```
  6452                              28760   SUBTTL  STRING FUNCTIONS
  6453                              28780   IFN     STRING,<                        ;STRING HANDLING SUBROUTINES
  6454                              28800   ;
  6455                              28820   ; THE STR$ FUNCTION TAKES A NUMBER AND GIVES
  6456                              28840   ; A STRING WITH THE CHARACTERS THE OUTPUT OF THE NUMBER
  6457                              28860   ; WOULD HAVE GIVEN
  6458                              28880   ;
  6459  007564'                     28900   STR$:
  6460                              28920   IFN     LENGTH-2,<
  6461                              28940           CALL    CHKNUM>         ;MAKE SURE THE ARGUMENT
  6462                              28960                                   ;IS A NUMERIC
  6463  007564' 001000  000315      28980           CALL    FOUT            ;DO ITS OUTPUT
  6464  007565' 000000  004457*
  6465  007566' 000000  007562'
  6466  007567' 001000  000315      29000           CALL    STRLIT          ;SCAN IT AND TURN IT INTO A STRING
  6467  007570' 000000  007637'
  6468  007571' 000000  007565'
  6469  007572' 001000  000315      29020           CALL    FREFAC          ;FREE UP THE TEMP
  6470  007573' 000000  010434'
  6471  007574' 000000  007570'
  6472  007575' 001000  000001      29040           LXI     B,FINBCK
  6473  007576' 000000  010546'
  6474  007577' 000000  007573'
  6475  007600' 001000  000305      29060           PUSH    B               ;SET UP ANSWER IN NEW TEMP
  6476                              29080   ;
  6477                              29100   ; STRCPY CREATES A COPY OF THE STRING
  6478                              29120   ; WHOSE DESCRIPTOR IS POINTED TO BY [H,L].
  6479                              29140   ; ON RETURN [D,E] POINTS TO DSCTMP
  6480                              29160   ; WHICH HAS THE STRING INFO (LENGTH,WHERE COPIED TO)
  6481                              29180   ;
  6482  007601' 001000  000176      29200   STRCPY: MOV     A,M             ;GET LENGTH
  6483  007602' 001000  000043      29220           INX     H               ;MOVE UP TO THE POINTER
  6484                              29240   IFN     LENGTH-2,<
  6485                              29260           INX     H>
  6486  007603' 001000  000345      29280           PUSH    H               ;GET POINTER TO POINTER OF ARG
  6487  007604' 001000  000315      29300           CALL    GETSPA          ;GET THE SPACE
  6488  007605' 000000  007772'
  6489  007606' 000000  007576'
  6490  007607' 001000  000341      29320           POP     H               ;FIND OUT WHERE STRING TO COPY
  6491  007610' 001000  000367      29340           PUSHM                   ;REALLY IS IN [B,C]
  6492  007611' 001000  000301      29360           POP     B
  6493  007612' 001000  000315      29380           CALL    STRAD2          ;SETUP DSCTMP
  6494  007613' 000000  007627'
  6495  007614' 000000  007605'
  6496  007615' 001000  000345      29400           PUSH    H               ;SAVE POINTER TO DSCTMP
  6497  007616' 001000  000157      29420           MOV     L,A             ;GET CHARACTER COUNT INTO [L]
  6498  007617' 001000  000315      29440           CALL    MOVSTR          ;MOVE THE CHARS IN
  6499  007620' 000000  010417'
  6500  007621' 000000  007613'
  6501  007622' 001000  000321      29460           POP     D               ;RESTORE POINTER TO DSCTMP
  6502  007623' 001000  000311      29480           RET                     ;RETURN
  6503
  6504  007624' 001000  000315      29520   STRINI: CALL    GETSPA          ;GET SOME STRING SPACE ([A] CHARS)
```

```
  6505  007625' 000000  007772'
  6506  007626' 000000  007620'
  6507  007627' 001000  000041      29540   STRAD2: LXI     H,DSCTMP        ;GET DESC. TEMP
  6508  007630' 000000  001570'
  6509  007631' 000000  007625'
  6510  007632' 001000  000345      29560   STRAD1: PUSH    H               ;SAVE DESC. POINTER
  6511  007633' 001000  000167      29580           MOV     M,A             ;SAVE CHARACTER COUNT
  6512                              29600   IFN     LENGTH-2,<
  6513                              29620           INX     H>              ;MOVE TO ADDRESS FIELD
  6514  007634' 001000  000303      29640           JMP     PUTDEI          ;USE COMMON CODE TO
  6515  007635' 000000  007524'
  6516  007636' 000000  007630'
  6517                              29660                                   ;STORE [D,E]=POINTER TO FREE SPACE
  6518                              29680                                   ;AND RESTORE [H,L] AS THE DESCRIPTOR POINTER
  6519                              29682   ;
  6520                              29684   ; STRLT2 TAKES THE STRING LITERAL WHOSE FIRST CHARACTER
  6521                              29686   ; IS POINTED BY [H,L]+1 AND BUILDS A DESCRIPTOR FOR IT.
