August 13, 1962

MEMORANDUM TO: Users of 1401 Autocoder System

SUBJECT: 1401 Autocoder System, Program #1401-AU-037, Version 3, Modification Level 3

This modification letter has been prepared for distribution to all users of the 1401 Autocoder System and contains changes to Version 3, Modification Level 2 of that system. These change cards, enclosed, listed and identified below (Attachment #1) are to be inserted in the system deck as follows:

| Card Number (Cols. 72-75) | Place between cards in system deck |
|---|---|
| C038-C042 | 0086-0087 |
| C043 | C008-0351 |
| C044-C050 | C030-0454 |
| C051-C055 | C032-0499 |
| C056-C059 | 0553-0554 |
| C060 | 0617-0618 |
| C061 | 0635-0636 |

Cards C038 to C042 correct the error condition caused by a random groupmark-wordmark in memory when an updating run is desired.

Card C043 corrects the error condition resulting from a unique comments card containing DIOCS in columns 16-20.

Cards C044 to C050 correct the error condition involving internal labels of a macro.

Cards C051 to C055 correct the error condition resulting from two consecutive commas in two consecutive cards of a macro statement which uses the second card for additional parameters.

Cards C056 to C059 provide more flexibility in the use of control cards concerning the machine size of the IBM 1401 being used for assembling. Autocoder will now use the machine size specified in column 21 and will ignore this column only if the size specified is greater than that being used. In this case, it will use only 4K.

A blank operation code or blank card assembles incorrectly, using the op code of the previous instruction. Cards C060 to C061 correct this condition by flagging it.

We appreciate your cooperation in making these changes. A list of the material distributed with this letter follows:

| Item No. | Contents |
| --- | --- |
| 1 | 24 cards (designated as C038, C039, C040, etc.) |
| 2 | Attachment #1 - listing of change cards |
| 3 | Attachment #2 - symbolic changes to Autocoder listing |

Initial requests for this system which are filled after the date of this letter will not include the cards itemized above, as there cards are included in the system deck as corrections. However, the Autocoder listing does not include these corrections and should be corrected by the user by referring to attachment #2. Any discrepancy between the material received and the above list, as well as any errors in card reproduction should be directed to the attention of the Manager of the Program Information Department, IBM, 112 East Post Road, White Plains, New York.

Continued reporting of any difficulties encountered in using 1401 Autocoder will be appreciated.

GP Applied Programming

Attachments

cc: Branch Offices
(No attachments sent with carbons)

