```
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

                          MULTIPLE TAPE UTILITY PROGRAM 1401-UT-039                                PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

 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         *
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

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
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
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SEQ PG LIN  LABEL   OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  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
211               H                                                   1  0396  .                   8
212               B     START                                         4  0397  B 336               8   336
213               DCW   #1                                            1  0401                      8
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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
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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
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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
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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
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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   GMWMXX,81                          7  0871  L I99 081          20  3999     081
307         INITX B     0-0                                4  0878  B 000              20   000
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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
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SEQ PG LIN  LABEL   OP    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
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

400               JOB   TAPE-TO-PRINT
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,GMWMXX+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
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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
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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
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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           GEN    48
542               BCE                                              R   1  1760  B           GEN    48
543               BCE                                              R   1  1761  B           GEN    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
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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
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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
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SEQ PG LIN  LABEL   OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  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 1O0 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
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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
```

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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                                             / 336 080             336
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SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
BCD M	1890: 0	BCD SW	0173: 0	BCD2TP	0882: 0	BCD2TS	0353: 0	BCDBCD	1957: 0	BCDOUT	1968: 0
BIN1 M	1989: 0	BIN2 M	2001: 0	BINBCD	2044: 0	BINBF2	2402: 0	BINBUF	2229: 0	BINOUT	1932: 0
CB2TSW	0373: 0	CBIN2T	1032: 0	COUNT	1830: 0	CTLCD	0688: 0	CTLCDX	0728: 0	CURMIX	2228: 0
DONE 4	1621: 0	DONE P	1478: 0	DONECB	1641: 0	ERCNTB	1214: 0	ERFULL	1200: 0	ERRCTR	1839: 0
EXIT 4	1561: 0	EXIT B	0955: 0	FINAL4	1692: 0	FIRSTM	1945: 0	FORMSW	1827: 0	FULL B	1018: 0
FULL M	2176: 0	FULLBB	1109: 0	FULLXM	2190: 0	GMWMXX	3999: 0	HALT R	1811: 0	INIT	0863: 0
INITX	0878: 0	INTRPH	0827: 0	INTRPT	0819: 0	LOOP	0348: 0	LOOPSW	0388: 0	LST CD	0976: 0
MIXED	1840: 0	MIXEDS	1909: 0	MIXEDX	1953: 0	MIXEND	2151: 0	MIXSBG	0378: 0	NEEDCD	1832: 0
OTHBUF	0172: 0	OUT 4	1557: 0	OUT B	0951: 0	OUT M	1949: 0	PRCTLP	1360: 0	PRINTP	1314: 0
PRTBUF	2575: 0	PRTPOS	1243: 0	PSTORG	1828: 0	RCB B	1041: 0	RCM M	1860: 0	RD B	0941: 0
RDTP R	1723: 0	READ P	1438: 0	READIT	1708: 0	READXP	1474: 0	SKBSP	0805: 0	SKEND	0800: 0
SKFILE	0732: 0	SKIPSB	1184: 0	SKLP	0771: 0	SKPCTB	1216: 0	SKRD	0786: 0	SSB	0667: 0
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		

UNREFERENCED SYMBOLS
ERFULL