  6522                              29688   ; THE DESCRIPTOR IS INITIALLY BUILT IN DSCTMP, BUT PUTNEW
  6523                              29690   ; TRANSFERS IT INTO A TEMPORARY AND LEAVES A POINTER
  6524                              29692   ; AT THE TEMPORARY IN FACLO. THE CHARACTERS OTHER THAN
  6525                              29694   ; ZERO THAT TERMINATE THE STRING SHOULD BE SET UP IN [B]
  6526                              29696   ; AND [D]. IT THE TERMINATOR IS A QUOTE, THE QUOTE IS SKIPPED
  6527                              29697   ; OVER. LEADING QUOTES SHOULD BE SKIPPED BEFORE CALL. ON RETURN
  6528                              29698   ; THE CHARACTER AFTER THE STRING LITERAL IS POINTED TO
  6529                              29700   ; BY [H,L] AND IS IN [A], BUT THE CONDITION CODES ARE
  6530                              29702   ; NOT SET UP.
  6531                              29704   ;
  6532  007637' 001000  000053      29720   STRLIT: DCX     H
  6533  007640' 001000  000006      29740   STRLTI: MVI     B,34            ;ASSUME STR ENDS ON QUOTE
  6534  007641' 000000  000042
  6535  007642' 001000  000120      29760   STRLT3: MOV     D,B
  6536  007643' 001000  000345      29780   STRLT2: PUSH    H               ;SAVE POINTER TO START OF LITERAL
  6537  007644' 001000  000016      29800           MVI     C,255           ;INITIALIZE CHARACTER COUNT
  6538  007645' 000000  000377
  6539  007646' 001000  000043      29820   STRGET: INX     H
  6540  007647' 001000  000176      29840           MOV     A,M             ;GET CHAR
  6541  007650' 001000  000014      29860           INR     C               ;BUMP CHARACTER COUNT
  6542  007651' 001000  000267      29880           ORA     A               ;IF 0, (END OF LINE) DONE
  6543  007652' 001000  000312      29900           JZ      STRFIN          ;TEST
  6544  007653' 000000  007665'
  6545  007654' 000000  007635'
  6546  007655' 001000  000272      29920           CMP     D
  6547  007656' 001000  000312      29940           JZ      STRFIN
  6548  007657' 000000  007665'
  6549  007660' 000000  007653'
  6550  007661' 001000  000270      29960           CMP     B               ;CLOSING QUOTE
  6551  007662' 001000  000302      29980           JNZ     STRGET          ;NO, GO BACK FOR MORE
  6552  007663' 000000  007646'
  6553  007664' 000000  007657'
  6554  007665' 001000  000376      30000   STRFIN: CPI     34              ;IF QUOTE TERMINATES THE STRING
  6555  007666' 000000  000042
  6556  007667' 001000  000314      30020           CZ      CHRGTR          ;SKIP OVER THE QUOTE
  6557  007670' 000000  003426'
```

FORMULA EVALUATION

```
   6558  007671' 000000  007663'
   6559  007672' 001000  000343          30040              XTHL
   6560  007673' 001000  000043          30060              INX     H
   6561  007674' 001000  000353          30080              XCHG                       ;GET POINTER TO TEMP
   6562  007675' 001000  000171          30100              MOV     A,C                ;GET CHARACTER COUNT IN A
   6563  007676' 001000  000315          30120              CALL    STRAD2             ;SAVE STR INFO
   6564  007677' 000000  007627'
   6565  007700' 000000  007670'
   6566                                  30140                                         ;COMPARE DESC, POINTER & STR POINTER
   6567  007701' 001000  000347          30160              COMPAR                     ;TO SEE IF STR IN BUF
   6568  007702' 001000  000324          30180              CNC     STRCPY             ;IF IN BUF, MUST COPY IT,
   6569  007703' 000000  007601'
