-ADDR B-ADDR

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148          * COLUMN 3: NOT USED (NO 705 GROUP MARK 12-5-8 SUPPORT)
149          *
150          * COLUMN 4: NOT USED
151          *
152          * COLUMNS 5-6: NUMBER OF FILES TO SKIP ON UNIT 1 BEFORE BEGINNING

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153      * CARD-TO-TAPE OPERATION.
154      * COLUMNS 7-8: NUMBER OF FILES TO SKIP ON UNIT 2 BEFORE BEGINNING
155      * TAPE-TO-PRINT OPERATION.
156      * COLUMNS 9-10: NUMBER OF FILES TO SKIP ON UNIT 3 BEFORE BEGINNING
157      * TAPE-TO-CARD OPERATION.
158      *
159      * ASSUMES ADVANCED-PROGRAMMING AND INDEX REGISTERS.
160      *
161      * DOESN'T BOTHER WITH READ RELEASE, OR PUNCH RELEASE, SINCE IT
162      * WILL PROBABLY ONLY EVER BE USED IN A SIMULATOR.
163      *
164      * HALTS INDICATED BY A- AND B-ADDRESS REGISTER CONTENTS:
165      * 000: ALL DONE. PRESS START TO READ A NEW CONTROL CARD.
166      * 111: SENSE SWITCH E REQUESTS INTERRUPTION. CHANGE SENSE SWITCH
167      * SETTINGS IF DESIRED. LEAVE SENSE SWITCH E ON AND PRESS
168      * START TO READ A NEW CONTROL CARD. OTHERWISE, JUST PRESS
169      * START
170      * 222: MORE THAN TEN READ ERRORS ON UNIT 2. PRESS START TO
171      * ACCEPT THE BLOCK.
172      * 333: A NEW CONTROL CARD HAS BEEN READ. TURN OFF SENSE SWITCH
173      * E AND PRESS START.
174      * 666: MORE THAN 49 SKIPS ON UNIT 1. TAPE IS UNUSABLE. MOUNT
175      * NEW TAPE AND PRESS START.
176      * 999: OUTPUT TAPE ON UNIT 1 IS FULL. REWIND TAPE, MOUNT NEW
177      * TAPE, TAPE, AND PRESS START.
178      *
179      ORG      87                                0087
180  XXXXX1 DCW   #3                                3  0089                                4
181      DC      #2                                2  0091                                4
182  XXXXX2 DCW   #3                                3  0094                                4
183      DC      #2                                2  0096                                4
184  XXXXX3 DCW   #3                                3  0099                                4
185      *
186      * INITIALIZATION
187      *
188      ORG      336                                0336
189  START  B      SSWICH      STORE SENSE SWITCH SETTINGS      4  0336  B 581                                5  581
190      B      CTLCD                                4  0340  B 688                                5  688
191      B      INIT      INITIALIZE SOME SWITCHES      4  0344  B 863                                5  863
1  0 SEQ PG LIN LABEL OP      OPERANDS                                SFX CT  LOCN  INSTRUCTION TYPE  PAGE  CARD A-ADDR  B-ADDR
192      * JOB      ACTIVITY LOOP
193      *
194  LOOP   CW      LOOPSW      DO NOT REPEAT IF NO WORK      4  0348  ) 388                                6  388
195      NOP                                1  0352  N                                6
196  BCD2TS B      BCD2TP      BCD-TO-TAPE -- SS B      4  0353  B 882                                6  882
197      NOP                                1  0357  N                                6
198  TP2PRS B      TAPE2P      TAPE-TO-PRINT -- SS C      4  0358  B S17                                6  1217
199      NOP                                1  0362  N                                6
200  T2BCDS B      TP2BCD      TAPE-TO-BCD -- SS D      4  0363  B V14                                6  1514
201      NOP                                1  0367  N                                7
202  T2CBSW B      T2CBIN      TAPE-TO-COLUMN-BINARY -- SS F      4  0368  B V66                                7  1566
203      NOP                                1  0372  N                                7
204  CB2TSW B      CBIN2T      COLUMN-BINARY-TO-TAPE -- SS G      4  0373  B |32                                7  1032
205      NOP                                1  0377  N                                7
206  MIXSBG B      MIXED      BOTH SS B AND SS G      4  0378  B Y40                                7  1840
207      BSS      INTRPT,E      5  0382  B 819 E                                7  819
208      NOP                                1  0387  N                                8
209  LOOPSW B      LOOP      4  0388  B 348                                8  348
210      NOP      000      4  0392  N 000                                8  000

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211				H				1	0396	.			8			
212				B	START			4	0397	B 336			8	336		
213				DCW	#1			1	0401				8			
