```
 OPTIONS NODECK,LIST,XREF,NOREL,OBJ(P)

THE LIST OF OPTIONS USED DURING THIS ASSEMBLY IS--   NODECK,LIST,XREF,NOREL,OBJ
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                        EXTERNAL SYMBOL LIST

SYMBOL   TYPE                                     VER 15, MOD 00  24/02/22  PAGE   1

#UCNF     MODULE
```

```
      0000                        1 #UCNF   START 0
                                  2         PRINT ON,NODATA
                                  3 *       @SYS  EXP-N
                                214+        PRINT ON
                                215 *       @HDW  EXP-N
                                400+        PRINT ON
                                401 *       @FXD  EXP-N
                                806+        PRINT ON
                                807 *       @CAN  EXP-N
                                910+        PRINT ON
                                911 *       @WKA  EXP-N
                                981+        PRINT ON
                                982 *       @CY0  EXP-N
                               1055+        PRINT ON
                               1056 *       @CNF  EXP-N
                               1169+        PRINT ON
                               1170 *       @ERM  EXP-N
                               1792+        PRINT ON
                               1793 *       $V$E  EXP-N
                               2216+        PRINT ON
                               2217 *       @VOL  EXP-N
                               2255+        PRINT ON
                               2256 *       @SPF  EXP-N
                               2719+        PRINT ON
```

```
    0C00                        2721         ORG   $$KLD3
                                2722 *       HDR #UCNFI,1
                                2723 ***********************************************************************
                                2724 *   PROGRAM HEADER FOR DISK LOAD                                     *
                                2725 ***********************************************************************
                                2726 *#$UCNF EQU   X'19B8'                    DISK ADDR AF #UCNFI
                                2727 *#$$UCN EQU   X'0C00'                    CORE LOAD ADDRESS OF #UCNFI
                                2728 *#$@UCN EQU   009                        SECTOR CNT OF #UCNFI
    0C00                        2729         ORG   #$$UCN                     CORE LOAD ADDRESS
               0C00 2730 $$$$$$ EQU   *                          FIRST LOCATION IN PROGRAM
    0C00 7BE4C3D5C6C9  0C05 2731        DC    CL6'#UCNFI'                PROGRAM NAME
    0C06 52            0C06 2732        DC    IL1'082'                   PROGRAM NUMBER OF #UCNFI
               0C07 2733 #UCNFI EQU   *                          ENTRY POINT TO PROGRAM
                                2734 *** END OF EXPANSION ***
    0C07 35 10 14B9             2735         L     UCNOVR,@IAR
```

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     MVDELE - DELETE SCRATCH ENTRIES FROM VTOC

ERR LOC  OBJECT CODE      ADDR STMT  SOURCE STATEMENT          VER 15, MOD 00  24/02/22  PAGE   4

                          2737 ********************************************************************************
                          2738 *       MVDELE - SCRATCH FILE ENTRIES DELETE ROUTINE                          *
                          2739 ********************************************************************************
                          2740 *
                          2741 ***     EQUATES REQUIRED FOR MVDELE
                          2742 *
          000F            2743 MVDM0F EQU   X'0F'                     BITS USED FOR DRIVES TO TEST
          0001            2744 MVDMK1 EQU   X'01'                     INITIAL VALUE FOR DRIVE TO TEST
          000F            2745 MVDCNT EQU   15                        NR OF SECTORS IN VTOC
          01FC            2746 MVDNUM EQU   X'01FC'                   DISP TO # OF SCRATCH FILES
          01FB            2747 MVDSC1 EQU   X'01FB'                   DISP TO 1ST OF S FILE INFO
          0013            2748 MVDF1T EQU   X'13'                     F1 DISP TO FILE TYPE
          0090            2749 MVDMVF EQU   X'90'                     MULTI-VOLUME FILE TYPE
          0060            2750 MVDMVD EQU   X'60'                     MULTI-VOLUME FILE TYPE BITS OFF
          0002            2751 MVDCHN EQU   2                         DISP OF CHAIN ADDRESS
          0002            2752 MVDTWO EQU   2                         LENGTH OF 2
          003F            2753 MVDFIL EQU   63                        FORMAT 1 LENGTH-1
          0005            2754 MVDLEN EQU   5                         LENGTH OF SCRATCH FILE INFO
                          2755 * EQUATES USED TO SET UP MVDPRM FOR MVDELE
          0001            2756 MVDRR1 EQU   X'01'                     DRIVE R1 BIT OF MVDPRM
          0002            2757 MVDRF1 EQU   X'02'                     DRIVE F1 BIT OF MVDPRM
          0004            2758 MVDRR2 EQU   X'04'                     DRIVE R2 BIT OF MVDPRM
          0008            2759 MVDRF2 EQU   X'08'                     DRIVE F2 BIT OF MVDPRM
          000C            2760 MVDI10 EQU   12                        SIZE OF ERROR MSG STACK SAVED

                          2762 ********************************************************************************
                          2763 *       ENTRY POINT TO MODULE MVDELE.                                         *
                          2764 ********************************************************************************
          0C0B            2765 MVDELE EQU   *                         MVDELE ENTRY POINT
          0C1B            2766        USING MVD050,@BR                SET BASE ADDRESS
 0C0B F2 80 0D            2767 MVD025 JC    MVD050,@NOP               1-5
 0C0E C2 01 0C1B          2768        LA    MVD050,@BR                LOAD BASE REGISTER
 0C12 0C 0B 0613 1C0B     2769        MVC   $$INLN+MVDI10(MVDI10),$$ERSK+MVDI10-1  SAVE ERROR MSGS
 0C18 F2 87 1B            2770        J     MVD060                    JUMP ON ENTRY
 0C1B C0 87 0025          2771 MVD050 B     $DISKN                    WAIT FOR OPERATION COMPLETE
 0C1F 057F          0C20  2772        DC    AL2($WAITF)               WAIT DPL ADDRESS
 0C21 5E 00 1C 1C         2773        ALC   MVDMSK(,@BR),MVDMSK(1,@BR) MOVE MASK LEFT ONE BYTE
 0C25 5E 00 C9 CF         2774        ALC   MVDSEC(1,@BR),MVDONE(,@BR) INCREMENT SECTOR FOR NEXT DRIVE
 0C29 79 0F 1C            2775 MVD055 TBF   MVDMSK(,@BR),MVDM0F       TEST OF MORE S FILES POSSIBLE
 0C2C 0C 0B 1C0B 0613     2776        MVC   $$ERSK+MVDI10-1(MVDI10),$$INLN+MVDI10  RESTORE ERROR MSGS
                          2777 * $CAROL MAY BE CHANGED TO $CAIPL OR $CAERK BY #MIPPE, #KMOUN OR #UINIT
 0C32 C0 10 04A1          2778 MVD057 BT    $CARPL                    BR OUT IF ALL FILES PROCESSED
 0C36 78 01 D9            2779 MVD060 TBN   MVDPRM(,@BR),MVDMK1       TEST OF DRIVE NEEDS FILE CHECK
 0C39 3C 87 0C0E          2780        MVI   MVD025+@OP1,@UCB          SET UNCONDITIONAL BRANCH      1-5
 0C37                     2781        ORG   MVD060+@Q                 INITIALIZE
 0C37 01           0C37   2782        DC    AL1(MVDMK1)               R1 DISK
 0C3D                     2783        ORG
 0C3D D0 90 00            2784        BF    MVD050(,@BR)              NO - GO BACK AND CHECK NEXT ONE
 0C40 C0 87 0025          2785        B     $DISKN                    ACCESS DISK TO INPUT VTOC
 0C44 0CE2          0C45  2786        DC    AL2(MVDDPL)               DISK DPL ADDR
 0C46 C0 87 0025          2787        B     $DISKN                    WAIT AND CHECK DISK ERRORS
 0C4A 057F          0C4B  2788        DC    AL2($WAITF)               WAIT DPL ADDRESS
                          2789 *
                          2790 ***     TEST IF ANY SCRATCH FILES EXIST
                          2791 *
 0C4C 3D 00 0F05          2792        CLI   MVDBUF+MVDNUM,0           TEST IF ZERO SCRATCH FILES
```

```
    0C50 D0 81 00              2793        BE    MVD050(,@BR)               NO SRACT FILES - BRANCH BACK
                              2794 *
                              2795 ***    SCRATCH FILE WIPEOUT
                              2796 *
    0C53 4C 01 D8 0F04        2797        MVC   MVDADR(@DADDR,@BR),MVDSC1+MVDBUF  SAVE POINTER TO F1
    0C58 0F 04 0F07 0F07      2798        SLC   MVDSC1+MVDBUF+MVDLEN-2,MVDSC1+MVDLEN-2+MVDBUF(MVDLEN)
                              2799 *                                * ZERO OUT SCRATCH FILE INFO
    0C5E 5C 01 D6 D8          2800 MVD100 MVC   MVDISP(@CADDR,@BR),MVDADR(,@BR)   MOVE TO CALCULATE ADDR
    0C62 5E 01 D5 D5          2801        ALC   MVDADD(MVDTWO,@BR),MVDADD(,@BR)   SHIFT TWO BITS LEFT
    0C66 5E 01 D5 D5          2802        ALC   MVDADD(MVDTWO,@BR),MVDADD(,@BR)   *
    0C6A 58 02 D5 D5          2803        MNZ   MVDADD(,@BR),MVDADD(,@BR) MOVE NUMERIC BITS
    0C6E 58 01 D5 D4          2804        MZN   MVDADD(,@BR),MVDADD-1(,@BR)  MOVE ZONE BITS
    0C72 7C 00 D4             2805        MVI   MVDADD-1(,@BR),@ZERO       ZERO OUT PRECEEDING BYTE
    0C75 5F 01 D6 CE          2806        SLC   MVDISP(@CADDR,@BR),MVDLGT(,@BR)   ADJUST ADDRESS
    0C79 D2 02 EE             2807        LA    MVDBUF(,@BR),@XR           SET XR TO BUFFER
    0C7C 76 02 D6             2808        A     MVDISP(,@BR),@XR           INCREMENT XR TO F1
    0C7F B8 90 13             2809        TBN   MVDF1T(,@XR),MVDMVF        TEST FOR MULTI-VOLUME FILE
    0C82 F2 90 06             2810        JF    MVD150                     JUMP IF NO MVF
    0C85 B9 60 13             2811        TBF   MVDF1T(,@XR),MVDMVD        TEST THAT OTHER BITS ARE OFF
    0C88 F2 10 3D             2812        JT    MVD200                     MULTI-VOLUME FILE WIPEOUT BRANCH
    0C8B 6C 01 D8 02          2813 MVD150 MVC   MVDADR(MVDTWO,@BR),MVDCHN(,@XR)   SAVE NEXT F1 POINTER
    0C8F AF 3E 3F 3F          2814        SLC   MVDFIL(MVDFIL,@XR),MVDFIL(,@XR)   ZERO F1
                              2815 *
                              2816 ***    SET TAG FILENAME TO ZERO.
                              2817 *
    0C93 6C 00 D3 00          2818        MVC   MVDTAG(1,@BR),0(,@XR)      SAVE TAG
    0C97 5E 00 D3 D3          2819        ALC   MVDTAG(1,@BR),MVDTAG(,@BR)  DOUBLE TAG
    0C9B 5C 01 97 D3          2820        MVC   MVDTGS(MVDTWO,@BR),MVDTAG(,@BR)   MOVE TAG
    0C9F 5E 01 97 97          2821        ALC   MVDTGS(MVDTWO,@BR),MVDTGS(,@BR)   DOUBLE
    0CA3 5E 01 97 97          2822        ALC   MVDTGS(MVDTWO,@BR),MVDTGS(,@BR)   DOUBLE
    0CA7 5E 01 97 D3          2823        ALC   MVDTGS(MVDTWO,@BR),MVDTAG(,@BR)   ADD TO GET TAG*10
    0CAB 5E 01 97 D1          2824        ALC   MVDTGS(@CADDR,@BR),MVDTAD(,@BR)   ADJUST TAG ADDR
    0CAF 3C 00 0000           2825 MVD175 MVI   *-*,0                      ZERO'S FILE NAME OF X'20'
                              2826 *
                              2827 ***    TEST FOR LAST SCRATCH FILE AND GO BACK IF NOT
                              2828 *
    0CB3 7D 00 D8             2829        CLI   MVDADR(,@BR),0             TEST FOR LAST S FILE OF CHAIN
    0CB6 D0 01 43             2830        BNE   MVD100(,@BR)               BRANCH IF MORE S FILES
    0CB9 7C 02 C7             2831        MVI   MVDFNC(,@BR),@DPUT         SET FUNCTION CODE FOR WRITE
    0CBC C0 87 0025           2832        B     $DISKN                     ACCESS DISK TO INPUT VTOC
    0CC0 0CE2           0CC1  2833        DC    AL2(MVDDPL)                DISK DPL ADDR
    0CC2 7C 01 C7             2834        MVI   MVDFNC(,@BR),@DGET         SET FUNCTION CODE BACK TO READ
    0CC5 D0 87 00             2835        B     MVD050(,@BR)               RETRUN TO TEST FOR MORE FILES
                              2836 *
                              2837 ***    MULTI-VOLUME FILE WIPEOUT
                              2838 *
    0CC8 4D 01 D8 17FB        2839 MVD200 CLC   MVDADR(MVDTWO,@BR),MVDMF1+MVDCHN  RIGHT F7 ?
    0CCD F2 01 09             2840        JNE   MVD225                     JUMP TO ZERO OTHER F7
    0CD0 0F 3F 1838 1838      2841        SLC   MVDMF1+MVDFIL(MVDFIL+1),MVDMF1+MVDFIL   ZERO OUT 1ST F7
    0CD6 D0 87 70             2842        B     MVD150(,@BR)               RETURN TO PROCESSING F1'S
    0CD9 0F 3F 1878 1878      2843 MVD225 SLC   MVDMF2+MVDFIL(MVDFIL+1),MVDMF2+MVDFIL   ZERO OUT 2ND F7
    0CDF D0 87 70             2844        B     MVD150(,@BR)               RETURN TO F1 PROCESSING
                              2845 *
                              2846 ***    VTOC DPL
                              2847 *
                              2848 *VDDPL $DPL  FUNC-@DGET,DADDR-#VTCR1,CNT-15,CADDR-MVDBUF
```

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      MVDELE - DELETE SCRATCH ENTRIES FROM VTOC


ERR LOC   OBJECT CODE       ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  24/02/22  PAGE    6

                            0CE2 2849+MVDDPL EQU    *                         DISK PARAMETER LIST
     0CE2 01                0CE2 2850+       DC    AL1(@DGET)                 REQUESTED FUNCTION
     0CE3 0024              0CE4 2851+       DC    AL2(#VTCR1)                DISK ADDRESS
     0CE5 0F                0CE5 2852+       DC    AL1(15)                    SECTOR COUNT
     0CE6 0D09              0CE7 2853+       DC    AL2(MVDBUF)                BUFFER ADDRESS
                                 2854+*** END OF EXPANSION ***
                                 2855 *
                                 2856 ***      CONSTANTS AND WORKAREAS USED BY MVDELE
                                 2857 *
     0CE8 09                0CE8 2858 MVDHXB DC    IL1'09'                    LOWEST SECTOR # OF A F1
     0CE9 3F                0CE9 2859 MVDLGT DC    AL1(MVDFIL)                F1 LENGTH - 1
     0CEA 01                0CEA 2860 MVDONE DC    XL1'01'                    ONE
     0CEB 0D05              0CEC 2861 MVDTAD DC    AL2(MVDBUF-@DADDR-@DADDR)  TAG ADDRESS
     0CED 00                0CED 2862        DC    XL1'00'                    ZERO BYTE MUST PRECEED TAG SAVE
     0CEE                   0CEE 2863 MVDTAG DS    CL1                        TAG SAVE AREA
     0CEF 00                0CEF 2864        DC    XL1'00'                    ZERO BYTE MUST PRECEED DADDR
     0CF0                   0CF0 2865 MVDADD DS    CL1                        SECTOR ADDR POINTER FOR CORE
     0CF1                   0CF1 2866 MVDISP DS    CL1                        DISPLACEMENT TO F1
     0CF2                   0CF3 2867 MVDADR DS    CL2                        SCTR/DISP FO FORMAT 1
     0CF4                   0CF4 2868 MVDPRM DS    CL1                        PARAMETERS SHOWS DRIVES TO BE
                                 2869 *                                      * TESTED R1, F1, R2, F2 ARE
                                 2870 *                                      * BITS 4-7 RESPECTIVELY.
     0CF4                        2871        ORG   MVDPRM                     SET INITIAL VALUE
     0CF4 00                0CF4 2872        DC    XL1'00'                    SET PARM TO ZERO
     0CF5                   0D08 2873 $$$$$0 DS    CL20                       PATCH AREA FOR MVDELE

                                 2875 *      VTOC BUFFER BEGINS HERE AND IS 15 SECTORS LONG
                            0D09 2876 MVDBUF EQU    *
                            0C37 2877 MVDMSK EQU    MVD060+@Q                 DISK INDICATOR
                            0CB2 2878 MVDTGS EQU    MVD175+@OP1               ADDR OF INDEX ASSOC WITH TAG
                            17F9 2879 MVDMF1 EQU    MVDBUF+2800               MVF#1 -> 12*256+128=12800
                            1839 2880 MVDMF2 EQU    MVDMF1+64                 MVF#2 = F7 DISP WITHIN BUFFER
                            0CE2 2881 MVDFNC EQU    MVDDPL                    FUNCTION CODE BYTE OF DPL
                            0CE4 2882 MVDSEC EQU    MVDDPL+2                  DISK SECTOR ADDR IN DPL
                                 2883 **********************************************************************
                                 2884 *        END OF MODULE MVDELE                                       *
                                 2885 **********************************************************************
```

```
                         2887 *****************************************************************************
                         2888 * 5703-XM1      COPYRIGHT IBM CORP. 1970                              *
                         2889 *                    REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083   *
                         2890 *                                                                     *
                         2891 *****************************************************************************
                         2892 *STATUS                                                               *
                         2893 *    VERSION 1 MODIFICATION 0                                          *
                         2894 *                                                                     *
                         2895 *FUNCTION                                                             *
                         2896 *    SUPDAT UPDATES THE INDIVIDUAL AND SYSTEM ERROR RATE COUNTERS      *
                         2897 *    ON EACH VOLUME MOUNTED ON THE SYSTEM.  THIS IS DONE BY ADDING     *
                         2898 *    THE READ/WRITE COUNTERS STORED IN THE NUCLEUS TO THE COUNTERS     *
                         2899 *    MAINTAINED ON THE DISKS.  THE NUCLEUS COUNTERS ARE THEN SET       *
                         2900 *    TO ZERO.                                                          *
                         2901 *                                                                     *
                         2902 *ENTRY POINTS                                                          *
                         2903 *    ENTRY IS AT LOCATION SUPDAT.  THE CALLING SEQUENCE IS:            *
                         2904 *         B     SUPDAT                                                 *
                         2905 *    A ONE SECTOR BUFFER MUST BE ALLOCATED FOR DISK I/O BY THE         *
                         2906 *    CALLING PROGRAM AT LOCATION SUPBUF.                               *
                         2907 *                                                                     *
                         2908 *INPUT                                                                *
                         2909 *   N/A                                                                *
                         2910 *                                                                     *
                         2911 *OUTPUT                                                               *
                         2912 *    THE GENERAL REGISTERS ARE RESTORED TO ENTRY VALUES.               *
                         2913 *                                                                     *
                         2914 *EXTERNAL REFERENCES                                                   *
                         2915 *    $PKERT - LOCATION OF ERROR RATE COUNTERS IN THE NUCLEUS.          *
                         2916 *    SDISKN - ENTRY TO DISK IOCS DKDISK.                               *
                         2917 *    SWAITF - ADDRESS OF DISK WAIT DPL.                                *
                         2918 *    SUPBUF - LOCATION OF DISK I/O BUFFER.                             *
                         2919 *                                                                     *
                         2920 *EXITS, NORMAL                                                         *
                         2921 *    EXIT IS TO THE NEXT SEQUENTIAL INSTRUC IN THE CALLING PROGRAM.     *
                         2922 *                                                                     *
                         2923 *EXITS, ERROR                                                          *
                         2924 *   N/A                                                                *
                         2925 *                                                                     *
                         2926 *TABLES/WORK AREAS                                                     *
                         2927 *   N/A                                                                *
                         2928 *                                                                     *
                         2929 *ATTRIBUTES                                                            *
                         2930 *    RELOCATABLE                                                       *
                         2931 *                                                                     *
                         2932 *                                                                     *
                         2933 *CHARACTER CODE DEPENDENCY                                             *
                         2934 *   N/A                                                                *
                         2935 *                                                                     *
                         2936 *NOTES                                                                *
                         2937 *    ERROR PROCEDURES                                                  *
                         2938 *       N/A                                                            *
                         2939 *                                                                     *
                         2940 *    REGISTER USAGE                                                    *
                         2941 *       REGISTER 1 IS USED FOR BASE ADDRESSING. REGISTER 2 IS USED     *
                         2942 *       FOR INDEXING THE ERROR RATE TABLES.                            *
```

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                              2943 *                                                            *
                              2944 *    SAVED RESTORED AREAS                                    *
                              2945 *      N/A                                                   *
                              2946 *                                                            *
                              2947 *    MODIFICATION CONSIDERATIONS                             *
                              2948 *      N/A                                                   *
                              2949 *                                                            *
                              2950 *    REQUIRED MODULES                                        *
                              2951 *      @SYSEQ - GENERAL SYSTEM EQUATES                       *
                              2952 *      @FXDEQ - NUCLEUS LOCATION EQUATES                     *
                              2953 *      @CY0EQ - CYLINDER 0 EQUATES                           *
                              2954 *                                                            *
                              2955 *    NOTES                                                   *
                              2956 *      NONE                                                  *
                              2957 ***********************************************************************
```

```
          MVDELE - DELETE SCRATCH ENTRIES FROM VTOC


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT           VER 15, MOD 00  24/02/22  PAGE   9

                         2959 ***********************************************************************
                         2960 * THIS ROUTINE UPDATES THE TOTAL READ-WRITE COUNTERS ON ALL DISKS     *
                         2961 * 'MOUNTED' ON THE SYSTEM. THE MASTER READ/WRITE COUNTERS ON THE       *
                         2962 * FIXED DISK WILL ALSO BE UPDATED                                      *
                         2963 ***********************************************************************
                         2964 *
                         2965 *SUPDAT ENTER BASE=SUPBSE,EXIT=SUP50,@BR,@XR,@ARR    *
          0D1B           2966         USING SUPBSE,@BR                   BASE ADDRESS SPECIFICATION
          0D09           2967 SUPDAT EQU   *                            MODULE ENTRY POINT
    0D09 34 01 0D8F      2968         ST    SUP500+@OP1,@BR             SAVE @BR
    0D0D C2 01 0D1B      2969         LA    SUPBSE,@BR                  LOAD BASE REGISTER
    0D11 74 02 78        2970         ST    SUP501+@OP1(,@BR),@XR       SAVE @XR
    0D14 74 08 7C        2971         ST    SUP502+@OP1(,@BR),@ARR      SAVE RETURN ADDRESS
                         2972 *** END OF EXPANSION ***

    0D17 C2 02 0416      2974         LA    $PKERT-#PKRTD,@XR           POINT XR TO START OF COUNTERS
    0D1B 9D 03 03 80     2975 SUP020 CLC   #PKRTD(#PKRTL,@XR),SUPZER(,@BR) IS THERE SOMETHING TO
                         2976 *                                          * UPDATE ?
    0D1F F2 81 2B        2977         JE    SUP100                     SKIP UPDATE IF NOT
    0D22 6C 01 85 01     2978         MVC   SUPWTC(#PKCNT,@BR),#PKWTD(,@XR) SET WRT CNTR TO 4 BYTES
    0D26 6C 01 89 03     2979         MVC   SUPRDC(#PKCNT,@BR),#PKRDD(,@XR) SET READ CNTR TO 4 BYTES
    0D2A 5C 05 9E 89     2980 SUP040 MVC   SUPMST+SUPDSP(2+#RDWTL,@BR),SUPRDC(,@BR) SET MASTER ENTRY
                         2981 *       DISK  SUPDPL,WAIT                  READ IN VOLUME SDR SCTR
    0D2E C0 87 0025      2982         B     $DISKN                     PERFORM PHYSICAL DISK OP
    0D32 0DA5       0D33 2983         DC    AL2(SUPDPL)                DPL ADDRESS
    0D34 C0 87 0025      2984         B     $DISKN                     WAIT AND CHECK DISK ERRORS
    0D38 057F       0D39 2985         DC    AL2($WAITF)                WAIT DPL ADDRESS
                         2986 *** END OF EXPANSION ***

    0D3A 1E 03 14C6 85   2988         ALC   SUPBUF+#PKVWD(#RDWTL),SUPWTC(,@BR)  ADD NEW WRITES TO SDR
    0D3F 1E 03 14CA 89   2989         ALC   SUPBUF+#PKVRD(#RDWTL),SUPRDC(,@BR)  ADD NEW READS TO SDR
    0D44 7C 02 8A        2990         MVI   SUPDPL+@DCTRL(,@BR),@DPUT SET DPL FOR WRITE
                         2991 *       DISK  SUPDPL                       WRITE VOLUME SDR SCTR
    0D47 C0 87 0025      2992         B     $DISKN                     PERFORM PHYSICAL DISK OP
    0D4B 0DA5       0D4C 2993         DC    AL2(SUPDPL)                DPL ADDRESS
                         2994 *** END OF EXPANSION ***