   6570  007704' 000000  007677'
   6571                                  30200                                         ;OTHERWISE STR IN PROGRAM,
   6572                                  30220      ;
   6573                                  30240      ; SOME STRING FUNCTION IS RETURNING A RESULT IN DSCTMP
   6574                                  30260      ; WE WANT TO SETUP A TEMP DESCRIPTOR WITH DCSTMP IN IT
   6575                                  30280      ; PUT A POINTER TO THE DESCRIPTOR IN FACLO AND FLAG THE
   6576                                  30300      ; RESULT AS TYPE STRING
   6577                                  30320      ;
   6578  007705' 001000  000021          30340      PUTNEW: LXI     D,DSCTMP           ;[D,E] POINT AT RESULT DESCRIPTOR
   6579  007706' 000000  001570'
   6580  007707' 000000  007703'
   6581  007710' 001000  000052          30360              LHLD    TEMPPT             ;[H,L]=POINTER TO FIRST FREE TEMP
   6582  007711' 000000  001547'
   6583  007712' 000000  007706'
   6584  007713' 001000  000042          30380              SHLD    FACLO              ;POINTER AT WHERE RESULT DESCRIPTOR WILL BE
   6585  007714' 000000  001637'
   6586  007715' 000000  007711'
   6587                                  30400      IFE     LENGTH-2,<
   6588  007716' 001000  000076          30420              MVI     A,3
   6589  007717' 000000  000003
   6590  007720' 001000  000062          30440              STA     VALTYP             ;FLAG THIS AS A STRING
   6591  007721' 000000  001543'
   6592  007722' 000000  007714'
   6593  007723' 001000  000315          30460              CALL    VMOVE>             ;AND MOVE THE VALUE INTO A TEMPORARY
   6594  007724' 000000  004233*
   6595  007725' 000000  007721'
   6596                                  30480      IFN     LENGTH-2,<
   6597                                  30500              MVI     A,1                ;FLAG RESULT AS STRING
   6598                                  30520              STA     VALTYP             ;STORE IN "VALUE-TYPE" LOCATION
   6599                                  30540              CALL    MOVE>              ;TRANSFER THE DESCRIPTOR IN
   6600  007726' 001000  000347          30560              COMPAR                     ;DSCTMP IS JUST BEYOND THE TEMPS
   6601                                  30580                                         ;AND IF TEMPPT POINTS AT IT THERE
   6602                                  30600                                         ;ARE NO FREE TEMPS
   6603  007727' 001000  000036          30620              MVI     E,ERRST            ;"STRING TEMPORARY" ERROR
   6604  007730' 000000  000020
   6605  007731' 001000  000312          30640              JZ      ERROR              ;GO TELL HIM
   6606  007732' 000000  002102'
   6607  007733' 000000  007724'
   6608  007734' 001000  000042          30660              SHLD    TEMPPT             ;SAVE NEW TEMPORARY POINTER
   6609  007735' 000000  001547'
   6610  007736' 000000  007732'
```

FORMULA EVALLATION

```
   6611  007737' 001000  000341          30680              POP     H                  ;GET THE TEXT POINTER
   6612  007740' 001000  000176          30700              MOV     A,M                ;GET CURRENT CHARACTER INTO [A]
   6613  007741' 001000  000311          30720              RET
   6614                                  30740      ;
   6615                                  30760      ; PRINT THE STRING POINTED TO BY [H,L] WHICH ENDS WITH A ZERO