1	SEQ	PG	LIN	LABEL	OP	OPERANDS					PAGE		4			
0	SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR		
214				JOB		ANALYZE SENSE SWITCH SETTINGS										
215				*												
216				*	B	MEANS BCD-TO-TAPE ON UNIT 1										
217				*	B	AND G MEANS MIXED BCD-TO-TAPE AND COLUMN-BINARY-TO-TAPE										
218				*	C	MEANS TAPE-TO-PRINT FROM UNIT 2										
219				*	D	MEANS TAPE-TO-BCD FROM UNIT 3										
220				*	D	ON DOESN'T TEST F										
221				*	E	MEANS READ A NEW CONTROL CARD (NOT TESTED HERE)										
222				*	F	MEANS TAPE-TO-COLUMN-BINARY FROM UNIT 3										
223				*	G	MEANS COLUMN-BINARY-TO-TAPE ON UNIT 1										
224				*												
225				ORG		581				0581						
226				SSWICH	SBR	SSWICX+3	4		0581	H 666		9	666			
227				SW		BCD2TS,TP2PRS TURN ON	7		0585	, 353 358		9	353	358		
228				SW		T2BCDS,T2CBSW ALL ACTIVITY	7		0592	, 363 368		9	363	368		
229				SW		CB2TSW,LOOPSW LOOP SWITCHES	7		0599	, 373 388		9	373	388		
230				CW		MIXSBG EXCEPT MIXED BCD AND COLUMN BINARY	4		0606	) 378		9	378			
231				BSS		SSB,B Q. BCD-TO-TAPE REQUESTED	5		0610	B 667 B		9	667			
232				CW		BCD2TS TURN OFF BCD-TO-TAPE	4		0615	) 353		9	353			
233				BSS		*&5,G Q. COLUMN-BINARY-TO-TAPE REQUESTED	5		0619	B 628 G		10	628			
234				CW		CB2TSW TURN OFF COLUMN-BINARY-TO-TAPE	4		0624	) 373		10	373			
235				SSC	BSS	*&5,C Q. TAPE-TO-PRINT REQUESTED	5		0628	B 637 C		10	637			
236				CW		TP2PRS TURN OFF TAPE-TO-PRINT	4		0633	) 358		10	358			
237				BSS		SSD,D Q. TAPE-TO-BCD REQUESTED	5		0637	B 650 D		10	650			
238				CW		T2BCDS TURN OFF TAPE-TO-BCD	4		0642	) 363		10	363			
239				B		*&5	4		0646	B 654		10	654			
240				SSD	CW	T2CBSW TURN OFF TAPE-TO-COLUMN-BINARY	4		0650	) 368		11	368			
241				BSS		*&5,F Q. TAPE-TO-COLUMN-BINARY REQUESTED	5		0654	B 663 F		11	663			
242				CW		T2CBSW TURN OFF TAPE-TO-COLUMN-BINARY	4		0659	) 368		11	368			
243				SSWICX	B	0-0	4		0663	B 000		11	000			
244				SSB	BSS	SSBG,G Q. BOTH B AND G	5		0667	B 680 G		11	680			
245				CW		CB2TSW TURN OFF COLUMN-BINARY-TO-TAPE	4		0672	) 373		11	373			
246				B		SSC TEST FOR OTHER REQUESTS	4		0676	B 628		11	628			
247				SSBG	SW	MIXSBG	4		0680	, 378		12	378			
248				B		SSC TEST FOR OTHER REQUESTS	4		0684	B 628		12	628			
1	SEQ	PG	LIN	LABEL	OP	OPERANDS					PAGE		5			
0	SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR		
249				JOB		PROCESS CONTROL CARD										
250				*												
251				CTLCD	SBR	CTLCDX+3	4		0688	H 731		13	731			
252				R			1		0692	1		13				
253				B		SKFILE	4		0693	B 732		13	732			
254				DCW		06 FILES TO SKIP BEFORE CARD-TO-TAPE	2		0698			13				
255				DCW		1 CARD-TO-TAPE UNIT	1		0699			13				
256				B		SKFILE	4		0700	B 732		13	732			
257				DCW		08 FILES TO SKIP BEFORE TAPE-TO-PRINT	2		0705			13				
258				DCW		2 TAPE-TO-PRINT UNIT	1		0706			14				
259				B		SKFILE	4		0707	B 732		14	732			
260				DCW		10 FILES TO SKIP BEFORE TAPE-TO-CARD	2		0712			14				
261				DCW		3 TAPE-TO-CARD UNIT	1		0713			14				
262				MCW		2,FORMSW#1 FORMS CONTROL	7		0714	M 002 Y27		14	002	1827		
263				MCW		1,PSTORG#1 1 = NO PRINT STORAGE, OR FORMS CONTROL	7		0721	M 001 Y28		14	001	1828		
264				CTLCDX	B	0-0	4		0728	B 000		14	000			
1						SKIP FILES					PAGE		6			

0	SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
265				JOB		SKIP FILES								
266				*	B	SKFILE								
267				*	DCW	NN ADDRESS IN READ AREA OF COUNT								
268				*	DCW	U UNIT NUMBER								
269				*										
270				SKFILE	SBR	XXXXX3	4	0732	H	099		15	099	
271					MCW	1+X3,XXXXX2 COUNT ADDRESS IN READ AREA	7	0736	M	0?1 094		15	001+3	094
272					MCW	0+X2,COUNT#2	7	0743	M	0!0 Y30		15	000+2	1830
273					MN	2+X3,SKRD+3 UNIT NUMBER	7	0750	D	0?2 789		15	002+3	789
274					MN	2+X3,SKEND	7	0757	D	0?2 800		15	002+3	800
275					MN	2+X3,SKBSP	7	0764	D	0?2 805		15	002+3	805
276				SKLP	S	+1,COUNT	7	0771	S	Y31 Y30		16	1831	1830
277					BWZ	3+X3,COUNT,K	8	0778	V	0?3 Y30 K		16	003+3	1830
278				SKRD	CU	%U0,A DIAGNOSTIC READ	5	0786	U	%U0 A		16	%U0	
279					BEF	SKEND	5	0791	B	800 K		16	800	
280					B	SKRD	4	0796	B	786		16	786	
281				SKEND	CU	%U0,A DIAGNOSTIC READ AGAIN TO TEST FOR 2 EOFs	5	0800	U	%U0 A		16	%U0	
282				SKBSP	BSP	0	5	0805	U	%U0 B		16	%U0	
283					BEF	3+X3	5	0810	B	0?3 K		17	003+3	
284					B	SKLP	4	0815	B	771		17	771	
1						INTERRUPT PROCESSING ROUTINE, ON SS E						PAGE	7	
0	SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
285				JOB		INTERRUPT PROCESSING ROUTINE, ON SS E								
286				*										
287				*	READ	NEW SENSE SWITCH SETTINGS. IF SS E IS STILL ON,								
288				*	READ	A NEW CONTROL CARD.								