    0D4D 78 03 8C        2996 SUP100 TBN   SUPDPL+@DSAD(,@BR),SUPEND ARE ALL DISKS FINISHED ?
    0D50 F2 10 11        2997         JT    SUP200                     GO UPDATE SDR TOTAL CNTRS IF YES
    0D53 5E 00 8C 81     2998         ALC   SUPDPL+@DSAD(1,@BR),SUPONE(,@BR)  SET NEXT DISK ADDRESS
    0D57 7C 01 8A        2999         MVI   SUPDPL+@DCTRL(,@BR),@DGET SET DPL TO READ
    0D5A E2 02 04        3000         LA    #PKRTL(,@XR),@XR           POINT TO NEXT INCORE ENTRY
    0D5D 5E 00 11 96     3001         ALC   SUP040+@D1(1,@BR),SUPMDP(,@BR)  UPDATE MSTR TBL POINTER
    0D61 D0 87 00        3002         B     SUP020(,@BR)               GO UPDATE NEXT DISK
                         3003 *
                         3004 *SUP200 DISK  SUPDP2,WAIT                  READ TOTAL RD/WT SDR SCTR
    0D64 C0 87 0025      3005 SUP200 B     $DISKN                     PERFORM PHYSICAL DISK OP
    0D68 0DAB       0D69 3006         DC    AL2(SUPDP2)                DPL ADDRESS
    0D6A C0 87 0025      3007         B     $DISKN                     WAIT AND CHECK DISK ERRORS
    0D6E 057F       0D6F 3008         DC    AL2($WAITF)                WAIT DPL ADDRESS
                         3009 *** END OF EXPANSION ***

    0D70 0E 1F 14EA 0DD1 3011         ALC   SUPBUF+#PKMRW(8*#RDWTL),SUPMST+8*#RDWTL-1  ADD NEW RD/WT
    0D76 7C 02 90        3012         MVI   SUPDP2+@DCTRL(,@BR),@DPUT SET WRITE FUNC CODE
                         3013 *       DISK  SUPDP2,WA1T                  WRITE MASTER RD/WT CNTR SCTR
    0D79 C0 87 0025      3014         B     $DISKN                     PERFORM PHYSICAL DISK OP
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```
    0D7D 0DAB             0D7E 3015          DC    AL2(SUPDP2)              DPL ADDRESS
    0D7F C0 87 0025            3016          B     $DISKN                   WAIT AND CHECK DISK ERRORS
    0D83 057F             0D84 3017          DC    AL2($WAITF)              WAIT DPL ADDRESS
                               3018 *** END OF EXPANSION ***

    0D85 BC 00 03              3020          MVI   #PKRTD(,@XR),@ZERO       PREPARE CLEAR OF PK ER/RATE TBL
    0D88 AC 0E 02 03           3021          MVC   #PKRTD-1(4*#PKRTL-1,@XR),#PKRTD(,@XR) ZERO OUT TABLE
                               3022 *SUP50   EXIT  @BR,@XR,RETURN           *
    0D8C C2 01 0000            3023 SUP500 LA      *-*,@BR                  RESTORE @BR
    0D90 C2 02 0000            3024 SUP501 LA      *-*,@XR                  RESTORE @XR
    0D94 C0 87 0000            3025 SUP502 B       *-*                      RETURN TO CALLING PROGRAM
                               3026 *** END OF EXPANSION ***

                               3028 ***********************************************************************
                               3029 *   CONSTANTS AND WORK AREAS                                          *
                               3030 ***********************************************************************
    0D98 00000000          0D9B 3031 SUPZER DC    XL(#RDWTL)'00'           ZERO
    0D9C 01               0D9C 3032 SUPONE DC     IL1'1'                   ONE
    0D9D 00000000         0DA0 3033 SUPWTC DC     2AL2(*-*)                VOLUME WRITE CNTR
    0DA1 00000000         0DA4 3034 SUPRDC DC     2AL2(*-*)                VOLUME READ CNTR
                               3035 *SUPDPL DPL   FUNC-DGET,DADDR-#VLSDR,CNT-#@VLSD,CADDR-SUPBLF
                          0DA5 3036 SUPDPL EQU    *                        DISK PARAMETER LIST
    0DA5 01               0DA5 3037          DC    AL1(@DGET)               REQUESTED FUNCTION
    0DA6 000C             0DA7 3038          DC    AL2(#VLSDR)              DISK ADDRESS
    0DA8 01               0DA8 3039          DC    AL1(#@VLSD)              SECTOR COUNT
    0DA9 14BF             0DAA 3040          DC    AL2(SUPBUF)              BUFFER ADDRESS
                               3041 *** END OF EXPANSION ***

                               3043 *SUPDP2 DPL   FUNC-@DGET,DADDR-#MVSDR,CNT-#@MVSD,CADDR-SUPBUF
                          0DAB 3044 SUPDP2 EQU    *                        DISK PARAMETER LIST
    0DAB 01               0DAB 3045          DC    AL1(@DGET)               REQUESTED FUNCTION
    0DAC 000D             0DAD 3046          DC    AL2(#MVSDR)              DISK ADDRESS
    0DAE 01               0DAE 3047          DC    AL1(#@MVSD)              SECTOR COUNT
    0DAF 14BF             0DB0 3048          DC    AL2(SUPBUF)              BUFFER ADDRESS
                               3049 *** END OF EXPANSION ***

    0DB1 08               0DB1 3051 SUPMDP DC     AL1(2*#RDWTL)            MASTER TABLE POINTER INCREMENT
                          0DB2 3052 SUPMST EQU    *                        START OF MASTER UPDATE AREA
    0DB2 0000000000000000 0DD1 3053          DC   32AL1(*-*)               MASTER UPDATE AREA
                          0003 3054 SUPEND EQU    X'03'                    F2 SCTR ADDR BITS
                          0D1B 3055 SUPBSE EQU    SUP020                   BASE VALUE
                          0007 3056 SUPDSP EQU    2*#RDWTL-1               DISP TO R1 RD/WT MASTER COUNTER