   6616                                  30780      ; IF THE STRING IS BELOW DSCTMP IT WILL BE COPIED INTO STRING SPACE
   6617                                  30800      ;
   6618  007742' 001000  000043          30820      STROUI: INX     H                  ;POINT AT NEXT CHARACTER
   6619  007743' 001000  000315          30840      STROUT: CALL    STRLIT             ;GET A STRING LITERAL
   6620  007744' 000000  007637'
   6621  007745' 000000  007735'
   6622                                  30860      ;
   6623                                  30880      ; PRINT THE STRING WHOSE DESCRIPTOR IS POINTED TO BY FACLO,
   6624                                  30900      ;
   6625  007746' 001000  000315          30920      STRPRT: CALL    FREFAC             ;RETURN TEMP POINTER BY FACLO
   6626  007747' 000000  010434'
   6627  007750' 000000  007744'
   6628                                  30940      IFE     LENGTH-2,<
   6629  007751' 001000  000315          30960              CALL    GETBCD             ;[D]=LENGTH [B,C]=POINTER AT DATA
   6630  007752' 000000  000000*
   6631  007753' 000000  007747'
   6632  007754' 001000  000024          30970              INR     D                  ;INCREMENT AND DECREMENT EARLY
   6633                                  30980                                         ;TO CHECK FOR NULL STRING
   6634  007755' 001000  000025          30990      STRPR2: DCR     D>                 ;DECREMENT THE LENGTH
   6635                                  31060      IFN     LENGTH-2,<
   6636                                  31080              CALL    MOVRM              ;GET LENGTH IN [E]
   6637                                  31100              INR     E                  ;AND POINTER TO CHARACTERS IN [B,C]
   6638                                  31120      STRPR2: DCR     E>
   6639  007756' 001000  000310          31140              RZ                         ;ALL DONE
   6640  007757' 001000  000012          31160              LDAX    B                  ;GET CHARACTER TO PRINT
   6641  007760' 001000  000337          31180              OUTCHR
   6642  007761' 001000  000376          31200              CPI     CR
   6643  007762' 000000  000015
   6644  007763' 001000  000314          31220              CZ      CRFIN
   6645  007764' 000000  004534'
   6646  007765' 000000  007752'
   6647  007766' 001000  000003          31240              INX     B                  ;POINT TO THE NEXT CHARACTER
   6648  007767' 001000  000303          31260              JMP     STRPR2             ;AND PRINT IT...
   6649  007770' 000000  007755'
   6650  007771' 000000  007764'
   6651                                  31280      ;
   6652                                  31300      ; GETSPA - GET SPACE FOR CHARACTER STRING
   6653                                  31320      ; MAY FORCE GARBAGE COLLECTION.
   6654                                  31340      ;
   6655                                  31360      ; # OF CHARS (BYTES) IN [A]
   6656                                  31380      ; RETURNS WITH POINTER IN [D,E] OTHERWISE IF CANT GET SPACE
   6657                                  31400      ; BLOWS OFF TO "OUT OF STRING SPACE" TYPE ERROR.
   6658                                  31420      ;
   6659  007772' 001000  000267          31440      GETSPA: ORA     A                  ;MUST BE NON ZERO. SIGNAL NO GARBAG YET
   6660  007773' 001000  000016          31460              XWD     ^O1000,^O016       ;"MVI C" AROUND THE NEXT
   6661  007774' 001000  000361          31480      TRYGI2: POP     PSW                ;IN CASE COLLECTED WHAT WAS LENGTH?
