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3070 50860 CALL FOUTCI ;CONVERT THE INTEGER TO DECIMAL
3071 50860 ;FALL INTO FOUTZS AND ZERO SUPPRESS THE THING
3072 50900
3073 50920 ;ZERO SUPPRESS THE DIGITS IN FBUFFR
3074 50940 ;ASTERISK FILL AND ZERO SUPPRESS IF NECESSARY
3075 50960 ;SET UP B AND CONDITION CODES IF WE HAVE A TRAILING SIGN
3076 50980 FOUTZS1 LXI M,FBUFFR+1 ;GET POINTER TO THE SIGN
3077 51000 MOV B,M ;SAVE THE SIGN IN B
3078 51020 MVI C," " ;DEFAULT FILL CHARACTER TO A SPACE
3079 51040 LDA TEMP3 ;GET FORMAT SPECS TO SEE IF WE HAVE TO
3080 51060 MOV E,A ;ASTERISK FILL, SAVE IT
3081 51080 ANI 40
3082 51100 JZ FOUTZS1 ;WE DON'T
3083 51120 MOV A,B ;WE DO, SEE IF THE SIGN WAS A SPACE
3084 51140 CMP C ;ZERO FLAG IS SET IF IT WAS
3085 51160 MVI C,"*" ;SET FILL CHARACTER TO AN ASTERISK
3086 51180 JNZ FOUTZS1 ;SET THE SIGN TO AN ASTERISK IF IT WAS A SPACE
3087 51200 MOV B,C ;B HAS THE SIGN, C THE FILL CHARACTER
3088 51220 FOUTZS1 MOV M,C ;FILL IN THE ZERO OR THE SIGN
3089 51240 CHMGET ;GET THE NEXT CHARACTER IN THE BUFFER
3090 51260 ANI 4
3091 51280 ;SINCE THERE ARE NO SPACES, "CHMGET" IS
3092 51300 CPI "0" ;EQUIVALENT TO "INX H"/MOV A,H"
3093 51320 JZ FOUTZS1 ;DO WE HAVE A ZERO?
3094 51340 CPI 54 ;YES, SUPPRESS IT
3095 51360 JZ FOUTZS1 ;S4H," DO WE HAVE A COMMA?
3096 51380 CPI " " ;YES, SUPPRESS IT
3097 51400 JNZ FOUTZS2 ;ARE WE AT THE DECIMAL POINT?
3098 51420 DCX H ;NO, I GUESS NOT
3099 51440 MVI M,"0" ;YES, BACK UP AND PUT A ZERO BEFORE IT
3100 51460 FOUTZS2 MOV A,E ;GET THE FORMAT SPECS TO CHECK FOR A FLOATING
3101 51480 ANI 20 ;DOLLAR SIGN
3102 51500 JZ FOUTZS3 ;WE DON'T HAVE ONE
3103 51520 DCX H ;WE HAVE ONE, BACK UP AND PUT IN THE DOLLAR
3104 51540 MVI M,"$" ;I SIGN
3105 51560 FOUTZS3 MOV A,E ;DO WE HAVE A TRAILING SIGN?