                               3058 ***********************************************************************
                               3059 *   5703-XM1 COPYRIGHT IBM CORP 1970                                  *
                               3060 *            REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083       *
                               3061 *                                                                     *
                               3062 ***********************************************************************
                               3063 *STATUS                                                               *
                               3064 *    VERSION 1 MODIFICATION 0                                          *
                               3065 *                                                                     *
                               3066 *FUNCTION                                                             *
                               3067 *    * MCNFIG TESTS THE CONFIGURATION RECORD FOR VALIDITY AND SETS THE *
                               3068 *      CORRESPONDING NUCLEUS INDICATORS FOR THE SPECIFIED DEVICES, IF  *
                               3069 *      THE CRT IS CONFIGURED THE IOCS #DSPLY IS LOADED TO HIGH CORE    *
                               3070 *      AND INITALIZED.                                                 *
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                        3071 *   * WHEN THE RECORD IS TESTED EACH I/O DEVICE INDICATED IS TESTED    *
                        3072 *      TO DETERMINE IF IT IS ON THE SYSTEM.  IF IT IS NOT PRESENT A     *
                        3073 *      PROC CHECK WILL OCCUR.                                           *
                        3074 *   * MCNFIG WILL ALSO LOAD THE CORRECT KEYBOARD TABLE.                 *
                        3075 *                                                                       *
                        3076 *ENTRY POINT                                                            *
                        3077 *   * THE ENTRY POINT IS MCNFIG.  THE CALLING SEQUENCE IS AS FOLLOWS:   *
                        3078 *        B    MCNFIG                                                    *
                        3079 *                                                                       *
                        3080 *INPUT                                                                  *
                        3081 *    INPUT TO MCNFIG IS THE CONFIGURATION RECORD STARTING AT LOCATION   *
                        3082 *    MCNBUF.                                                            *
                        3083 *                                                                       *
                        3084 *OUTPUT                                                                 *
                        3085 *    OUTPUT FROM MCNFIG CONSISTS OF THE CORRESPONDING INDICATORS SET    *
                        3086 *    UP IN THE SYSTEM NUCLEUS.  IF THE CRT IS SPECIFIED THE IOCS        *
                        3087 *    #DSPLY IS LOADED TO HIGH CORE.  THE APPROPRIATE KEYBOARD TABLE     *
                        3088 *    IS ALSO SET UP.                                                    *
                        3089 *                                                                       *
                        3090 *EXTERNAL REFERENCES                                                    *
                        3091 *        $NUCBS - BASE ADDRESS OF NUCLEUS                                *
                        3092 *        $CONFG - LOCATION OF CONFIGURATION INDICATORS                  *
                        3093 *        $EXFTR - LOCATION OF THE CORE EXTENSION FACTOR                 *
                        3094 *        $CSDPL - ADDRESS OF SAVE RESTORE DPL                           *
                        3095 *        $IOIND - ADDRESS OF I/O INDICATOR                              *
                        3096 *        $PRDEV - LOCATION OF POINTER TO SYSTEM PRINTER                 *
                        3097 *        $BSADR - LOCATION OF SYSTEM BASE ADDRESS                       *
                        3098 *        $DISKN - ENTRY TO DISK IOCR                                    *
                        3099 *        $WAITF - LOCATION OF I/O WAIT FUNCTION CODE                    *
                        3100 *        $CRTAD - ENTRY TO RELOCATE CRT ROUTINE                         *
                        3101 *        $RMRGN - LOCATION OF SOFTWARE RIGHT MARGIN VALUE               *
                        3102 *        $C0001 - LOCATION OF 2 BYTE CONSTANT 1                         *
                        3103 *        $KEYBD - LOCATION OF KEYBOARD TYPE INDICATOR                   *
                        3104 *        $SDATB - LOCATION OF KEYBOARD TYPE IN DPRES                    *
                        3105 *        $DKSIZ - LOCATION OF DISK SIZE INDICATOR                       *
                        3106 *                                                                       *
                        3107 *EXITS, NORMAL                                                          *
                        3108 *    NORMAL RETURN IS TO THE CALLING PROGRAM AT THE FIRST INSTRUCTION   *
                        3109 *    FOLLOWING THE BRANCH TO MCNFIG.                                    *
                        3110 *                                                                       *
                        3111 *EXITS, ERROR                                                           *
                        3112 *    AN EXIT IS TAKEN TO SC0001 TO FORCE A MACHINE PROC CHECK WITH      *
                        3113 *    THE FIELD INDICATORS NOTING THE DEVICE IN ERROR.                   *
                        3114 *                                                                       *
                        3115 *TABLES/WORKAREAS                                                       *
                        3116 *    NONE                                                               *
                        3117 *                                                                       *
                        3118 *ATTRIBUTES                                                             *
                        3119 *   * RELOCATABLE                                                       *
                        3120 *   * REUSABLE                                                          *
                        3121 *                                                                       *
                        3122 *CHARACTER CODE DEPENDENCY                                              *
                        3123 *    THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR     *
                        3124 *    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.             *
                        3125 *                                                                       *
                        3126 *NOTES                                                                  *
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                              3127 *    ERROR PROCEDURES                                         *
                              3128 *        MCNFIG WILL GENERATE A MACHINE PROC CHECK IF A DEVICE IS    *
                              3129 *        CONFIGURED BUT IS NOT ON THE SYSTEM.  WHEN THE DEV IS TESTED  *
                              3130 *        A FIELD INDICATOR IS SET TO INDICATE THE DEVICE IN ERROR.   *
                              3131 *        THE ONE EXCEPTION TO THIS PROCEDURE IS IF DISK DRIVE 2 IS    *
                              3132 *        TESTED AND IT IS NOT ON THE SYSTEM THE DISK NOT READY LIGHT  *
                              3133 *        WILL LIT.   THE FIELD INDICATORS ARE AS FOLLOWS:          *
                              3134 *          X'80' - WRONG DISK CAPACITY ON DRIVE 1                  *
                              3135 *          X'40' - WRONG DISK CAPACITY ON DRIVE 2                  *
                              3136 *          X'20' - WRONG CORE SIZE                                 *
                              3137 *          X'10' - WRONG SIZE PRINTER                              *
                              3138 *          X'08' - WRONG TYPE PRINTER                              *
                              3139 *          X'04' - MISSING CRT                                     *
                              3140 *          X'02' - MISSING DATA RECORDER                           *
                              3141 *          X'01'                                                   *
                              3142 *                                                                  *
                              3143 *    REGISTER USAGE                                                *
                              3144 *        @BR IS USED TO REFERENCE THE SYSTEM NUCLEUS.  @XR IS USED TO  *
                              3145 *        REFERENCE THE CONFIGURATION RECORD.  THEY ARE NOT SAVED OR  *
                              3146 *        RESTORED.                                                 *
                              3147 *                                                                  *
                              3148 *    SAVED/RESTORED AREAS                                          *
                              3149 *        NONE                                                      *
                              3150 *                                                                  *
                              3151 *    MODIFICATION CONSIDERATIONS                                   *
                              3152 *        N/A                                                       *
                              3153 *                                                                  *
                              3154 *    REQUIRED MODULES                                              *
                              3155 *        @SYSEQ - COMMON SYSTEM EQUATES                            *
                              3156 *        @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR VALUES    *
                              3157 *        @CANEQ - SYSTEM LOCATION EQUATES                          *
                              3158 *        @CNFEQ - CONFIGURATION RECORD EQUATES                     *
                              3159 *                                                                  *
                              3160 *    OTHER                                                         *
                              3161 *        NONE                                                      *
                              3162 ******************************************************************************
```

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        MVDELE - DELETE SCRATCH ENTRIES FROM VTOC


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  24/02/22  PAGE  13

                              3164 *********************************************************************
                              3165 * THIS ROUTINE TESTS THE CONFIGURATION RECORD AT LOCATION MCNBUF,    *
                              3166 * IF IN ERROR THE CORRESPONDING FIELD INDICATORS WILL BE LIT AND      *
                              3167 * A PROC CHECK GENERATED.   IF CORRECTLY THE CORRESPONDING NUCLEUS    *
                              3168 * INDICATORS WILL BE TURNED ON.  THIS ROUTINE MAY BE REUSED          *
                              3169 *********************************************************************
                         14BF 3170       USING MCNBUF,@XR               INDEX REG POINTS TO BUFFER
                              3171 *MCNFIG ENTER BASE=$NUCBS
                         03C0 3172       USING $NUCBS,@BR               BASE ADDRESS SPECIFICATION
                         0DD2 3173 MCNFIG EQU   *                       MODULE ENTRY POINT
      0DD2 C2 01 03C0        3174       LA    $NUCBS,@BR               LOAD BASE REGISTER
                              3175 *** END OF EXPANSION ***

      0DD6 C2 02 14BF        3177       LA    MCNBUF,@XR               POINT YR TO CONFIGURATION RCD
      0DDA 7C 00 1D          3178       MVI   $CONFG(,@BR),@ZERO       SET 8K CORE INDR
      0DDD 34 08 103F        3179       ST    MCN500+@OP1,@ARR         SAVE RETURN ADDRESS
      0DE1 BD 00 3D          3180       CLI   @#CSIZ(,@XR),@ZERO       IS THERE A CONFIG RECORD ?
      0DE4 C0 81 102C        3181       BE    MCN380                   EXIT IF NOT
      0DE8 7C 00 7B          3182       MVI   $EXFTR(,@BR),@ZERO       RESET EXTENSION FACTOR
      0DEB 3C 1A 0511        3183       MVI   $CSDPL+@DCNT,MCN08C      SET SAVE CORE SECTOR CNT
      0DEF BD 01 3D          3184       CLI   @#CSIZ(,@XR),@#C08K      IS IT 8K ?
      0DF2 F2 81 2B          3185       JE    MCN100                   YES, SKIP CORE TEST
      0DF5 7C 10 7B          3186       MVI   $EXFTR(,@BR),MCN12K      SET CORE EXTENSION FOR 12K
      0DF8 7C 04 1D          3187       MVI   $CONFG(,@BR),$12K        SET 12K CORE INDR
      0DFB BD 02 3D          3188       CLI   @#CSIZ(,@XR),@#C12K      IS IT 12K ?
      0DFE F2 81 0D          3189       JE    MCN050                   GO TEST IT
      0E01 BD 04 3D          3190       CLI   @#CSIZ(,@XR),@#C16K      IS IF 16K--IF NOT ASSUME
      0E04 C0 01 102C        3191       BNE   MCN380                   * MINIMUM CONFIGURATION
      0E08 7C 20 7B          3192       MVI   $EXFTR(,@BR),MCN16K      SET CORE EXTENSION FOR 16K
      0E0B 7C 02 1D          3193       MVI   $CONFG(,@BR),$16K        SET 16K CORE INDR
      0E0E 31 12 1042        3194 MCN050 LIO   MCNCOR,@FLDIN            TURN ON FIELD INDR FOR CORE CHK,
      0E12 1E 00 0E19 7B     3195       ALC   MCN060+@D1(1),$EXFTR(,@BR)  CALCULATE LAST BYTE OF CORE
      0E17 3A 00 1FFF        3196 MCN060 SBN   @MINCR-1,@ZERO            TEST CORE SIZE
      0E1B 1F 00 0E19 7B     3197       SLC   MCN060+@D1(1),$EXFTR(,@BR)  RESTORE ORGINAL VALLE
      0E20 7B 40 12          3198 MCN100 SBF   $IOIND(,@BR),$DTRDR      SET NO DATA RECORDER
      0E23 B8 40 20          3199       TBN   @#DATA(,@XR),@#DATB      IS DATA RECORDER ON SYSTEM
      0E26 F2 90 2C          3200       JF    MCN130                   SKIP TEST IF NOT
      0E29 31 12 1046        3201       LIO   MCNDAT,@FLDIN            SET FIELD INDRS FOR DATA RCDR
      0E2D 71 F0 8B          3202       LIO   $PRDEV(,@BR),@LO37B      ATTEMPT TO LOAD ITS LSR
      0E30 7A 40 12          3203       SBN   $IOIND(,@BR),$DTRDR      SET RCDR ON SYSTEM BIT
      0E33 30 F2 1056        3204       SNS   MCNWRK,MCNDRS            SENSE DATA RECORDER          1-4
      0E37 38 02 1056        3205       TBN   MCNWRK,MCNDRT            WHICH TYPE OF D.R.?          1-4
      0E3B F2 90 0D          3206       JF    MCN120                   BRANCH IF 129                1-4
      0E3E B9 08 20          3207       TBF   @#DATA(,@XR),MCNBCD      IS 5496 CONFIGURED ?         1-4
      0E41 D0 90 A4          3208       BF    $C0001(,@BR)             NO, GENERATE PROC CHECK      1-4
      0E44 3B 80 03DD        3209       SBF   $CONFG,$BIGCD            SET 5496 IND IN $BIGCD (0)   1-4
      0E48 F2 87 0A          3210       J     MCN130                   CONTINUE                     1-4

      0E4B B8 48 20          3212 MCN120 TBN   @#DATA(,@XR),@#DATC      IS 129 CONFIGURED ?          1-4
      0E4E D0 90 A4          3213       BF    $C0001(,@BR)             NO; GENERATE PROC CHECK      1-4
      0E51 3A 80 03DD        3214       SBN   $CONFG,$BIGCD            SET 129 IND IN $BIGCD (1)    1-4
      0E55 78 02 12          3215 MCN130 TBN   $IOIND(,@BR),$CRTAV      WAS THE CRT ON THE SYSTEM ?
      0E58 F2 90 03          3216       JF    MCN150                   DON'T REFERENCE IT IF NOT
      0E5B F3 90 00          3217       SIO   0,@CRTQ                  TURN THE DISPLAY OFF
      0E5E 7B 02 12          3218 MCN150 SBF   $IOIND(,@BR),$CRTAV      SET NO CRT ON SYSTEM INDR
      0E61 B8 40 28          3219       TBN   @#CRTD(,@XR),@#CRTB      IS CRT ON SYSTEM ?
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     0E64 F2 90 38           3220          JF    MCN200                        SKIP TEST IF NOT
     0E67 7A 06 12           3221          SBN   $IOIND(,@BR),$CRTAV+$CRTNO   SET CRT ON SYSTEM INDR
     0E6A 4F 00 7B 1048      3222          SLC   $EXFTR(1,@BR),MCNEXF         RECALCULATE EXTENSION FACTOR
     0E6F F2 80 2D           3223 MCN155 JC     MCN200,@NOP                   SKIP SET UP IF DONE
     0E72 3C 87 0E70         3224          MVI   MCN155+@Q,@UCB               SET DONE INDR
     0E76 1E 00 1050 7B      3225          ALC   MCNDK1+@DBFR1(1),$EXFTR(,@BR)  CALCULATE CRT LOAD ADDR
     0E7B 0E 01 104E 0587    3226          ALC   MCNDK1+@DSAD(@DADDR),$BSADR   GET TRUE DISK ADDR
     0E81 31 12 1045         3227          LIO   MCNCRT,@FLDIN                SET FIELD INDRS FOR CRT
                             3228 *        DISK  MCNDK1,WAIT                    LOAD DSPLYN
     0E85 C0 87 0025         3229          B     $DISKN                        PERFORM PHYSICAL DISK OP
     0E89 104C          0E8A 3230          DC    AL2(MCNDK1)                   DPL ADDRESS
     0E8B C0 87 0025         3231          B     $DISKN                        WAIT AND CHECK DISK ERRORS
     0E8F 057F          0E90 3232          DC    AL2($WAITF)                   WAIT DPL ADDRESS
                             3233 *** END OF EXPANSION ***

     0E91 4C 01 8D 1051      3235          MVC   $CRTAD(@CADDR,@BR),MCNDK1+@DBFR2  SET CRT EXECUTION ADDR
     0E96 1C 01 0E9E 8D      3236          MVC   MCN160+@OP1(@CADDR),$CRTAD(,@BR)  SET BR CDR
     0E9B C0 87 0000         3237 MCN160 B     *-*                             GO INITIALIZE DSPLYN
     0E9F 1E 00 0511 7B      3238 MCN200 ALC   $CSDPL+@DCNT(1),$EXFTR(,@BR)   SET NPAUSE CORE SAVE CNT
     0EA4 7B 80 12           3239          SBF   $IOIND(,@BR),$LNPTR           SET LINE PRINTER INDR OFF
     0EA7 30 EB 1056         3240          SNS   MCNWRK,MCNSTS                 SENSE PRINTER STATUS
     0EAB 31 12 1043         3241          LIO   MCNPTR,@FLDIN                 SET FIELD INDRS FOR PRINTER
     0EAF B8 02 16           3242          TBN   @#MTYP(,@XR),@#MP22           22 INCH PRINTER ON SYSTEM
     0EB2 F2 10 0C           3243          JT    MCN210                        TEST 22 INCH IF YES
     0EB5 7D 84 00           3244          CLI   $RMRGN(,@BR),MCN13I           IS MARGIN GREATER THAN 13
     0EB8 F2 04 10           3245          JNH   MCN220                        DON'T CHANGE IT IF NO
     0EBB 7C 84 00           3246          MVI   $RMRGN(,@BR),MCN13I           SET 13 INCH PRINTER WIDTH
     0EBE F2 87 0A           3247          J     MCN220                        GO TEST LINE PRINTER
     0EC1 39 80 1055         3248 MCN210 TBF   MCNWRK-1,MCNP22                 IS 22 INCH PRINTER AVAILABLE
     0EC5 D0 90 A4           3249          BF    $C0001(,@BR)                  CAUSE PROC CHK IF NOT
     0EC8 7A 01 1D           3250          SBN   $CONFG(,@BR),$22IMP           SET 22 INCH INDR
     0ECB B8 04 16           3251 MCN220 TBN   @#MTYP(,@XR),@#MTLP             IS IT LINE PRINTER ?
     0ECE F2 90 0E           3252          JF    MCN250                        SKIP TEST IF NOT
     0ED1 31 12 1044         3253          LIO   MCNLPR,@FLDIN                 SET FIELD INDRS FOR LINE PRINTED
     0ED5 39 20 1055         3254          TBF   MCNWRK-1,MCNMLP               IS LINE PRINTER AVAILABLE
     0ED9 D0 90 A4           3255          BF    $C0001(,@BR)                  CAUSE PROC CHECK IF NOT
     0EDC 7A 80 12           3256          SBN   $IOIND(,@BR),$LNPTR           SET LINE PRINTER INDR
                        0EDF 3257 MCN250 EQU   *                              SET UP KEYBOARD TABLES
     0EDF 31 12 1047         3258          LIO   MCNOFF,@FLDIN                 TURN OFF FIELD INDR
     0EE3 B8 40 19           3259          TBN   @#KEYS(,@XR),@#KE08           8 COMMAND KEYS ?
     0EE6 F2 10 03           3260          JT    MCN255                        DON'T SET INDR IF YES
     0EE9 7A 08 1D           3261          SBN   $CONFG(,@BR),$16CKY           SET 16 COMMAND KEY INDR
     0EEC 6C 00 21 1A        3262 MCN255 MVC   $KEYBD(,@BR),@#KNAT(1,@XR)     SET KYBRD NUMBER IN NUCLEUS
     0EF0 2D 00 0BBF 1A      3263          CLC   $$DATB,@#KNAT(,@XR)           ARE WE USING CORRECT KEYBOARD ?
     0EF5 F2 81 E3           3264          JE    MCN300                        SKIP PLACING KEYBOARDS
     0EF8 F2 80 22           3265 MCN258 JC    MCN263,@NOP                     JUMP IF SPF DADDRS SET
     0EFB 3C 87 0EF9         3266          MVI   MCN258+@Q,@UCB               SET SPF DADDRS 'SET' INDR
     0EFF 3C 0A 1049         3267          MVI   MCNLPC,MCNTBC                 RELOCATE IO DADDRS
     0F03 C2 01 1059         3268          LA    MCNDK3+@DSAD,@BR             POINT TO 1ST DPL DADDR
     0F07 4E 01 00 0587      3269 MCN260 ALC   0(@DADDR,@BR),$BSADR           CALCULATE TRUE SPF DADDR
     0F0C D2 01 06           3270          LA    @DPLNG(,@BR),@BR             POINT TO NEXT DPL
     0F0F 0F 00 1049 0464    3271          SLC   MCNLPC(1),$C0001             ARE WE DONE ?
     0F15 C0 84 0F07         3272          BH    MCN260                        LOOP IF NOT
     0F19 C2 01 03C0         3273          LA    $NUCBS,@BR                   RESTORE BASE REGISTER
     0F1D BD 09 1A           3274 MCN263 CLI   @#KNAT(,@XR),@#UKDM             IS THIS A GOOD KEYBOARD ?
     0F20 F2 84 B8           3275          JH    MCN300                        SKIP PLACEMENT IF NOT
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     0F23 BD 00 1A              3276          CLI   @#KNAT(,@XR),@ZERO        ARE YOU SURE ???
     0F26 F2 81 B2              3277          JE    MCN300                    SKIP PLACEMENT IF NOT
     0F29 0C 01 0F57 1053       3278          MVC   MCN265+@OP2,MCNDK2+1(@CADDR)  ZERO OUT DATA TBL DISP
     0F2F 28 01 0F57 1A         3279          MZN   MCN265+@OP2,@#KNAT(,@XR)  PLACE DATA TBL DISP IN MVC
     0F34 0E 01 0F57 0F57       3280          ALC   MCN265+@OP2(@CADDR),MCN265+@OP2  SHIFT BITS
     0F3A 0E 01 0F57 0F57       3281          ALC   MCN265+@OP2(@CADDR),MCN265+@OP2  GET TABLE DISP
     0F40 0E 01 0F57 104B       3282          ALC   MCN265+@OP2(@CADDR),MCNDBA  CALCULATE DATA TBL ADDR
                                3283 *        DISK  MCNDK3,WAIT               READ SYSTEM DATA TBLS TO BUFFER
     0F46 C0 87 0025            3284          B     $DISKN                    PERFORM PHYSICAL DISK OP
     0F4A 1057         0F4B     3285          DC    AL2(MCNDK3)               DPL ADDRESS
     0F4C C0 87 0025            3286          B     $DISKN                    WAIT AND CHECK DISK ERRORS
                                3287 *** END OF EXPANSION ***

     0F50 057F         0F51     3289          DC    AL2($WAITF)               WAIT DPL ADDRESS
     0F52 0C 3F 15FE 0000       3290 MCN265 MVC    MCNBUF+MCNTBD(MCNTBL),*-*  SAVE CORRECT DATA TABLE
                                3291 *        DISK  MCNDK4,WAIT               READ DEPRES DATA TABLE
     0F58 C0 87 0025            3292          B     $DISKN                    PERFORM PHYSICAL DISK OP
     0F5C 105D         0F5D     3293          DC    AL2(MCNDK4)               DPL ADDRESS
     0F5E C0 87 0025            3294          B     $DISKN                    WAIT AND CHECK DISK ERRORS
     0F62 057F         0F63     3295          DC    AL2($WAITF)               WAIT DPL ADDRESS
                                3296 *** END OF EXPANSION ***

     0F64 0C 3F 17BE 15FE       3298          MVC   MCNBUF+3*MCNSTR-1(MCNTBL),MCNBUF+MCNTBD  SET DATA TBL
     0F6A 1C 00 177E 21         3299          MVC   MCNBUF+MCNTID,$KEYBD(1,@BR)  SET KYBRD TYPE INDR IN DEPRE
                                3300 *        DISK  MCNDK5                    WRITE DEPRES DATA TBL TO DISK
     0F6F C0 87 0025            3301          B     $DISKN                    PERFORM PHYSICAL DISK OP
     0F73 1063         0F74     3302          DC    AL2(MCNDK5)               DPL ADDRESS
                                3303 *** END OF EXPANSION ***

                                3305 *        DISK  MCNDK6,WAIT               READ VM STD DFKEYN TBL
     0F75 C0 87 0025            3306          B     $DISKN                    PERFORM PHYSICAL DISK 0P
     0F79 1069         0F7A     3307          DC    AL2(MCNDK6)               DPL ADDRESS
     0F7B C0 87 0025            3308          B     $DISKN                    WAIT AND CHECK DISK ERRORS
     0F7F 057F         0F80     3309          DC    AL2($WAITF)               WAIT DPL ADDRESS
                                3310 *** END OF EXPANSION ***

     0F81 0C 3F 17BE 15FE       3312          MVC   MCNBUF+3*MCNSTR-1(MCNTBL),MCNBUF+MCNTBD  SET DATA TBL
                                3313 *        DISK  MCNDK7                    WRITE VM DFKEYN
     0F87 C0 87 0025            3314          B     $DISKN                    PERFORM PHYSICAL DISK OP
     0F8B 106F         0F8C     3315          DC    AL2(MCNDK7)               DPL ADDRESS
                                3316 *** END OF EXPANSION ***

                                3318 *        DISK  MCNDK8,WAIT               READ VM FTD DFKSYN TBL
     0F8D C0 87 0025            3319          B     $DISKN                    PERFORM PHYSICAL DISK OP
     0F91 1075         0F92     3320          DC    AL2(MCNDK8)               DPL ADDRESS
     0F93 C0 87 0025            3321          B     $DISKN                    WAIT AND CHECK DISK ERRORS
     0F97 057F         0F98     3322          DC    AL2($WAITF)               WAIT DPL ADDRESS
                                3323 *** END OF EXPANSION ***

     0F99 0C 3F 17BE 15FE       3325          MVC   MCNBUF+3*MCNSTR-1(MCNTBL),MCNBUF+MCNTBD  SET DATA TBL
                                3326 *        DISK  MCNDK9                    WRITE VM DFKEYN
     0F9F C0 87 0025            3327          B     $DISKN                    PERFORM PHYSICAL DISK OP
     0FA3 107B         0FA4     3328          DC    AL2(MCNDK9)               DPL ADDRESS
                                3329 *** END OF EXPANSION ***

                                3331 *        DISK  MCNDKA,WAIT               READ DCAL KEYBRD TBLS
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    0FA5 C0 87 0025          3332       B     $DISKN              PERFORM PHYSICAL DISK OP
    0FA9 1081           0FAA 3333       DC    AL2(MCNDKA)         DPL ADDRESS
    0FAB C0 87 0025          3334       B     $DISKN              WAIT AND CHECK DISK ERRORS
    0FAF 057F           0FB0 3335       DC    AL2($WAITF)         WAIT DPL ADDRESS
                             3336 *** END OF EXPANSION ***

    0FB1 0C 01 0FBC 0F57     3338       MVC   MCN268+@OP2(@CADDR),MCN265+@OP2  SET ADDR OF TABLE
    0FB7 0C 3F 15FE 0000     3339 MCN268 MVC  MCNBUF+MCNTBD(MCNTBL),*-* SAVE DATA TABLE FOR DCAL
                             3340 *      DISK  MCNDKB,WAIT         READ DCAL DATA TBL SCTR
    0FBD C0 87 0025          3341       B     $DISKN              PERFORM PHYSICAL DISK OP
    0FC1 1075           0FC2 3342       DC    AL2(MCNDK8)         DPL ADDRESS
    0FC3 C0 87 0025          3343       B     $DISKN              WAIT AND CHECK FOR DISK ERRORS
    0FC7 057F           0FC8 3344       DC    AL2($WAITF)         WAIT DPL ADDRESS
                             3345 *** END OF EXPANSION ***

    0FC9 0C 3F 17BE 15FE     3347       MVC   MCNBUF+3*MCNSTR-1(MCNTBL),MCNBUF+MCNTBD  SET DATA TABLE
                             3348 *      DISK  MCNDKC               WRITE DCAL DATA SCTR
    0FCF C0 87 0025          3349       B     $DISKN              PERFORM PHYSICAL DISK OP
    0FD3 108D           0FD4 3350       DC    AL2(MCNDKC)         DPL ADDRESS
                             3351 *** END OF EXPANSION ***

                             3353 *MCN270 DISK  $WAITF            WAIT FOR OP COMPLETE
    0FD5 C0 87 0025          3354 MCN270 B    $DISKN              PERFORM PHYSICAL DISK OP
    0FD9 057F           0FDA 3355       DC    AL2($WAITF)         DPL ADDRESS
                             3356 *** END OF EXPANSION ***

                             3358 *
    0FDB 31 12 1040          3359 MCN300 LIO  MCNDHF,@FLDIN       SET FIELD INDRS FOR DRV 1
    0FDF 7C 02 17            3360       MVI   $DKSIZ(,@BR),$DK200 SET DISK FOR 1/2 CAPACITY
    0FE2 B8 08 13            3361 MCN310 TBN  @#DSIZ(,@XR),@#C200 FULL CAPACITY
    0FE5 F2 90 0E            3362       JF    MCN320             SKIP TEST IF NO
    0FE8 30 A2 1056          3363       SNS   MCNWRK,@DVST1+@SPINA SENSE BYTES 0 & 1
    0FEC 38 08 1056          3364       TBN   MCNWRK,MCN10C      LESS THAN FULL ?
    0FF0 D0 10 A4            3365       BT    $C0001(,@BR)       CAUSE PROC CHECK IF YES
    0FF3 7C 04 17            3366       MVI   $DKSIZ(,@BR),$DK400 SET INDR FOR FULL CAPACITY
    0FF6 B9 11 13            3367 MCN320 TBF  @#DSIZ(,@XR),@#FRR2+@#FR12  TWO DRIVES ?
    0FF9 F2 10 3C            3368       JT    MCN400             SKIP TEST IF NO
    0FFC 31 12 1041          3369       LIO   MCNDR2,@FLDIN      SET FIELD INDRS FOR DRV 2
    1000 30 B2 1056          3370       SNS   MCNWRK,@DVST1+@SPINB SENSE DRV 2
    1004 38 40 1055          3371       TBN   MCNWRK-1,@DERIN    INTERVENTION REQUIRED ?
    1008 F2 10 17            3372       JT    MCN350             GO LIGHT DISK INDR
    100B 7C 08 17            3373       MVI   $DKSIZ(,@BR),$DK600 SET DISK SIZE INDR FOR 600 CYLS
    100E B8 01 13            3374       TBN   @#DSIZ(,@XR),@#FR12 FIXED DISK ON SYSTEM
    1011 F2 90 24            3375       JF    MCN400             SKIP TEST IF NO
    1014 30 BA 1056          3376       SNS   MCNWRK,@SPINB+MCNFIX SENSE FIXED DISK
    1018 7C 10 17            3377       MVI   $DKSIZ(,@BR),$DK800 SET 800 CYLS INDR
    101B 38 40 1055          3378       TBN   MCNWRK-1,@DERIN    INTERVENTION REQUIRED ?
    101F F2 90 16            3379       JF    MCN400             EXIT IF OK
                             3380 *MCN350 DISK  MCNDK2            GO LIGHT DISK INDR
    1022 C0 87 0025          3381 MCN350 B    $DISKN              PERFORM PHYSICAL DISK OP
    1026 1052           1027 3382       DC    AL2(MCNDK2)         DPL ADDRESS
                             3383 *** END OF EXPANSION ***

    1028 C0 87 0FF6          3385       B     MCN320             GO RETRY TEST
    102C BC 00 3D            3386 MCN380 MVI  @#CSIZ(,@XR),@ZERO SET NO CONF RCD INDR
    102F 7C 00 7B            3387       MVI   $EXFTR(,@BR),@ZERO RESET EXTENSION FACTOR
```

```
    1032 7C 00 1D           3388        MVI     $CONFG(,@BR),@ZERO       SET CONF INDRS OFF
    1035 7C 84 00           3389        MVI     $RMRGN(,@BR),MCN13I      SET 13 INCH PRINTER WIDTH
    1038 31 12 1047         3390 MCN400 LIO     MCNOFF,@FLDIN            TURN OFF FIELD INDRS
    103C C0 87 0000         3391 MCN500 B       *-*                     RETURN TO CALLING PROGRAM


                            3393 *********************************************************************
                            3394 *   EQUATES AND CONSTANTS                                           *
                            3395 *********************************************************************
                 0008       3396 MCNBCD EQU     X'08'                   BIG CARD BIT               1-4
                 0010       3397 MCN12K EQU     X'10'                   12K CORE EXTENSION FACTOR
                 0020       3398 MCN16K EQU     X'20'                   16K CORE EXTENSION FACTOR
                 001A       3399 MCN08C EQU     32-6                    SCTR CNT FOR  8K CORE SAVE
                 002A       3400 MCN12C EQU     48-6                    SCTR CNT FOR 12K CORE SAVE
                 003A       3401 MCN16C EQU     64-6                    SCTR CNT FOR 16K CORE SAVE
                 0084       3402 MCN13I EQU     132                     13 INCH RIGHT MARGIN
                 00DC       3403 MCN22I EQU     220                     22 INCH RIGHT MARGIN
                 0080       3404 MCN50C EQU     X'80'                   50 CYL DISK INDR BIT
                 0008       3405 MCN10C EQU     X'08'                   100 CYL INDR DISK BIT
                 000A       3406 MCNFIX EQU     X'0A'                   FIXED DISK M&N CODE
                 00EB       3407 MCNSTS EQU     X'EB'                   SENSE PRINTER TYPE Q-CODE
                 0080       3408 MCNP22 EQU     X'80'                   PRINTER SIZE INDR BIT
                 0020       3409 MCNMLP EQU     X'20'                   PRINTER TYPE INDR BIT
                 0040       3410 MCNTBL EQU     64                      LENGTH OF ONE KYB DATA TABLE
                 0100       3411 MCNSTR EQU     256                     SIZE OF ONE SECTOR
                 013F       3412 MCNTBD EQU     255+MCNTBL              DISP OF DATA TABLE FROM MCNBUF
                 000A       3413 MCNTBC EQU     10                      NUMBER OF DPLS TO RELOCATE
                 015C       3414 MCNTB4 EQU     #$DPRI+4*4              DADDR OF DEPRES DATA TABLE
                 02BF       3415 MCNTID EQU     3*MCNSTR-1-MCNTBL       ADDR OF DATA TBL TYPE INDR IN
                            3416 *                                     * BUFFER (SET FOR DEPRES ONLY)
                 00F2       3417 MCNDRS EQU     X'F2'                   SENSE D.R. STATUS BYTES    1-4
                 0002       3418 MCNDRT EQU     X'02'                   D.R TYPE: 0=129, 1=5496    1-4
                            3419 *
    1040 80        1040     3420 MCNDHF DC      XL1'80'                 DISK CAPACITY ERROR INDR
    1041 40        1041     3421 MCNDR2 DC      XL1'40'                 DR 2 ERROR INDR
    1042 20        1042     3422 MCNCOR DC      XL1'20'                 CORE ERROR INDR
    1043 10        1043     3423 MCNPTR DC      XL1'10'                 PRINTER ERROR INOR
    1044 08        1044     3424 MCNLPR DC      XL1'08'                 LINE PRINTER ERROR INDR
    1045 04        1045     3425 MCNCRT DC      XL1'04'                 CRT ERROR INDR
    1046 02        1046     3426 MCNDAT DC      XL1'02'                 DATA RECORDER ERROR INOR
    1047 00        1047     3427 MCNOFF DC      XL1'00'                 RESET FIELD INDRS CTRL
    1048 07        1048     3428 MCNEXF DC      XL1'07'                 SIZE OF DSPLYN IN SECTORS
    1049           1049     3429 MCNLPC DS      IL1                     LOOP COUWER
    104A 16BE      104B     3430 MCNDBA DC      AL2(MCNBUF+2*MCNSTR-1)  ADDR OF START OF DATA TBL BUF
                            3431 *MCNDK1 DPL    FUNC-@DGET,DADDR-#$DSPL,CNT=#$@DSP
                   104C     3432 MCNDK1 EQU     *                       DISK PARAMETER LIST
    104C 01        104C     3433        DC      AL1(@DGET)              REQUESTED FUNCTION
    104D 0240      104E     3434        DC      AL2(#$DSPL)             DISK ADDRESS
    104F 04        104F     3435        DC      AL1(#$@DSP)             SECTOR COUNT
    1050 0000      1051     3436        DC      AL2(*-*)                BUFFER ADDRESS
                            3437 *** END OF EXPANSION ***

    1050           1050     3439        ORG     MCNDK1+@DBFR1           INITIALIZE CORE ADDR
    1050 1F00      1051     3440        DC      XL2'1F00'               INITIALIZED DSPLYN CORE ADDR
                   1052     3441 MCNDK2 EQU     *                       ERROR DPL FOR DRV 2
    1052 000002    1054     3442        DC      XL3'000002'             SEEK TO ZERO ON DRV 2
    1055           1056     3443 MCNWRK DS      CL2                     WORK AREA
```

```
                             3444 *
                             3445 *MCNDK3 DPL   FUNC=@DGET,DADDR=#$TSYK,CNT=#$@TSY,CADDQ-MCNBUF-2+MCNSTR
                        1057 3446 MCNDK3 EQU    *                      DISK PARAMETER LIST
   1057 01            1057 3447        DC    AL1(@DGET)            REQUESTED FUNCTION
   1058 0250          1059 3448        DC    AL2(#$TSYK)           DISK ADDRESS
   105A 03            105A 3449        DC    AL1(#$@TSY)           SECTOR COUNT
   105B 16BF          105C 3450        DC    AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                             3451 *** END OF EXPANSION ***

                             3453 *MCNDK4 DPL   FUNC-@DGET,DADDR-MCNTB4,CNT-01,CADDR-MCNBUR+2*MCNSTR
                        105D 3454 MCNDK4 EQU    *                      DISK PARAMETER LIST
   105D 01            105D 3455        DC    AL1(@DGET)            REQUESTED FUNCTION
   105E 015C          105F 3456        DC    AL2(MCNTB4)           DISK ADDRESS
   1060 01            1060 3457        DC    AL1(01)               SECTOR COUNT
   1061 16BF          1062 3458        DC    AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                             3459 *** END OR EXPANSION ***

                             3461 *MCNDK5 DPL   FUNC=@DPUT,DADDR=MCNTB4,CNT=01,CADDR=MCNBUF+2*MCNSTR
                        1063 3462 MCNDK5 EQU    *                      DISK PARAMETER LIST
   1063 02            1063 3463        DC    AL1(@DPUT)            REQUESTED FUNCTION
   1064 015C          1065 3464        DC    AL2(MCNTB4)           DISK ADDRESS
   1066 01            1066 3465        DC    AL1(01)               SECTOR COUNT
   1067 16BF          1068 3466        DC    AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                             3467 *** END OF EXPANSION ***

                             3469 *MCNDK6 DPL   FUNC-@DGET,DADDR-V$KBTS,CNT=01,CADDR=MCNBUF+2*MCNSTR
                        1069 3470 MCNDK6 EQU    *                      DISK PARAMETER LIST
   1069 01            1069 3471        DC    AL1(@DGET)            REQUESTED FUNCTION
   106A 0DAC          106B 3472        DC    AL2(V$KBTS)           DISK ADDRESS
   106C 01            106C 3473        DC    AL1(01)               SECTOR COUNT
   106D 16BF          106E 3474        DC    AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                             3475 *** END OF EXPANSION ***

                             3477 *MCNDK7 DPL   FUNC-@DPUT,DADDR,V$KBT,CNT=01,CADDR-MCNBUF+2*MCNSTR
                        106F 3478 MCNDK7 EQU    *                      DISK PARAMETER LIST
   106F 02            106F 3479        DC    AL1(@DPUT)            REQUESTED FUNCTION
   1070 0DAC          1071 3480        DC    AL2(V$KBTS)           DISK ADDRESS
   1072 01            1072 3481        DC    AL1(01)               SECTOR COUNT
   1073 16BF          1074 3482        DC    AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                             3483 *** END OF EXPANSION ***

                             3485 *MCNDK8 DPL   FUNC-@DGET,DADDR=V$KBTL,CNT-01,CADDR-MCNBUF+2*MCNSTR
                        1075 3486 MCNDK8 EQU    *                      DISK PARAMETER LIST
   1075 01            1075 3487        DC    AL1(@DGET)            REQUESTED FUNCTION
   1076 1EAC          1077 3488        DC    AL2(V$KBTL)           DISK ADDRESS
   1078 01            1078 3489        DC    AL1(01)               SECTOR COUNT
   1079 16BF          107A 3490        DC    AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                             3491 *** END OF EXPANSION ***

                             3493 *MCNDK9 D0L   FUNC-40PUT,DADDR.V$KBTL,CNT-01,CADDR-MCNBUF+2*MCNSTR
                        107B 3494 MCNDK9 EQU    *                      DISK PARAMETER LIST
   107B 02            107B 3495        DC    AL1(@DPUT)            REQUESTED FUNCTION
   107C 1EAC          107D 3496        DC    AL2(V$KBTL)           DISK ADDRESS
   107E 01            107E 3497        DC    AL1(01)               SECTOR COUNT
   107F 16BF          1080 3498        DC    AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                             3499 *** END OF EXPANSION ***
```

```
                          3501 *MCNDKA DPL    FUNC=@DGET,DADDR=#$TDCK,CNT-#$@TDC,CADDR-MCNBUF+2*MCNSTR
                     1081 3502 MCNDKA EQU    *                    DISK PARAMETER LIST
     1081 01         1081 3503        DC     AL1(@DGET)           REQUESTED FUNCTION
     1082 0350       1083 3504        DC     AL2(#$TDCK)          DISK ADDRESS
     1084 03         1084 3505        DC     AL1(#$@TDC)          SECTOR COUNT
     1085 16BF       1086 3506        DC     AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                          3507 *** END OF EXPANSION ***

                          3509 *MCNDKB DPL    FUNC=@DGET,DADDR=#$TVKB,CNT=1,CADDR=MCNBUF+2*MCNSTR
                     1087 3510 MCNDKB EQU    *                    DISK PARAMETER LIST
     1087 02         1087 3511        DC     AL1(@DPUT)           REQUESTED FUNCTION
     1088 0BAC       1089 3512        DC     AL2(#$TVKB)          DISK ADDRESS
     108A 01         108A 3513        DC     AL1(1)               SECTOR COUNT
     108B 16BF       108C 3514        DC     AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                          3515 *** END OF EXPANSION ***

                          3517 *MCNDKC DPL    FUNC-@DPUT,DADDR-#$TVKB,CNT=1,CADDR-MCNOUF+2*MCNSTR
                     108D 3518 MCNDKC EQU    *                    DISK PARAMETER LIST
     108D 02         108D 3519        DC     AL1(@DPUT)           REQUESTED FUNCTION
     108E 0BAC       108F 3520        DC     AL2(#$TVKB)          DISK ADDRESS
     1090 01         1090 3521        DC     AL1(1)               SECTOR COUNT
     1091 16BF       1092 3522        DC     AL2(MCNBUF+2*MCNSTR)  BUFFER ADDRESS
                          3523 *** END OF EXPANSION ***

                          3525 *********************************************************************
```

```
                            3527 *        PATCH 90
                            3528 ********************************************************************************
                            3529 * PATCH AREA 1                                                                *
                            3530 ********************************************************************************
  1093              10EC 3531 $$$$$1 DS    CL90                         PATCH AREA ROR PROGRAM
                            3532 ********************************************************************************
                            3533 *        $CANI
```

```
3535+*********************************************************************
3536+*  5703-XM1    COPYRIGHT IBM CORP. 1970                            *
3537+*                 REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083   *
3538+*                                                                  *
3539+*********************************************************************
3540+*STATUS                                                            *
3541+*    VERSION 1 MODIFICATION 0                                      *
3542+*                                                                  *
3543+*FUNCTION                                                          *
3544+*    THE FUNCTION OF SCANIT IS TO SCAN PAST VALID DELIMITERS AND   *
3545+*    RETURN A POINTER TO THE FIRST CHARACTER THAT'S NOT A DELIMITER. *
3546+*                                                                  *
3547+*ENTRY POINTS                                                      *
3548+*    * THE ENTRY POINT IS SCANIT.                                  *
3549+*    * THE CALLING SEQUENCE IS AS FOLLOWS:                         *
3550+*              B     SCANIT                                        *
3551+*      WITH REGISTER 2 (@XR) POINTING TO THE FIRST CHARACTER TO BE *
3552+*      EXAMINED.                                                   *
3553+*                                                                  *
3554+*INPUT                                                             *
3555+*    NONE                                                          *
3556+*                                                                  *
3557+*OUTPUT                                                            *
3558+*    NONE                                                          *
3559+*                                                                  *
3560+*EXTERNAL REFERENCES                                               *
3561+*    $CAERR - ERROR CODE SAVE AREA                                 *
3562+*                                                                  *
3563+*EXITS, NORMAL                                                     *
3564+*    NORMAL EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO *
3565+*    SCANIT IN THE CALLING ROUTINE. THE PSR (REGISTER 4) WILL CONTAIN *
3566+*    A ZERO IF NO DELIMITERS WERE FOUND OR A HIGH CONDITION IF ONE OR *
3567+*    MORE DELIMITERS WERE SCANNED.                                 *
3568+*                                                                  *
3569+*EXITS, ERROR                                                      *
3570+*    ERROR EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO *
3571+*    SCANIT IN THE CALLING ROUTINE. THE PSR WILL CONTAIN A LOW     *
3572+*    CONDITION.                                                    *
3573+*                                                                  *
3574+*TABLES/WORKAREAS                                                  *
3575+*    * SCACNT - AREA CONTAINING NUMBERS OF DELIMITERS SCANNED      *
3576+*    * SCAMMA - LOC WHERE SCACOM MAY BE MOVED IF ONE COMMA IS ALSO *
3577+*      TO BE CONSIDERED A DELIMITER. MOVING SCACOF BACK INTO SCAMMA *
3578+*      INDICATES THAT ONLY BLANKS SHOULD BE CONSIDERED DELIMITERS. *
3579+*                                                                  *
3580+*ATTRIBUTES                                                        *
3581+*    RELOCATABLE AND RE-USABLE                                     *
3582+*                                                                  *
3583+*CHARACTER CODE DEPENDENCY                                         *
3584+*    THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR *
3585+*    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.        *
3586+*                                                                  *
3587+*NOTES                                                             *
3588+*    ERROR PROCEDURES                                              *
3589+*        THE ONLY ERROR CONDITION DETECTED BY SCANIT IS THE CASE WHERE *
3590+*        A CARRIAGE-RETURN CODE FOLLOWS A COMMA.  UPON RETURN TO THE *
```

```
                        3591+*      CALLING ROUTINE, @PSR WILL BE SET TO A LOW CONDITION, THE     *
                        3592+*      ERROR CODE IS SET IN $CAERR, AND MG WILU BE POINTING TO THE   *
                        3593+*      CARRIAGE-RETURN CHARACTER.                                    *
                        3594+*                                                                    *
                        3595+*   REGISTER USAGE                                                   *
                        3596+*      REGISTER 2 (@XR) IS USED AS A POINTER ACROSS THE AREA BEING   *
                        3597+*      SCANNED FOR DELIMETERS.                                       *
                        3598+*                                                                    *
                        3599+*   SAVED/RESTORED AREAS                                             *
                        3600+*      UPON ENTRY TO SCANIT, REGISTER 8 (@ARR) IS SAVED AND USED AS  *
                        3601+*      THE RETURN ADDRESS.                                           *
                        3602+*                                                                    *
                        3603+*   MODIFICATION CONSIDERATIONS                                      *
                        3604+*      NONE                                                          *
                        3605+*                                                                    *
                        3606+*   REQUIRED MODULES                                                 *
                        3607+*      * @SYSEQ - COMMON SYSTEM EQUATES                               *
                        3608+*      * @FXDEQ - FIXED NUCLEUS ADDRESSES EQUATES                     *
                        3609+*                                                                    *
                        3610+*   OTHER                                                            *
                        3611+*      SCANIT IS INITIALIZED TO BYPASS BLANKS ONLY. IF SCACOM IS     *
                        3612+*      MOVED TO SCAMMA, ONE COMMA WILL BE SCANNED ALONG WITH BLANKS. *
                        3613+*      THE INSTRUCTION TO DO THIS IS AS FOLLOWS:                     *
                        3614+*          MVI   SCAMMA,SCACOM                                       *
                        3615+*                                                                    *
                        3616+*      TO DROP THE COMMA FROM ITS DELIMITER STATUS, SCACOF SHOULD BE *
                        3617+*      MOVED TO SCAMMA, USING THE FOLLOWING INSTRUCTION:             *
                        3618+*          MVI   SCAMMA,SCACOF                                       *
                        3619+*                                                                    *
                        3620+**********************************************************************************


                        3622+*
                        3623+*                   EQUATES USED IN THIS SUBROUTINE
                        3624+*
                   0001 3625+SCAINC EQU   1                         TO INCREMENT POINTER
                   0001 3626+SCACOM EQU   @BNE                      SWITCH TO ALLOW SCANNING COMMA
                   0087 3627+SCACOF EQU   @UCB                      SWITCH TO SET OFF THE INDICATON
                        3628+*                                      * FOR SCANNING A COMMA
                   10ED 3629+SCANIT EQU   *                         ENTRY POINT TO THIS SUBROUTINE
  10ED 34 08 1129       3630+       ST    SCA500+@OP1,@ARR          SAVE RETURN ADDRESS
  10F1 34 02 112B       3631+       ST    SCASVE,@XR                SAVE POINTER VALUE
  10F5 3C 04 03CD       3632+       MVI   $CAERR,@@E110             SET ERROR CODE
  10F9 F2 87 03         3633+       J     SCA200                    GO TO PROCESS
  10FC E2 02 01         3634+SCA100 LA    SCAINC(,@XR),@XR          INCREMENT POINTER TO NEXT CHAR
  10FF BD 40 00         3635+SCA200 CLI   0(,@XR),@BLANK            IS THIS CHAR BLANK ?
  1102 C0 81 10FC       3636+       BE    SCA100                    YES, FETCH NEXT ONE
  1106 BD 6B 00         3637+       CLI   0(,@XR),@COMMA            IS IT A COMMA ?
  1109 F2 87 10         3638+SCA250 JC    SCA400,@UCB               UCS TO RETURN -- OR NOP IF
                        3639+*                                      * SCAMMA IS ACTIVE AND CHAR
  110C E2 02 01         3640+SCA300 LA    SCAINC(,@XR),@XR          INCREMENT POINTER TO NEXT CHAR
  110F BD 40 00         3641+       CLI   0(,@XR),@BLANK            IS THIS CHAR A BLANK ?
  1112 C0 81 110C       3642+       BE    SCA300                    YES, FETCH NEXT ONE
  1116 BD 1F 00         3643+       CLI   0(,@XR),@EOS+1            IS THIS EOS ?
  1119 F2 82 0A         3644+       JL    SCA500                    IF NOT, SKIP ERROR ROUTINE
  111C 34 02 112D       3645+SCA400 ST    SCACNT,@XR                SAVE NEW POINTER VALUE
```

```
     SCANIT - DELIMETER SCAN MODULE

ERR LOC  OBJECT CODE    ADDR STMT SOURCE STATEMENT           VER 15, MOD 00  24/02/22  PAGE  23

    1120 0F 01 112D 112B      3646+      SLC   SCACNT(2),SCASVE          SET PSR TO EQUAL IF POINTER
                              3647+*                                    * NOT ADVANCED
    1126 C0 87 0000           3648+SCA500 B    *-*                       YES, RETURN
                         110A 3649+SCAMMA EQU  SCA250+@Q                 TO SET SCAN COMMA INDICATOR
                              3650+*
                              3651+*                SAVE AREA
                              3652+*
                         112A 3653+SCASV1 EQU  *                         FIRST BYTE OF SCASVE
    112A                 112B 3654+SCASVE DS   CL2                       ORIGINAL POINTER VALUE SAVE
    112C                 112D 3655+SCACNT DS   CL2                       SAVE AREA FOR TOTAL CHAR SCAN
                              3656+***                      END OF SCANIT                        ***
```

```
                    3658 *****************************************************************************
                    3659 *                                                                           *
                    3660 * 5703-XM1  COPYRIGHT IBM CORP. 1970                                         *
                    3661 *                REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE  120-2083          *
                    3662 *                                                                           *
                    3663 *****************************************************************************
                    3664 *STATUS                                                                      *
                    3665 *    VERSION 1 MODIFICATION 0                                                 *
                    3666 *                                                                           *
                    3667 *FUNCTION                                                                    *
                    3668 *    * UCNFIG IS USED TO BUILD OR MODIFY THE CONFIGURATION RECORD ON          *
                    3669 *       CYLINDER ZERO AND CHANGE THE CONFIGURATION NUCLEUS INDICATORS.        *
                    3670 *       IF THE RECORD EXISTS, THE PROGRAM WILL FORCE A MINIMUN                *
                    3671 *       CONFIGURATION FOR ALL COMPONENTS NOT SPECIFIED BY THE OPERATOR. *
                    3672 *       IF THE CONFIGURATION RECORD EXISTS, ONLY THE DEVICES SPECIFIED        *
                    3673 *       WILL HAVE THEIR ENTRIES CHANGED IN THE RECORD.                        *
                    3674 *    * ONCE THE NEW CONFIGURATION RECORD HAS BEEN BUILT, IT IS TESTED. *
                    3675 *       EACH DEVICE INDICATED PRESENT IN THE RECORD IS ISSUED A COMMAND.*
                    3676 *       AN ERROR IN THE RECORD WILL CAUSE A PROC CHECK STOP.  IF THE          *
                    3677 *       RECORD IS FOUND CORRECT, IT IS PLACED ON CYLINDER ZERO ON THE         *
                    3678 *       FIXED DISK.  (THE NUCLEUS INDICATORS ARE ALSO MODIFIED)               *
                    3679 *                                                                           *
                    3680 *ENTRY POINTS                                                                *
                    3681 *    THE ENTRY POINT IS UCNFIG.  THE CALLING SEQUENCE IS AS FOLLOWS:          *
                    3682 *         B   UCNFIG                                                          *
                    3683 *                                                                           *
                    3684 *INPUT                                                                       *
                    3685 *    THE INPUT IS THE READING OF THE CONFIGURATION RECORD AND THE             *
                    3686 *    VOLUME LABEL(S) IF THE DISK CONFIGURATION INCREASES.                     *
                    3687 *                                                                           *
                    3688 *OUTPUT                                                                      *
                    3689 *    THE OUTPUT IS THE WRITING OF THE CONFIGURATION RECORD TO THE             *
                    3690 *    FIXED DISK.                                                              *
                    3691 *                                                                           *
                    3692 *EXTERNAL REFERENCES                                                         *
                    3693 *      $XIND1 - ADDRESS OF PRIMARY EXECUTION INDRS                            *
                    3694 *      $XIND2 - ADDRESS OF EXECUTION INDRS                                    *
                    3695 *      $XIND3 - ADDRESS OF EXECUTION INDRS                                    *
                    3696 *      $XRSAV - ADDRESS OF 2 BYTE SAVE AREA                                   *
                    3697 *      SCANIT - ADDRESS OF ENTRY POINT TO SCAN ROUTINE                        *
                    3698 *      $WFNME - ADDRESS OF WORK FILE NAME                                     *
                    3699 *      $CAERR - ADDRESS OF ERROR CODE FOR ERROR PROGRAM                       *
                    3700 *      $CAERK - ADDRESS OF ERROR CODE FOR ERROR PROGRAM                       *
                    3701 *      $RLOAD - ADDRESS OF ENTRY TO BLAST LOAD PROGRAM                        *
                    3702 *      $$XIND - ADDRESS OF EXECUTION INDR USED BY KEDITN                      *
                    3703 *      $DISKN - ADDRESS OF ENTRY TO DISK IOCS                                 *
                    3704 *      $PRDEV - ADDRESS OF POINTER TO THE SYSTEM PRINTER IOCR                 *
                    3705 *      $KEYCD - ADDRESS OF BYTE CONTAINING KEYBOARD INDRS                     *
                    3706 *      MCNFIG - ADDRESS OF ROUTINE TO TEST CONFIGURATION RECORD               *
                    3707 *      $VOLF2 - ADDRESS OF F2 VOLUME ID TABLE ENTRY                           *
                    3708 *      $VOLR2 - ADDRESS OF R2 VOLUME ID TABLE ENTRY                           *
                    3709 *      $DKSIZ - ADDRESS OF CONFIGURED DISK SIZE                               *
                    3710 *      $CARPL - ADDRESS OF ENTRY TO ABORT CURRENT OPERATION                  *
                    3711 *                                                                           *
                    3712 *EXITS, NORMAL                                                               *
                    3713 *    NORMAL EXIT IS A HARD HALT AFTER THE CONFIGURATION RECORD HAS            *
```

```
                              3714 *    BEEN VERIFIED.                                               *
                              3715 *                                                                 *
                              3716 *EXITS, ERROR                                                     *
                              3717 *    ABNORMAL TERMINATION TO ERROR PROGRAM.                       *
                              3718 *                                                                 *
                              3719 *TABLES/WORK AREAS                                                *
                              3720 *    THE CONSTANTS RESIDE AT THE END OF EXECUTABLE CODE.          *
                              3721 *    THE CONFIGURATION COMPONENT TABLE AND DISK READ/WRITE BUFFERS ALSO*
                              3722 *    RESIDE AT THE END OF THE CODE.                               *
                              3723 *                                                                 *
                              3724 *ATTRIBUTES                                                       *
                              3725 *    RELOCATABLE                                                  *
                              3726 *                                                                 *
                              3727 *CHARACTER CODE DEPENDENCY                                        *
                              3728 *    THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR   *
                              3729 *    INTERNAL RESPRESENTATION OF THE EXTERNAL CHARACTER SET.      *
                              3730 *                                                                 *
                              3731 *NOTES                                                            *
                              3732 *    ERROR PROCEDURES                                             *
                              3733 *      EXIT IS MADE TO THE ERROR PROGRAM FOR THE FOLLOWING CONDITIONS:*
                              3734 *       * INVALID KEYBOARD TYPE                                   *
                              3735 *       * INVALID PARAMETER                                       *
                              3736 *       * INVALID COMBINATION OF KEYWORD PARATMETERS             *
                              3737 *       * REPETITION OF KEYWORD PARAMETERS                        *
                              3738 *       * CRT, CPU, COMMAND KEY CONFLICT                          *
                              3739 *                                                                 *
                              3740 *    REGISTER USAGE                                               *
                              3741 *      INDEX REGISTERS 2 (@XR) IS USED.                           *
                              3742 *                                                                 *
                              3743 *    SAVED/RESTORED AREAS                                         *
                              3744 *      EACH CONFIGURATION PARAMETER IS PLACED IN THE PARAMETER HOLDER *
                              3745 *      AT LOCATION UCNHDF.                                        *
                              3746 *                                                                 *
                              3747 *    MODIFICATION CONSIDERATIONS                                  *
                              3748 *      SIGNIFICANT IMPACT ON #UINIT.                              *
                              3749 *      REST OF THE SYSTEM.  HOWEVER, BECAUSE IT MUST INTERFACE    *
                              3750 *                                                                 *
                              3751 *    REQUIRED MODULES                                             *
                              3752 *      @SYSEQ - GENERAL SYSTEM EQUATES.                           *
                              3753 *      @FXDEQ - NUCLEUS LOCATION EQUATES.                         *
                              3754 *      @CANEQ - TRANSCIENT LOCATION EQUATES.                      *
                              3755 *      $V$EQU - VIRTUAL MEMORY EQUATES.                           *
                              3756 *      @HDWEQ - HARDWARE VALUE EQUATES.                           *
                              3757 *      @CNFEQ - CONFIGURATION EQUATES.                            *
                              3758 *      MCNFIG - TEST CONFIGURATION SUBROUTINE.                    *
                              3759 *      SCANIT - BLANK SCAN ROUTINE.                               *
                              3760 *                                                                 *
                              3761 *    OTHER                                                        *
                              3762 *      N/A                                                        *
                              3763 ***********************************************************************
```