   6662  007775' 001000  000365          31500              PUSH    PSW                ;SAVE IT BACK
   6663  007776' 001000  000052          31520              LHLD    STKTOP             ;GET BOTTOM OF STRING SPACE
   6664  007777' 000000  001615'
   6665  010000' 000000  007770'
   6666  010001' 001000  000353            31540                XCHG                      ;IN [D,E]
   6667  010002' 001000  000052            31560                LHLD     FRETOP           ;GET TOP OF FREE SPACE IN [H,L]
   6668  010003' 000000  001573'
   6669  010004' 000000  007777'
   6670  010005' 001000  000057            31580                CMA                       ;-# OF CHARS
   6671  010006' 001000  000117            31600                MOV      C,A              ;IN [B,C]
   6672  010007' 001000  000006            31620                MVI      B,255
   6673  010010' 000000  000377
   6674  010011' 001000  000011            31640                DAD      B                ;SUBTRACT FROM TOP OF FREE
   6675  010012' 001000  000043            31660                INX      H
   6676  010013' 001000  000347            31680                COMPAR                    ;COMPARE THE TWO
   6677  010014' 001000  000332            31700                JC       GARBAG           ;NOT ENOUGH ROOM FOR STRING, OFFAL TIME
   6678  010015' 000000  010026'
   6679  010016' 000000  010003'
   6680  010017' 001000  000042            31720                SHLD     FRETOP           ;SAVE NEW BOTTOM OF MEMORY
   6681  010020' 000000  001573'
   6682  010021' 000000  010015'
   6683  010022' 001000  000043            31740                INX      H                ;MOVE BACK TO POINT TO STRING
   6684  010023' 001000  000353            31760                XCHG                      ;RETURN WITH POINTER IN [D,E]
   6685  010024' 001000  000361            31780      PPSWRT:  POP      PSW              ;GET CHARACTER COUNT
   6686  010025' 001000  000311            31800                RET                       ;RETURN FROM GETSPA
   6687
   6688  010026' 001000  000361            31840      GARBAG:  POP      PSW              ;HAVE WE COLLECTED BEFORE?
   6689  010027' 001000  000036            31860                MVI      E,ERRSO          ;GET READY FOR OUT OF STRING SPACE ERROR
   6690  010030' 000000  000016
   6691  010031' 001000  000312            31880                JZ       ERROR            ;GO TELL USER HE LOST
   6692  010032' 000000  002102'
   6693  010033' 000000  010020'
   6694  010034' 001000  000277            31900                CMP      A                ;SET ZERO FLAG TO SAY WEVE GARBAGED
   6695  010035' 001000  000365            31920                PUSH     PSW              ;SAVE FLAG BACK ON STACK
   6696  010036' 001000  000001            31940                LXI      B,TRYGI2         ;PLACE FOR GARBAG TO RETURN TO.
   6697  010037' 000000  007774'
   6698  010040' 000000  010032'
   6699  010041' 001000  000305            31960                PUSH     B                ;SAVE ON STACK
   6700  010042' 001000  000052            31980      GARBA2:  LHLD     MEMSIZ           ;START FROM TOP DOWN
   6701  010043' 000000  001545'
   6702  010044' 000000  010037'
   6703                                    32000      IFE      REALIO,<
   6704                                    32020                MVI      A,7              ;RING THE BELL ON GARBAGE COLLECTION
   6705                                    32040                OUTCHR>
   6706  010045' 001000  000042            32060      FNDVAR:  SHLD     FRETOP           ;LIKE SO
   6707  010046' 000000  001573'
   6708  010047' 000000  010043'
   6709  010050' 001000  000041            32080                LXI      H,$CODE          ;GET DOUBLE ZERO
   6710  010051' 000000  000000'
   6711  010052' 000000  010046'
   6712  010053' 001000  000345            32100                PUSH     H                ;SAY DIDNT SEE VARS THIS PASS
   6713  010054' 001000  000052            32120                LHLD     STKTOP           ;FORCE DVARS TO IGNORE STRINGS