3106 51580 ANI 4
3107 51600 RNZ ;YES, RETURN; NOTE THE NON=ZERO FLAG IS SET
3108 51620 FDFXIS1 DCX H ;NO, BACK UP ONE AND PUT THE SIGN BACK IN
3109 51640 ;PEOPLE JUMP HERE WHO WANT A "DCX H" AND
3110 51660 MOV M,B ;I DON'T CARE ABOUT M
3111 51680 RET ;PUT IN THE SIGN
3112 51700 ;ALL DONE
3113 51720
3114 51740 ;HERE TO INITIALLY SET UP THE FORMAT SPECS AND PUT IN A SPACE FOR THE
3115 51760 ;SIGN OF A POSITIVE NUMBER
3116 51780 FOUNI1: STA TEMP3 ;SAVE THE FORMAT SPECIFICATION
3117 51800 LXI M,FBUFFR+1 ;GET A POINTER INTO FBUFFR
3118 51820 MVI M," " ;PUT IN A SPACE
3119 51840 RET ;ALL DONE
3120 51860
3121 51880 ;HERE TO PRINT A SNG OR DBL IN FREE FORMAT
3122 51900 FOUFRV1: PUSH H ;SAVE THE BUFFER POINTER

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3123 51920 JZ FOUFRS ;WE HAVE A SNG
3124 51940 ;HERE TO SET UP THE FLAG TO PRINT A DBL IN FREE FORMAT
3125 51960 MVI D,20 ;WE HAVE A DBL, SET THE DIGIT COUNT
3126 51980 XMD 1000,001 ;"LXI B" OVER THE NEXT TWO BYTES
3127 52000 ;HERE TO SET UP THE FLAG TO PRINT A SNG IN FREE FORMAT
3128 52020 FOUFRS1: MVI D,0 ;SET THE DIGIT COUNT
3129 52040 CALL FOUTNV ;NORMALIZE THE FAC SO ALL SIGNIFICANT DIGITS
3130 52060 LXI B,2*400+SCODE ;I AM IN THE INTEGER PART
3131 52080 ;B A DECIMAL POINT COUNT
3132 52100 ;C = COMMA COUNT
3133 52120 ;SET COMMA COUNT TO ZERO AND DECIMAL POINT
3134 52140 ;COUNT FOR E NOTATION
3135 52160 ADD D ;SET IF NUMBER SHOULD BE PRINTED IN E NOTATION
3136 52180 JM FOFRS1 ;IT SHOULD, IT IS <1.1
3137 52200 INR D ;CHECK IF IT IS TOO BIG
3138 52220 CMP D
3139 52240 JMC FOFRS1 ;IT IS TOO BIG, IT IS >1.1, 10*0=1
3140 52260 INR A ;IT IS OK FOR FIXED POINT NOTATION
3141 52280 MOV B,A ;SET DECIMAL POINT COUNT
3142 52300 MVI A,1 ;SET FIXED POINT FLAG, THE EXPONENT IS ZERO
3143 52320 FOFRS11: DCR A ;I IF WE ARE USING FIXED POINT NOTATION
3144 52340 POP H ;E NOTATION: ADD D-1 TO ORIGINAL EXPONENT
3145 52360 POP H ;GET THE BUFFER POINTER BACK
3146 52380 PUSH PSH ;SAVE THE EXPONENT FOR LATER
3147 52400 CALL FOUTCV ;CONVERT THE NUMBER TO DECIMAL DIGITS
3148 52420 ;HERE TO SUPPRESS THE TRAILING ZEROS
3149 52440 FOFRS2: DCX H ;MOVE BACK TO THE LAST CHARACTER
3150 52460 MOV A,M ;GET IT AND SEE IF IT WAS ZERO
3151 52480 CPI "0"
3152 52500 JZ FOFRS2 ;IT WAS, CONTINUE SUPPRESSING
3153 52520 CPI " " ;HAVE WE SUPPRESSED ALL THE FRACTIONAL DIGITS?
3154 52540 CNZ INXHT ;YES, IGNORE THE DECIMAL POINT ALSO
3155 52560 POP PSH ;GET THE EXPONENT BACK
3156 52580 JZ FOUTON ;WE ARE DONE IF WE ARE IN FIXED POINT NOTATION
3157 52600 ;FALL IN AND PUT THE EXPONENT IN THE BUFFER
3158 52620
3159 52640 ;HERE TO PUT THE EXPONENT AND "E" OR "0" IN THE BUFFER
3160 52660 ;THE EXPONENT IS IN A
3161 52680 FOFLOD1: MOV B,A ;SAVE THE EXPONENT
3162 52700 LDA VALTYP ;GET THE VALTYP TO DECIDE IF WE PRINT AN "E"
3163 52720 CPI 4 ;OR A "0"
3164 52740 MOV A,B ;GET THE EXPONENT BACK
3165 52760 JZ FOUCEE ;WE HAVE TO PRINT AN "E"
3166 52780 MVI M,"0" ;GET THE "0"
3167 52800 XMD 1000,001 ;"LXI B" OVER THE NEXT TWO BYTES
3168 52820 FOUCEE: MVI M,"E" ;GET AN "E"
3169 52840 INX H ;PUT SIGN OF EXPONENT IN BUFFER
3170 52860 ;EXPONENT
3171 52880 MVI M,"+" ;A PLUS IF POSITIVE
3172 52900 JP FOUCE1
3173 52920 MVI M,"-" ;A MINUS IF NEGATIVE
3174 52940 CMA ;NEGATE EXPONENT
3175 52960 INR A

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3176          52900          I/CALCULATE THE TWO DIGIT EXPONENT
3177          53000          FOUCE1: MVI 8,"0"=1          I/INITIALIZE TEN'S DIGIT COUNT
3178          53020          FOUCE2: INR B          I/INCREMENT DIGIT
3179          53040          SUI 12          I/SUBTRACT TEN