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      UCNFIG - CONFIGURE UTILITY COMMAND


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT              VER 15, MOD 00  24/02/22  PAGE  26

                         112E 3765 UCNFIG EQU    *                          ENTRY POINT TO UCNFIG
     112E 3C 00 14BE           3766        MVI    UCNSET,@ZERO              INITIALIZE LAST BYTE
     1132 0C 05 14BD 14BE      3767        MVC    UCNSET-1(UCNSET-UCNSUB),UCNSET  RECURSIVE CLEAR
     1138 0C 00 13A4 03D7      3768        MVC    UCNSAV(UCNONE),$DKSIZ     SAVE DISK SIZE INDR
     113E 35 02 03C7           3769 UCN100 L      $XRSAV,@XR                XR POINTS TO FIRST CHARACTER
     1142 0F 01 03E4 03E4      3770        SLC    $LPRP3(2),$LPRP3          INITIALIZE LINE PRINTER INDR
                               3771 *
                               3772 ***    SCAN KEYWORD PARAMETER AND LEFT JUSTIFY IN HOLDER
                               3773 *
     1148 C0 87 10ED           3774        B      SCANIT                   SCAN ACROSS ANY BLANKS
     114C C0 82 0469           3775        BL     $CAERK                   BRANCH TO ERROR PROGRAM
     1150 3C 01 110A           3776        MVI    SCAMMA,SCACOM            SCAN ACROSS BLANKS
     1154 BD 1E 00             3777        CLI    0(,@XR),@EOS             EOS ?
     1157 F2 81 C3             3778        JE     UCN600                   JUMP IF YES
     115A 34 02 1218           3779        ST     UCN550+@OP1,@XR          SAVE XR FOR ERROR EXIT
     115E 3C 40 14C4           3780        MVI    UCNHDL,@BLANK            MOVE BLANK TO LAST HOLDER BYTE
     1162 0C 04 14C3 14C4      3781        MVC    UCNHDL-1(UCNLPF-1),UCNHDL RECURSIVELY MOVE BLANKS
                               3782 *                                      * INTO PARAMETER HOLDER
     1168 0C 01 1171 139D      3783        MVC    UCN200+@OP1(@CADDR),UCNADR  INITIALIZE TO MOVE
                               3784 *                                      * CHARACTERS IN PARM HOLDER
     116E 2C 00 0000 00        3785 UCN200 MVC    *-*(UCNONE),0(,@XR)      MOVE ONE CHARACTER TO
                               3786 *                                      * PARAMETER HOLDER
     1173 0E 01 1171 139F      3787        ALC    UCN200+@OP1(@CADDR),UCNINC  INCREMENT PARAMETER
                               3788 *                                      * HOLDER ADDRESS
     1179 E2 02 01             3789        LA     UCNONE(,@XR),@XR         INCREMENT XR BY 1
     117C BD 6B 00             3790        CLI    0(,@XR),@COMMA           COMMA FOR DELIMITER ?        1-4
     117F C0 81 1195           3791        BE     UCN250                   IF YES: CHECK DELIMITER      1-4
     1183 BD 40 00             3792        CLI    0(,@XR),@BLANK           BLANK FOR DELIMITER ?        1-4
     1186 C0 81 1195           3793        BE     UCN250                   IF YES: CHECK DELIMITER      1-4
     118A BD 1E 00             3794        CLI    0(,@XR),@EOS             EOS FOR DELIMITER ?          1-4
     118D C0 81 1195           3795        BE     UCN250                   IF YES: CHECK DELIMITER      1-4
     1191 C0 01 116E           3796        BNE    UCN200                   IF NO: CHECK NEXT CHARACTER  1-4
                               3797 *                                                                   1-4
     1195 34 02 03C7           3798 UCN250 ST     $XRSAV,@XR               SAVE XR FOR RETURN           1-4
                               3799 *
                               3800 ***    SCAN PARAMETERS TABLE FOR CHARACTERS IN PARAMETER HOLDER
                               3801 *
     1199 C2 02 13B9           3802        LA     UCNPAF,@XR               POINT TO 1ST BYTE OF PARM TBL
     119D 8D 05 06 14C4        3803 UCN300 CLC    UCNLPF(UCNLPF,@XR),UCNHDL PARAMETER FOUND ?
     11A2 F2 81 3E             3804        JE     UCN400                   JUMP IF FOUND
     11A5 E2 02 09             3805        LA     UCNLPL(,@XR),@XR         INCREMENT XR BY PARM LENGTH
     11A8 BD 5C 00             3806        CLI    0(,@XR),@ASTER           COMPLETION OF SCAN ?
     11AB C0 01 119D           3807        BNE    UCN300                   BRANCH IF NOT FINISHED
                               3808 *
                               3809 ***    CHECK IF NAT LANG PARM TO PRINT INV PARM OR OUT OF LIM NR CODES
                               3810 *
     11AF C2 02 14BF           3811        LA     UCNHDF,@XR               POINT TO 1ST BYTE OF PARM HOLDER
     11B3 8D 01 01 13A1        3812        CLC    UCNK02-UCNK01-1(UCNK02-UCNK01,@XR),UCNKYB  CHECK FOR
                               3813 *                                      * NATIONAL LANGUAGE SYNTAX
     11B8 F2 01 21             3814        JNE    UCN350                   JUMP IF NOT NATIONAL LANG.
     11BB E2 02 02             3815        LA     UCNK02-UCNK01(,@XR),@XR  LOAD ADDRESS OF
                               3816 *                                      * NATIONAL LANGUAGE SYNTAX
     11BE C0 87 1368           3817        B      UCN970                   BRANCH TO CHECK FOR NUMERIC
     11C2 F2 01 17             3818        JNE    UCN350                   JUMP IF NOT NUMERIC
     11C5 E2 02 01             3819        LA     UCNONE(,@XR),@XR         INCREMENT XR BY 1
     11C8 C0 87 1368           3820        B      UCN970                   BRANCH TO CHECK FOR NUMERIC
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      UCNFIG - CONFIGURE UTILITY COMMAND


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    11CC F2 01 0D          3821       JNE    UCN350              JUMP IF NOT NUMERIC
    11CF BD 40 01          3822       CLI    UCNONE(,@XR),@BLANK CHECK THIRD CHARACTER
    11D2 F2 01 07          3823       JNE    UCN350              JUMP IF NOT BLANK
    11D5 3C 73 03CD        3824 UCM320 MVI   $CAERR,@@E477       INVALID KEYBOARD TYPE ERROR MSG
    11D9 F2 87 39          3825       J      UCN550              JUMP TO ERROR PROGRAM

    11DC 3C 11 03CD        3827 UCN350 MVI   $CAERR,@@E131       INVALID PARAMETER ERROR MSG
    11E0 F2 87 32          3828       J      UCN550              JUMP TO ERROR PROGRAM
                           3829 *
                           3830 ***   TEST IF PARAMETER ALREADY SPECIFIED AND SET BIT FOR PARM FOUND
                           3831 *
    11E3 B8 80 00          3832 UCN400 TBN   0(,@XR),UCNDET      PARM ALREADY FOUND ?
    11E6 F2 10 28          3833       JT     UCN500              JUMP IF YES
    11E9 BA 80 00          3834       SBN    0(,@XR),UCNDET      SET BIT FOR PARMETER FOUND
    11EC 2C 00 13A3 00     3835       MVC    UCNTEM(UCNONE),0(,@XR) MOVE STATUS BYTE TO FIELD
    11F1 3B C0 13A3        3836       SBF    UCNTEM,UCNDET+UCNMIN SET OFF DET AND MIN BITS
    11F5 C2 02 14B8        3837       LA     UCNSUB,@XR          INITIALIZE TOP OF FIELD
    11F9 36 02 13A3        3838       A      UCNTEM,@XR          ADJUST XR BY FLAG BYTE
    11FD BD 00 00          3839       CLI    0(,@XR),@ZERO       ZERO ?
    1200 F2 81 07          3840       JE     UCN425              JUMP IF DOUBLE DEFINITION
    1203 3C 15 03CD        3841       MVI    $CAERR,@@E136       INVALID CONBINATION OF PARMS
    1207 F2 87 0B          3842       J      UCN550              JUMP TO ERROR PROGRAM
    120A BC 40 00          3843 UCN425 MVI   0(,@XR),@BLANK      SET FLAG FOR COMPONENT FIND
    120D C0 87 113E        3844 UCN450 B     UCN100              BRANCH TO SCAN NEXT PARM

    1211 3C 13 03CD        3846 UCN500 MVI   $CAERR,@@E134       DUPLICATE PARM ERROR MSG
    1215 C2 02 0000        3847 UCN550 LA    *-*,@XR             RESTORE XR TO INVALID CHAR
    1219 C0 87 0469        3848       B      $CAERK              BRANCH TO ERROR PROGRAM
                           3849 *
                           3850 ***   READ CONFIGURATION RECORD AND MODIFY IT WITH OPERATOR ENTRIES
                           3851 *
    121D 0E 01 13AE 0587   3852 UCN600 ALC   UCNIOF(2),$BSADR    SET DISK ADDR FOR CONFIG REC
    1223 C0 87 0025        3853       B      $DISKN              READ CONFIGURATION RECORD
    1227 13AC        1228  3854       DC     AL2(UCNCY0)         DISK DPL ADDR
    1229 C0 87 0025        3855       B      $DISKN              WAIT AND CHECK DISK ERRORS
    122D 13B2        122E  3856       DC     AL2(UCNSL0)         WAIT DPL ADDRESS
                           3857 *
    122F C2 02 14BF        3858       LA     UCNHDF,@XR          XR POINTS TO 1ST BYTE OF
                           3859 *                               * CONFIGURATION RECORD
    1233 B9 07 3D          3860       TBF    @#CSIZ(,@XR),@#C08K+@#C12K+@#C16K  FIRST UPDATE ?
    1236 F2 90 04          3861       JF     UCN650              JUMP IF NOT
    1239 3C 90 124C        3862       MVI    UCN670+@Q,@BF       FORCE A FIRST UPDATE OF
                           3863 *                               * A MINIMUM CONFIGURATION
    123D C2 02 13B9        3864 UCN650 LA    UCNPAF,@XR          INITIALIZE TO TOP OF PARM LIST
    1241 3C 00 126F        3865 UCN655 MVI   UCN750+@D1,@ZERO    CLEAR LEFT BYTE OF ADRRESS
    1245 B8 80 00          3866 UCN660 TBN   0(,@XR),UCNDET      PARAMETER FOUND ?
    1248 F2 10 09          3867       JT     UCN700              JUMP IF FOUND
    124B F2 87 24          3868 UCN670 JC    UCN800,@UCB         JUMP TO CHECK NEXT PARAMETER
    124E B8 40 00          3869       TBN    0(,@XR),UCNMIN      A MINIMUM CONFIGURATION PARM ?
    1251 F2 90 1E          3870       JF     UCN800              JUMP IF NOT A MINIMUM CONFIG
    1254 2C 00 1270 07     3871 UCN700 MVC   UCN750+@OP1(UCNONE),UCNLPF+1(,@XR)  MOVE DISP FACTOR
    1259 0E 01 1270 139D   3872       ALC   UCN750+@OP1(@CADDR),UCNADR   FORM OP1 ADDRESS
    125F 8D 05 06 147C     3873       CLC    UCNLPL-3(UCNLPF,@XR),UCNFG2  'NOCRT' ?
    1264 F2 01 06          3874       JNE    UCN750              JUMP IF NOT
    1267 0C 01 044B 14B7   3875       MVC    $PRDEV(@CADDR),UCNPRT  INITIALIZE PTR IOCR
    126D 2C 00 0000 08     3876 UCN750 MVC   *-*(UCNONE),UCNLPL-1(,@XR)  MOVE CONFIGURATION
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     UCNFIG - CONFIGURE UTILITY COMMAND


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT           VER 15, MOD 00  24/02/22  PAGE  28