   6714  010055' 000000  001615'
   6715  010056' 000000  010051'
   6716                                    32140                                          ;IN THE PROGRAM TEXT (LITERALS, DATA)
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   6717  010057' 001000  000345            32160                PUSH     H                ;FORCE FIND HIGH ADDRESS
   6718  010060' 001000  000041            32180                LXI      H,TEMPST         ;GET START OF STRING TEMPS
   6719  010061' 000000  001551'
   6720  010062' 000000  010055'
   6721  010063' 001000  000353            32200      TVAR:    XCHG                      ;SAVE IN [D,E]
   6722  010064' 001000  000052            32220                LHLD     TEMPPT           ;SEE IF DONE
   6723  010065' 000000  001547'
   6724  010066' 000000  010061'
   6725  010067' 001000  000353            32240                XCHG                      ;FLIP
   6726  010070' 001000  000347            32260                COMPAR                    ;TEST
   6727  010071' 001000  000001            32280                LXI      B,TVAR           ;FORCE JUMP TO TVAR
   6728  010072' 000000  010063'
   6729  010073' 000000  010065'
   6730  010074' 001000  000302            32300                JNZ      DVAR2            ;DO TEMP VAR GARBAGE COLLECT
   6731  010075' 000000  010213'
   6732  010076' 000000  010072'
   6733
   6734  010077' 001000  000052            32340      SVARS:   LHLD     VARTAB           ;GET START OF SIMPLE VARIABLES
   6735  010100' 000000  001621'
   6736  010101' 000000  010075'
   6737  010102' 001000  000353            32360      SVAR:    XCHG                      ;GET IN [D,E]
   6738  010103' 001000  000052            32380                LHLD     ARYTAB           ;GET END OF SIMPS
   6739  010104' 000000  001623'
   6740  010105' 000000  010100'
   6741  010106' 001000  000353            32400                XCHG                      ;FLIP
   6742  010107' 001000  000347            32420                COMPAR                    ;SEE IF AT END OF SIMPS
   6743  010110' 001000  000312            32440                JZ       ARYVAR           ;IF YES, DO ARRAY TYPE STRINGS
   6744  010111' 000000  010140'
   6745  010112' 000000  010104'
   6746  010113' 001000  000176            32460                MOV      A,M              ;GET 2ND CHARACTER OF VARIABLE
   6747  010114' 001000  000043            32480                INX      H                ;BUMP POINTER TWICE
   6748  010115' 001000  000043            32500                INX      H                ;
   6749                                    32520      IFE      LENGTH-2,<
   6750  010116' 001000  000043            32540                INX      H                ;POINT AT THE VALUE
   6751  010117' 001000  000376            32560                CPI      3                ;SEE IF ITS A STRING
   6752  010120' 000000  000003
   6753  010121' 001000  000302            32580                JNZ      SKPVAR           ;IF NOT, JUST SKIP AROUND IT
   6754  010122' 000000  010130'
   6755  010123' 000000  010111'
   6756  010124' 001000  000315            32600                CALL     DVARS            ;COLLECT IT
   6757  010125' 000000  010214'
   6758  010126' 000000  010122'
   6759  010127' 001000  000257            32620                XRA      A                ;AND DON'T SKIP ANYTHING MORE
   6760  010130' 001000  000137            32640      SKPVAR:  MOV      E,A
   6761  010131' 001000  000026            32660                MVI      D,0              ;[D,E]=AMOUNT TO SKIP
   6762  010132' 000000  000000
   6763  010133' 001000  000031            32680                DAD      D>
   6764                                    32700      IFN      LENGTH-2,<
   6765                                    32720                ORA      A                ;SET CC'S
   6766                                    32740                CALL     DVARS>           ;CALL THE VARIABLE GARB ROUT.