289				*										
290				INTRPT	SW	LOOPSW REPEAT ACTIVITY LOOP	4	0819	,	388		18	388	
291					B	INIT INITIALIZE SOME SWITCHES	4	0823	B	863		18	863	
292				INTRPH	NOP	111	4	0827	N	111		18	111	
293					H		1	0831	.			18		
294					B	SSWICH GET NEW SENSE SWITCH SETTINGS	4	0832	B	581		18	581	
295					BSS	*+5,E	5	0836	B	845 E		18	845	
296					B	LOOPSW	4	0841	B	388		18	388	
297					B	CTLCD	4	0845	B	688		19	688	
298					NOP	333	4	0849	N	333		19	333	
299					H		1	0853	.			19		
300					BSS	INTRPH,E	5	0854	B	827 E		19	827	
301					B	LOOPSW	4	0859	B	388		19	388	
1						INITIALIZE SOME SWITCHES						PAGE	8	
0	SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
302				JOB		INITIALIZE SOME SWITCHES								
303				*										
304				INIT	SBR	INITX+3	4	0863	H	881		20	881	
305					SW	NEEDCD#1 NEED A CARD	4	0867	,	Y32		20	1832	
306					LCA	GMWXX,81	7	0871	L	I99 081		20	3999	081
307				INITX	B	0-0	4	0878	B	000		20	000	
1						CARD-TO-TAPE						PAGE	9	
0	SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
308				JOB		CARD-TO-TAPE								
309				*										
310				*	BCD	CARD-TO-TAPE								
311				*										
312					SFX	B								
313				BCD2TP	SBR	EXIT+3	B	4	0882	H	958	21	958	
314					SS	\$ TURN ON OVERLAP	B	2	0886	K	\$	21		

315		BW	RD,NEEDCD	NEED A CARD, NOT WAITING FOR ONE	B	8	0888	V 941 Y32 1	21	941	1832	
316		BIN	OUT,H	READER BUSY	B	5	0896	B 951 H	21	951		
317		SBR	SKPCT,950	9 RETRIES, 50 SKIPS	B	7	0901	H S16 950	21	1216	950	
318		BCE	WTM,1,{	TM, 7-8	B	8	0908	B 959 001 {	21	959	001	
319	WTAPE	LCA	GMWMXX,81		B	7	0916	L I99 081	22	3999	081	
320		WT	1,1		B	8	0923	M %U1 001 W	22	%U1	001	
321		BER	TPERRW	CHECK FOR ERROR	B	5	0931	B /23 L	22	1123		
322		BEF	FULL	TAPE IS FULL	B	5	0936	B |18 K	22	1018		
323	RD	BLC	LST CD		B	5	0941	B 976 A	22	976		
324		R		READ A CARD IN OVERLAP	B	1	0946	1	22			
325		CW	NEEDCD		B	4	0947	) Y32	22	1832	
326	OUT	SW	LOOPSW	REPEAT ACTIVITY LOOP	B	4	0951	, 388	23	388		
327	EXIT	B	0-0		B	4	0955	B 000	23	000		
328	* CARD HAD 7-8 IN COLUMN 1. WRITE EOF.											
329	WTM	WTM	1		B	5	0959	U %U1 M	23	%U1		
330		DCW	@N00@	PAD OUT TO EIGHT CHARACTERS	B	3	0966		23			
331		BER	TPERRW	CHECK FOR ERROR	B	5	0967	B /23 L	23	1123		
332		B	RD		B	4	0972	B 941	23	941		
333	* LAST CARD SWITCH IS ON											
334	LST CD	WTM	1	LAST CARD, WRITE TAPE MARK	B	5	0976	U %U1 M	23	%U1		
335		DCW	@N00@	PAD OUT TO EIGHT CHARACTERS	B	3	0983		24			
336		BER	TPERRW	CHECK FOR ERROR	B	5	0984	B /23 L	24	1123		
337		WTM	1	WRITE ANOTHER TAPE MARK	B	5	0989	U %U1 M	24	%U1		
338		DCW	@N00@	PAD OUT TO EIGHT CHARACTERS	B	3	0996		24			
339		BER	TPERRW	CHECK FOR ERROR	B	5	0997	B /23 L	24	1123		
340		BSP	1	BACKSPACE OVER ONE TAPE MARK	B	5	1002	U %U1 B	24	%U1		
341		CW	BCD2TS,CB2TSW	TURN OFF READING	B	7	1007	) 353 373	24	353	373
342		B	EXIT		B	4	1014	B 955	25	955		
343	* TAPE FULL. DO NOT CHECK FOR ERROR, BECAUSE THIS COULD RESULT											
344	* IN 50 SKIPS, I.E., 175 INCHES, WHICH MIGHT UNSPOOL THE TAPE.											
345	FULL	WTM	1		B	5	1018	U %U1 M	25	%U1		
346		NOP	999	TAPE FULL	B	4	1023	N 999	25	999		
347		H			B	1	1027	.	25			
348		B	WTAPE		B	4	1028	B 916	25	916		
349	*											
350	* COLUMN BINARY CARD-TO-TAPE											
351	*											
352	CBIN2T	SBR	EXIT+3		B	4	1032	H 958	25	958		
353		BLC	LST CD		B	5	1036	B 976 A	25	976		
354	RCB	RCB			B	2	1041	1 C	26			
355		BCE	WTMB,1,{	TM, 7-8	B	8	1043	B |92 001 {	26	1092	001	
356		SW	401		B	4	1051	, 401	26	401		
357	WTAPEC	LCA	GMWMXX,BINBUF+160		B	7	1055	L I99 L89	26	3999	2389	
			CARD-TO-TAPE						PAGE			
			OPERANDS		SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
358		MBD	580,BINBUF+159		B	8	1062	M 580 L88 D	26	580	2388	
359		WTB	1,BINBUF		B	8	1070	M %B1 K29 W	26	%B1	2229	
360		BER	TPERRW		B	5	1078	B /23 L	27	1123		
361		BEF	FULLB		B	5	1083	B /09 K	27	1109		
362		B	OUT		B	4	1088	B 951	27	951		
363	* CARD HAD 7-8 IN COLUMN 1. WRITE EOF.											