3180          53060          JNC FOUCE2          I/DO IT AGAIN IF RESULT WAS POSITIVE
3181          53080          ADI "0"=12          I/ADD BACK IN TEN AND CONVERT TO ASCII
3182          53100          I/PUT THE EXPONENT IN THE BUFFER
3183          53120          INX M
3184          53140          MOV M,B          I/PUT TEN'S DIGIT OF EXPONENT IN BUFFER
3185          53160          INX M          I/WHEN WE JUMP TO HERE, A IS ZERO
3186          53180          MOV M,A          I/PUT ONE'S DIGIT IN BUFFER
3187          53200          FOUTZ: INX M          I/INCREMENT POINTER, HERE TO FINISH UP PRINTING
3188          53220          I/ A FREE FORMAT ZERO
3189          53240          FOUTON: MVI M,0          I/PUT A ZERO AT THE END OF THE NUMBER
3190          53260          XCHG          I/SAVE THE POINTER TO THE END OF THE NUMBER
3191          53280          I/ IN (DE) FOR FFXFLV
3192          53300          LXI H,FOUFR+1          I/GET A POINTER TO THE BEGINNING
3193          53320          RET          I/ALL DONE
3194          53340
3195          53360          I/HERE TO PUT A POSSIBLE COMMA COUNT IN C, AND ZERO C IF WE ARE NOT
3196          53380          I/USING THE COMMA SPECIFICATION
3197          53400          FOUTCC: MOV C,A          I/SAVE A POSSIBLE COMMA COUNT
3198          53420          FOUICCI: LDA TEMP3          I/GET THE FORMAT SPECS
3199          53440          ANI 100          I/LOOK AT THE COMMA BIT
3200          53460          RNZ          I/WE ARE USING COMMAS, JUST RETURN
3201          53480          MOV C,A          I/WE AREN'T, ZERO THE COMMA COUNT
3202          53500          RET          I/ALL DONE
3203          53520
3204          53540          I/HERE TO PRINT A NUMBER IN FIXED FORMAT
3205          53560          FOUTFX: CPI 4          I/CHECK WHAT KIND OF VALUE WE HAVE
3206          53580          A,D          I/GET THE FORMAT SPECS
3207          53600          JNC FOUFXV          I/WE HAVE A SNG OR A DBL
3208          53620          I/HERE TO PRINT AN INTEGER IN FIXED FORMAT
3209          53640          RAR          I/CHECK IF WE HAVE TO PRINT IT IN FLOATING
3210          53660          JC FFXFLV          I/POINT NOTATION
3211          53680          I/HERE TO PRINT AN INTEGER IN FIXED FORMAT-FIXED POINT NOTATION
3212          53700          LXI B,6400+3+SCODE          I/SET DECIMAL POINT COUNT TO 6 AND
3213          53720          I/ COMMA COUNT TO 3
3214          53740          CALL FOICC          I/CHECK IF WE DON'T HAVE TO USE THE COMMAS
3215          53760          POP D          I/GET THE FIELD LENGTHS
3216          53780          MOV A,D          I/SEE IF WE HAVE TO PRINT EXTRA SPACES BECAUSE
3217          53800          SUI 5          I/ THE FIELD IS TOO BIG
3218          53820          CP FUTZER          I/WE DO, PUT IN ZEROS, THEY WILL LATER BE
3219          53840          I/ CONVERTED TO SPACES OR ASTERISKS BY FOUTZS
3220          53860          PUSH D          I/SAVE THE FIELD LENGTHS AGAIN
3221          53880          CALL FOUTCI          I/CONVERT THE NUMBER TO DECIMAL DIGITS
3222          53900          POP D          I/GET THE FIELD LENGTHS BACK
3223          53920          OMA          I/DO WE NEED A DECIMAL POINT? HERE A=0
3224          53940          CZ FUXFIS          I/WE DON'T, BACKSPACE OVER IT. AT FUXFIS,
3225          53960          I/ WE DON'T CARE ABOUT B, WE ONLY WANT THE
3226          53980          I/ "DCX H". LATER ON WE WILL DO A "MVI M,0"
3227          54000          I/ AND COVER UP WHAT WAS IN B.