                          3877 *                                  * COMPONENT TO CONFIGURATION
     1272 E2 02 09         3878 UCN800 LA    UCNLPL(,@XR),@XR      UPDATE TO NEXT PARAMETER
     1275 BD 5C 00         3879        CLI   0(,@XR),@ASTER        LAST PARAMETER CHECKED ?
     1278 C0 01 1241       3880        BNE   UCN655                BRANCH IF NOT FINISHED
                          3881 *
                          3882 ***   CHECK FOR THE FOLLOWING COMPONENTS CONFLICTS:
                          3883 *
                          3884 *            1. CRT AND 8KBYTE
                          3885 *            2. CRT AND 8 COMMAND KEYS
                          3886 *
     127C C2 02 14BF       3887        LA    UCNHDF,@XR            XR POINTS TO TOP OF TABLE
     1280 3B 02 03C3       3888        SBF   $KEYCD,$IOYES         SET OFF I/O IN CORE INDR
     1284 B8 40 20         3889        TBN   @#DATA(,@XR),@#DATB   DATA RECORDER CONFIGURED ?
     1287 F2 10 12         3890        JT    UCN825               JUMP IF ON SYSTEM
     128A 38 08 03E0       3891        TBN   $DBGUF,$CALLI         PROCEDURE MODE ?            1-4
     128E F2 90 07         3892        JF    UCN815               JUMP IF NOT                 1-4
     1291 38 01 03C3       3893        TBN   $KEYCD,$CARDI         PROCEDURE MODE ?            1-4
     1295 F2 10 04         3894        JT    UCN825               JUMP IF YES                 1-4
     1298 3B 01 03C3       3895 UCN815 SBF   $KEYCD,$CARDI         SET OFF CARD INPUT INDR     1-4
     129C BA 40 14         3896 UCN825 SBN   @#MTRX(,@XR),@#MTXB   FORCE MATRIX PRINTER ON
     129F BA 40 18         3897        SBN   @#KBRD(,@XR),@#KBRB   FORCE KEYBOARD ON
     12A2 BA 40 10         3898        SBN   @#DISK(,@XR),@#DISB   FORCE DISK ON
     12A5 B8 40 28         3899        TBN   @#CRTD(,@XR),@#CRTB   TEST FOR CRT
     12A8 F2 10 3A         3900        JT    UCN900               JUMP IF
     12AB B8 40 19         3901        TBN   @#KEYS(,@XR),@#KE08   TEST FOR 8 CMD KEYS ?
     12AE F2 10 2C         3902        JT    UCN850               JUMP IF YES
     12B1 B8 01 3D         3903        TBN   @#CSIZ(,@XR),@#C08K   TEST FOR 8KBYTE CORE ?
     12B4 F2 10 26         3904        JT    UCN850               JUMP IF YES
     12B7 B8 02 3D         3905 UCN829 TBN   @#CSIZ(,@XR),@#C12K   TEST FOR 12KBYTE CORE ?
     12BA F2 90 10         3906        JF    UCN830               JUMP IF NOT
     12BD 0D 01 044B 14B7  3907        CLC   $PRDEV(@CADDR),UCNPRT PRINTER IOCR SET ON ?
     12C3 F2 81 1F         3908        JE    UCN900               JUMP IF YES
     12C6 3C 29 044A       3909        MVI   $PRDEV-1,UCN029       SET CRT FOR 12KBYTE
     12CA F2 87 18         3910        J     UCN900               JUMP TO CHECK CONFIG
     12CD 0D 01 044B 14B7  3911 UCN830 CLC   $PRDEV(@CADDR),UCNPRT PRINTER IOCR SET ON ?
     12D3 F2 81 0F         3912        JE    UCN900               JUMP IF PRINTER IOCR SET ON
     12D6 3C 39 044A       3913        MVI   $PRDEV-1,UCN039       SET CRT FOR 16KBYTE
     12DA F2 87 08         3914        J     UCN900               JUMP TO CHECK CONFIG
     12DD 3C 72 03CD       3915 UCN850 MVI   $CAERR,@@E476         CRT CPU COMMAND KEY CONFLICT
                          3916 * ERROR MESSAGE 'INVALID KEYBOARD TYPE'
     12E1 C0 87 0469       3917        B     $CAERK               BRANCH TO ERROR PROGRAM
                          3918 *
                          3919 ***   TEST CONFIGURATION COMPONENT FOR LEGALITY
                          3920 *
     12E5 C0 87 0DD2       3921 UCN900 B     MCNFIG               BRANCH TO CHECK CONFIGURATION
     12E9 3C 02 13AC       3922 UCN925 MVI   UCNCY0,@DPUT          INITIALIZE FOR WRITE FUNCTION
     12ED C0 87 0025       3923 UCN927 B     $DISKN               WRITE CONFIGURATION RECORD
     12F1 13AC      12F2   3924        DC    AL2(UCNCY0)          DISK DPL ADDR
                          3925 * THE FOLLOWING INSTRUCTION IS OVERLAID WITH A BRANCH BACK TO MIP265
                          3926 * OF MIPPER.  THE BYTES FOLLOWING THE BRANCH THROUGH UCN940 (BRANCH)
                          3927 * ARE AVAILABLE TO BE USED AS PATCH AREA.
                          3928 * (THIS IS MODIFIED TO BYPASS 'P 20 ERROR DURING LINK EDIT)
                          3929 *CN930 B     MIP265               GO WITHIN MIPPER
                          3930 *      DC    XL2'03D7'            OP2 OF NEXT CLC
     12F3 0D 00 13A4 03D7  3931 UCN930 CLC   UCNSAV(UCNONE),$DKSIZ NUCLEUS MODIFIED ?
     12F9 F2 81 68         3932        JE    UCN940               JUMP IF NOT
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    12FC C0 87 0D09        3933        B     SUPDAT                  WRITE ERROR LOG TABLES
    1300 38 10 03D7        3934        TBN   $DKSIZ,$DK800           4 DISKS ?
    1304 F2 90 41          3935        JF    UCN935                  IF NOT: CHECK FOR 3 DISKS
    1307 0C 01 13B5 13A8   3936        MVC   UCNDPL+2(@DADDR),UCNAD2   INITIALIZE FOR DISK READ
    130D 3A 0C 0CF4        3937        SBN   MVDPRM,MVDRR2+MVDRF2    SET PARAMETER TO TEST R2 & F2
    1311 C0 87 1380        3938        B     UCN990                  READ VOLUME LABEL
    1315 8D 02 02 13AB     3939        CLC   UCNVOL(UCNVOL+1,@XR),UCNVLB  INITIALIZATION ?
    131A F2 01 00          3940        JNE   UCN909                  JUMP IF NOT INITIALIZED
    131D 2C 07 0415 0A     3941 UCN909 MVC   $VOLF2+7($VOLF2-$VOLR2),$#TLBL+2(,@XR)  MOVE ENTRY
    1322 3A 03 0415        3942        SBN   $VOLF2+7,UCN003         MASK F2 BITS
    1326 0C 01 13B5 13A6   3943 UCN910 MVC   UCNDPL+2(@DADDR),UCNAD1   MOVE R2 VOLUME LABEL DADDR
    132C C0 87 1380        3944        B     UCN990                  BRANCH TO READ R2 VOLUME LABEL
    1330 8D 02 02 13AB     3945        CLC   UCNVOL(UCNVOL+1,@XR),UCNVLB  INITIALIZATION ?
    1335 F2 01 04          3946        JNE   UCN911                  JUMP IF NOT INITIALIZED
    1338 3A 04 0CF4        3947        SBN   MVDPRM,MVDRR2           SET UP R2 FOR MVDELE
    133C 2C 07 040D 0A     3948 UCN911 MVC   $VOLR2+7($VOLF2-$VOLR2),$#TLBL+2(,@XR)  MOVE ENTRY
    1341 3A 02 040D        3949        SBN   $VOLR2+7,UCN002         MASK R2 BITS
    1345 F2 87 1C          3950        J     UCN940                  GO TO GUFUDI
    1348 0F 07 0415 0415   3951 UCN935 SLC   $VOLF2+7($VOLF2-$VOLR2),$VOLF2+7  CLEAR VOLUME-ID
    134E 3A 03 0415        3952        SBN   $VOLF2+7,UCN003         MASK F2 BITS
    1352 38 08 03D7        3953        TBN   $DKSIZ,$DK600           3 DISKS ?
    1356 C0 10 1326        3954        BT    UCN910                  BRANCH IF YES
    135A 0F 07 040D 040D   3955        SLC   $VOLR2+7($VOLF2-$VOLR2),$VOLR2+7  CLEAR VOLUME-ID
    1360 3A 02 040D        3956        SBN   $VOLR2+7,UCN002         MASK R2 BITS
    1364 C0 87 0C0B        3957 UCN940 B     MVDELE                  GO TEST FOR SCRATCH FILES & DELETE
                           3958 *
                           3959 *      ROUTINE DETERMINES IF CHARACTER REFERENCED
                           3960 *      BY XR IS NUMERIC
                           3961 *
                           3962 *      EXIT: PSR HAS CONDITION
                           3963 *            * NON-EQUAL - NON-NUMERIC
                           3964 *            * EQUAL     - NUMERIC
                           3965 *
                  1368     3966 UCN970 EQU   *
    1368 34 08 137F        3967        ST    UCN980+@OP1,@ARR        SAVE ARR FOR RETURN
    136C BD F0 00          3968        CLI   0(,@XR),UCNLOW          LOWER THAN LOWER BOUND ?
    136F F2 82 0A          3969        JL    UCN980                  JUMP IF CONDITION HOLDS
    1372 BD F9 00          3970        CLI   0(,@XR),UCNHII          LOWER THAN LOWER BOUND ?
    1375 F2 84 04          3971        JH    UCN980                  JUMP IF CONDITION HOLDS
    1378 3D 5C 14B5        3972        CLI   UCNEND,@ASTER           FORCE PSR EQUAL CONDITION
    137C C0 87 0000        3973 UCN980 B     *-*                     RETURN TO CALLER
                           3974 *
                           3975 ***    FOLLOWING ROUTINE READS VOLUME LABEL
                           3976 *
                  1380     3977 UCN990 EQU   *
    1380 34 08 139B        3978        ST    UCN995+@OP1,@ARR        SAVE ARR FOR RETURN
    1384 C0 87 0025        3979        B     $DISKN                  READ DCAL DATA TABLE SECTOR
    1388 13B3         1389 3980        DC    AL2(UCNDPL)             DPL ADDRESS
    138A C0 87 0025        3981        B     $DISKN                  WAIT AND CHECK DISK ERRORS
    138E 057F         138F 3982        DC    AL2($WAITF)             WAIT DPL ADDRESS
                           3983 *
    1390 C2 02 15BF        3984        LA    UCNARE,@XR              POINT XR TO VOLUME LABEL
    1394 AC 01 0A FE       3985        MVC   $#TLBL+2(@DADDR,@XR),$#TLAD(,@XR)  PACK LIBRARY ADDRESS
    1398 C0 87 0000        3986 UCN995 B     *-*                     RETRUN TO CALLER
                           3987 *
                           3988 ***    CONSTANTS USED IN UCNFIG
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      UCNFIG - CONFIGURE UTILITY COMMAND


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT           VER 15, MOD 00  24/02/22  PAGE  30

                           3989 *
    139C 14BF              139D 3990 UCNADR DC     AL2(UCNHDF)              ADDRESS OF HOLDER 1ST BYTE
    139E 0001              139F 3991 UCNINC DC     IL2'1'                   INCREMENTATION FACTOR OF 1
                           13A0 3992 UCNK01 EQU    *                        ADDRESS MOST LEFT BYTE
    13A0 D2C2              13A1 3993 UCNKYB DC     CL2'KB'                  KEYB NATIONALITY
                           13A2 3994 UCNK02 EQU    *                        ADDRESS MOST LEFT BYTE
    13A2 0000              13A3 3995 UCNTEM DC     AL2(*-*)                 TEMPORARY ADDRESS FIELD
    13A4                   13A4 3996 UCNSAV DS     CL1                      TEMPORARY SAVE AREA
    13A5 000A              13A6 3997 UCNAD1 DC     AL2(#VOLR1+2)            DADDR OF R2
    13A7 000B              13A8 3998 UCNAD2 DC     AL2(#VOLF1+2)            DADDR OF F2
    13A9 E5D6D3            13AB 3999 UCNVLB DC     CL3'VOL'                 INITIALIZATION IDENTIFICATION
                           4000 *
                           4001 ***    PARAMETER LIST TO READ/WRITE CONFIGURATION RECORD - CYL 0
                           4002 *
    13AC 01                13AC 4003 UCNCY0 DC     AL1(@DGET)               READ/WRITE FUNCTION
    13AD 2000              13AE 4004 UCNIOF DC     AL2(#$#CNF)              DISK ADDRESS
    13AF 01                13AF 4005        DC     AL1(#FIGSC)              SECTOR COUNT
    13B0 14BF              13B1 4006        DC     AL2(UCNHDF)              DATA ADDRESS
    13B2 FF                13B2 4007 UCNSL0 DC     AL1(@DWAIT)              WAIT FOR I/O COMPLETION
                           4008 *
                           4009 ***    DPL TO READ R2 & F2 VOLUME LABEL
                           4010 *
                           4011 *CNDPL $DPL   FUNC-@DGET,DADDR-$VOLR2,CNT-UCNONE,CADDR-UCNARE
                           13B3 4012+UCNDPL EQU    *                        DISK PARAMETER LIST
    13B3 01                13B3 4013+       DC     AL1(@DGET)               REQUESTED FUNCTION
    13B4 0406              13B5 4014+       DC     AL2($VOLR2)              DISK ADDRESS
    13B6 01                13B6 4015+       DC     AL1(UCNONE)              SECTOR COUNT
    13B7 15BF              13B8 4016+       DC     AL2(UCNARE)              BUFFER ADDRESS
                           4017+*** END OF EXPANSION ***
                           4018 *
                           4019 *        PARAMETER COMPONENT TABLE FORMAT AS FOLLOWS:
                           4020 *
                           4021 *        BYTE 1 - STATUS BYTE
                           4022 *                 - BIT 1 SET - A PARAMETER FOUND
                           4023 *                 - BIT 2 SET - A MINIMUM CONFIGURATION
                           4024 *        BYTE 2-7 - PARAMETER SYNTAX
                           4025 *        BYTE 8 - DISPLACEMENT
                           4026 *        BYTE 9 - CONFIGURATION BYTE

                           4028 *
                           4029 ***    NATIONAL LANGUAGE COMPONENT
                           4030 *
                           13B9 4031 UCNPAF EQU    *
    13B9 40                13B9 4032 UCNC01 DC     AL1(UCNMIN)              STATUS BYTE
    13BA D2C2F1404040      13BF 4033        DC     CL6'KB1   '              SYNTAX FIELD
    13C0 1A                13C0 4034        DC     AL1(@#KNAT)              DISPLACEMENT
    13C1 01                13C1 4035        DC     AL1(@#DOMS)              CONFIGURATION
                           4036 *
    13C2 00                13C2 4037        DC     AL1(@ZERO)               STATUS BYTE
    13C3 D2C2F2404040      13C8 4038        DC     CL6'KB2   '              SYNTAX FIELD
    13C9 1A                13C9 4039        DC     AL1(@#KNAT)              DISPLACEMENT
    13CA 02                13CA 4040        DC     AL1(@#AGER)              CONFIGURATION
                           4041 *
    13CB 00                13CB 4042        DC     AL1(@ZERO)               STATUS BYTE
    13CC D2C2F3404040      13D1 4043        DC     CL6'KB3   '              SYNTAX FIELD
    13D2 1A                13D2 4044        DC     AL1(@#KNAT)              DISPLACEMENT
```

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ERR LOC   OBJECT CODE       ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  24/02/22  PAGE  31

    13D3 03                 13D3 4045         DC    AL1(@#BFRN)              CONFIGURATION
                                 4046 *
    13D4 00                 13D4 4047         DC    AL1(@ZERO)               STATUS BYTE
    13D5 D2C2F4404040       13DA 4048         DC    CL6'KB4   '              SYNTAX FIELD
    13DB 1A                 13DB 4049         DC    AL1(@#KNAT)              DISPLACEMENT
    13DC 04                 13DC 4050         DC    AL1(@#DENK)              CONFIGURATION
                                 4051 *
    13DD 00                 13DD 4052         DC    AL1(@ZERO)               STATUS BYTE
    13DE D2C2F5404040       13E3 4053         DC    CL6'KB5   '              SYNTAX FIELD
    13E4 1A                 13E4 4054         DC    AL1(@#KNAT)              DISPLACEMENT
    13E5 05                 13E5 4055         DC    AL1(@#NORW)              CONFIGURATION
                                 4056 *
    13E6 00                 13E6 4057         DC    AL1(@ZERO)               STATUS BYTE
    13E7 D2C2F6404040       13EC 4058         DC    CL6'KB6   '              SYNTAX FIELD
    13ED 1A                 13ED 4059         DC    AL1(@#KNAT)              DISPLACEMENT
    13EE 06                 13EE 4060         DC    AL1(@#FINL)              CONFIGURATION
                                 4061 *
    13EF 00                 13EF 4062         DC    AL1(@ZERO)               STATUS BYTE
    13F0 D2C2F7404040       13F5 4063         DC    CL6'KB7   '              SYNTAX FIELD
    13F6 1A                 13F6 4064         DC    AL1(@#KNAT)              DISPLACEMENT
    13F7 07                 13F7 4065         DC    AL1(@#SPAN)              CONFIGURATION
                                 4066 *
    13F8 00                 13F8 4067         DC    AL1(@ZERO)               STATUS BYTE
    13F9 D2C2F8404040       13FE 4068         DC    CL6'KB8   '              SYNTAX FIELD
    13FF 1A                 13FF 4069         DC    AL1(@#KNAT)              DISPLACEMENT
    1400 08                 1400 4070         DC    AL1(@#PORT)              CONFIGURATION
                                 4071 *
    1401 00                 1401 4072         DC    AL1(@ZERO)               STATUS BYTE
    1402 D2C2F9404040       1407 4073         DC    CL6'KB9   '              SYNTAX FIELD
    1408 1A                 1408 4074         DC    AL1(@#KNAT)              DISPLACEMENT
    1409 09                 1409 4075         DC    AL1(@#UKDM)              CONFIGURATION
                                 4076 *
                                 4077 ***    CORE SIZE COMPONENT
                                 4078 *
    140A 41                 140A 4079 UCNC02  DC    AL1(UCNMIN+UCN001)       STATUS BYTE
    140B F8D240404040       1410 4080         DC    CL6'8K    '              SYNTAX FIELD
    1411 3D                 1411 4081         DC    AL1(@#CSIZ)              DISPLACEMENT
    1412 01                 1412 4082         DC    AL1(@#C08K)              CONFIGURATION
                                 4083 *
    1413 01                 1413 4084         DC    AL1(@ZERO+UCN001)        STATUS BYTE
    1414 F1F2D2404040       1419 4085         DC    CL6'12K   '              SYNTAX FIELD
    141A 3D                 141A 4086         DC    AL1(@#CSIZ)              DISPLACEMENT
    141B 02                 141B 4087         DC    AL1(@#C12K)              CONFIGURATION
                                 4088 *
    141C 01                 141C 4089         DC    AL1(@ZERO+UCN001)        STATUS BYTE
    141D F1F6D2404040       1422 4090         DC    CL6'16K   '              SYNTAX FIELD
    1423 3D                 1423 4091         DC    AL1(@#CSIZ)              DISPLACEMENT
    1424 04                 1424 4092         DC    AL1(@#C16K)              CONFIGURATION
                                 4093 *
                                 4094 ***    SIZE OF DISK CAPACITY
                                 4095 *
    1425 42                 1425 4096         DC    AL1(UCNMIN+UCN002)       STATUS BYTE
    1426 F2C4F1F0F040       142B 4097         DC    CL6'2D100 '              SYNTAX FIELD
    142C 13                 142C 4098         DC    AL1(@#DSIZ)              DISPLACEMENT
    142D 04                 142D 4099         DC    AL1(@#C100)              CONFIGURATION
                                 4100 *
```

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    142E 02              142E 4101          DC      AL1(@ZERO+UCN002)        STATUS BYTE
    142F F2C4F2F0F040    1434 4102          DC      CL6'2D200 '              SYNTAX FIELD
    1435 13              1435 4103          DC      AL1(@#DSIZ)              DISPLACEMENT
    1436 08              1436 4104          DC      AL1(@#C200)              CONFIGURATION
                              4105 *
    1437 02              1437 4106          DC      AL1(@ZERO+UCN002)        STATUS BYTE
    1438 F3C440404040    143D 4107          DC      CL6'3D    '              SYNTAX FIELD
    143E 13              143E 4108          DC      AL1(@#DSIZ)              DISPLACEMENT
    143F 10              143F 4109          DC      AL1(@#FRR2)              CONFIGURATION
                              4110 *
    1440 02              1440 4111          DC      AL1(@ZERO+UCN002)        STATUS BYTE
    1441 F4C440404040    1446 4112          DC      CL6'4D    '              SYNTAX FIELD
    1447 13              1447 4113          DC      AL1(@#DSIZ)              DISPLACEMENT
    1448 01              1448 4114          DC      AL1(@#FR12)              CONFIGURATION
                              4115 *
                              4116 ***     PRINTER WIDTH COMPONENT
                              4117 *
    1449 43              1449 4118 UCNC04 DC        AL1(UCNMIN+UCN003)       STATUS BYTE
    144A F1F3D4D74040    144F 4119          DC      CL6'13MP '               SYNTAX FIELD
    1450 16              1450 4120          DC      AL1(@#MTYP)              DISPLACEMENT
    1451 09              1451 4121          DC      AL1(@#MTMP+@#MP13)       CONFIGURATION
                              4122 *
    1452 03              1452 4123          DC      AL1(@ZERO+UCN003)        STATUS BYTE
    1453 F1F3D3D74040    1458 4124          DC      CL6'13LP '               SYNTAX FIELD
    1459 16              1459 4125          DC      AL1(@#MTYP)              DISPLACEMENT
    145A 05              145A 4126          DC      AL1(@#MTLP+@#MP13)       CONFIGURATION
                              4127 *
    145B 03              145B 4128          DC      AL1(@ZERO+UCN003)        STATUS BYTE
    145C F2F2D4D74040    1461 4129          DC      CL6'22MP '               SYNTAX FIELD
    1462 16              1462 4130          DC      AL1(@#MTYP)              DISPLACEMENT
    1463 0A              1463 4131          DC      AL1(@#MTMP+@#MP22)       CONFIGURATION
                              4132 *
    1464 03              1464 4133          DC      AL1(@ZERO+UCN003)        STATUS BYTE
    1465 F2F2D3D74040    146A 4134          DC      CL6'22LP '               SYNTAX FIELD
    146B 16              146B 4135          DC      AL1(@#MTYP)              DISPLACEMENT
    146C 06              146C 4136          DC      AL1(@#MTLP+@#MP22)       CONFIGURATION
                              4137 *
                              4138 ***     CRT COMPONENT
                              4139 *
    146D 04              146D 4140 UCNC05 DC        AL1(@ZERO+UCN004)        STATUS BYTE
    146E C3D9E3404040    1473 4141          DC      CL6'CRT   '              SYNTAX FIELD
    1474 28              1474 4142          DC      AL1(@#CRTD)              DISPLACEMENT
    1475 40              1475 4143          DC      AL1(@#CRTB)              CONFIGURATION
                              4144 *
    1476 04              1476 4145          DC      AL1(@ZERO+UCN004)        STATUS BYTE
    1477 D5D6C3D9E340    147C 4146 UCNFG2 DC        CL6'NOCRT '              SYNTAX FIELD
    147D 28              147D 4147          DC      AL1(@#CRTD)              DISPLACEMENT
    147E 80              147E 4148          DC      AL1(@#CRTN)              CONFIGURATION
                              4149 *
                              4150 ***     DATA RECORDER COMPONENT
                              4151 *
    147F 05              147F 4152 UCNC06 DC        AL1(@ZERO+UCN005)        STATUS BYTE
    1480 C3C1D9C44040    1485 4153          DC      CL6'CARD  '              SYNTAX FIELD
    1486 20              1486 4154          DC      AL1(@#DATA)              DISPLACEMENT
    1487 40              1487 4155          DC      AL1(@#DATB)              CONFIGURATION
                              4156 *
```

```
     1488 05              1488 4157          DC     AL1(@ZERO+UCN005)          STATUS BYTE
     1489 C3C1D9C4F8F0    148E 4158          DC     CL6'CARD80'                SYNTAX FIELD
     148F 20              148F 4159          DC     AL1(@#DATA)                DISPLACEMENT
     1490 48              1490 4160          DC     AL1(@#DATC)                CONFIGURATION
                               4161 *
     1491 05              1491 4162          DC     AL1(@ZERO+UCN005)          STATUS BYTE
     1492 C3C1D9C4F9F6    1497 4163          DC     CL6'CARD96'                SYNTAX FIELD
     1498 20              1498 4164          DC     AL1(@#DATA)                DISPLACEMENT
     1499 40              1499 4165          DC     AL1(@#DATB)                CONFIGURATION
                               4166 *
     149A 05              149A 4167          DC     AL1(@ZERO+UCN005)          STATUS BYTE
     149B D5D6C3C1D9C4    14A0 4168          DC     CL6'NOCARD'                SYNTAX FIELD
     14A1 20              14A1 4169          DC     AL1(@#DATA)                DISPLACEMENT
     14A2 80              14A2 4170          DC     AL1(@#DATN)                CONFIGURATION
                               4171 *
                               4172 ***      COMMAND KEY NUMBER COMPONENT
                               4173 *
     14A3 46              14A3 4174 UCNC07 DC     AL1(UCNMIN+UCN006)          STATUS BYTE
     14A4 F8C3D2404040    14A9 4175          DC     CL6'8CK   '                SYNTAX FIELD
     14AA 19              14AA 4176          DC     AL1(@#KEYS)                DISPLACEMENT
     14AB 40              14AB 4177          DC     AL1(@#KE08)                CONFIGURATION
                               4178 *
     14AC 06              14AC 4179          DC     AL1(@ZERO+UCN006)          STATUS BYTE
     14AD F1F6C3D24040    14B2 4180          DC     CL6'16CK  '                SYNTAX FIELD
     14B3 19              14B3 4181          DC     AL1(@#KEYS)                DISPLACEMENT
     14B4 80              14B4 4182          DC     AL1(@#KE16)                CONFIGURATION
                               4183 *
     14B5 5C              14B5 4184 UCNEND DC     AL1(@ASTER)                PARAMETER DELIMITER
     14B6 0707            14B7 4185 UCNPRT DC     AL2($$PRNT)                PRINTER IOCR FLAG
                               4186 *
                               4187 ***      EQUATES USED IN UCNFIG
                               4188 *
     0001 4189 UCNONE EQU     1                          CONSTANT FACTOR
     0007 4190 UCNCOM EQU     7                          NO. POSSIBLE COMPONENTS
     0006 4191 UCNLPF EQU     6                          LENGTH PARM SYNTAX FIELD
     0009 4192 UCNLPL EQU     9                          LENGTH PARAMETER LIST
     0029 4193 UCN029 EQU     X'29'                      CRT/12K POINTER
     0039 4194 UCN039 EQU     X'39'                      CRT/16K POINTER
     0002 4195 UCNVOL EQU     2                          DISP TO 'VOL' IN BUFFER
          4196 *      NATIONALITY SUBSET FLAG TRANSPARENT
     0001 4197 UCN001 EQU     1                          CORE SIZE SUBSET FLAG
     0002 4198 UCN002 EQU     2                          DISK CAPACITY SUBSET FLAG
     0003 4199 UCN003 EQU     3                          PRINTER WIDTH SUBSET FLAG
     0004 4200 UCN004 EQU     4                          CRT SUBSET FLAG
     0005 4201 UCN005 EQU     5                          DATA RECORDER SUBSET FLAG
     0006 4202 UCN006 EQU     6                          COMMAND KEY NO. SUBSET FLAG
     0080 4203 UCNDET EQU     X'80'                      BIT FOR PARAMETER FOUND
     0040 4204 UCNMIN EQU     X'40'                      BIT FOR MINIMUM CONFIGURE
     006C 4205 UCNDEL EQU     X'6C'                      CODE TO DETECT DELIMITERS
     00F0 4206 UCNLOW EQU     X'F0'                      NUMERIC LOWER BOUND
     00F9 4207 UCNHII EQU     X'F9'                      NUMERIC UPPER BOUND
     0005 4208 UCNCYL EQU     X'05'                      CONFIGURATION RECORD
     12E9 4209 UCNCHK EQU     UCN925                     ADDRESS OF I/O CONFIGURATION
          4210 *                                         * COMPOMENT CHECK DISK ADDR
     14B8 4211 UCNSUB EQU     *                          FIRST BYTE OF COMPONENT FIELD
     14BE 4212 UCNSET EQU     UCNSUB+UCNCOM-1            LAST BYTE OF COMPONENT FIELD
```

UCNFIG - CONFIGURE UTILITY COMMAND