364	WTMB	WTM	1		B	5	1092	U %U1 M	27	%U1		
365		DCW	@N00@	PAD OUT TO EIGHT CHARACTERS	B	3	1099		27			
366		BER	TPERRW	CHECK FOR ERROR	B	5	1100	B /23 L	27	1123		
367		B	RCB		B	4	1105	B |41	27	1041		
368	* TAPE FULL. DO NOT CHECK FOR ERROR, BECAUSE THIS COULD RESULT											
369	* IN 50 SKIPS, I.E., 175 INCHES, WHICH MIGHT UNSPOOL THE TAPE.											
370	FULLB	WTM	1		B	5	1109	U %U1 M	28	%U1		
371		NOP	999	TAPE FULL	B	4	1114	N 999	28	999		
372		H			B	1	1118	.	28			

373	B	WTAPEC			B	4	1119	B |55		28	1055	
374	*											
375	*	TAPE OUTPUT ERROR HANDLER, CLOBBERS X3										
376	*											
377	TPERRW	SBR	XXXXX3		B	4	1123	H 099		28	099	
378		BSP	1		B	5	1127	U %U1 B		28	%U1	
379		S	+1,ERCNT		B	7	1132	S Y31 S14		28	1831	1214
380		BWZ	*+5,ERCNT,K	SKIP TAPE AFTER NINE ERRORS	B	8	1139	V /51 S14 K		29	1151	1214
381		B	15987+X3	OTHERWISE TRY AGAIN	B	4	1147	B IHG		29	15987+3	
382		A	+1,SKPCT		B	7	1151	A Y31 S16		29	1831	1216
383		BAV	SKIPS	ERROR IF MORE THAN 50 SKIPS	B	5	1158	B /84 Z		29	1184	
384		SKP	1		B	5	1163	U %U1 E		29	%U1	
385		BEF	FULL	TAPE IS FULL	B	5	1168	B |18 K		29	1018	
386		MCW	+9,ERCNT	RESET ERROR COUNT	B	7	1173	M Y33 S14		30	1833	1214
387		B	15987+X3	AND TRY AGAIN	B	4	1180	B IHG		30	15987+3	
388	SKIPS	NOP	666	TOO MANY SKIPS	B	4	1184	N 666		30	666	
389		H			B	1	1188	.		30		
390		SBR	SKPCT,950	9 RETRIES, 50 SKIPS	B	7	1189	H S16 950		30	1216	950
391		B	15987+X3	TRY AGAIN	B	4	1196	B IHG		30	15987+3	
392	*	TAPE IS FULL. DO NOT CHECK FOR ERROR HERE SO AS NOT TO UNSPOOL										
393	*	THE TAPE.										
394	ERFULL	WTM	1		B	5	1200	U %U1 M		30	%U1	
395		NOP	999		B	4	1205	N 999		31	999	
396		H			B	1	1209	.		31		
397		B	15987+X3	TRY AGAIN	B	4	1210	B IHG		31	15987+3	
398	ERCNT	DCW	#1	TAPE ERROR COUNT	B	1	1214			31		
399	SKPCT	DCW	#2	SKIP COUNT	B	2	1216			31		
1				TAPE-TO-PRINT								
0	SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	PAGE	CARD	A-ADDR	B-ADDR
								TYPE				
400		JOB		TAPE-TO-PRINT					11			
401	*											
402		SFX	P									
403	TAPE2P	SBR	T2PX+3		P	4	1217	H T59		32	1359	
404		SW	LOOPSW	REPEAT ACTIVITY LOOP	P	4	1221	, 388		32	388	
405		BCE	PRTPOS,PSTORG,	SKIP BUSY TESTS IF NO PRINT STORAGE	P	8	1225	B S43 Y28		32	1243	1828
406		BIN	T2PX,P	PRINTER BUSY	P	5	1233	B T56 P		32	1356	
407		BPCB	T2PX	PRINTER CARRIAGE BUSY	P	5	1238	B T56 R		32	1356	
408	PRTPOS	SBR	XXXXX3,GMWMMX+1		P	7	1243	H 099 00|		32	099	4000
409		BCE	READ,15999+X3,}	GM 12-7-8	P	8	1250	B U38 III } GMARK		33	1438	15999+3
410		SBR	XXXXX2,200		P	7	1258	H 094 200		33	094	200
411		BBE	USE200,FORMSW,4	4 OR 5	P	8	1265	W S80 Y27 4		33	1280	1827
412		SBR	XXXXX2,201		P	7	1273	H 094 201		33	094	201
413	USE200	MCW	PRTPOS&6,XXXXX3		P	7	1280	M S49 099		33	1249	099
414		MCM	0&X3,0&X2		P	7	1287	P 0?0 0!0		34	000+3	000+2
415		MCW	@ @	CLEAR RECORD MARK	P	4	1294	M Y35		34	1835	
416		MCM	0&X3		P	4	1298	P 0?0		34	000+3	
417		SAR	PRTPOS+6	UPDATE BUFFER ADDRESS	P	4	1302	Q S49		34	1249	
418		BBE	PRCTL,FORMSW,4	4 OR 5	P	8	1306	W T60 Y27 4		34	1360	1827
419	PRINT	W			P	1	1314	2		34		
420		CS			P	1	1315	/		34		
421		CS			P	1	1316	/		35		
422		BCE	*&5,FORMSW,2		P	8	1317	B T29 Y27 2		35	1329	1827
423		B	*&3		P	4	1325	B T31		35	1331	
424		CC	J	IMMEDIATE SKIP ONE SPACE	P	2	1329	F J		35		
425		BCE	*&5,FORMSW,3		P	8	1331	B T43 Y27 3		35	1343	1827
426		B	*&3		P	4	1339	B T45		35	1345	
427		CC	K	IMMEDIATE SKIP TWO SPACES	P	2	1343	F K		35		
428		BCV	*&5	Q. PAGE FULL	P	5	1345	B T54 @		36	1354	
429		B	*&3	NO	P	4	1350	B T56		36	1356	
430		CC	1	YES, SKIP TO CHANNEL 1	P	2	1354	F 1		36		