3228          54020          CNZ FOTZER          I/FUXFIS PRESERVES THE CONDITION CODES

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3229          54040          I/IF WE DO HAVE DECIMAL PLACES, FILL THEM UP
3230          54060          I/ WITH ZEROS
3231          54080          I/FALL IN AND FINISH UP THE NUMBER
3232          54100
3233          54120          I/HERE TO FINISH UP A FIXED FORMAT NUMBER
3234          54140          FOUTTS: PUSH H          I/SAVE BUFFER POINTER
3235          54160          CALL FOUTZS          I/ZERO SUPPRESS THE NUMBER
3236          54180          H          I/FIGURE OUT HOW MUCH SPACE WE ARE TAKING
3237          54200          JZ FFXIX1          I/CHECK IF WE HAVE A TRAILING SIGN
3238          54220          MOV M,B          I/WE DO, PUT THE SIGN IN THE BUFFER
3239          54240          INX M          I/INCREMENT THE BUFFER POINTER
3240          54260          FFXIX1: MVI M,0          I/PUT A ZERO AT THE END OF THE NUMBER
3241          54280
3242          54300          I/HERE TO CHECK IF A FIXED FORMAT-FIXED POINT NUMBER OVERFLOWED ITS
3243          54320          I/FIELD LENGTH
3244          54340          J0 = THE B IN THE FORMAT SPECIFICATION
3245          54360          I/THIS ASSUMES THE LOCATION OF THE DECIMAL POINT IS IN TEMP2
3246          54380          LXI H,FOUFR          I/GET A POINTER TO THE BEGINNING
3247          54400          FOUBE1: INX H          I/INCREMENT POINTER TO THE NEXT CHARACTER
3248          54420          FOUBE2: LDA TEMP2          I/GET THE LOCATION OF THE DECIMAL POINT
3249          54440          SUB D          I/FIGURE OUT HOW MUCH SPACE WE ARE TAKING
3250          54460          SUB D          I/IS THIS THE RIGHT AMOUNT OF SPACE TO TAKE?
3251          54480          RZ          I/YES, WE ARE DONE, RETURN FROM FOUT
3252          54500          MOV A,M          I/NO, WE MUST HAVE TOO MUCH SINCE WE STARTED
3253          54520          I/ CHECKING FROM THE BEGINNING OF THE BUFFER
3254          54540          I/ AND THE FIELD MUST BE SMALL ENOUGH TO FIT IN
3255          54560          I/ THE BUFFER, GET THE NEXT CHARACTER IN
3256          54580          I/ THE BUFFER
3257          54600          CPI " "          I/IF IT IS A SPACE OR AN ASTERISK, WE CAN
3258          54620          JZ FOUBE1          I/ IGNORE IT AND MAKE THE FIELD SHORTER WITH
3259          54640          CPI "*"          I/ NO ILL EFFECTS
3260          54660          JZ FOUBE1
3261          54680          DCX H          I/MOVE THE POINTER BACK ONE TO READ THE
3262          54700          I/ CHARACTER WITH CHNGT
3263          54720          PUSH H          I/SAVE THE POINTER
3264          54740
3265          54760          I/HERE WE SEE IF WE CAN IGNORE THE LEADING ZERO BEFORE A DECIMAL POINT,
3266          54780          I/THIS OCCURS IF WE SEE THE FOLLOWING: (IN ORDER)
3267          54800          I/ A SIGN (EITHER "+" OR "-")          I/ OPTIONAL]
3268          54820          I/ A DOLLAR SIGN          I/ OPTIONAL]
3269          54840          I/ A ZERO          I/ MANDATORY]
3270          54860          I/ A DECIMAL POINT          I/ MANDATORY]
3271          54880          I/ ANOTHER DIGIT          I/ MANDATORY]
3272          54900          I/IF YOU SEE A LEADING ZERO, IT MUST BE THE ONE BEFORE A DECIMAL POINT
3273          54920          I/OR ELSE FOUTZS WOULD HAVE SUPPRESSED IT, SO WE CAN JUST "INX H"
3274          54940          I/OVER THE CHARACTER FOLLOWING THE ZERO, AND NOT CHECK FOR THE
3275          54960          I/DECIMAL POINT EXPLICITLY.