```
                        14BF 4213 UCNHDF EQU   UCNSET+1              FIRST BYTE OF PARM HOLDER
                        14C4 4214 UCNHDL EQU   UCNHDF+5             LAST BYTE OF PARM HOLDER
                        15BF 4215 UCNARE EQU   UCNHDF+256           TOP OF VOLUME LABEL
   14B8 112E            14B9 4216 UCNOVR DC    AL2(UCNFIG)          ENTRY POINT TO PROGRAM
                             4217 *******************************************************************************

                        14BF 4219 MCNBUF EQU   UCNHDF              WORK BUFFER
                        14BF 4220 SUPBUF EQU   UCNHDF              WORK BUFFER
                        FFFF 4221        END
```

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =       0

```
$$$$$$  001  0C00 2730
$$$$$0  020  0D08 2873
$$$$$1  090  10EC 3531
$$$CMD  001  0020 0845
$$$DAT  001  0040 0844
$$$EPL  001  0091 0841
$$$ERN  001  0080 0895
$$$FUN  001  0010 0846
$$$NLN  001  00A0 0891
$$$STD  001  0081 0840
$$BNLN  001  0605 0821  0823
$$CDBS  001  08C0 0871
$$CDND  001  0666 0830
$$CDRD  001  0890 0869  0871
$$CKEY  001  0603 0819
$$CKFF  001  0B3D 0851
$$COFF  001  0B44 0850
$$CSNS  001  209C 0880
$$DATB  001  0BBF 0852  3263
$$EOSA  001  0AFE 0849
$$ERSK  001  1C00 0890  2769  2776*
$$FITS  001  1D00 0898
$$FLIB  001  06FF 0897
$$ILEN  001  0601 0815  0817  0821
$$ILHD  001  0600 0813  0815
$$INLN  001  0607 0828  0830  0832  2769* 2776
$$INND  001  06FA 0832
$$KBDT  001  09E1 0839  0843
$$KBSN  001  09E2 0843  0848
$$KLD1  001  0600 0903
$$KLD2  001  0700 0905
$$KLD3  001  0C00 0907  2721
$$LPOS  001  09EB 0848
$$PCNT  001  07E9 0864
$$PLYN  001  2004 0878
$$PRES  001  0890 0837  0839  0849  0850  0851  0852  0869
$$PRFL  001  2143 0882
$$PRNT  001  0707 0858  0859  0863  0864  4185
$$PRTN  001  0782 0859
$$PSIO  001  07CE 0863
$$PYCD  001  2200 0884
$$PYMP  001  2000 0876  0878  0880  0882  0884
$$SLIB  001  1C00 0893
$$TPCD  001  0606 0823  0828
$$UPAR  001  0602 0817  0819
$$WSPB  001  1E00 0896
$$XIND  001  06FF 0894  0897
$$ZERO  001  0000 0409  0410  0412  0413  0414  0418  0876
$#TALT  001  0075 2229
$#TBIS  001  00FC 2241
$#TCET  001  0069 2228
$#TCYL  001  005C 2227
$#THAD  001  00F2 2233
$#THEL  001  0004 2253
$#THVT  001  00F0 2232
$#TIDR  001  00FF 2243
```

```
$#TLAD  001  00FE 2242   3985
$#TLBL  001  0008 2224   3941   3948   3985*
$#TLIB  001  00F8 2238
$#TLIF  001  0010 2251
$#TLSZ  001  00F7 2237
$#TOID  001  005B 2226
$#TPAD  001  00F6 2236
$#TPFL  001  0008 2252
$#TPSZ  001  00F4 2235
$#TPTF  001  00F3 2234
$#TRES  001  00D7 2245
$#TSUS  001  00EF 2231
$#TSYM  001  0080 2248
$#TSYS  001  00FA 2240
$#TUSE  001  00A8 2230
$#TVOL  001  0002 2223
$#TVTC  001  000A 2225
$#TWAL  001  00D7 2244
$#TWF1  001  0020 2250
$#TWRK  001  00F9 2239
$#TWR1  001  0040 2249
$ABORT  001  0010 0522
$BASIC  001  0080 0580
$BIGCD  001  0080 0656   3209   3214
$BLDPL  001  0579 0789   0791
$BLNOE  001  0569 0779
$BLOAD  001  0522 0770   0772   0775   0788   0789
$BLRTN  001  0550 0778   0779
$BRSAV  001  03C5 0467   0468
$BSADR  001  0587 0794   0796   3226   3269   3852
$BUFPT  001  03E3 0675   0676
$CABLD  001  04B4 0748   0749
$CAERK  001  0469 0725   0728   3775   3848   3917
$CAERR  001  03CD 0473   0475   3632*  3824*  3827*  3841*  3846*  3915*
$CAIPL  001  049D 0744   0746
$CALLI  001  0008 0665   3891
$CARDI  001  0001 0436   3893   3895
$CARPL  001  04A1 0746   0748   2778
$CIENT  001  0483 0735   0736
$CIEXT  001  0480 0734   0735
$CIMSK  001  0476 0731   0734
$CISUS  001  0496 0739   0744
$CLBFR  001  0010 0623
$CMDKY  001  0008 0535
$CMODE  001  0002 0585
$CONFG  001  03DD 0648   0658   3178*  3187*  3193*  3209*  3214*  3250*  3261*  3388*
$CRPOS  001  03E2 0674   0675
$CRTAD  001  044D 0713   0714   3235*  3236
$CRTAV  001  0002 0529   3215   3218   3221
$CRTDN  001  0002 0553
$CRTIN  001  03D3 0550   0557
$CRTNO  001  0004 0532   3221
$CRTPU  001  0004 0554
$CRTSP  001  0008 0555
$CRTUP  001  0001 0552
$CRUSH  001  0080 0661
```

```
$CSDPL  001  050E 0760    0761  3183* 3238*
$C0001  001  0464 0717    0723  3208  3213  3249  3255  3271  3365
$DATE   001  043A 0698    0699
$DBGUF  001  03E0 0660    0669  3891
$DBLOK  001  0001 0610
$DFDET  001  03E8 0681    0682
$DISKN  001  0025 0412    2771  2785  2787  2832  2982  2984  2992  3005  3007  3014  3016  3229
                          3231  3284  3286  3292  3294  3301  3306  3308  3314  3319  3321  3327
                          3332  3334  3341  3343  3349  3354  3381  3853  3855  3923  3979  3981
$DKERR  001  0008 0591
$DKSIZ  001  03D7 0635    0643  0684  3360* 3366* 3373* 3377* 3768  3931  3934  3953
$DK100  001  0001 0637
$DK200  001  0002 0638    3360
$DK400  001  0004 0639    3366
$DK600  001  0008 0640    3373  3953
$DK800  001  0010 0641    3377  3934
$DPLSV  001  0449 0709    0711
$DTNMB  001  0040 0456
$DTRDR  001  0040 0544    3198  3203
$ENDNU  001  0600 0803    0813  0837  0858  0894  0903  0905  0907
$ERDPL  001  046F 0728    0730
$ERFIL  001  0040 0483
$ERHRD  001  0004 0615
$ERKEY  001  0080 0487
$ERLOG  001  0345 0417
$ERMAD  001  0472 0730    0731
$ERPND  001  0004 0588
$ERRCT  001  03CF 0489
$ERRPG  001  03CE 0477
$ERSFL  001  0035 0482
$ERSTK  001  0030 0480
$ER050  001  0363 0418
$ER1N2  001  0050 0485
$EXADR  001  0517 0763    0765
$EXCMD  001  0001 0517
$EXFTR  001  043B 0699    0704  3182* 3186* 3192* 3195  3197  3222* 3225  3238  3387*
$FCIND  001  0010 0595
$FDIND  001  0040 0602
$FEARR  001  0004 0410
$FEMAP  001  0588 0796    0797
$FILIB  001  03DA 0646    0647
$FITIN  001  0010 0571
$FUIND  001  0020 0600
$GUFIO  001  0583 0793    0794
$GUFIR  001  0008 0445
$HISTE  001  042E 0696    0697
$HIST1  001  0435 0697    0698
$HRDER  001  0020 0541
$INDR1  001  03D4 0557    0583
$INDR2  001  03D5 0583    0608
$INDR3  001  03D6 0608    0635
$INLNO  001  03CF 0475    0477  0489  0496
$INRPT  001  0020 0453
$IOIND  001  03D2 0524    0550  3198* 3203* 3215  3218* 3221* 3239* 3256*
$IOPGS  001  0010 0664
$IOYES  001  0002 0439    3888
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$KEYCD   001  03C3 0433    0467   3888* 3893   3895*
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$KE090   001  00DE 0413
$KE130   001  01D5 0414
$KYBSY   001  0010 0450
$LDRTN   001  0571 0788
$LEVEL   001  03DF 0658    0660
$LIST    001  0002 0612
$LMRGN   001  03C1 0428    0430
$LNPTR   001  0080 0547    3239   3256
$LOADB   001  054A 0772
$LOADR   001  051A 0765    0768
$LPRIO   001  03EA 0682
$LPROS   001  03E5 0677    0679
$LPRP3   001  03E4 0676    0677   3770   3770*
$MOUNT   001  0020 0626
$MPDWN   001  0001 0526
$NEXTB   001  03E6 0679    0680
$NEXTL   001  03E7 0680    0681
$NOENB   001  0008 0618
$NOLST   001  0004 0442
$NUCBS   001  03C0 0425    0426   3172  3174   3273
$NWRKF   001  0080 0631
$NWRKR   001  0040 0628
$PASWD   001  042D 0695    0696
$PAUSD   001  04BA 0749    0751
$PAUSE   001  0002 0519
$PGMDT   001  0020 0574
$PGMST   001  0010 0538
$PKERT   001  0419 0693    0695   2974
$PLST1   001  0454 0714    0715
$PLST2   001  045B 0715    0716
$PLST3   001  0462 0716    0717
$PRDEV   001  044B 0711    0713   3202  3875* 3907   3909* 3911   3913*
$PRESN   001  0002 0562
$PROCI   001  0001 0559
$PRPOS   001  03C2 0430    0433
$PSDBR   001  04FA 0754
$PSDXR   001  04F2 0753    0754
$PSTEP   001  0004 0520
$PSTMT   001  0008 0521
$PTCH1   001  03F5 0684    0688
$READY   001  0080 0604
$REORD   001  0040 0662
$RLOAD   001  051E 0768    0770
$RMRGN   001  03C0 0426    0428   3244  3246* 3389*
$RSTR    001  04D6 0751    0753   0755  0760
$RUNIT   001  0001 0498
$SFAID   001  050D 0756
$SPRNT   001  0465 0723    0725
$SRTRN   001  04FE 0755    0756
$STEPT   001  0002 0499
$SWPCR   001  0511 0761    0763
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$TFLOW   001  0008 0505
$TRACE   001  0004 0500
$TRALL   001  0010 0506
$TROVR   001  054E 0775    0778
$TRUNK   001  0080 0458
$TRVAR   001  0020 0507
$UNMSK   001  048D 0736    0739
$USRDR   001  03DC 0647    0648
$VMDEF   001  0080 0511
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$VOLF2   001  040E 0692    3941  3941* 3942* 3948  3951  3951  3951* 3952* 3955
$VOLID   001  03F6 0688    0689  0693
$VOLR1   001  03F6 0689    0690
$VOLR2   001  0406 0691    0692  3941  3948  3948* 3949* 3951  3955  3955  3955* 3956* 4014
$WAITF   001  057F 0791    0793  2772  2788  2985  3008  3017  3232  3289  3295  3309  3322  3335
                           3344  3355  3982
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$WFLOK   001  0008 0568
$WFNME   001  0443 0704    0709
$WSIND   001  0004 0565
$XIND1   001  03D0 0496    0515
$XIND2   001  03D1 0515    0524
$XIND3   001  03D8 0643    0646
$XPREC   001  0040 0508
$XRSAV   001  03C7 0468    0470  3769  3798*
$ZTRAD   001  05A2 0797
$12K     001  0004 0652    3187
$16CKY   001  0008 0654    3261
$16K     001  0002 0651    3193
$22IMP   001  0001 0649    3250
#$$#BL   001  0000 2580
#$$#CK   001  0000 2708
#$$#CN   001  0000 2676
#$$#CO   001  0000 2468
#$$#CS   001  0000 2528
#$$#DR   001  0000 2272
#$$#ER   001  0000 2472
#$$#FS   001  0000 2568
#$$#IN   001  0000 2712
#$$#PW   001  0000 2716
#$$#RS   001  0000 2548
#$$#SA   001  0000 2536
#$$#SS   001  0000 2532
#$$#VU   001  0600 2492
#$$#0T   001  0700 2264
#$$#1T   001  0000 2268
#$$BCO   001  0600 2280
#$$BOV   001  0800 2552
#$$DPR   001  0700 2288
#$$DRE   001  0889 2304
#$$DSP   001  2800 2324
#$$ECM   001  0C00 2584
#$$EFK   001  0C00 2604
#$$ERR   001  0C00 2576
#$$EXM   001  0C00 2464
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#$$FIL  001  0E00 2544
#$$FIS  001  0E00 2540
#$$FML  001  0200 2672
#$$FMS  001  0200 2512
#$$GRA  001  0889 2436
#$$GUF  001  0C00 2572
#$$INL  001  0600 2652
#$$INS  001  0600 2276
#$$KAL  001  0C00 2440
#$$KCA  001  0C00 2656
#$$KCH  001  0C00 2408
#$$KCN  001  0C00 2524
#$$KCT  001  0C00 2376
#$$KDE  001  0C00 2372
#$$KDI  001  0D00 2452
#$$KDN  001  0C00 2360
#$$KDO  001  0E00 2456
#$$KED  001  0C00 2296
#$$KEN  001  0C00 2300
#$$KEX  001  0C00 2320
#$$KGO  001  0C00 2292
#$$KHE  001  0C00 2476
#$$KKE  001  0C00 2704
#$$KLI  001  0C00 2380
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#$$KLO  001  0C00 2384
#$$KME  001  0D00 2364
#$$KMO  001  0C00 2308
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#$$KOV  001  0E00 2340
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#$$KPO  001  0C00 2404
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#$$KRE  001  0C00 2348
#$$KRL  001  0700 2444
#$$KRM  001  0C00 2312
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#$$KRO  001  0D00 2336
#$$KRS  001  0C00 2660
#$$KRU  001  0C00 2356
#$$KRV  001  0800 2448
#$$KSA  001  0C00 2392
#$$KSE  001  0E00 2432
#$$KSO  001  0C20 2484
#$$KSS  001  0C00 2416
#$$KSV  001  0980 2412
#$$KSY  001  0C00 2424
#$$KWI  001  0C00 2352
#$$KWR  001  0C00 2344
#$$LOA  001  0600 2284
#$$MIP  001  0C00 2480
#$$SDS  001  0C00 2592
#$$SFF  001  0E00 2596
#$$SFL  001  0F00 2588
#$$SFO  001  1500 2560
#$$SFS  001  0C00 2556
```

| SYMBOL | LEN | VALUE | DEFN | REFERENCES |
|--------|-----|-------|------|------------|
| #$$SPA | 001 | 0C00 | 2396 | |
| #$$SPO | 001 | 0806 | 2400 | |
| #$$SPS | 001 | 0C00 | 2388 | |
| #$$STR | 001 | 1600 | 2564 | |
| #$$TDC | 001 | 1000 | 2368 | |
| #$$TSY | 001 | 1000 | 2328 | |
| #$$TVK | 001 | 0FC0 | 2504 | |
| #$$UAL | 001 | 0C00 | 2520 | |
| #$$UAT | 001 | 0900 | 2616 | |
| #$$UCD | 001 | 0900 | 2624 | |
| #$$UCN | 001 | 0C00 | 2608 | 2729 |
| #$$UCP | 001 | 0700 | 2612 | |
| #$$UDE | 001 | 0C00 | 2628 | |
| #$$UDI | 001 | 0C00 | 2632 | |
| #$$UEX | 001 | 0C00 | 2516 | |
| #$$UIN | 001 | 0C00 | 2620 | |
| #$$UPA | 001 | 0C00 | 2600 | |
| #$$UPO | 001 | 0C00 | 2668 | |
| #$$UPT | 001 | 0C00 | 2664 | |
| #$$VCR | 001 | 2000 | 2460 | |
| #$$VLO | 001 | 0600 | 2496 | |
| #$$VOD | 001 | 0600 | 2500 | |
| #$$VVM | 001 | 0000 | 2508 | |
| #$$VXI | 001 | 0600 | 2488 | |
| #$$ZDU | 001 | 1100 | 2640 | |
| #$$ZLB | 001 | 1100 | 2684 | |
| #$$ZLO | 001 | 1100 | 2644 | |
| #$$ZLV | 001 | 0F00 | 2700 | |
| #$$ZL1 | 001 | 0F00 | 2688 | |
| #$$ZL2 | 001 | 0F00 | 2692 | |
| #$$ZL3 | 001 | 0C00 | 2696 | |
| #$$ZTR | 001 | 1000 | 2636 | |
| #$$ZUT | 001 | 0C00 | 2648 | |
| #$#BLN | 001 | 18D4 | 2579 | |
| #$#CKT | 001 | 2118 | 2707 | |
| #$#CNF | 001 | 2000 | 2675 | 4004 |
| #$#COR | 001 | 0800 | 2467 | |
| #$#CSA | 001 | 1000 | 2527 | |
| #$#DRT | 001 | 0000 | 2271 | |
| #$#ERM | 001 | 0928 | 2471 | |
| #$#FSP | 001 | 1880 | 2567 | |
| #$#INV | 001 | 212C | 2711 | |
| #$#PWR | 001 | 2300 | 2715 | |
| #$#RSP | 001 | 1780 | 2547 | |
| #$#SAV | 001 | 1180 | 2535 | |
| #$#SSA | 001 | 1128 | 2531 | |
| #$#VUF | 001 | 0B08 | 2491 | |
| #$#0TR | 001 | 0000 | 2263 | |
| #$#1TR | 001 | 0080 | 2267 | |
| #$@#BL | 001 | 0001 | 2581 | |
| #$@#CK | 001 | 0004 | 2709 | |
| #$@#CN | 001 | 0001 | 2677 | |
| #$@#CO | 001 | 003A | 2469 | |
| #$@#CS | 001 | 003A | 2529 | |
| #$@#DR | 001 | 0008 | 2273 | |
| #$@#ER | 001 | 0032 | 2473 | |

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#$@#SA  001  0108 2537
#$@#SS  001  0001 2533
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#$@#0T  001  0018 2265
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#$@BCO  001  0018 2281
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#$@DRE  001  0001 2305
#$@DSP  001  0004 2325   3435
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#$@EFK  001  0002 2605
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#$@FML  001  0052 2673
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#$@GUF  001  0010 2573
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#$@KCA  001  000C 2657
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#$@KDI  001  0005 2453
#$@KDN  001  0010 2361
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                              CROSS REFERENCE

SYMBOL  LEN VALUE DEFN   REFERENCES                        VER 15, MOD 00  24/02/22  PAGE  43

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#$@KSO  001  0005 2485
#$@KSS  001  000B 2417
#$@KSV  001  0002 2413
#$@KSY  001  000F 2425
#$@KWI  001  0002 2353
#$@KWR  001  0002 2345
#$@LOA  001  0013 2285
#$@MIP  001  000D 2481
#$@SDS  001  0004 2593
#$@SFF  001  0008 2597
#$@SFL  001  0005 2589
#$@SFO  001  0003 2561
#$@SFS  001  0011 2557
#$@SPA  001  0004 2397
#$@SPO  001  0003 2401
#$@SPS  001  0001 2389
#$@STR  001  0002 2565
#$@TDC  001  0003 2369   3505
#$@TSY  001  0003 2329   3449
#$@TVK  001  0001 2505
#$@UAL  001  0011 2521
#$@UAT  001  000C 2617
#$@UCD  001  000B 2625
#$@UCN  001  0009 2609
#$@UCP  001  000F 2613
#$@UDE  001  000E 2629
#$@UDI  001  0008 2633
#$@UEX  001  000E 2517
#$@UIN  001  000F 2621
#$@UPA  001  0004 2601
#$@UPO  001  0005 2669
#$@UPT  001  0012 2665
#$@VCR  001  0008 2461
#$@VLO  001  0002 2497
#$@VOD  001  0016 2501
#$@VVM  001  0030 2509
#$@VXI  001  0002 2489
#$@ZDU  001  0008 2641
#$@ZLB  001  0002 2685
#$@ZLO  001  000C 2645
#$@ZLV  001  0006 2701
#$@ZL1  001  0007 2689
#$@ZL2  001  000D 2693
#$@ZL3  001  000A 2697
#$@ZTR  001  0001 2637
#$@ZUT  001  0014 2649
#$BCOM  001  0080 2279
#$BOLV  001  1780 2551
#$DPRI  001  014C 2287   3414
#$DREA  001  0200 2303
#$DSPL  001  0240 2323   3434
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#$EFKE   001  1990 2603
#$ERRP   001  18C0 2575
#$EXMS   001  07D4 2463
#$FILN   001  1724 2543
#$FIST   001  1700 2539
#$FMLN   001  1E00 2671
#$FMST   001  0D00 2511
#$GRAP   001  0690 2435
#$GUFU   001  1880 2571
#$INLN   001  1C84 2651
#$INST   001  0020 2275
#$KALL   001  06A4 2439
#$KCAL   001  1CC4 2655
#$KCHA   001  053C 2407
#$KCND   001  0F80 2523
#$KCTL   001  03BC 2375
#$KDEL   001  035C 2371
#$KDIS   001  0744 2451
#$KDNT   001  0300 2359
#$KDOV   001  0780 2455
#$KEDI   001  0188 2295
#$KENA   001  01C4 2299
#$KEXT   001  0234 2319
#$KGOS   001  0180 2291
#$KHEL   001  0A30 2475
#$KKEY   001  2100 2703
#$KLIS   001  0400 2379
#$KLLA   001  2004 2679
#$KLOG   001  0444 2383
#$KMER   001  030C 2363
#$KMOU   001  0204 2307
#$KNAM   001  05C0 2419
#$KOVM   001  0290 2339
#$KPAS   001  0220 2315
#$KPOO   001  0508 2403
#$KPRT   001  063C 2427
#$KREA   001  02BC 2347
#$KRLA   001  0700 2443
#$KRMO   001  0214 2311
#$KRNU   001  0280 2331
#$KROV   001  028C 2335
#$KRSU   001  1D24 2659
#$KRUN   001  02CC 2355
#$KRVL   001  0710 2447
#$KSAV   001  0488 2391
#$KSET   001  0680 2431
#$KSOV   001  0AC8 2483
#$KSSP   001  0594 2415
#$KSVL   001  058C 2411
#$KSYM   001  0600 2423
#$KWID   001  02C4 2351
#$KWRI   001  02B4 2343
#$LOAD   001  0100 2283
#$MIPP   001  0A80 2479
#$SDSY   001  192C 2591
```

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#$SFLO  001  1918  2587
#$SFOV  001  1844  2559
#$SFSY  001  1800  2555
#$SPAC  001  04CC  2395
#$SPOV  001  04DC  2399
#$SPSY  001  0484  2387
#$STRO  001  1850  2563
#$TDCK  001  0350  2367   3504
#$TSYK  001  0250  2327   3448
#$TVKB  001  0BAC  2503   3512  3520
#$UALL  001  0F00  2519
#$UATR  001  1A38  2615
#$UCDI  001  1AD8  2623
#$UCNF  001  19B8  2607
#$UCPL  001  19DC  2611
#$UDEL  001  1B24  2627
#$UDIS  001  1B5C  2631
#$UEXL  001  0EA8  2515
#$UINI  001  1A88  2619
#$UPAC  001  1980  2599
#$UPOV  001  1D24  2667
#$UPTF  001  1D5C  2663
#$VCRT  001  07B4  2459
#$VLOA  001  0B80  2495
#$VODK  001  0B88  2499
#$VVMR  001  0C00  2507
#$VXIT  001  0B00  2487
#$ZDUM  001  1BA4  2639
#$ZLBM  001  2008  2683
#$ZLOA  001  1BC4  2643
#$ZLVR  001  20B0  2699
#$ZL1M  001  2010  2687
#$ZL2M  001  2030  2691
#$ZL3M  001  2088  2695
#$ZTRA  001  1B9C  2635
#$ZUTM  001  1C14  2647
#@#BAD  001  0455  0935
#@#IO1  001  0459  0943
#@#IO2  001  045D  0944
#@#TAT  001  0941  0971
#@#TBA  001  09A1  0975
#@#TFS  001  0941  0969
#@#TSY  001  0941  0973
#@#VFP  001  0700  0961
#@#VLP  001  093D  0964
#@#WDB  001  050C  0956
#@#WFT  001  0500  0954
#@@#BA  001  0001  0936
#@@#IO  001  0001  0948
#@@#SC  001  0002  0945
#@@#TA  001  0010  0972
#@@#TB  001  0010  0976
#@@#TS  001  0005  0974
#@@#TW  001  0020  0970
#@@#VM  001  0100  0965
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#@@#04  001  0004 0947
#@@#08  001  0008 0946
#@@BOV  001  0018 0924
#@@ECM  001  0006 0938
#@@ERR  001  0003 0932
#@@GUF  001  0010 0928
#@@LDS  001  0002 0934
#@@SDS  001  0004 0930
#@@SFF  001  0008 0942
#@@SFL  001  0005 0940
#@@SFO  001  0005 0950
#@@SFS  001  0011 0926
#@@VSF  001  0010 0978
#@@VSL  001  000F 0979
#@@VTR  001  0001 0963
#@BOVL  001  0400 0923
#@CORS  001  0005 1030
#@ECMA  001  0481 0937
#@ERRP  001  0441 0931
#@GUFU  001  0401 0927
#@LDSV  001  044D 0933
#@MVSD  001  0001 1038   3047
#@NERO  001  0003 1032
#@OBRA  001  0002 1034
#@PTFL  001  0006 1053
#@PTFS  001  0001 1052
#@SDSY  001  04AD 0929
#@SFFI  001  04BD 0941
#@SFLO  001  0499 0939
#@SFOV  001  04C4 0949
#@SFSY  001  0480 0925
#@VCNT  001  0002 1050
#@VLAB  001  0001 1045
#@VLSD  001  0001 1036   3039
#@VSFI  001  09A1 0977
#@VTRL  001  0708 0962
#@WAF1  001  0401 0922
#@WAR1  001  0400 0921
#CNDIS  001  0001 1005
#CNFIG  001  0005 1041
#CORSV  001  0010 1029
#DKEXT  001  0002 1012
#FIGSC  001  0001 1042   4005
#HISCT  001  0006 1019
#HISDX  001  0003 1014
#HISLN  001  0008 1011   1012
#HISN1  001  0003 1017
#HISN2  001  0005 1018
#HISTC  001  0007 1021
#HISTN  001  0009 1023
#HISTQ  001  0000 1015
#HISTR  001  0001 1016
#HISTS  001  0008 1022
#HISTV  001  000F 1024
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```
                                CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                          VER 15, MOD 00  24/02/22  PAGE  47