431	T2PX	B	0-0		P	4	1356	B 000		36	000	
432	*											
433	* PROGRAM CONTROLS PRINT SPACING											
434	*											
435	PRCTL	BCE	SUPPRS,200,+		P	8	1360	B U22 200 +		36	1422	200
436		BCE	PRINT,200, SINGLE SPACE		P	8	1368	B T14 200		36	1314	200
437		BCE	*&5,200,0		P	8	1376	B T88 200 0		36	1388	200
438		B	*&6		P	4	1384	B T93		37	1393	
439		CCB	PRINT,J IMMEDIATE SKIP ONE SPACE		P	5	1388	F T14 J		37	1314	
440		BCE	*&5,200,-		P	8	1393	B U05 200 -		37	1405	200
441		B	*&6		P	4	1401	B U10		37	1410	
442		CCB	PRINT,K IMMEDIATE SKIP TWO SPACES		P	5	1405	F T14 K		37	1314	
443		MN	200,*&5 IMMEDIATE SKIP TO CHANNEL		P	7	1410	D 200 U21		37	200	1421
444		CCB	PRINT,0		P	5	1417	F T14 0		37	1314	
445	*											
446	* & IN COLUMN 1											
447	*											
448	SUPPRS	BCE	T2PX,FORMSW,5 SKIP THE RECORD		P	8	1422	B T56 Y27 5		38	1356	1827
449		2S	PRINT WITHOUT SPACING		P	2	1430	2 S		38		
1			TAPE-TO-PRINT						PAGE	12		
0	SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
450			CS		P	1	1432	/		38		
451			CS		P	1	1433	/		38		
452			B	T2PX	P	4	1434	B T56		38	1356	
453	*											
454	* READ A BLOCK FOR PRINTING											
455	*											
456	READ	SBR	READX+3		P	4	1438	H U77		38	1477	
457		SBR	PRTPOS+6,PRTBUF		P	7	1442	H S49 N75		38	1249	2575
458		CW	15999+X3 TURN OFF GMWM FROM PREVIOUS READ		P	4	1449	) III		39	15999+3	
459		SW	GMWMXX THE FIRST CALL CLEARS THIS		P	4	1453	, I99		39	3999	
460		B	READIT		P	4	1457	B X08		39	1708	
461		RT	2,PRTBUF		P	8	1461	M %U2 N75 R		39	%U2	2575
462		BEF	DONE		P	5	1469	B U78 K		39	1478	
463	READX	B	0-0		P	4	1474	B 000		39	000	
464	*											
465	* END OF FILE											
466	*											
467	DONE	CC	1		P	2	1478	F 1		39		
468		B	READIT		P	4	1480	B X08		40	1708	
469		RT	2,PRTBUF		P	8	1484	M %U2 N75 R		40	%U2	2575
470		BEF	*&5		P	5	1492	B V01 K		40	1501	
471		B	READX		P	4	1497	B U74		40	1474	
472	* TWO END-OF-FILE MARKS IN A ROW. TURN OFF PRINTING											
473		CW	TP2PRS		P	4	1501	) 358		40	358	
474		RWU	2		P	5	1505	U %U2 U		40	%U2	
475		B	T2PX		P	4	1510	B T56		40	1356	
1			TAPE-TO-CARD						PAGE	13		
0	SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
476			JOB	TAPE-TO-CARD								
477	*											
478	* TAPE-TO-BCD CARD											
479	*											
480		SFX	4									
481	TP2BCD	SBR	EXIT+3		4	4	1514	H V64		41	1564	
482		SS	\$	TURN ON OVERLAP	4	2	1518	K \$		41		
483		BIN	EXIT,I	PUNCH BUSY	4	5	1520	B V61 I		41	1561	
484		LCA	GMWMXX,81		4	7	1525	L I99 081		41	3999	081
485		B	READIT		4	4	1532	B X08		41	1708	

486	RT	3,101	4	8	1536	M %U3 101 R	41	%U3	101
487	BEF	DONE	4	5	1544	B W21 K	41	1621	
488	MCW	@ @,15999+X1 IN CASE OF SHORT RECORD	4	7	1549	M Y36 IZI	42	1836	15999+1
489	P		4	1	1556	4	42		
490	OUT SW	LOOPSW REPEAT ACTIVITY LOOP	4	4	1557	, 388	42	388	
491	EXIT SSB	0-0,2	4	5	1561	K 000 2	42	000	
492	*								
493	* TAPE-TO-COLUMN-BINARY CARD								
494	*								
495	T2CBIN SBR	EXIT+3	4	4	1566	H V64	42	1564	
496	SS	. TURN OFF OVERLAP	4	2	1570	K .	42		
497	LCA	GMWMXX,BINBUF+181	4	7	1572	L I99 M10	42	3999	2410
498	B	READIT	4	4	1579	B X08	43	1708	
499	RTB	3,BINBUF	4	8	1583	M %B3 K29 R	43	%B3	2229
500	BEF	DONECB	4	5	1591	B W41 K	43	1641	
501	MCW	@ @,15999+X1 IN CASE OF SHORT RECORD	4	7	1596	M Y36 IZI	43	1836	15999+1
502	SW	401	4	4	1603	, 401	43	401	
503	MBC	BINBUF+159,580	4	8	1607	M L88 580 B	43	2388	580
504	PCB		4	2	1615	4 C	43		
505	B	OUT	4	4	1617	B V57	44	1557	
506	*								
507	* END OF FILE								
508	*								
509	DONE SBR	XXXXX3	4	4	1621	H 099	44	099	
510	B	READIT	4	4	1625	B X08	44	1708	