3276          54980          FOUBE2: PUSH PSW          I/PUT THE LAST CHARACTER ON THE STACK, THE
3277          55000          I/ ZERO FLAG IS SET, THE FIRST TIME THE ZERO
3278          55020          I/ ZERO FLAG IS NOT SET,
3279          55040          LXI B,FOUBE2          I/GET THE ADDRESS WE GO TO IF WE SEE A CHARACTER
3280          55060
3281          55080          PUSH B          I/ WE ARE LOOKING FOR

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3282          55080      CMRGET      /GET THE NEXT CHARACTER
3283          55100      CPI          /SAVE IT AND GET THE NEXT CHARACTER IF IT IS
3284          55120      RZ           / A MINUS SIGN, A PLUS SIGN OR A DOLLAR SIGN
3285          55140      CPI          /
3286          55160      RZ           /
3287          55180      CPI          /
3288          55200      RZ           /
3289          55220      POP          /IT ISN'T, GET THE ADDRESS OFF THE STACK
3290          55240      CPI          /IS IT A ZERO?
3291          55260      JNZ         /NO, WE CAN NOT GET RID OF ANOTHER CHARACTER
3292          55280      INX          /SKIP OVER THE DECIMAL POINT
3293          55300      CMRGET      /GET THE NEXT CHARACTER
3294          55320      JNC         /IT IS NOT A DIGIT, WE CAN'T SHORTEN THE FIELD
3295          55340      ODX          /WE CAN!!! POINT TO THE DECIMAL POINT
3296          55360      XWD         /PLXI 8* OVER THE NEXT 2 BYTES
3297          55380      FOUHE3: ODX  /POINT BACK ONE CHARACTER
3298          55400      MOV          /PUT THE CHARACTER BACK
3299          55420
3300          55440      /IF WE CAN GET RID OF THE ZERO, WE PUT THE CHARACTERS ON THE STACK
3301          55460      /BACK INTO THE BUFFER ONE POSITION IN FRONT OF WHERE THEY ORIGINALLY
3302          55480      /WERE, NOTE THAT THE MAXIMUM NUMBER OF STACK LEVELS THIS USES IS
3303          55500      /THREE -- ONE FOR THE LAST ENTRY FLAG, ONE FOR A POSSIBLE SIGN,
3304          55520      /AND ONE FOR A POSSIBLE DOLLAR SIGN. WE DON'T HAVE TO WORRY ABOUT
3305          55540      /THE FIRST CHARACTER BEING IN THE BUFFER TWICE BECAUSE THE POINTER
3306          55560      /WHEN FOUT EXITS WILL BE POINTING TO THE SECOND OCCURRENCE.
3307          55580      POP          /GET THE CHARACTER OFF THE STACK
3308          55600      JZ          /PUT IT BACK IN THE BUFFER IF IT IS NOT THE
3309          55620      /LAST ONE
3310          55640      POP          /GET THE BUFFER POINTER OFF THE STACK
3311          55660      JNP         /SEE IF THE FIELD IS NOW SMALL ENOUGH
3312          55680      /TOO BIG FOR THE FIELD
3313          55700      FOUHE4: POP  /GET THE CHARACTERS OFF THE STACK
3314          55720      JZ          /LEAVE THE NUMBER IN THE BUFFER ALONE
3315          55740      POP          /GET THE POINTER TO THE BEGINNING OF THE
3316          55760      /NUMBER MINUS 1
3317          55780      MVI         /PUT IN A PERCENT SIGN TO INDICATE THE NUMBER
3318          55800      M, "X"      / WAS TOO LARGE FOR THE FIELD
3319          55820      RET         /ALL DONE -- RETURN FROM FOUT
3320          55840
3321          55860      /HERE TO PRINT A SNG OR DBL IN FIXED FORMAT
3322          55880      FOUFXH: PUSH /SAVE THE BUFFER POINTER
3323          55900      RAR          /GET FIXED OR FLOATING NOTATION FLAG IN CARRY
3324          55920      JC          /PRINT THE NUMBER IN E=NOTATION
3325          55940      JZ          /WE HAVE A SNG
3326          55960      /HERE TO PRINT A DBL IN
3327          55980      LXI         /FIXED FORMAT--FIXED POINT NOTATION
3328          56000      CALL        /GET POINTER TO 1016
3329          56020      /WE CAN'T PRINT A NUMBER, GE, 10^16 IN FIXED
3330          56040      LXI         /POINT NOTATION