1401 Autocoder System, Program #1401-AU-037, Version 3, Modification
Level 3

```
BK12                                   L004-08,040040,040040,0400401040C0383713L
,K41LK41Z98                            L011J36,J30040,040040,0400401040C0393713L
)K41Z98                                L007J70,040040,040040,0400401040C0403713L
)K41//38//MK40963P900836B!09           L028K39,K16K20,K21K22,K29K361040C0413713L
'"                                     L002K41,K41040,040040,0400401040C0423713L
B634006*B670S                          L013661,657040,040040,0400401040C0433722L
BW37021,                               L008O05,040040,040040,0400401040C0443726L
NB11                                   L004Q76,040040,040040,0400401040C0453726L
NB22                                   L004R90,040040,040040,0400401040C0463726L
BB310'1)                               L008?40,040040,040040,0400401040C0473726L
N466011MH45A67C019W05BJ44SC020U59BJ44S L038B04,A74A81,A88A93,B000401040C0483726L
BR50U63M%U1001R'44M%U1001RHJ07?41      L033B37,B09B12,B20B23,B310401040C0493726L
MI06A67                                L007D59,040040,040040,0400401040C0503726L
MT31075                                L007S77,040040,040040,0400401040C0513727L
MU78086MW36020MU61075MW48006           L028U10,T90T97,U04040,0400401040C0523727L
MU78L01MU82N66BE90MU62075BO33M/92018   L036U50,U22U29,U33U40,U440401040C0533727L
LW280?0H099AW29089                     L018V52,V42V46,040040,0400401040C0543727L
;1UNKNOWNMH10095BV20*                  L021W48,W29W30,W37W44,W480401040C0553727L
HR39YP19P34BP191216YP97P34BP191215     L034O99,O70O77,O85O92,0400401040C0563731L
YP31P34BP191214BP97CP34R39BP66U/I9IHP34L039P38,P07P15,P19P26,P31P351040C0573731L
CP34R42BP31/BP97                       L027P65,P46P51,P55040,0400401040C0583731L
MR47121                                L007P96,040040,040040,0400401040C0593731L
B/59119                                L008P62,040040,040040,0400401040C0603733L
B/71A69 BP28BO13A68ABO13A681BP28 "     L034/92,/67/71,/79/87,/91/921040C0613734L
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| Action | Pass/ Page# | Seq. | Pg. | Lin. | Label | Op | Operands | Sfx | Ct | Loc | Instruction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Change | 1/10 | 470 | 4 | 52 | | B | CLRARE | R | 4 | 2005 | B K12 |
| Change | 1/10 | 501 | 4 | 71 | LIST | SW | ENDRT | R | 4 | 2126 | , K41 |
| | 1/10 | 502 | 4 | 72 | | LCA | ENDRT,1998 | R | 7 | 2130 | L K41 Z98 |
| Change | 1/10 | 508 | 4 | 78 | | CW | ENDRT,1998 | R | 7 | 2164 | ) K41 Z98 |
| Change | 1/10 | 516 | 4 | 86 | CLRARE | CW | ENDRT | R | 4 | 2212 | ) K41 |
| | 1/10 | 517 | 4 | 87 | | CS | 1138 | R | 4 | 2216 | / /38 |
| Add | 1/10 | 518 | 4 | 871 | | CS | | R | 1 | 2220 | / |
| | 1/10 | | 4 | 872 | | CS | | R | 1 | 2221 | / |
| | 1/10 | | 4 | 873 | | MCW | RCDMRK,963 | R | 7 | 2222 | M K40 963 |
| | 1/10 | | 4 | 874 | | MRCM | 900,836 | R | 7 | 2229 | P 900 836 |
| | 1/10 | | 4 | 875 | | B | START | R | 4 | 2236 | B !09 |
| | 1/10 | | 4 | 876 | RCDMRK | DCW | @’@ | R | 1 | 2240 | |
| | 1/10 | | 4 | 877 | ENDRT | DCW | @"@ | R | 1 | 2241 | |
| | 1/10 | | 4 | 878 | | EX | 0 | R | | | B 000 |
| Change | 2/4 | 273 | 2 | 61 | | BCE | THRU,MAINX&5,* | I | 8 | 0649 | B 634 006 * |
| Change | 2/4 | 279 | 2 | 67 | | BE | GOTIT | I | 5 | 0657 | B 670 S |
| Change | 2/43 | 1924 | 18 | 98 | | BCE | MOVED,MAINX&20,, | X | 8 | 2598 | B W37 021 , |
| Change | 2/44 | 1988 | 19 | 54 | | NOP | TDFLIB | X | 4 | 2873 | N B11 |

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| Action | Pass/ Page# | Seq. | Pg. | Lin. | Label | Op | Operands | Sfx | Ct | Loc | Instruction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Change | 2/44 | 2008 | 19 | 74 | | NOP | TDFLB2 | X | 4 | 2987 | N B22 |
| Change | 2/45 | 2019 | 19 | 85 | LOZSC | BCE | OUTSD,MAINX&X1,) | X | 8 | 3033 | B B31 0’1) |
| Change | 2/45 | 2044 | 20 | 10 | SHIFTL | NOP | PARTB,MAINX&10 | X | 7 | 3167 | N 466 011 |
| | 2/45 | 2045 | 20 | 11 | | MCW | @N@,SHIFTL | X | 7 | 3174 | M H45 A67 |
| | 2/45 | 2046 | 20 | 12 | | C | MAINX&18,WHOOPS | X | 7 | 3181 | C 019 W05 |