511	RT	3,101	4	8	1629	M %U3 101 R	44	%U3	101
512	B	TEST	4	4	1637	B W57	44	1657	
513	DONECB SBR	XXXXX3	4	4	1641	H 099	44	099	
514	B	READIT	4	4	1645	B X08	44	1708	
515	RTB	3,BINBUF	4	8	1649	M %B3 K29 R	45	%B3	2229
516	TEST BEF	FINAL	4	5	1657	B W92 K	45	1692	
517	BCE	TWO,EXIT+4,2	4	8	1662	B W81 V65 2	45	1681	1565
518	MCW	@2@,EXIT+4 CHANGE SELECTED STACKER	4	7	1670	M Y37 V65	45	1837	1565
519	B	0+X3	4	4	1677	B 0?0	45	000+3	
520	TWO MCW	@4@,EXIT+4 CHANGE SELECTED STACKER	4	7	1681	M Y38 V65	45	1838	1565
521	B	0+X3	4	4	1688	B 0?0	46	000+3	
522	FINAL CW	T2BCDS,T2CBSW TURN OFF PUNCHING	4	7	1692	) 363 368	46	363	368
523	RWU	3	4	5	1699	U %U3 U	46	%U3	
524	B	EXIT	4	4	1704	B V61	46	1561	
1		TAPE READ ROUTINE					PAGE 14		
0	SEQ PG LIN	LABEL OP OPERANDS	SFX	CT	LOCN	INSTRUCTION TYPE	CARD	A-ADDR	B-ADDR
525		JOB TAPE READ ROUTINE							
526	*								
527	* CLOBBERS ALL INDEX REGISTERS								
528	* LEAVES GMWM ADDRESS +1 IN X1								
529	*								
530	SFX	R							
531	READIT SBR	XXXXX3	R	4	1708	H 099	47	099	
532	MCW	7+X3,RDTP+7	R	7	1712	M 0?7 X30	47	007+3	1730
533	ZA	ERRCT#1	R	4	1719	? Y39	47	1839	
534	RDTP RT	0,0	R	8	1723	M %U0 000 R	47	%U0	000
535	SBR	XXXXX1	R	4	1731	H 089	47	089	
536	SW	15999+X1 TURN ON GMWM FROM THIS READ	R	4	1735	, IZI	47	15999+1	
537	BEF	8+X3	R	5	1739	B 0?8 K	47	008+3	
538	MCW	RDTP+6,XXXXX2	R	7	1744	M X29 094	48	1729	094
539	BCE	RDTP,12+X2,} GM	R	8	1751	B X23 0J2 } GMARK	48	1723	012+2
540	CHAIN	12				MACRO			
541	BCE		R	1	1759	B	48		
542	BCE		R	1	1760	B	48		
543	BCE		R	1	1761	B	48		

544		BCE			R	1	1762	B	GEN	48		
545		BCE			R	1	1763	B	GEN	48		
546		BCE			R	1	1764	B	GEN	49		
547		BCE			R	1	1765	B	GEN	49		
548		BCE			R	1	1766	B	GEN	49		
549		BCE			R	1	1767	B	GEN	49		
550		BCE			R	1	1768	B	GEN	49		
551		BCE			R	1	1769	B	GEN	49		
552		BCE			R	1	1770	B	GEN	49		
553		BER	TPERRR		R	5	1771	B X80 L		50	1780	
554		B	8+X3		R	4	1776	B 0?8		50	008+3	
555	TPERRR	A	*-5,ERRCT		R	7	1780	A X81 Y39		50	1781	1839
556		BCE	HALT,ERRCT,I	Q. IS COUNT +9	R	8	1787	B Y11 Y39 I		50	1811	1839
557		MN	RDTP+4,*+4		R	7	1795	D X27 Y05		50	1727	1805
558		BSP	2		R	5	1802	U %U2 B		50	%U2	
559		B	RDTP		R	4	1807	B X23		51	1723	
560	HALT	MN	RDTP+4,*+4		R	7	1811	D X27 Y21		51	1727	1821
561		NOP	222		R	4	1818	N 222		51	222	
562		H			R	1	1822	.		51		
563		B	8+X3		R	4	1823	B 0?8		51	008+3	
1			WORK AREAS						PAGE	15		
0	SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
564		JOB	WORK AREAS									
565		LTORG	*		R			1827				
	FORMSW	DCW	#01		R	1	1827		AREA	52		
	PSTORG	DCW	#01		R	1	1828		AREA	52		
	COUNT	DCW	#02		R	2	1830		AREA	52		
		DCW	+1		R	1	1831		LIT	52		
	NEEDCD	DCW	#01		R	1	1832		AREA	52		
		DCW	+9		R	1	1833		LIT	52		
		DCW	@ @		R	2	1835		LIT	52		
		DCW	@ @		R	1	1836		LIT	53		
		DCW	@2@		R	1	1837		LIT	53		
		DCW	@4@		R	1	1838		LIT	53		
	ERRCTR	DCW	#01		R	1	1839		AREA	53		
566		SFX										
1			MIXED BCD AND BINARY CARD-TO-TAPE						PAGE	16		
0	SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
567		JOB	MIXED BCD AND BINARY CARD-TO-TAPE									
568		*										
569		* MIXED BCD AND BINARY CARD-TO-TAPE NEEDS TWO BUFFERS. EACH ONE										
570		* INCLUDES LOOKAHEAD TO TELL WHAT THE NEXT BUFFER IS. THE LOOKAHEADS										
571		* ARE-										
572		* 9977 IN 81-84 IF PREVIOUS IS BCD AND CURRENT IS BINARY										
573		* BBBB IN 81-84 IF PREVIOUS IS BCD AND CURRENT IS BCD										
574		* B5B1B5B4 IN 161-168 IF PREVIOUS IS BINARY AND CURRENT IS BCD										
575		* B4BBB1BB IN 168-168 IF PREVIOUS IS BINARY AND CURRENT IS BINARY.										