3331          56060      D, 16*408+8CODE /SET 0 = NUMBER OF DIGITS TO PRINT FOR A DBL
3332          56080      JM          /IC = 0 FOR DBL (THIS IS FOR COMMAS)
3333          56100      /IF THE FAC WAS SMALL ENOUGH, GO PRINT IT
3334          56120      FFXS00: XRA  /FORMAT WITH A PERCENT SIGN A NUMBER, GE, 10^16
                          /SET THE FORMAT SPECS TO FREE FORMAT

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3335          56140      STA          /GET THE BUFFER POINTER
3336          56160      POP          /SET IT UP TO JUMP BACK INTO FOUT
3337          56180      ODX          /NOW (HL)=FOUFXH+1
3338          56200      /PRINT THE NUMBER IN FREE FORMAT, THE SIGN
3339          56220      CALL        /IS ALREADY IN THE BUFFER
3340          56240      /POINT IN FRONT OF THE NUMBER
3341          56260      ODX          /PUT IN THE PERCENT SIGN
3342          56280      MVI         /ALL DONE--RETURN FROM FOUT
3343          56300      RET         /
3344          56320      /HERE TO PRINT A SNG IN
3345          56340      FFXSF1: MOVRI /FIXED FORMAT--FIXED POINT NOTATION
3346          56360      CALL        /SET 1E16, CHECK IF THE NUMBER IS TOO BIG
3347          56380      JP          /IT IS, PRINT IT IN FREE FORMAT WITH A X SIGN
3348          56400      LXI         /SET UP FLAGS FOR SNG --
3349          56420      /D = NUMBER OF DIGITS TO PRINT IN A SNG
3350          56440      /IC = 2 (THIS IS FOR THE COMMAS)
3351          56460      /A SNG OR DBL IN E NOTATION
3352          56480      FFXSDC: FSIGN /SEE IF WE HAVE ZERO
3353          56500      CNZ         /IF NOT, NORMALIZE THE NUMBER SO ALL DIGITS TO
3354          56520      FOUTNV     /BE PRINTED ARE IN THE INTEGER PART
3355          56540      POP          /GET THE BUFFER POINTER
3356          56560      POP          /GET THE FIELD LENGTH SPECS
3357          56580      JM          /DO DIFFERENT STUFF IF EXPONENT IS NEGATIVE
3358          56600
3359          56620      /HERE TO PRINT A NUMBER WITH NO FRACTIONAL DIGITS
3360          56640      PUSH        /SAVE THE FIELD LENGTH SPECS AGAIN
3361          56660      MOV          /SAVE THE EXPONENT
3362          56680      MOV          /WE HAVE TO PRINT LEADING ZEROS IF THE FIELD
3363          56700      SUB          /HAS MORE CHARACTERS THAN THERE ARE DIGITS IN
3364          56720      C           /THE NUMBER
3365          56740      CP          /FOUTZ3 WILL LATER SUPPRESS THEM
3366          56760      MOV          /SET UP THE COMMA COUNT
3367          56780      ADD          /
3368          56800      MOV          /WE NO LONGER NEED THE NUMBER WE SETUP IN E
3369          56820      FFXXY1: SUI  /REDUCE A MOD 3
3370          56840      JNC         /
3371          56860      ADI          /ADD 3 BACK AND ADD IN 2 MORE FOR SCALING
3372          56880      CALL        /CHECK IF WE HAVE TO USE COMMAS AT ALL
3373          56900      MOV          /SETUP THE DECIMAL POINT COUNT
3374          56920      ADD          /
3375          56940      INR          /
3376          56960      MOV          /IT GOES IN 6
3377          56980      D           /SAVE SNG OR DBL AND EXPONENT INFORMATION
3378          57000      CALL        /CONVERT THE NUMBER TO DECIMAL DIGITS
3379          57020      POP          /GET THE SNG OR DBL AND EXPONENT INFO BACK
3380          57040      ORA          /PUT IN DIGITS AFTER THE NUMBER IF IT
3381          57060      /IS BIG ENOUGH, HERE AND
3382          57080      CNZ         /THERE CAN BE COMMAS IN THESE ZEROS
3383          57100      POP          /GET THE FIELD LENGTH SPECS
3384          57120      ORA          /HERE AND
3385          57140      CNZ         /PRINT A DECIMAL POINT IF NECESSARY
3386          57160      A           /SEE IF WE SHOULD PRINT SOME ZEROS TO FILL IN
