```
 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  23/05/20  PAGE   1

#UDISV   MODULE
```

```
ERR LOC  OBJECT CODE     ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  23/05/20  PAGE    2

    0000                         1 #UDISV START 0
                                 2        PRINT ON,NODATA
                                 3 *      @SYS  EXP-N
                               214+       PRINT ON
                               215 *      @FXD  EXP-N
                               620+       PRINT ON
                               621 *      @CY0  EXP-N
                               694+       PRINT ON
                               695 *      @VOL  EXP-N
                               733+       PRINT ON
                               734 *      @SPF  EXP-N
                              1197+       PRINT ON
                              1198 *      @VTC  EXP-N
                              1227+       PRINT ON
                              1228 *      @ERM  EXP-N
                              1850+       PRINT ON
```

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      UDISPL - DISPAY VTOC UTILITY
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```
                          1852 *        HDR    #UDISV,1
                          1853 ********************************************************************
                          1854 *   PROGRAM HEADER FOR DISK LOAD                                  *
                          1855 ********************************************************************
                          1856 *#$UDIS EQU   X'1B5C'                    DISK ADDR OF #UDISV
                          1857 *#$$UDI EQU   X'0C00'                    CORE LOAD ADDRESS OF #UDISV
                          1858 *#$@UDI EQU   008                        SECTOR CNT OF #UDISV
   0C00                   1859        ORG    #$$UDI                     CORE LOAD ADDRESS
              0C00 1860 $$$$$$ EQU    *                          FIRST LOCATION IN PROGRAM
   0C00 7BE4C4C9E2E5   0C05 1861        DC     CL6'#UDISV'                PROGRAM NAME
   0C06 58             0C06 1862        DC     IL1'088'                   PROGRAM NUMBER OF #UDISV
              0C07 1863 #UDIS  EQU    *                          ENTRY POINT TO PROGRAM
                          1864 *** END OF EXPANSION ***
```

```
1866 *******************************************************************************
1867 * 5703-XM1      COPYRIGHT IBM CORP. 1970                                      *
1868 *                        REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083  *
1869 *                                                                             *
1870 *******************************************************************************
1871 *STATUS                                                                       *
1872 *    VERSION 1 MODIFICATION 0                                                 *
1873 *                                                                             *
1874 *FUNCTION                                                                     *
1875 *    UDISVT PROCESSES THE VTOC-DISPLAY UTILITY COMMAND.                       *
1876 *    THE VTOC-DISPLAY COMMAND DISPLAYS THE FOLLOWING INFORMATION              *
1877 *    ABOUT THE SPECIFIED DISK--                                               *
1878 *       * DISK LABEL                                                          *
1879 *       * OWNER IDENTIFICATION                                                *
1880 *       * INITIALIZED DISK SIZE                                               *
1881 *       * ALTERNATE TRACK ASSIGNMENTS                                         *
1882 *       * VTOC FILE ENTRIES                                                   *
1883 *          * FILE NAME                                                        *
1884 *          * STARTING TRACK ADDRESS OF FILE                                   *
1885 *          * SIZE OF FILE IN TRACKS                                           *
1886 *          * FILE TYPE                                                        *
1887 *                                                                             *
1888 *ENTRY POINTS                                                                 *
1889 *    THE FIRST INSTRUCTION IS THE ONLY ENTRY POINT                            *
1890 *                                                                             *
1891 *INPUT                                                                        *
1892 *    INPUT TO THIS ROUTINE IS THE INPUT LINE BUFFER BEGINNING WITH            *
1893 *    WITH THE DISK SPECIFICATION.                                             *
1894 *                                                                             *
1895 *OUTPUT                                                                       *
1896 *    THE OUTPUT IS THE INFORMATION WHICH IS DISPLAYED                         *
1897 *    (SEE FUNCTION)                                                           *
1898 *                                                                             *
1899 *EXTERNAL REFERENCES                                                          *
1900 *      $XRSAV - POINTER TO INPUT LINE BUFFER SAVE AREA                        *
1901 *      $CAERR - SAVE AREA FOR ERROR CODE                                      *
1902 *      $WAITF - DPL FOR WAIT FACTION                                          *