576		* THE LAST RECORD IN THE FILE IS ALWAYS MARKED AS IF THE NEXT RECORD										
577		* IS THE SAME FORMAT.										
578		* THE CURRENT CARD IS CONSIDERED TO BE COLUMN BINARY IF AND ONLY IF										
579		* IT HAS BOTH 7 AND 9 PUNCHES IN COLUMN 1.										
580		* ONCE WE GET STARTED, CURRENT BUFFER ADDRESS IS IN X2, AND PREVIOUS										
581		* BUFFER ADDRESS IS IN X1										
582		*										
583	MIXED	EQU	*+1				1840					
584		SFX	M									
585		SBR	MIXEDX+3		M	4	1840	H Z56		54	1956	
586		SS	.	TURN OFF OVERLAP	M	2	1844	K .		54		
587		MCW	CURMIX,XXXXX2	CURRENT BUFFER	M	7	1846	M K28 094		54	2228	094

588		MCW	OTHBUF+X2,XXXXX1	PREVIOUS BUFFER	M	7	1853	M 1P2	089	54	172+2	089
589	RCM	BLC	WTMM	Q. LAST CARD -- MIXED	M	5	1860	B !59	A	54	2059	
590		RCB			M	2	1865	1 C		54		
591		BCE	WTMM,1,{	Q. COLUMN 1 TAPE MARK?	M	8	1867	B !59	001 {	54	2059	001
592		SBR	CURMIX,0+X1	SWAP BUFFERS	M	7	1875	H K28	0|0	55	2228	000+1
593		BBE	BIN1,501,1	Q. COLUMN 1 HAS 9 PUNCH, BROWNIE P 90	M	8	1882	W Z89	501 1	55	1989	501
594		* CURRENT CARD IS BCD										
595	BCD	LCA	GMWMXX,85+X2		M	7	1890	L I99	0Q5	55	3999	085+2
596		MCW	80,80+X2		M	7	1897	M 080	0Q0	55	080	080+2
597		SW	BCD SW+X2	MARK CURRENT RECORD AS BCD	M	4	1904	, 1P3		55	173+2	
598		NOP			M	1	1908	N		55		
599	MIXEDS	B	FIRSTM	FIRST-CARD SWITCH	M	4	1909	B Z45		55	1945	
600		BW	BCDBCD,BCD SW+X1	Q. PREVIOUS BCD	M	8	1913	V Z57	1X3 1	56	1957	173+1
601		* CURRENT BCD, PREVIOUS BINARY										
602		LCA	GMWMXX,169+X1		M	7	1921	L I99	1W9	56	3999	169+1
603		MCW	@ 5 1 5 4@	PREVIOUS BINARY, CURRENT BCD	M	4	1928	M K01		56	2201	
604	BINOUT	WTB	1,0+X1		M	8	1932	M %B1	0|0 W	56	%B1	000+1
605		BER	TPERRW	OUTPUT ERROR HANDLER	M	5	1940	B /23	L	56	1123	
606	FIRSTM	CW	MIXEDS	TURN OFF FIRST-CARD SWITCH	M	4	1945	) Z09		56	1909	
607	OUT	SW	LOOPSW	TURN ON LOOP	M	4	1949	, 388		57	388	
608	MIXEDX	B	0-0		M	4	1953	B 000		57	000	
609		* CURRENT AND PREVIOUS BOTH BCD										
610	BCDBCD	LCA	GMWMXX,85+X1		M	7	1957	L I99	0Y5	57	3999	085+1
611		MCW	@ @	PREVIOUS BINARY, CURRENT BCD	M	4	1964	M K05		57	2205	
612	BCDOUT	WT	1,0+X1		M	8	1968	M %U1	0|0 W	57	%U1	000+1
613		BER	TPERRW	OUTPUT ERROR HANDLER	M	5	1976	B /23	L	57	1123	
614		CW	85+X1		M	4	1981	) 0Y5		57	085+1	
615		B	FIRSTM		M	4	1985	B Z45		58	1945	
616		* PASSED FIRST TEST FOR BINARY -- COLUMN 1 HAS 9 PUNCH										
1		MIXED BCD AND BINARY CARD-TO-TAPE										
0	SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	PAGE CARD	A-ADDR	B-ADDR
617		BIN1	BBE	BIN2,501,4	Q. COLUMN 1 HAS 7 PUNCH, BROWNIE P 90	M	8	1989	W !01 501 4	58	2001	501
618			B	BCD	COLUMN 1 NOT 7-9, SO NOT BINARY	M	4	1997	B Y90	58	1890	
619		* CURRENT CARD IS BINARY										
620	BIN2	MBD	580,160+X2	ARRANGE FOR BINARY WRITING	M	8	2001	M 580	100 D	58	580	160+2
621		CW	BCD SW+X2		M	4	2009	) 1P3		58	173+2	
622		BW	FIRSTM,MIXEDS	Q. FIRST CARD	M	8	2013	V Z45	Z09 1	58	1945	1909
623		BW	BINBCD,BCD SW+X1	Q. PREVIOUS BCD	M	8	2021	V !44	1X3 1	59	2044	173+1
624		* CURRENT AND PREVIOUS CARDS BOTH BINARY										
625		LCA	GMWMXX,169+X1		M	7	2029	L I99	1W9	59	3999	169+1
626		MCW	@ 4 1 @		M	4	2036	M K13		59	2213	
627		B	BINOUT		M	4	2040	B Z32		59	1932	
628		* CURRENT BINARY, PREVIOUS BCD										
629	BINBCD	LCA	GMWMXX,85+X1		M	7	2044	L I99	0Y5	59	3999	085+1
630		MCW	@9977@		M	4	2051	M K17		59	2217	
631		B	BCDOUT		M	4	2055	B Z68		59	1968	
632		* CARD HAS 7-8 IN COLUMN 1. WRITE PREVIOUS RECORD, THEN EOF.										