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#HSENT   001  0001 1013
#IOSDR   001  0019 1040
#MVSDR   001  000D 1037   3046
#NEROV   001  009C 1031
#OBRAD   001  001D 1033
#PKCNT   001  0002 0998   2978   2979
#PKMRW   001  002B 0999   3011*
#PKRDD   001  0003 0996   2979
#PKRTD   001  0003 0995   2974   2975   3020* 3021   3021*
#PKRTL   001  0004 1002   2975   3000   3021
#PKVRD   001  000B 1000   2989*
#PKVWD   001  0007 1001   2988*
#PKWTD   001  0001 0997   2978
#PTFDA   001  00DC 1051
#RDWTL   001  0004 1003   2980   2988   2989   3011   3011   3031   3051   3056
#SDRDK   001  0011 1039
#UCNF    001  0000 0001
#UCNFI   001  0C07 2733
#VLSDR   001  000C 1035   3038
#VLTBE   001  0008 0990
#VOLF1   001  0009 1043   3998
#VOLNG   001  0006 0988   0990   1012
#VOLOC   001  0005 0989
#VOLR1   001  0008 1044   3997
#VTCF1   001  0025 1047
#VTCF2   001  0027 1049
#VTCR1   001  0024 1046   2851
#VTCR2   001  0026 1048
@#AGER   001  0002 1130   4040
@#BFRN   001  0003 1131   4045
@#CRTB   001  0040 1086   3219   3899   4143
@#CRTD   001  0028 1081   3219   3899   4142   4147
@#CRTN   001  0080 1083   4148
@#CSIZ   001  003D 1163   3180   3184   3188   3190   3386* 3860   3903   3905   4081   4086   4091
@#C050   001  0002 1155
@#C08K   001  0001 1165   3184   3860   3903   4082
@#C100   001  0004 1154   4099
@#C12K   001  0002 1166   3188   3860   3905   4087
@#C16K   001  0004 1167   3190   3860   4092
@#C200   001  0008 1153   3361   4104
@#DATA   001  0020 1066   3199   3207   3212   3889   4154   4159   4164   4169
@#DATB   001  0040 1071   3199   3889   4155   4165
@#DATC   001  0048 1074   3212   4160
@#DATN   001  0080 1068   4170
@#DENK   001  0004 1132   4050
@#DISB   001  0040 1147   3898
@#DISK   001  0010 1142   1151   3898*
@#DISN   001  0080 1144
@#DOMS   001  0001 1129   4035
@#DSIZ   001  0013 1151   3361   3367   3374   4098   4103   4108   4113
@#FINL   001  0006 1134   4060
@#FRR2   001  0010 1157   3367   4109
@#FR12   001  0001 1158   3367   3374   4114
@#KBNO   001  0080 1115
@#KBRB   001  0040 1118   3897
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@#KE08   001  0040 1124    3259  3901  4177
@#KE16   001  0080 1125    4182
@#KNAT   001  001A 1127    3262  3263  3274  3276  3279  4034  4039  4044  4049  4054  4059  4064
                           4069  4074
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@#MP22   001  0002 1107    3242  4131  4136
@#MTLP   001  0004 1105    3251  4126  4136
@#MTMP   001  0008 1104    4121  4131
@#MTRX   001  0014 1093    1102  3896*
@#MTXB   001  0040 1098    3896
@#MTXN   001  0080 1095
@#MTYP   001  0016 1102    3242  3251  4120  4125  4130  4135
@#NORW   001  0005 1133    4055
@#PORT   001  0008 1136    4070
@#SPAN   001  0007 1135    4065
@#UKDM   001  0009 1137    3274  4075
@#0005   001  0005 1141    1142
@#0006   001  0006 1092    1093
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@#0009   001  0009 1065    1066
@#0011   001  000B 1080    1081
@#0016   001  0010 1162    1163
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@@E017   001  000F 1734    1736
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@@E019   001  0011 1738    1740
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@@E024   001  0015 1746    1748
@@E025   001  0016 1748    1750
@@E026   001  0017 1750    1752
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@@E028   001  0019 1754    1756
@@E029   001  001A 1756    1758
@@E030   001  001B 1758    1760
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@@E035   001  001E 1764    1766
@@E036   001  001F 1766    1768
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| SYMBOL | LEN | VALUE | DEFN | REFERENCES | VER 15, MOD 00  24/02/22  PAGE  49 |
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| @@E039 | 001 | 0022 | 1772 | 1774 | |
| @@E040 | 001 | 0023 | 1774 | 1776 | |
| @@E041 | 001 | 0024 | 1776 | 1778 | |
| @@E042 | 001 | 0025 | 1778 | 1780 | |
| @@E043 | 001 | 0026 | 1780 | 1782 | |
| @@E044 | 001 | 0027 | 1782 | 1784 | |
| @@E045 | 001 | 0028 | 1784 | 1786 | |
| @@E046 | 001 | 0029 | 1786 | 1788 | |
| @@E060 | 001 | 002A | 1788 | 1790 | |
| @@E080 | 001 | 002B | 1790 | | |
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| @@E102 | 001 | 0002 | 1180 | 1182 | |
| @@E103 | 001 | 0003 | 1182 | 1184 | |
| @@E110 | 001 | 0004 | 1184 | 1186 | 3632 |
| @@E112 | 001 | 0005 | 1186 | 1188 | |
| @@E113 | 001 | 0006 | 1188 | 1190 | |
| @@E114 | 001 | 0007 | 1190 | 1192 | |
| @@E115 | 001 | 0008 | 1192 | 1194 | |
| @@E116 | 001 | 0009 | 1194 | 1196 | |
| @@E117 | 001 | 000A | 1196 | 1198 | |
| @@E120 | 001 | 000B | 1198 | 1200 | |
| @@E122 | 001 | 000C | 1200 | 1202 | |
| @@E123 | 001 | 000D | 1202 | 1204 | |
| @@E124 | 001 | 000E | 1204 | 1206 | |
| @@E129 | 001 | 000F | 1206 | 1208 | |
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| @@E131 | 001 | 0011 | 1210 | 1212 | 3827 |
| @@E133 | 001 | 0012 | 1212 | 1214 | |
| @@E134 | 001 | 0013 | 1214 | 1216 | 3846 |
| @@E135 | 001 | 0014 | 1216 | 1218 | |
| @@E136 | 001 | 0015 | 1218 | 1220 | 3841 |
| @@E137 | 001 | 0016 | 1220 | 1222 | |
| @@E138 | 001 | 0017 | 1222 | 1224 | |
| @@E139 | 001 | 0018 | 1224 | 1226 | |
| @@E142 | 001 | 0019 | 1226 | 1228 | |
| @@E143 | 001 | 001A | 1228 | 1230 | |
| @@E150 | 001 | 001B | 1230 | 1232 | |
| @@E151 | 001 | 001C | 1232 | 1234 | |
| @@E160 | 001 | 001D | 1234 | 1236 | |
| @@E162 | 001 | 001E | 1236 | 1238 | |
| @@E163 | 001 | 001F | 1238 | 1240 | |
| @@E164 | 001 | 0020 | 1240 | 1242 | |
| @@E200 | 001 | 0021 | 1242 | 1244 | |
| @@E205 | 001 | 0022 | 1244 | 1246 | |
| @@E210 | 001 | 0023 | 1246 | 1248 | |
| @@E211 | 001 | 0024 | 1248 | 1250 | |
| @@E212 | 001 | 0025 | 1250 | 1252 | |
| @@E213 | 001 | 0026 | 1252 | 1254 | |
| @@E215 | 001 | 0027 | 1254 | 1256 | |
| @@E216 | 001 | 0028 | 1256 | 1258 | |
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| @@E220 | 001 | 002A | 1260 | 1262 | |
| @@E221 | 001 | 002B | 1262 | 1264 | |

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@@E253  001  003F 1302   1304
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@@E256  001  0042 1308   1310
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@@E465   001  0069 1386   1388
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@@E467   001  006B 1390   1392
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@@E475   001  0071 1402   1404
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| @@E556 | 001 | 009D | 1490 | 1492 | |
| @@E558 | 001 | 009E | 1492 | 1494 | |
| @@E570 | 001 | 009F | 1494 | 1496 | |
| @@E571 | 001 | 00A0 | 1496 | 1498 | |
| @@E572 | 001 | 00A1 | 1498 | 1500 | |
| @@E573 | 001 | 00A2 | 1500 | 1502 | |
| @@E574 | 001 | 00A3 | 1502 | 1504 | |
| @@E575 | 001 | FFFF | 1682 | | |
| @@E578 | 001 | 00A4 | 1504 | 1506 | |
| @@E579 | 001 | FFFF | 1684 | | |
| @@E580 | 001 | FFFF | 1686 | | |
| @@E585 | 001 | 00A5 | 1506 | 1508 | |
| @@E595 | 001 | FFFF | 1688 | | |
| @@E597 | 001 | FFFF | 1690 | | |
| @@E598 | 001 | FFFF | 1692 | | |
| @@E600 | 001 | 00A6 | 1508 | 1510 | |
| @@E601 | 001 | 00A7 | 1510 | 1512 | |
| @@E602 | 001 | 00A8 | 1512 | 1514 | |
| @@E603 | 001 | 00A9 | 1514 | 1516 | |
| @@E604 | 001 | 00AA | 1516 | 1518 | |
| @@E606 | 001 | 00AB | 1518 | 1520 | |
| @@E607 | 001 | 00AC | 1520 | 1522 | |
| @@E608 | 001 | 00AD | 1522 | 1524 | |
| @@E609 | 001 | 00AE | 1524 | 1526 | |
| @@E610 | 001 | 00AF | 1526 | 1528 | |
| @@E611 | 001 | 00B0 | 1528 | 1530 | |
| @@E612 | 001 | 00B1 | 1530 | 1532 | |
| @@E613 | 001 | 00B2 | 1532 | 1534 | |
| @@E614 | 001 | 00B3 | 1534 | 1536 | |
| @@E700 | 001 | 00B4 | 1536 | 1538 | |
| @@E701 | 001 | 00B5 | 1538 | 1540 | |
| @@E710 | 001 | 00B6 | 1540 | 1542 | |
| @@E712 | 001 | 00B7 | 1542 | 1544 | |
| @@E713 | 001 | 00B8 | 1544 | 1546 | |
| @@E714 | 001 | 00B9 | 1546 | 1548 | |
| @@E715 | 001 | 00BA | 1548 | 1550 | |
| @@E716 | 001 | 00BB | 1550 | 1552 | |
| @@E717 | 001 | 00BC | 1552 | 1554 | |
| @@E718 | 001 | 00BD | 1554 | 1556 | |
| @@E720 | 001 | 00BE | 1556 | 1558 | |
| @@E721 | 001 | 00BF | 1558 | 1560 | |
| @@E723 | 001 | 00C0 | 1560 | 1562 | |
| @@E724 | 001 | 00C1 | 1562 | 1564 | |
| @@E725 | 001 | 00C2 | 1564 | 1566 | |
| @@E726 | 001 | 00C3 | 1566 | 1568 | |
| @@E727 | 001 | 00C4 | 1568 | 1570 | |
| @@E728 | 001 | 00C5 | 1570 | 1572 | |
| @@E729 | 001 | 00C6 | 1572 | 1574 | |
| @@E730 | 001 | 00C7 | 1574 | 1576 | |
| @@E732 | 001 | 00C8 | 1576 | 1578 | |
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| @@E753 | 001 | 00CA | 1580 | 1582 | |
| @@E754 | 001 | 00CB | 1582 | 1584 | |
| @@E755 | 001 | 00CC | 1584 | 1586 | |

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@@E768   001  00D9 1610   1612
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@@E906   001  00FA 1676   1678
@@E910   001  00FB 1678   2175
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@ASTER   001  005C 0069   3806  3879  3972  4184
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@BF     001  0090 0052   3862
@BH     001  0084 0041
@BKSPC  001  0010 0348
@BL     001  0082 0042
@BLANK  001  0040 0065   3635   3641   3780   3792   3822   3843
@BM     001  0082 0054
@BNE    001  0001 0046   3626
@BNH    001  0004 0044
@BNL    001  0002 0045
@BNM    001  0002 0057
@BNOL   001  0020 0050
@BNOZ   001  0008 0049
@BNP    001  0004 0056
@BNZ    001  0001 0058
@BOL    001  00A0 0048
@BOZ    001  0088 0047
@BP     001  0084 0053
@BR     001  0001 0013   2766   2768*  2773   2773   2774   2774   2775   2779   2784   2793   2797   2800
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                         2807   2808   2813   2818   2819   2819   2820   2820   2821   2821   2822   2822
                         2823   2823   2824   2824   2829   2830   2831   2834   2835   2839   2842   2844
                         2966   2968   2969*  2970   2971   2975   2978   2979   2980   2980   2988   2989
                         2990   2996   2998   2998   2999   3001   3001   3002   3012   3023*  3172   3174*
                         3178   3182   3186   3187   3192   3193   3195   3197   3198   3202   3203   3208
                         3213   3215   3218   3221   3222   3225   3235   3236   3238   3239   3244   3246
                         3249   3250   3255   3256   3261   3262   3268*  3269   3270   3270*  3273*  3299
                         3360   3365   3366   3373   3377   3387   3388   3389
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@B1     001  0001 0063
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@CC37B  001  0000 0357
@CD37B  001  00F0 0375
@CHARA  001  00C1 0072
@CHARF  001  00C6 0073
@CHARR  001  00D9 0074
@CHARZ  001  00E9 0075
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@CKY02  001  0002 0310
@CKY03  001  0003 0311
@CKY04  001  0004 0312
@CKY05  001  0005 0313
@CKY06  001  0006 0314
@CKY07  001  0007 0315
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@CKY10  001  000A 0318
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@CKY16  001  0010 0324
@CLOFF  001  0010 0094
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@CMOFF  001  0000 0326
@COMMA  001  006B 0066   3637  3790
@CPLUS  001  004E 0079
@CP37B  001  0004 0388
@CRERR  001  0090 0343
@CRPRY  001  0004 0347
@CRTDS  001  0092 0340
@CRTQ   001  0090 0342   3217
@CURSR  001  0040 0344
@DADDR  001  0002 0140   2797  2861  2861  3226  3269  3936  3943  3985
@DBFR1  001  0004 0129   3225* 3439
@DBFR2  001  0005 0130   3235
@DBUSY  001  0002 0245
@DCALK  001  0001 0081
@DCBCY  001  0009 0115
@DCBT1  001  0050 0117
@DCFLN  001  0004 0229
@DCNT   001  0003 0128   3183* 3238*
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@DCST1  001  0040 0116
@DCTRL  001  0000 0125   2990* 2999* 3012*
@DCTRW  001  0000 0242
@DCWID  001  0001 0239
@DCYL   001  0001 0126
@DCYMV  001  0001 0230
@DD2    001  0003 0030
@DEFLG  001  0002 0252
@DERCE  001  0020 0282
@DERD2  001  0008 0274
@DEREQ  001  0010 0273
@DERIN  001  0040 0271   3371  3378
@DERMA  001  0020 0272
@DERNR  001  0004 0275
@DERR   001  0000 0246
@DERSC  001  0001 0277
@DERTC  001  0002 0276
@DFCR   001  0006 0232
@DFDR   001  0004 0233
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                         4013
@DHARD  001  0000 0260
@DLNCT  001  000F 0346
@DLNLG  001  0040 0345
@DOLAR  001  005B 0068
@DOP2   001  0004 0028
@DPLNG  001  0006 0132   3270
@DPOS   001  0000 0133
@DPUT   001  0002 0135   2831  2990  3012  3463  3479  3495  3511  3519  3922
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@DSIVF  001  0003 0138
@DSPIN  001  0002 0131
@DTRSZ  001  0018 0085
@DUNSF  001  0080 0278
@DVBCY  001  0007 0108
@DVERY  001  0003 0241
@DVRFY  001  0031 0136
@DVST1  001  0002 0247   3363   3370
@DVST2  001  0003 0248
@DWAIT  001  00FF 0137   4007
@DWBCY  001  0005 0103
@DWRIT  001  0002 0237
@DWSIZ  001  00C0 0105
@DWTB1  001  0003 0104
@DZERO  001  00F0 0064
@D1     001  0002 0026   3001* 3195* 3197* 3865*
@EOF    001  001C 0077
@EOFTC  001  0075 0162
@EOS    001  001E 0076   3643   3777   3794
@ER37B  001  00F0 0362
@FDDBC  001  0000 0195
@FDE1   001  000C 0200
@FDFNA  001  000B 0198
@FDHLN  001  0002 0208
@FDLNC  001  0002 0193
@FDNSC  001  0003 0210
@FDSD   001  0000 0206
@FLACE  001  0009 0197
@FLDBC  001  0001 0196
@FLDIN  001  0012 0334   3194* 3201* 3227* 3241* 3253* 3258* 3359* 3369* 3390*
@FLENT  001  0004 0201
@FLFNA  001  0002 0199
@FLHLN  001  0002 0209
@FLLNC  001  0002 0194
@FLNSC  001  0001 0211
@FLSD   001  0001 0207
@HDRLN  001  0007 0092   0858
@HSTAD  001  0009 0258
@HSTEN  001  0007 0257
@HSTPE  001  0006 0256
@HSTQR  001  0001 0254
@HSTSN  001  0005 0255
@HSTVI  001  000F 0259
@IAR    001  0010 0017   2735*
@ID37B  001  0040 0398
@INDEX  001  0001 0156   0157
@INST3  001  0003 0032
@INST4  001  0004 0033
@INST5  001  0005 0034
@INST6  001  0006 0035
@IP37B  001  00C0 0397
@I1IAR  001  00C0 0020
@KCMDK  001  0020 0308
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@KELOK  001  001B 0307
@KENAB  001  001E 0305
@KEXIT  001  001F 0306
@KEYBD  001  0010 0325
@KFUNK  001  0010 0328
@KHARD  001  0011 0333
@KLEAR  001  000D 0329
@LINSZ  001  00F4 0084   0832
@LO37B  001  00F0 0366   3202*
@MAPEN  001  0005 0089
@MINCR  001  2000 0083   3196*
@MINUS  001  0060 0080
@NOP    001  0080 0040   2767   3223   3265
@NORFL  001  0000 0253
@NTRDY  001  00A0 0390
@NUMBR  001  007B 0070
@OPD2   001  0004 0029
@OP1    001  0003 0027   2780* 2878   2968* 2970* 2971* 3179* 3236* 3630* 3779* 3783* 3787* 3871*
                         3872* 3967* 3978*
@OP2    001  0005 0031   3278* 3279* 3280   3280* 3281   3281* 3282* 3338   3338*
@OVRUN  001  0004 0283
@PBUSY  001  00E2 0295
@PCAR   001  00E6 0292
@PCNT   001  0003 0227
@PCTRL  001  0000 0149
@PCYL   001  0001 0225
@PC37B  001  00F2 0382
@PDAR   001  00E4 0291
@PDATA  001  0003 0151
@PD37B  001  0080 0396
@PERR   001  00E0 0298
@PFLAG  001  0000 0224
@PFORM  001  00E1 0296
@PGCSZ  001  0020 0082   0083
@PLITE  001  00E2 0297
@PLNGH  001  0004 0288
@PMGCK  001  0020 0299
@PN37B  001  00F0 0381
@PPLNG  001  0004 0148
@PRCNT  001  0001 0150
@PRETR  001  00C0 0154
@PRINT  001  0040 0152   0154
@PRITY  001  0080 0332
@PSAD   001  0002 0226
@PSIOQ  001  00E0 0294
@PSIOR  001  0000 0293
@PSNSQ  001  00E2 0300
@PSR    001  0004 0015
@PWAIT  001  00FF 0158
@P1IAR  001  0020 0018
@P2IAR  001  0040 0019
@Q      001  0001 0024   2781   2877   3224* 3266* 3649   3862*
@RD37B  001  00F1 0376
@REGL   001  0002 0012
@RETRN  001  0080 0153   0154
@RLDWN  001  004F 0159
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@RTRNC   001  0080 0161
@RT37B   001  0005 0389
@SBLN    001  0005 0170
@SBLNL   001  0002 0184
@SCTSZ   001  0100 0100
@SDFLN   001  0007 0090
@SDF0    001  0000 0166
@SDF1    001  0001 0167
@SDF2    001  0002 0168
@SDF3    001  0003 0169
@SECCY   001  0030 0086
@SIST    001  0001 0181
@SKCTL   001  0000 0240
@SLASH   001  0061 0067
@SLAST   001  0002 0183
@SMIDL   001  0003 0182
@SNSB0   001  0000 0264
@SNSB1   001  0001 0265
@SNSB2   001  0002 0266
@SNSB3   001  0003 0267
@SNULL   001  0080 0173
@SN37B   001  00F2 0370
@SONLY   001  0000 0180
@SPINA   001  00A0 0249   3363
@SPINB   001  00B0 0250   3370  3376
@STEXT   001  0007 0172
@STYPE   001  0006 0171
@SYCNT   001  0002 0289
@SYLVL   001  0005 2211
@TBCNT   001  0000 0160
@TBLEF   001  0010 0155   0157
@TBLIX   001  0011 0157
@TJ37B   001  0040 0387
@TYPAM   001  0002 0331
@TYPO    001  001C 0330
@UCB     001  0087 0039   2780  3224  3266  3627  3638  3868
@UPARW   001  005A 0078   2194
@VADDR   001  0002 0141   2130  2156
@VENTA   001  0056 0113
@VMDDV   001  00FE 0114
@VMFD1   001  0000 0109
@VMFD2   001  0001 0110
@VMRS3   001  0002 0112
@VMTRL   001  0001 0111
@VOLID   001  0006 0091
@VQ      001  0001 0025
@WA37B   001  00FF 0395
@WSFIT   001  0500 0101
@WSTBL   001  0503 0102
@XR      001  0002 0014   2807* 2808* 2809  2811  2813  2814  2814  2818  2970  2974* 2975  2978
                          2979  3000  3000* 3020  3021  3021  3024* 3170  3177* 3180  3184  3188
                          3190  3199  3207  3212  3219  3242  3251  3259  3262  3263  3274  3276
                          3279  3361  3367  3374  3386  3631  3634  3634* 3635  3637  3640  3640*
                          3641  3643  3645  3769* 3777  3779  3785  3789  3789* 3790  3792  3794
                          3798  3802* 3803  3805  3805* 3806  3811* 3812  3815  3815* 3819  3819*
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                                CROSS REFERENCE

SYMBOL  LEN VALUE DEFN   REFERENCES                           VER 15, MOD 00  24/02/22  PAGE  59

                       3822  3832  3834  3835  3837* 3838* 3839  3843  3847* 3858* 3860  3864*
                       3866  3869  3871  3873  3876  3878  3878* 3879  3887* 3889  3896  3897
                       3898  3899  3901  3903  3905  3939  3941  3945  3948  3968  3970  3984*
                       3985  3985
@ZERO   001  0000 0062 2805  3020  3178  3180  3182  3196  3276  3386  3387  3388  3766  3839
                       3865  4037  4042  4047  4052  4057  4062  4067  4072  4084  4089  4101
                       4106  4111  4123  4128  4133  4140  4145  4152  4157  4162  4167  4179
@4K     001  0010 0349
MCNBCD  001  0008 3396 3207
MCNBUF  001  14BF 4219 3170  3177  3290* 3298  3298* 3299* 3312  3312* 3325  3325* 3339* 3347
                       3347* 3430  3450  3458  3466  3474  3482  3490  3498  3506  3514  3522
MCNCOR  001  1042 3422 3194
MCNCRT  001  1045 3425 3227
MCNDAT  001  1046 3426 3201
MCNDBA  002  104B 3430 3282
MCNDHF  001  1040 3420 3359
MCNDKA  001  1081 3502 3333
MCNDKB  001  1087 3510
MCNDKC  001  108D 3518 3350
MCNDK1  001  104C 3432 3225* 3226* 3230  3235  3439
MCNDK2  001  1052 3441 3278  3382
MCNDK3  001  1057 3446 3268  3285
MCNDK4  001  105D 3454 3293
MCNDK5  001  1063 3462 3302
MCNDK6  001  1069 3470 3307
MCNDK7  001  106F 3478 3315
MCNDK8  001  1075 3486 3320  3342
MCNDK9  001  107B 3494 3328
MCNDRS  001  00F2 3417 3204
MCNDRT  001  0002 3418 3205
MCNDR2  001  1041 3421 3369
MCNEXF  001  1048 3428 3222
MCNFIG  001  0DD2 3173 3921
MCNFIX  001  000A 3406 3376
MCNLPC  001  1049 3429 3267* 3271*
MCNLPR  001  1044 3424 3253
MCNMLP  001  0020 3409 3254
MCNOFF  001  1047 3427 3258  3390
MCNPTR  001  1043 3423 3241
MCNP22  001  0080 3408 3248
MCNSTR  001  0100 3411 3298* 3312* 3325* 3347* 3415  3430  3450  3458  3466  3474  3482  3490
                       3498  3506  3514  3522
MCNSTS  001  00EB 3407 3240
MCNTBC  001  000A 3413 3267
MCNTBD  001  013F 3412 3290* 3298  3312  3325  3339* 3347
MCNTBL  001  0040 3410 3290  3298  3312  3325  3339  3347  3412  3415
MCNTB4  001  015C 3414 3456  3464
MCNTID  001  02BF 3415 3299*
MCNWRK  002  1056 3443 3204* 3205  3240* 3248  3254  3363* 3364  3370* 3371  3376* 3378
MCN050  004  0E0E 3194 3189
MCN060  004  0E17 3196 3195* 3197*
MCN08C  001  001A 3399 3183
MCN10C  001  0008 3405 3364
MCN100  003  0E20 3198 3185
MCN12C  001  002A 3400
MCN12K  001  0010 3397 3186
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SYMBOL   LEN VALUE DEFN   REFERENCES                              VER 15, MOD 00  24/02/22  PAGE  60