1903 *      $CAERK - ENTRY TO ERROR EXIT                                           *
1904 *      $SPRNT - ENTRY TO PRINT ON SYSTEM PRINTER                              *
1905 *      $CARPL - ENTRY TO NORMAL EXIT                                          *
1906 *      $DISKN - ENTRY TO PHYSICAL DISK IOCT                                   *
1907 *      $UNMSK - ENTRY TO ENABLE INQUIRY REQUEST                               *
1908 *      $@$FIL - DISPLACEMENT TO FIRST FILE LABEL IN VTOC INDEX                *
1909 *      $@$AVL - DISPLACEMENT TO AVAILABLE TAG SPEC IN VTOC INDEX              *
1910 *      $@$END - DISPLACEMENT TO END ADDR IN VTOC FILE ENTRY                   *
1911 *      $@$SRT - DISPLACEMENT TO START ADDR IN VTOC FILE ENTRY                 *
1912 *      MINITL - ENTRY TO CHECK DISK INITIALIZATION                           *
1913 *      C2DEC5 - ENTRY TO CONVERT 2-BYTE BINARY VALUE TO DECIMAL              *
1914 *      C2DVAL - SAVE AREA FOR CONVERTED VALUE FROM C2DEC5                     *
1915 *      SDISKS - ENTRY TO COMPLETE DISK SPECIFICATION CHECKER                 *
1916 *      SDITBL - TABLE OF DISK INFORMATION FROM SDISKS                        *
1917 *      SDISKP - ADDRESS OF INDICATOR IN SDISK FOR CHECKING DISK-             *
1918 *               DRIVE SPEC ONLY                                              *
1919 *                                                                             *
1920 *EXITS,NORMAL                                                                 *
1921 *    NORMAL EXIT IS TO $CARPL TO LOAD AND EXECUTE GUFUDI.                     *
```

```
                              1922 *                                                        *
                              1923 *EXITS,ERROR                                             *
                              1924 *    * ERROR EXIT IS TO $CAERK TO LOAD AND EXECUTE ERRPGM. *
                              1925 *    * THE APPROPRIATE ERROR CODE IS SET AT $CAERR.       *
                              1926 *    * THE INDEX REGISTER IS SET UP TO RELECT THE PROCEDURES *
                              1927 *      FOR PRINTING THE UP-ARROW.                         *
                              1928 *                                                        *
                              1929 *TABLES/WORKAREAS                                        *
                              1930 *    * UUIBF1 - BUFFER FOR VOLUME LABEL--1 SECTOR         *
                              1931 *    * UDIBF2 - BUFFER FOR VTOC INDEX--2 SECTORS          *
                              1932 *    * UDIBF3 - BUFFER FOR VTOC--13 SECTORS               *
                              1933 *                                                        *
                              1934 *ATTRIBUTES                                              *
                              1935 *    THIS ROUTINE IS NOT REUSABLE                        *
                              1936 *                                                        *
                              1937 *CHARACTER CODE DEPENDENCY                               *
                              1938 *    THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL *
                              1939 *    REPRESENTATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT *
                              1940 *    TO THE ONE USED AT ASSEMBLY TIME.  THE CODING HAS BEEN ARRANGED *
                              1941 *    SO THAT REDEFINITION OF CHARACTER CONSTANTS.  BY REASSEMBLY, WILL *
                              1942 *    RESULT IN A CORRECT MODULE FOR THE NEW DEFINITIONS.  *
                              1943 *                                                        *
                              1944 *NOTES                                                   *
                              1945 *    ERROR PROCEDURES                                    *
                              1946 *       * SYNTAX ERRORS CAUSE THE UP-ARROW AND AN ERROR MESSAGE TO *
                              1947 *         BE PRINTED. THIS IS DONE BY PTINTING THE INDEX REGISTER *
                              1948 *         TO THE PARAMETER OF DELIMITER IN ERROR AND SETTING AN ERROR *
                              1949 *         CODE AT $CAERR, RESPECTIVELY, BEFORE TAKING THE ERROR EXIT. *
                              1950 *       * NON-SYNTAX ERRORS CAUSE AN ERROR MESSAGE TO BE PRINTED BY *
                              1951 *         SETTING AN ERROR CODE AT $CAERR BEFORE TAKING THE ERROR. *
                              1952 *                                                        *
                              1953 *    REGISTER USAGE                                      *
                              1954 *       * THE BASE REGISTER IS USED FOR RELATIVE ADDRESSING BUT IS *
                              1955 *         NEITHER SAVED NOR RESTORED.                    *
                              1956 *       * THE INDEX REGISTER IS USED FOR SCANNING THROUGH THE INPUT *
                              1957 *         LINE BUFFER.  IT IS ALSO USED AS A POINTER WITHIN VARIOUS *
                              1958 *         BUFFERS.  THE INDEX REGISTER IS USED FOR PASSING PARAMETERS *
                              1959 *         TO C2DEC5.                                     *
                              1960 *       * THE ADDRESS RECALL REGISTER IS SAVED IN THE EXIT BRANCH *