3387          57180      CP          /THE DECIMAL PLACES

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3388          57100      JMP      FOUTTS          /GO CHECK THE SIZE, ZERO SUPPRESS, ETC, AND
3389          57200      /FINISH THE NUMBER
3390          57220      /HERE TO PRINT A SNG OR DBL THAT HAS FRACTIONAL DIGITS
3391          57240      FFXV5: MOV      E,A          /SAVE THE EXPONENT, WE DON'T NEED WHAT IS IN E
3392          57260      MOV      A,C          /DIVIDE BY TEN THE RIGHT NUMBER OF TIMES SO
3393          57280      OWA      A          /THE RESULT WILL BE ROUNDED CORRECTLY AND
3394          57300      CNZ      DCRART          /I HAVE THE CORRECT NUMBER OF SIGNIFICANT
3395          57320      ADD      E          /DIGITS
3396          57340      PUSH     PSW          /SAVE THIS NUMBER FOR LATER
3397          57360      FFXV2: R      FINDIV          /THIS IS THE DIVIDE LOOP
3398          57380      JM      FFXV2
3399          57400      MOV      A,E          /WE HAVE TWO CASES DEPENDING ON WHETHER THE
3400          57420      ADD      D          /THE NUMBER IS ,LT, .1 OR NOT
3401          57440      MOV      A,B
3402          57460      JM      FFXV3
3403          57480      /HERE TO PRINT NUMBERS ,GE, .1
3404          57500      SUB      D          /PRINT SOME LEADING ZEROS IF THE FIELD IS
3405          57520      SUB      E          /BIGGER THAN THE NUMBER OF DIGITS WE WILL
3406          57540      CP      FOTZER          /PRINT
3407          57560      POP      PSW          /WE DON'T NEED THE NUMBER WE SAVED BEFORE
3408          57580      MOV      B,E          /GET ALL THE PERTINENT INFO IN B,C
3409          57600      PUSH     B          /SAVE THE EXPONENT AND "C" IN FIELD SPEC
3410          57620      MOV      A,E          /SET UP THE DECIMAL POINT COUNT
3411          57640      D      D
3412          57660      INR      A
3413          57680      MOV      B,A
3414          57700      MOV      A,D
3415          57720      ANL      2
3416          57740      AUI      2
3417          57760      ADD      E
3418          57780      CALL     FOUTCC          /CHECK IF WE HAVE TO DO THE COMMA THING
3419          57800      FFXV6: /CONVERT THE DIGITS AND DO THE TRIMMING UP
3420          57820      /HERE TO PRINT A NUMBER ,LT, .1
3421          57840      FFXV3: CALL     FOTZER          /PUT ALL ZEROS BEFORE THE DECIMAL POINT
3422          57860      MOV      A,C          /SAVE C
3423          57880      CALL     FOUTOP          /PUT IN A DECIMAL POINT
3424          57900      MOV      C,A          /RESTORE C
3425          57920      POP      PSW          /GET THE NUMBER WE SAVED
3426          57940      JM      FFXV4
3427          57960      XRA      A          /DECIDE HOW MANY ZEROS TO PRINT BETWEEN THE
3428          57980      SUB      D          /DECIMAL POINT AND THE FIRST DIGIT WE WILL
3429          58000      SUB      D          /PRINT, HERE THE FIELD IS BIG ENOUGH TO
3430          58020      JMP      FFXV5          /HOLD ALL THE DIGITS
3431          58040      FFXV4: MOV      A,C          /GO PRINT THEM
3432          58060      SUB      D          /HERE WE HAD TO DIVIDE BY TEN SO THE FIELD
3433          58080      DCR      A          /IS SMALLER THAN ALL SIGNIFICANT DIGITS IN
3434          58100      FFXV5: CALL     FOTZER          /THE NUMBER
3435          58120      MOV      B,E          /PRINT THE ZEROS
3436          58140      PUSH     B          /SAVE THE EXPONENT IN B
3437          58160      MOV      B,A          /SAVE EXPONENT AND THE "C" IN THE FIELD SPEC
3438          58180      MOV      C,A          /ZERO THE DECIMAL PLACE COUNT
3439          58200      FFXV6: CALL     FOUTCV          /ZERO THE COMMA COUNT