MCN120   003 0E4B 3212   3206
MCN13I   001 0084 3402   3244   3246   3389
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MCN150   003 0E5E 3218   3216
MCN155   003 0E6F 3223   3224*
MCN16C   001 003A 3401
MCN16K   001 0020 3398   3192
MCN160   004 0E9B 3237   3236*
MCN200   005 0E9F 3238   3220   3223
MCN210   004 0EC1 3248   3243
MCN22I   001 00DC 3403
MCN220   003 0ECB 3251   3245   3247
MCN250   001 0EDF 3257   3252
MCN255   004 0EEC 3262   3260
MCN258   003 0EF8 3265   3266*
MCN260   005 0F07 3269   3272
MCN263   003 0F1D 3274   3265
MCN265   006 0F52 3290   3278*  3279*  3280   3280*  3281   3281*  3282*  3338
MCN268   006 0FB7 3339   3338*
MCN270   004 0FD5 3354
MCN300   004 0FDB 3359   3264   3275   3277
MCN310   003 0FE2 3361
MCN320   003 0FF6 3367   3362   3385
MCN350   004 1022 3381   3372
MCN380   003 102C 3386   3181   3191
MCN400   004 1038 3390   3368   3375   3379
MCN50C   001 0080 3404
MCN500   004 103C 3391   3179*
MVDADD   001 0CF0 2865   2801   2801*  2802   2802*  2803   2803*  2804   2804*  2805*
MVDADR   002 0CF3 2867   2797*  2800   2813*  2829   2839
MVDBUF   001 0D09 2876   2792   2797   2798   2798*  2807   2853   2861   2879
MVDCHN   001 0002 2751   2813   2839
MVDCNT   001 000F 2745
MVDDPL   001 0CE2 2849   2786   2833   2881   2882
MVDELE   001 0C0B 2765   3957
MVDFIL   001 003F 2753   2814   2814   2814*  2841   2841   2841*  2843   2843   2843*  2859
MVDFNC   001 0CE2 2881   2831*  2834*
MVDF1T   001 0013 2748   2809   2811
MVDHXB   001 0CE8 2858
MVDISP   001 0CF1 2866   2800*  2806*  2808
MVDI10   001 000C 2760   2769   2769   2769*  2776   2776   2776*
MVDLEN   001 0005 2754   2798   2798   2798*
MVDLGT   001 0CE9 2859   2806
MVDMF1   001 17F9 2879   2839   2841   2841*  2880
MVDMF2   001 1839 2880   2843   2843*
MVDMK1   001 0001 2744   2779   2782
MVDMSK   003 0C37 2877   2773   2773*  2775
MVDMVD   001 0060 2750   2811
MVDMVF   001 0090 2749   2809
MVDM0F   001 000F 2743   2775
MVDNUM   001 01FC 2746   2792
MVDONE   001 0CEA 2860   2774
MVDPRM   001 0CF4 2868   2779   2871   3937*  3947*
MVDRF1   001 0002 2757
MVDRF2   001 0008 2759   3937
MVDRR1   001 0001 2756
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MVDRR2  001  0004 2758   3937  3947
MVDSC1  001  01FB 2747   2797  2798   2798*
MVDSEC  001  0CE4 2882   2774*
MVDTAD  002  0CEC 2861   2824
MVDTAG  001  0CEE 2863   2818* 2819  2819* 2820  2823
MVDTGS  004  0CB2 2878   2820* 2821  2821* 2822  2822* 2823* 2824*
MVDTWO  001  0002 2752   2801  2802  2813  2820  2821  2822  2823  2839
MVD025  003  0C0B 2767   2780*
MVD050  004  0C1B 2771   2766  2767  2768  2784  2793  2835
MVD055  003  0C29 2775
MVD057  004  0C32 2778
MVD060  003  0C36 2779   2770  2781  2877
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MVD150  004  0C8B 2813   2810  2842  2844
MVD175  004  0CAF 2825   2878
MVD200  005  0CC8 2839   2812
MVD225  006  0CD9 2843   2840
SCACNT  002  112D 3655   3645* 3646*
SCACOF  001  0087 3627
SCACOM  001  0001 3626   3776
SCAINC  001  0001 3625   3634  3640
SCAMMA  003  110A 3649   3776*
SCANIT  001  10ED 3629   3774
SCASVE  002  112B 3654   3631* 3646
SCASV1  001  112A 3653
SCA100  003  10FC 3634   3636
SCA200  003  10FF 3635   3633
SCA250  003  1109 3638   3649
SCA300  003  110C 3640   3642
SCA400  004  111C 3645   3638
SCA500  004  1126 3648   3630* 3644
SUPBSE  004  0D1B 3055   2966  2969
SUPBUF  001  14BF 4220   2988* 2989* 3011* 3040  3048
SUPDAT  001  0D09 2967   3933
SUPDPL  001  0DA5 3036   2983  2990* 2993  2996  2998* 2999*
SUPDP2  001  0DAB 3044   3006  3012* 3015
SUPDSP  001  0007 3056   2980*
SUPEND  001  0003 3054   2996
SUPMDP  001  0DB1 3051   3001
SUPMST  001  0DB2 3052   2980* 3011
SUPONE  001  0D9C 3032   2998
SUPRDC  002  0DA4 3034   2979* 2980  2989
SUPWTC  002  0DA0 3033   2978* 2988
SUPZER  004  0D9B 3031   2975
SUP020  004  0D1B 2975   3002  3055
SUP040  004  0D2A 2980   3001*
SUP100  003  0D4D 2996   2977
SUP200  004  0D64 3005   2997
SUP500  004  0D8C 3023   2968*
SUP501  004  0D90 3024   2970*
SUP502  004  0D94 3025   2971*
UCM320  004  11D5 3824
UCNADR  002  139D 3990   3783  3872
UCNAD1  002  13A6 3997   3943
UCNAD2  002  13A8 3998   3936
UCNARE  001  15BF 4215   3984  4016
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UCNCOM  001  0007 4190   4212
UCNCYL  001  0005 4208
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UCNC01  001  13B9 4032
UCNC02  001  140A 4079
UCNC04  001  1449 4118
UCNC05  001  146D 4140
UCNC06  001  147F 4152
UCNC07  001  14A3 4174
UCNDEL  001  006C 4205
UCNDET  001  0080 4203   3832   3834  3836  3866
UCNDPL  001  13B3 4012   3936*  3943* 3980
UCNEND  001  14B5 4184   3972
UCNFG2  006  147C 4146   3873
UCNFIG  001  112E 3765   4216
UCNHDF  001  14BF 4213   3811   3858  3887  3990  4006  4214  4215  4219  4220
UCNHDL  001  14C4 4214   3780*  3781  3781* 3803
UCNHII  001  00F9 4207   3970
UCNINC  002  139F 3991   3787
UCNIOF  002  13AE 4004   3852*
UCNKYB  002  13A1 3993   3812
UCNK01  001  13A0 3992   3812   3812  3815
UCNK02  001  13A2 3994   3812   3812  3815
UCNLOW  001  00F0 4206   3968
UCNLPF  001  0006 4191   3781   3803  3803  3871  3873
UCNLPL  001  0009 4192   3805   3873  3876  3878
UCNMIN  001  0040 4204   3836   3869  4032  4079  4096  4118  4174
UCNONE  001  0001 4189   3768   3785  3789  3819  3822  3835  3871  3876  3931  4015
UCNOVR  002  14B9 4216   2735
UCNPAF  001  13B9 4031   3802   3864
UCNPRT  002  14B7 4185   3875   3907  3911
UCNSAV  001  13A4 3996   3768*  3931
UCNSET  001  14BE 4212   3766*  3767  3767  3767* 4213
UCNSL0  001  13B2 4007   3856
UCNSUB  001  14B8 4211   3767   3837  4212
UCNTEM  002  13A3 3995   3835*  3836* 3838
UCNVLB  003  13AB 3999   3939   3945
UCNVOL  001  0002 4195   3939   3939  3945  3945
UCN001  001  0001 4197   4079   4084  4089
UCN002  001  0002 4198   3949   3956  4096  4101  4106  4111
UCN003  001  0003 4199   3942   3952  4118  4123  4128  4133
UCN004  001  0004 4200   4140   4145
UCN005  001  0005 4201   4152   4157  4162  4167
UCN006  001  0006 4202   4174   4179
UCN029  001  0029 4193   3909
UCN039  001  0039 4194   3913
UCN100  004  113E 3769   3844
UCN200  005  116E 3785   3783*  3787* 3796
UCN250  004  1195 3798   3791   3793  3795
UCN300  005  119D 3803   3807
UCN350  004  11DC 3827   3814   3818  3821  3823
UCN400  003  11E3 3832   3804
UCN425  003  120A 3843   3840
UCN450  004  120D 3844
UCN500  004  1211 3846   3833
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UCN600   006  121D 3852   3778
UCN650   004  123D 3864   3861
UCN655   004  1241 3865   3880
UCN660   003  1245 3866
UCN670   003  124B 3868   3862*
UCN700   005  1254 3871   3867
UCN750   005  126D 3876   3865* 3871* 3872* 3874
UCN800   003  1272 3878   3868  3870
UCN815   004  1298 3895   3892
UCN825   003  129C 3896   3890  3894
UCN829   003  12B7 3905
UCN830   006  12CD 3911   3906
UCN850   004  12DD 3915   3902  3904
UCN900   004  12E5 3921   3900  3908  3910  3912  3914
UCN909   005  131D 3941   3940
UCN910   006  1326 3943   3954
UCN911   005  133C 3948   3946
UCN925   004  12E9 3922   4209
UCN927   004  12ED 3923
UCN930   006  12F3 3931
UCN935   006  1348 3951   3935
UCN940   004  1364 3957   3932  3950
UCN970   001  1368 3966   3817  3820
UCN980   004  137C 3973   3967* 3969  3971
UCN990   001  1380 3977   3938  3944
UCN995   004  1398 3986   3978*
V$APWR   001  0800 1837   1983
V$BFR1   001  5400 1900   2091
V$BFR2   001  5500 1901   2092
V$CBNZ   001  0CB2 1909   1990
V$CCON   001  5120 1916   2088
V$CDCV   001  3100 1913   2043
V$CDSY   001  2E00 1912   2040
V$CFPZ   001  0C70 1907   1989
V$CNXZ   001  0470 1910   1978
V$CSSR   001  5100 1915   2087
V$CZFP   001  04AD 1908   1979
V$DTLN   001  4600 1922   2075
V$DTVR   001  4700 1923   2076
V$FABS   001  1761 1808   2007
V$FACS   001  1400 1824   1999
V$FASN   001  1413 1823   2000
V$FATN   001  1100 1822   1996
V$FCOS   001  0A00 1819   1985
V$FCOT   001  0D00 1817   1991
V$FCSC   001  1725 1821   2006
V$FDEG   001  17DA 1828   2011
V$FDET   001  4540 1831   2074
V$FEXP   001  0500 1815   1980
V$FHCS   001  1500 1827   2001
V$FHSN   001  1557 1826   2002
V$FHTN   001  1593 1825   2003
V$FINT   001  176C 1809   2008
V$FLGT   001  0200 1813   1973
V$FLOG   001  0219 1812   1975
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V$FLTW  001  020B 1814   1974
V$FRAD  001  17CB 1829   2010
V$FRND  001  1800 1830   2012
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V$FSGN  001  17A7 1810   2009
V$FSIN  001  0A1A 1818   1986
V$FSQR  001  0900 1811   1984
V$FTAN  001  0D28 1816   1992
V$IFCI  001  1B00 1800   2016
V$IFIO  001  1A00 1802   2015
V$ISDN  001  1900 1801   2013
V$KBTL  001  1EAC 1944   3488  3496
V$KBTS  001  0DAC 1943   3472  3480
V$LPRB  001  4F00 1898   2085
V$LPRT  001  4D00 1896   2083
V$LPR2  001  4E00 1897   2084
V$MADD  001  4007 1845   2063
V$MASN  001  43A0 1843   2070
V$MCON  001  4324 1850   2068
V$MIDN  001  4300 1851   2067
V$MINV  001  4500 1855   2073
V$MMPY  001  4100 1847   2064
V$MSMY  001  4264 1848   2066
V$MSUB  001  4000 1846   2062
V$MTRN  001  4400 1854   2072
V$MZER  001  432B 1852   2069
V$PCH1  001  5200 1936   2089
V$PCH2  001  5300 1937   2090
V$SCDI  001  2A00 1893   2034
V$SCDO  001  2A96 1894   2035
V$SFA2  001  5000 1878   2086
V$SFD1  001  0000 1888   1971
V$SFD2  001  0100 1889   1972
V$SKEY  001  2500 1892   2029
V$SPRT  001  2800 1891   2032
V$VMPL  001  4C06 1930   2082
V$VMPS  001  4C00 1929   2081
V$XKAF  001  1C00 1877   2017
V$XKCA  001  2400 1881   2025
V$XKCL  001  240A 1880   2026
V$XKIN  001  2B00 1876   2036
V$XKLP  001  24AD 1882
V$XKRS  001  240D 1879   2027
V$XMGT  001  3E06 1870   2057
V$XMIN  001  3D00 1869   2055
V$XMPL  001  3F06 1873   2060
V$XMPS  001  3F00 1872   2059
V$XMPT  001  3E0C 1871   2058
V$XMPU  001  3F13 1874   2061
V$XMRD  001  3E00 1868   2056
V$XSGT  001  2100 1863   2022
V$XSIN  001  2B6E 1862   2037
V$XSPR  001  3400 1865   2046
V$XSPT  001  1D00 1864   2018
V$XSPU  001  3800 1866   2050
V$XSRD  001  3300 1861   2045
```

| SYMBOL | LEN | VALUE | DEFN |
|--------|-----|-------|------|
| V$00E1 | 001 | 0000 | 1971 |
| V$01E1 | 001 | 0100 | 1972 |
| V$02E1 | 001 | 0200 | 1973 |
| V$02E2 | 001 | 020B | 1974 |
| V$02F3 | 001 | 0219 | 1975 |
| V$03CC | 001 | 0300 | 1976 |
| V$04CC | 001 | 0400 | 1977 |
| V$04E1 | 001 | 0470 | 1978 |
| V$04E2 | 001 | 04AD | 1979 |
| V$05E1 | 001 | 0500 | 1980 |
| V$06CC | 001 | 0600 | 1981 |
| V$07CC | 001 | 0700 | 1982 |
| V$08E1 | 001 | 0800 | 1983 |
| V$09E1 | 001 | 0900 | 1984 |
| V$10E1 | 001 | 0A00 | 1985 |
| V$10E2 | 001 | 0A1A | 1986 |
| V$11CC | 001 | 0B00 | 1987 |
| V$12CC | 001 | 0C00 | 1988 |
| V$12E1 | 001 | 0C70 | 1989 |
| V$12E2 | 001 | 0CB2 | 1990 |
| V$13E1 | 001 | 0D00 | 1991 |
| V$13E2 | 001 | 0D28 | 1992 |
| V$14CC | 001 | 0E00 | 1993 |
| V$15CC | 001 | 0F00 | 1994 |
| V$16CC | 001 | 1000 | 1995 |
| V$17E1 | 001 | 1100 | 1996 |
| V$18CC | 001 | 1200 | 1997 |
| V$19CC | 001 | 1300 | 1998 |
| V$20E1 | 001 | 1400 | 1999 |
| V$20E2 | 001 | 1413 | 2000 |
| V$21E1 | 001 | 1500 | 2001 |
| V$21E2 | 001 | 1557 | 2002 |
| V$21E3 | 001 | 1593 | 2003 |
| V$22CC | 001 | 1600 | 2004 |
| V$23E1 | 001 | 1700 | 2005 |
| V$23E2 | 001 | 1725 | 2006 |
| V$23E3 | 001 | 1761 | 2007 |
| V$23E4 | 001 | 176C | 2008 |
| V$23E5 | 001 | 17A7 | 2009 |
| V$23E6 | 001 | 17CB | 2010 |
| V$23E7 | 001 | 17DA | 2011 |
| V$24E1 | 001 | 1800 | 2012 |
| V$25E1 | 001 | 1900 | 2013 |
| V$26E1 | 001 | 1A00 | 2015 |
| V$27E1 | 001 | 1B00 | 2016 |
| V$28E1 | 001 | 1C00 | 2017 |
| V$29E1 | 001 | 1D00 | 2018 |
| V$30CC | 001 | 1E00 | 2019 |
| V$31CC | 001 | 1F00 | 2020 |
| V$32CC | 001 | 2000 | 2021 |
| V$33E1 | 001 | 2100 | 2022 |
| V$34CC | 001 | 2200 | 2023 |
| V$35CC | 001 | 2300 | 2024 |
| V$36CC | 001 | 2400 | 2028 |
| V$36E1 | 001 | 2400 | 2025 |
| V$36E2 | 001 | 240A | 2026 |

| SYMBOL | LEN | VALUE | DEFN | REFERENCES |
|--------|-----|-------|------|------------|
| V$36E3 | 001 | 240D | 2027 | |
| V$37E1 | 001 | 2500 | 2029 | |
| V$38CC | 001 | 2600 | 2030 | |
| V$39CC | 001 | 2700 | 2031 | |
| V$40E1 | 001 | 2800 | 2032 | |
| V$41CC | 001 | 2900 | 2033 | |
| V$42E1 | 001 | 2A00 | 2034 | |
| V$42E2 | 001 | 2A96 | 2035 | |
| V$43E1 | 001 | 2B00 | 2036 | |
| V$43E2 | 001 | 2B6E | 2037 | |
| V$44CC | 001 | 2C00 | 2038 | |
| V$45CC | 001 | 2D00 | 2039 | |
| V$46E1 | 001 | 2E00 | 2040 | |
| V$47CC | 001 | 2F00 | 2041 | |
| V$48CC | 001 | 3000 | 2042 | |
| V$49E1 | 001 | 3100 | 2043 | |
| V$50CC | 001 | 3200 | 2044 | |
| V$51E1 | 001 | 3300 | 2045 | |
| V$52E1 | 001 | 3400 | 2046 | |
| V$53CC | 001 | 3500 | 2047 | |
| V$54CC | 001 | 3600 | 2048 | |
| V$55CC | 001 | 3700 | 2049 | |
| V$56E1 | 001 | 3800 | 2050 | |
| V$57CC | 001 | 3900 | 2051 | |
| V$58CC | 001 | 3A00 | 2052 | |
| V$59CC | 001 | 3B00 | 2053 | |
| V$60CC | 001 | 3C00 | 2054 | |
| V$61E1 | 001 | 3D00 | 2055 | |
| V$62E1 | 001 | 3E00 | 2056 | |
| V$62E2 | 001 | 3E06 | 2057 | |
| V$62E3 | 001 | 3E0C | 2058 | |
| V$63E1 | 001 | 3F00 | 2059 | |
| V$63E2 | 001 | 3F06 | 2060 | |
| V$63E3 | 001 | 3F13 | 2061 | |
| V$64E1 | 001 | 4000 | 2062 | |
| V$64E2 | 001 | 4007 | 2063 | |
| V$65E1 | 001 | 4100 | 2064 | |
| V$66CC | 001 | 4200 | 2065 | |
| V$66E1 | 001 | 4264 | 2066 | |
| V$67E1 | 001 | 4300 | 2067 | |
| V$67E2 | 001 | 4324 | 2068 | |
| V$67E3 | 001 | 432B | 2069 | |
| V$67E4 | 001 | 43A0 | 2070 | |
| V$68E1 | 001 | 4400 | 2072 | |
| V$69E1 | 001 | 4500 | 2073 | |
| V$69E2 | 001 | 4540 | 2074 | |
| V$70E1 | 001 | 4600 | 2075 | |
| V$71E1 | 001 | 4700 | 2076 | |
| V$72CC | 001 | 4800 | 2077 | |
| V$73CC | 001 | 4900 | 2078 | |
| V$74CC | 001 | 4A00 | 2079 | |
| V$75CC | 001 | 4B00 | 2080 | |
| V$76E1 | 001 | 4C00 | 2081 | |
| V$76E2 | 001 | 4C06 | 2082 | |
| V$77CC | 001 | 4D00 | 2083 | |
| V$78CC | 001 | 4E00 | 2084 | |

| SYMBOL | LEN | VALUE | DEFN | REFERENCES |
|--------|-----|-------|------|------------|
| V$79CC | 001 | 4F00 | 2085 | |
| V$80E1 | 001 | 5000 | 2086 | |
| V$81E2 | 001 | 5100 | 2087 | |
| V$81E3 | 001 | 5120 | 2088 | |
| V$82E1 | 001 | 5200 | 2089 | |
| V$83E2 | 001 | 5300 | 2090 | |
| V$84E1 | 001 | 5400 | 2091 | |
| V$85E2 | 001 | 5500 | 2092 | |
| V@CDPT | 001 | 0007 | 2103 | |
| V@CHGH | 001 | 0008 | 2208 | |
| V@CMIC | 001 | 0002 | 2104 | |
| V@CMNI | 001 | 00FF | 2101 | |
| V@CMUL | 001 | 0007 | 2209 | |
| V@CNIX | 001 | 0080 | 2102 | |
| V@COEX | 001 | 001E | 2099 | |
| V@CPLS | 001 | 00F0 | 2106 | |
| V@CPRC | 001 | 000A | 2108 | |
| V@CSQR | 001 | 0003 | 2206 | |
| V@CSTR | 001 | 0002 | 2207 | |
| V@CTTA | 001 | 0027 | 2109 | |
| V@DCAD | 001 | 0002 | 2129 | 2130 |
| V@DEXP | 001 | 0000 | 2134 | |
| V@DMAN | 001 | 000D | 2136 | 2137 |
| V@DMN1 | 001 | 0001 | 2135 | |
| V@DPDF | 001 | 0002 | 2124 | |
| V@DSAD | 001 | 0001 | 2125 | |
| V@DSGN | 001 | 000D | 2137 | |
| V@DVAD | 001 | 0004 | 2130 | |
| V@EART | 001 | 0001 | 2107 | |
| V@ECRT | 001 | 0038 | 2180 | |
| V@EFUL | 001 | 00F8 | 2179 | |
| V@EINV | 001 | 00FB | 2175 | |
| V@EIPR | 001 | 00F5 | 2176 | |
| V@ENSV | 001 | 00F7 | 2177 | |
| V@ENUL | 001 | 0000 | 2174 | |
| V@ERPC | 001 | 0020 | 2105 | |
| V@ESAV | 001 | 00F6 | 2178 | |
| V@FEHN | 001 | 0002 | 2204 | |
| V@FEPL | 001 | 0091 | 2200 | |
| V@FERS | 001 | 0003 | 2203 | |
| V@FPGS | 001 | 0081 | 2199 | |
| V@FRET | 001 | 0015 | 2202 | |
| V@FSPC | 001 | 0040 | 2201 | |
| V@FTAB | 001 | 0000 | 2205 | |
| V@KADD | 001 | 004E | 2190 | |
| V@KCLE | 001 | 006E | 2187 | |
| V@KDIV | 001 | 0061 | 2193 | |
| V@KEMN | 001 | 006C | 2185 | |
| V@KEPL | 001 | 006B | 2184 | |
| V@KMUL | 001 | 005C | 2192 | |
| V@KPER | 001 | 004B | 2195 | |
| V@KPST | 001 | 007B | 2189 | |
| V@KPWR | 001 | 005A | 2194 | |
| V@KSQR | 001 | 006F | 2186 | |
| V@KSTO | 001 | 006D | 2188 | |
| V@KSUB | 001 | 0060 | 2191 | |

```
V@LAIP  001  0003 2155   2156
V@LDEX  001  0002 2158
V@LETE  001  0003 2162
V@LEXP  001  0001 2152   2154
V@LFKO  001  0006 2157
V@LINI  001  0200 2161
V@LLKS  001  0010 2154
V@LMAN  001  000F 2153   2154
V@LNOP  001  0015 2159
V@LTBE  001  0007 2156
V@LVPG  001  0100 2160   2161
V@MCHS  001  00C0 2141
V@MCRD  001  0010 2117
V@MDEF  001  0008 2118
V@MEXC  001  0080 2115
V@MEXT  001  0004 2144
V@MICC  001  0010 2100
V@MIPC  001  0080 2142
V@MIPL  001  0020 2148
V@MLST  001  0040 2116
V@MPND  001  0000 2147
V@MPOF  001  0080 2145
V@MPRC  001  0020 2114
V@MSFU  001  0002 2119
V@MSTN  001  0004 2113
V@OALL  001  00F4 2170
V@ONUL  001  00F0 2166   2167
V@OPM1  001  00F2 2168   2169
V@ORTN  001  00F1 2167   2168
V@OSTK  001  00F3 2169   2170
V@PEOF  001  0002 2143
V@PSQ2  001  0014 2146
```

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =      0

OL105 I  THE CODE LENGTH OF #UCNF  IS  5306 DECIMAL.
OL103 I  TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS   12
         NAME-#UCNF ,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000

```
        OVERLAY LINKAGE EDITOR CORE USAGE MAP     24/02/22


 START     CATEGORY   NAME AND       CODE LENGTH
ADDRESS               ENTRY      HEXADECIMAL DECIMAL

 0C00         0     #UCNF            14BA    5306


OL100 I  THE TOTAL CORE USED BY #UCNF  IS  5306 DECIMAL.
OL101 I  THE START CONTROL ADDRESS OF THIS MODULE IS 0C00.
OL104 I  TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS   21
         NAME-#UCNF ,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O
```