   6767  010134' 001000  000303            32760                JMP      SVAR             ;GET NEXT ONE
   6768  010135' 000000  010102'
   6769  010136' 000000  010125'
```

Formula Evaluation

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  6770
  6771  010137' 001000  000301          32800   ARYVA2: POP     B               ;GET RID OF STACK GARBAGE
  6772  010140' 001000  000353          32820   ARYVAR: XCHG                    ;SAVE ARYVAR IN [D,E]
  6773  010141' 001000  000052          32840           LHLD    STREND          ;GET END OF ARRAYS
  6774  010142' 000000  001625'
  6775  010143' 000000  010135'
  6776  010144' 001000  000353          32860           XCHG                    ;FLIP BACK
  6777  010145' 001000  000347          32880           COMPAR                  ;SEE IF DONE WITH ARRAYS
  6778  010146' 001000  000312          32900           JZ      GRBPAS          ;YES, SEE IF DONE COLLECTING
  6779  010147' 000000  010254'
  6780  010150' 000000  010142'
  6781                                  32920   IFE     LENGTH-2,<
  6782  010151' 001000  000176          32940           MOV     A,M             ;GET THE VALUE TYPE INTO [A]
  6783  010152' 001000  000043          32960           INX     H>
  6784  010153' 001000  000315          32980           CALL    MOVRM           ;GET LENGTH OF ARRAY IN [B,C]
  6785  010154' 000000  005302*
  6786  010155' 000000  010147'
  6787                                  33000   IFN     LENGTH-2,<
  6788                                  33020           MOV     A,E>            ;GET 2ND CHAR OF VAR NAME IN A
  6789  010156' 001000  000345          33040           PUSH    H               ;SAVE POINTER TO DIMS
  6790  010157' 001000  000011          33060           DAD     B               ;ADD TO CURRENT POINTER POSITION
  6791                                  33080   IFE     LENGTH-2,<
  6792  010160' 001000  000376          33100           CPI     3               ;SEE IF ITS A STRING
  6793  010161' 000000  000003
  6794  010162' 001000  000302          33120           JNZ     ARYVA2>         ;IF NOT JUST SKIP IT
  6795  010163' 000000  010137'
  6796  010164' 000000  010154'
  6797                                  33140   IFN     LENGTH-2,<
  6798                                  33160           ORA     A               ;SEE IF STRING VAR
  6799                                  33180           JP      ARYVA2>         ;NO, KEEP ON TRUCKIN
  6800  010165' 001000  000042          33200           SHLD    TEMP3           ;SAVE END OF ARRAY
  6801  010166' 000000  001575'
  6802  010167' 000000  010163'
  6803  010170' 001000  000341          33220           POP     H               ;GET BACK CURRENT POSITION
  6804  010171' 001000  000116          33240           MOV     C,M             ;PICK UP NUMBER OF DIMS
  6805  010172' 001000  000006          33260           MVI     B,0             ;MAKE DOUBLE WITH HIGH ZERO
  6806  010173' 000000  000000
  6807  010174' 001000  000011          33280           DAD     B               ;GO PAST DIMS
  6808  010175' 001000  000011          33300           DAD     B               ;BY ADDING ON TWICE #DIMS (2 BYTE GUYS)
  6809  010176' 001000  000043          33320           INX     H               ;ONE MORE TO ACCOUNT FOR #DIMS.
  6810  010177' 001000  000353          33340   ARYSTR: XCHG                    ;SAVE CURRENT POSIT IN [D,E]
  6811  010200' 001000  000052          33360           LHLD    TEMP3           ;GET END OF ARRAY
  6812  010201' 000000  001575'
  6813  010202' 000000  010166'
  6814  010203' 001000  000353          33380           XCHG                    ;FIX [H,L] BACK TO CURRENT
  6815  010204' 001000  000347          33400           COMPAR                  ;SEE IF AT END OF ARRAY
  6816  010205' 001000  000312          33420           JZ      ARYVAR          ;END OF ARRAY, TRY NEXT ARRAY
  6817  010206' 000000  010140'
  6818  010207' 000000  010201'
  6819  010210' 001000  000001          33440           LXI     B,ARYSTR        ;ADDR OF WHERE TO RETURN TO
  6820  010211' 000000  010177'
  6821  010212' 000000  010206'
  6822  010213' 001000  000305          33460   DVAR2:  PUSH    B               ;GOES ON STACK
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  6823                                  33480   IFE     LENGTH-2,<
  6824  010214'                         33500   DVAR:
  6825  010214' 001000  000257          33520   DVARS:  XRA     A
  6826  010215' 001000  000266          33540           ORA     M               ;SEE IF ITS THE NULL STRING
  6827  010216' 001000  000043          33560           INX     H