633	WTMM	BW	WTMBCD,BCD SW+X1		M	8	2059	V J18	1X3 1	60	2118	173+1
634		LCA	GMWMXX,169+X1		M	7	2067	L I99	1W9	60	3999	169+1
635		MCW	@ 4 1 @		M	4	2074	M K25		60	2225	
636		WTB	1,0+X1		M	8	2078	M %B1	0|0 W	60	%B1	000+1
637		BER	TPERRW	OUTPUT ERROR HANDLER	M	5	2086	B /23	L	60	1123	
638		BEF	FULL		M	5	2091	B J76	K	60	2176	
639	WTMMIX	WTM	1		M	5	2096	U %U1	M	61	%U1	
640		DCW	@N00@	PAD OUT TO EIGHT CHARACTERS	M	3	2103			61		
641		BER	TPERRW	CHECK FOR ERROR	M	5	2104	B /23	L	61	1123	
642		BLC	MIXEND		M	5	2109	B J51	A	61	2151	
643		B	RCM		M	4	2114	B Y60		61	1860	
644	WTMBCD	LCA	GMWMXX,85+X1		M	7	2118	L I99	0Y5	61	3999	085+1
645		MCW	@ @		M	4	2125	M K05		61	2205	

	646				WT	1,0+X1			M	8	2129	M %U1 0|0 W	62	%U1	000+1
	647				BER	TPERRW			M	5	2137	B /23 L	62	1123	
	648				BEF	FULL			M	5	2142	B J76 K	62	2176	
	649				B	WTMMIX			M	4	2147	B !96	62	2096	
	650			MIXEND	WTM	1			M	5	2151	U %U1 M	62	%U1	
	651				DCW	@N00@	PAD OUT TO EIGHT CHARACTERS		M	3	2158		62		
	652				BER	TPERRW	CHECK FOR ERROR		M	5	2159	B /23 L	62	1123	
	653				SW	MIXEDS	TURN ON FIRST CARD SWITCH		M	4	2164	, Z09	63	1909	
	654				CW	MIXSBG	TURN OFF MIXED INPUT		M	4	2168	) 378	63	378	
	655				B	OUT			M	4	2172	B Z49	63	1949	
	656				* TAPE	IS FULL.	DO NOT CHECK FOR ERROR BECAUSE THIS MIGHT CAUSE								
	657				* FIFTY TAPE	SKIPS,	THEREBY UNSPOOLING THE TAPE								
	658			FULL	SBR	FULLX+3			M	4	2176	H J93	63	2193	
	659				WTM	1			M	5	2180	U %U1 M	63	%U1	
	660				NOP	999			M	4	2185	N 999	63	999	
	661				H				M	1	2189	.	63		
	662			FULLX	B	0-0			M	4	2190	B 000	64	000	
	663				LTORG	*			M			2194			
					DCW	@ 5 1 5 4@			M	8	2201		LIT	64	
					DCW	@ @			M	4	2205		LIT	64	
					DCW	@ 4 1 @			M	8	2213		LIT	64	
1						MIXED BCD AND BINARY	CARD-TO-TAPE						PAGE	18	
0	SEQ PG LIN	LABEL	OP		OPERANDS			SFX CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR	
					DCW	@9977@			M	4	2217		LIT	64	
					DCW	@ 4 1 @			M	8	2225		LIT	64	
	664			SFX											
1					WORK AREAS							PAGE	19		
0	SEQ PG LIN	LABEL	OP		OPERANDS			SFX CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR	
	665			JOB	WORK AREAS										
	666			CURMIX	DSA	BINBUF	CURRENT MIXED-OUTPUT BUFFER	3	2228	K29		65	2229		
	667			OTHBUF	EQU	172	OFFSET FROM BUF TO OTHER BUF ADDR		0172						
	668			BCD SW	EQU	173	OFFSET FROM BUF TO BCD SWITCH		0173						
	669			BINBUF	DA	1X168,G	COLUMN BINARY TAPE BUFFER		2229	2396		65			
	669				DCW	@} @		1	2397		GMARK	66			
	670				DSA	BINBF2	SECOND BUFFER ADDRESS	3	2400	M02		66	2402		
	671				DCW	#1	WM FOR BCD	1	2401			66			
	672			BINBF2	DA	1X168,G	OTHER COLUMN BINARY TAPE BUFFER		2402	2569		66			
	672				DCW	@} @		1	2570		GMARK	67			
	673				DSA	BINBUF	FIRST BUFFER ADDRESS	3	2573	K29		67	2229		
	674				DCW	#1	WM FOR BCD	1	2574			67			
	675			PRTBUF	EQU	*+1	PRINTER TAPE BLOCK BUFFER		2575						
	676				ORG	3999				3999					
	677			GMWMXX	DCW	@} @		1	3999		GMARK	68			
	678			END	START										

SSBG	0680: 0	SSC	0628: 0	SSD	0650: 0	SSWICH	0581: 0	SSWICX	0663: 0	START	0336: 0
SUPPRS	1422: 0	T2BCDS	0363: 0	T2CBIN	1566: 0	T2CBSW	0368: 0	T2PX P	1356: 0	TAPE2P	1217: 0
TEST 4	1657: 0	TP2BCD	1514: 0	TP2PRS	0358: 0	TPERRR	1780: 0	TPERRW	1123: 0	TWO 4	1681: 0
USE200	1280: 0	WTAPEB	0916: 0	WTAPEC	1055: 0	WTM B	0959: 0	WTMB B	1092: 0	WTMBCD	2118: 0
WTMM M	2059: 0	WTMMIX	2096: 0	XXXXX1	0089: 0	XXXXX2	0094: 0	XXXXX3	0099: 0		

OUNREFERENCED SYMBOLS

ERFULL