3440          58220      POP      D          /CONVERT THE NUMBER TO DECIMAL DIGITS
3441          /GET THE EXPONENT AND FIELD SPEC BACK

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3441          58240      OWA      E          /CHECK IF WE HAVE TO PRINT ANY ZEROS AFTER
3442          58260      /THE LAST DIGIT
3443          58280      JC      FFXV7          /CHECK IF THERE WERE ANY DECIMAL PLACES AT ALL
3444          58300      ADD      D          /PRINT SOME MORE TRAILING ZEROS
3445          58320      OWA      A
3446          58340      CP      FOTZER
3447          58360      JMP      FOUTTS          /FINISH UP THE NUMBER
3448          58380      /HERE WERE NO DECIMAL PLACES, IGNORE ALL DIGITS AFTER THE DECIMAL
3449          58400      /POINT
3450          58420      FFXV7: LHL     TEMP2          /THE END OF THE NUMBER IS WHERE THE UP IS
3451          58440      JMP      FOUTTS          /FINISH UP THE NUMBER
3452          58460
3453          58480      /HERE TO PRINT AN INTEGER IN FIXED FORMAT--FLOATING POING NOTATION
3454          58500      FFXFL: PUSH     H          /SAVE THE BUFFER POINTER
3455          58520      PUSH     D          /SAVE THE FORMAT SPECS
3456          58540      CALL     CONSI          /CONVERT THE INTEGER TO A SNG
3457          58560      POP      D          /GET THE FORMAT SPECS BACK
3458          58580      POP      H          /GET THE BUFFER POINTER BACK
3459          58600      XRA      A          /SET FLAGS TO PRINT THE NUMBER AS A SNG
3460          58620      /FALL INTO FFXFLV
3461          58640
3462          58660      /HERE TO PRINT A SNG OR DBL IN FIXED FORMAT--FLOATING POINT NOTATION
3463          58680      FFXFLV: JZ      FFXSFL          /IF WE HAVE A SNG, SET THE RIGHT FLAGS
3464          58700      MVI      E,20          /WE HAVE A DBL, GET HOW MANY DIGITS WE HAVE
3465          58720      XWD      1000,001          /FLX1 B OVER THE NEXT TWO BYTES
3466          58740      MVI      E,6          /WE HAVE A DBL, GET HOW MANY DIGITS WE PRINT
3467          58760      FFXSFL: /SEE IF WE HAVE ZERO
3468          58780      CNZ      FOUTNV          /IF NOT, NORMALIZE THE NUMBER SO ALL DIGITS TO
3469          58800      /BE PRINTED ARE IN THE INTEGER PART
3470          58820      POP      H          /GET THE BUFFER POINTER BACK
3471          58840      POP      B          /GET THE FIELD LENGTH SPECS
3472          58860      PUSH     PSW          /SAVE THE EXPONENT
3473          58880      MOV      A,C          /CALCULATE HOW MANY SIGNIFICANT DIGITS WE MUST
3474          58900      A      A          /PRINT
3475          58920      PUSH     PSW          /SAVE THE "C" FIELD SPEC FOR LATER
3476          58940      CNZ      DCRART
3477          58960      ADD      B
3478          58980      MOV      C,A
3479          59000      MOV      A,D
3480          59020      ANI      4
3481          59040      CPI      1
3482          59060      SBB      A
3483          59080      MOV      D,A          /SET D=0 IF WE HAVE A TRAILING SIGN,
3484          59100      ADD      C          /OR 377 IF WE DO NOT
3485          59120      MOV      C,A          /SET C=NUMBER OF SIGNIFICANT DIGITS TO PRINT
3486          59140      SUB      E          /IF WE HAVE LESS THAN E, THEN WE MUST GET RID
3487          59160      FFXLV1: CM      FINDIV          /OF SOME BY DIVIDING BY TEN AND ROUNDING
3488          59180      JM      FFXLV1
3489          59200      PUSH     B          /SAVE THE "B" FIELD SPEC AND # OF SIG DIGITS
3490          59220      MOV      A,B          /SET THE DECIMAL PLACE COUNT
3491          59240      INR      A
3492          59260      SUB      D
3493          59280      MOV      B,A          /TAKE INTO ACCOUNT IF THE SIGN IS TRAILING

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