| | 2/45 | 2047 | 20 | 13 | | BE | MASKS | X | 5 | 3188 | B J44 S |
| | 2/45 | 2048 | 20 | 14 | | C | MAINX&19,INCLD | X | 7 | 3193 | C 020 U59 |
| | 2/45 | 2049 | 20 | 15 | | BE | MASKS | X | 5 | 3200 | B J44 S |
| | 2/45 | 2050 | 20 | 16 | | B | BOUTS | X | 4 | 3205 | B R50 |
| | 2/45 | 2051 | 20 | 17 | TDFLIB | DCW | &KINGS | X | 3 | 3211 | U63 |
| | 2/45 | 2052 | 20 | 18 | | DCW | @M%U1001R@ | X | 8 | 3219 | |
| | 2/45 | 2053 | 20 | 19 | TDFLB2 | DCW | &EOF1B | X | 3 | 3222 | ’44 |
| | 2/45 | 2054 | 20 | 20 | | DCW | @M%U1001R@ | X | 8 | 3230 | |
| | 2/45 | 2055 | 20 | 21 | OUTSD | SBR | ZONCH&3,DEFND | X | 7 | 3231 | H J07 ?41 |
| Change | 2/46 | 2098 | 20 | 64 | LBLMV | MCW | @M@,SHIFTL | X | 7 | 3453 | M I06 A67 |
| Change | 2/46 | 2102 | 20 | 68 | | B | SHIFTL | X | 4 | 3475 | B A67 |
| Change | 2/36 | 1639 | 16 | 15 | | MCW | SIMPLE-7,MAINX&74 | X | 7 | 1271 | M T31 075 |

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| Action | Pass/ Page# | Seq. | Pg. | Lin. | Label | Op | Operands | Sfx | Ct | Loc | Instruction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Change | 2/37 | 1673 | 16 | 49 | | MCW | ENDSTX,MAINX&85 | X | 7 | 1383 | M U76 086 |
| Change | 2/37 | 1676 | 16 | 52 | | MCW | @*@,MAINX&5 | X | 7 | 1404 | M W48 006 |
| Change | 2/37 | 1678 | 16 | 54 | POTS | MCW | ENDSTX,SWITCH | X | 7 | 1415 | M U76 L01 |
| | 2/37 | 1679 | 16 | 55 | | MCW | ENDSTX&4,NEXTCD | X | 7 | 1422 | M U82 N66 |
| | 2/37 | 1686 | 16 | 62 | | MCW | MOVINP-7,MAINX&17 | X | 7 | 1444 | M /92 018 |
| Change | 2/37 | 1703 | 16 | 79 | LOWER | LCA | @;@,0&X3 | X | 7 | 1535 | L W28 0?0 |
| | 2/37 | 1705 | 16 | 81 | | A | @1@,INDEX1 | X | 7 | 1546 | A W29 089 |
| Change | 2/38 | | | | | | @;@ | X | 1 | 1628 | |
| | 2/38 | | | | | | @1@ | X | 1 | 1629 | |
| Add | 2/38 | 1718 | 16 | 941 | MOVED | MCW | IOCSAV,INDEX2&1 | X | 7 | 1637 | M H10 095 |
| | 2/38 | 1718 | 16 | 942 | | B | MOVEC | X | 4 | 1644 | B V20 |
| | 2/38 | | | | | | @*@ | X | 1 | 1648 | |
| Change | 3/3 | 219 | 2 | 07 | | SBR | SVSZ#3 | | 4 | 2666 | H R39 |
| | 3/3 | 220 | 2 | 08 | | MZ | COMPAR,CLEAR&3 | | 7 | 2670 | Y P19 P34 |
| | 3/3 | 221 | 2 | 09 | | BCE | COMPAR,FREE&21,6 | | 8 | 2677 | B P19 121 6 |
| | 3/3 | 222 | 2 | 10 | | MZ | INOBJ,CLEAR&3 | | 7 | 2685 | Y P97 P34 |
| | 3/3 | 223 | 2 | 11 | | BCE | COMPAR,FREE&21,5 | | 8 | 2692 | B P19 121 5 |
| | 3/3 | 224 | 2 | 12 | | MZ | CLEAR,CLEAR&3 | | 7 | 2700 | Y P31 P34 |

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| Action | Pass/ Page# | Seq. | Pg. | Lin. | Label | Op | Operands | Sfx | Ct | Loc | Instruction |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Change | 3/3 | 225 | 2 | 13 | | BCE | COMPAR,FREE&21,4 | | 8 | 2707 | B P19 1214 |
| | 3/3 | 226 | 2 | 14 | | B | INOBJ | | 4 | 2715 | B P97 |
| | 3/3 | 227 | 2 | 15 | COMPAR | C | CLEAR&2,SVSZ | | 7 | 2719 | C P34 R39 |
| | 3/3 | 228 | 2 | 16 | | BH | CLEAR&35 | | 5 | 2726 | B P66 U |
| | 3/3 | 229 | 2 | 17 | CLEAR | CS | 15999 | | 4 | 2731 | / I9I |
| | 3/3 | 230 | 2 | 18 | | SBR | CLEAR&3 | | 4 | 2735 | H P34 |
| | 3/3 | 231 | 2 | 19 | | C | CLEAR&3,@I99@ | | 7 | 2739 | C P34 R42 |
| | 3/3 | 232 | 2 | 20 | | BU | CLEAR | | 5 | 2746 | B P31 / |
| | 3/3 | 233 | 2 | 21 | | B | INOBJ | | 4 | 2751 | B P97 |
| Delete | 3/3 | 234 | 2 | 22 | | BE | INOBJ | | | 2761 | |
| Change | 3/3 | 243 | 2 | 24 | | MCW | @3@,FREE&21 | | 7 | 2790 | M R47 121 |
| Change | 3/20 | 884 | 8 | 09 | ABSCOD | BCE | OPBLK,FREE&19, | | 8 | 2755 | B /59 119 |
| Change | 3/10 | 475 | 4 | 40 | OPBLK | BCE | OPBLNK,EQVADD, | | 8 | 1159 | B /71 A69 |
| | 3/10 | 476 | 4 | 41 | | B | BADOP | | 4 | 1167 | B P28 |
| Add | 3/10 | 477 | 4 | 42 | OPBLNK | BCE | SAVCOD,EQVADD-1,A | | 8 | 1171 | B O13 A68A |
| | 3/10 | 478 | 4 | 43 | | BCE | SAVCOD,EQVADD-1,1 | | 8 | 1179 | B O13 A681 |
| | 3/10 | 479 | 4 | 44 | | B | BADOP | | 4 | 1187 | B P28 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3/10 | 480 | 4 | 45 | | DCW | @ @ | | 1 | 1191 | |
| | 3/10 | 481 | 4 | 46 | | DCW | @"@ | | 1 | 1192 | |
| | 3/10 | 482 | 4 | 47 | | XFR | 0 | | | | B 000 |