  6828  010217' 001000  000136          33580           MOV     E,M
  6829  010220' 001000  000043          33600           INX     H
  6830  010221' 001000  000126          33620           MOV     D,M
  6831  010222' 001000  000043          33640           INX     H>              ;[D,E]=POINTER AT THE VALUE
  6832                                  33660   IFN     LENGTH-2,<
  6833                                  33680   DVAR:   ORI     128             ;FORCE DVAR TO CALL GRBVAR
  6834                                  33700   DVARS:  PUSHM                   ;SAVE LENGTH
  6835                                  33720           PUSHM                   ;SKIP NEXT TWO BYTES
  6836                                  33740           POP     D               ;GET POINTER IN [D,E]
  6837                                  33760           POP     B               ;POP OF STRING LENGTH
  6838                                  33780           RP                      ;IF WASNT A STR, RETURN
  6839                                  33800           MOV     A,C             ;GET LENGTH OF STRING
  6840                                  33820           ORA     A>              ;SET CONDITION CODES
  6841  010223' 001000  000310          33840           RZ                      ;NULL STRING, RETURN
  6842  010224' 001000  000104          33860           MOV     B,H             ;MOVE [H,L] TO [B,C]
  6843  010225' 001000  000115          33880           MOV     C,L
  6844  010226' 001000  000052          33900           LHLD    FRETOP          ;GET POINTER TO TOP OF STRING FREE SPACE
  6845  010227' 000000  001573'
  6846  010230' 000000  010211'
  6847  010231' 001000  000347          33920           COMPAR                  ;IS THIS STRINGS POINTER .LT. FRETOP
  6848  010232' 001000  000140          33940           MOV     H,B             ;MOVE [B,C] BACK TO [H,L]
  6849  010233' 001000  000151          33960           MOV     L,C
  6850  010234' 001000  000330          33980           RC                      ;IF NOT, NO NEED TO MESS WITH IT FURTHUR
  6851  010235' 001000  000341          34000           POP     H               ;GET RETURN ADDRESS OFF STACK
  6852  010236' 001000  000343          34020           XTHL                    ;GET MAX SEEN SO FAR & SAVE RETURN ADDRESS
  6853  010237' 001000  000347          34040           COMPAR                  ;LETS SEE
  6854  010240' 001000  000343          34060           XTHL                    ;SAVE MAX SEEN & GET RETURN ADDRESS OFF STACK
  6855  010241' 001000  000345          34080           PUSH    H               ;SAVE RETURN ADDRESS BACK
  6856  010242' 001000  000140          34100           MOV     H,B             ;MOVE [B,C] BACK TO [H,L]
  6857  010243' 001000  000151          34120           MOV     L,C
  6858  010244' 001000  000320          34140           RNC                     ;IF NOT, LETS LOOK AT NEXT VAR
  6859  010245' 001000  000301          34160           POP     B               ;GET RETURN ADDR OFF STACK
  6860  010246' 001000  000361          34180           POP     PSW             ;POP OFF MAX SEEN
  6861  010247' 001000  000361          34200           POP     PSW             ;AND VARIABLE POINTER
  6862  010250' 001000  000345          34220           PUSH    H               ;SAVE NEW VARIABLE POINTER
  6863  010251' 001000  000325          34240           PUSH    D               ;AND NEW MAX POINTER
  6864  010252' 001000  000305          34260           PUSH    B               ;SAVE RETURN ADDRESS BACK
  6865  010253' 001000  000311          34280           RET                     ;AND RETURN
  6866                                  34300   ;
  6867                                  34320   ; HERE WHEN MADE ONE COMPLETE PASS THRU STRING VARS
  6868                                  34340   ;
  6869  010254' 001000  000321          34360   GRBPAS: POP     D               ;POP OFF MAX POINTER
  6870  010255' 001000  000341          34380           POP     H               ;AND GET VARIABLE POINTER
  6871  010256' 001000  000175          34400           MOV     A,L             ;GET LOW IN
  6872  010257' 001000  000264          34420           ORA     H               ;SEE IF ZERO POINTER
  6873  010260' 001000  000310          34440           RZ                      ;IF END OF COLLECTION,
  6874                                  34460                                   ;THEN MAYBE RETURN TO GETSPA
  6875  010261' 001000  000053          34480           DCX     H               ;CURRENTLY JUST PAST THE DESCRIPTOR
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FORMULA EVALUATION