                              1961 *         INSTRUCTION OF THE TWO INTERNAL SUBROUTINES, THEREBY *
                              1962 *         ESTABLISHING LINKASE.                          *
                              1963 *                                                        *
                              1964 *    SAVED/RESTORED ATEAS                                *
                              1965 *       N/A                                              *
                              1966 *                                                        *
                              1967 *    MODIFICATION CONSIDERATIONS                         *
                              1968 *       N/A                                              *
                              1969 *                                                        *
                              1970 *    REQUIRED MODULES                                    *
                              1971 *       * C2DEC5 - CONVERT 2-BYTE BINARY VALUE TO DECIMAL *
                              1972 *       * SCANIT - SCAN VALID DELIMITERS                 *
                              1973 *       * SDISKS - COMPLETE DISK SPECIFICATION           *
                              1974 *       * MINITL - CHECK DISK INITITALIZATION            *
                              1975 *       *                                                *
                              1976 *       * @SYSEQ - GENERAL SYSTEM EQUATES                *
                              1977 *       * @FYDEQ - NUCLEUS LOCATION EQUATES              *
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ERR LOC   OBJECT CODE       ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  23/05/20   PAGE   6
                            1978 *        * @CY0EQ - CYLINDER ZERO EQUATES                              *
                            1979 *        * @VOLEQ - VOLUME LABEL EQUATES                               *
                            1980 *        * @VTCEQ - VTOC EQUATES                                       *
                            1981 *        * @ERMEQ - ERROR MESSAGE EQUATES.                             *
                            1982 *                                                                      *
                            1983 *     OTHER                                                            *
                            1984 *        * THIS ROUTINE IS LOADED BY UDELVT VIA $RLOAD WHEN THE        *
                            1985 *          SECONDARY KEYWORD IS ESTABLISHED TO BE 'DISPLAY'.  UDELVT   *
                            1986 *          DOES SYNTAX CHECKING UP TO THE DISK-DRIVE PARAMETER BEFORE  *
                            1987 *          UDISVT IS BROUGHT INTO CORE.                                *
                            1988 *                                                                      *
                            1989 *        * THE LARGE BUFFER AREA FOR THE VTOC AND VTOC INDEX OVERLAYS  *
                            1990 *          THE SYNTAX CHECKING SUBROUTINES. THIS IS FEASIBLE DUE IC    *
                            1991 *          THE FACT THAT NONE OF THESE ROUTINES ARE REFERENCED AFTER   *
                            1992 *          THE VTOC AND VTOC INDEX ARE BROUGHT INTO CORE.  AN INCREASE *
                            1993 *           IN SIZE WITHIN UDISVT OR C2DEC5 COULD CAUSE A NEED FOR     *
                            1994 *           MODIFICATION IN THIS BUFFER OVERLAY SCHEME.                *
                            1995 **********************************************************************
     0C07 C0 87 0D81        1996         B     UDI050             BRANCH AROUND MESSAGES
                            1997 *     MTEXT @@M180-@PRINT,@@M181-@PRINT,@@M182-@PRINT,@@M183-@PRINT,
                            1998 *           @@M184-@PRETR,@@M190-@PRETR,@@M191-@PRETR,@@M194-@PRETR,
                            1999 *           @@M195-@PRETR,@@M196-@PRETR,@@M197-@PRETR,@@M193-@PRETR,
                            2000 *           @@M199-@PRINT,
                            2001 *           PATCH-55
                            2002 **********************************************************************
                            2003 * PPL'S AND TEXT FOR MESSAGE                                         *
                            2004 **********************************************************************
     0C0B 40          0C0B  2005 @@M180 DC    AL1(@PRINT)         PRINT CONTROL FUNCTION
     0C0C 0C          0C0C  2006        DC    IL1'12'            LENGTH OF MESSAGE
     0C0D 0C3F        0C0E  2007        DC    AL(@CADDR)(@@T180)  ADDR OF MESSAGE
                            2008 *
     0C0F 40          0C0F  2009 @@M181 DC    AL1(@PRINT)         PRINT CONTROL FUNCTION
     0C10 0A          0C10  2010        DC    IL1'10'            LENGTH OF MESSAGE
     0C11 0C4B        0C12  2011        DC    AL(@CADDR)(@@T181)  ADDR OF MESSAGE
                            2012 *
     0C13 40          0C13  2013 @@M182 DC    AL1(@PRINT)         PRINT CONTROL FUNCTION
     0C14 17          0C14  2014        DC    IL1'23'            LENGTH OF MESSAGE
     0C15 0C55        0C16  2015        DC    AL(@CADDR)(@@T182)  ADDR OF MESSAGE
                            2016 *
     0C17 C0          0C17  2017 @@M183 DC    AL1(@PRETR)         PRINT CONTROL FUNCTION
     0C18 13          0C18  2018        DC    IL1'19'            LENGTH OF MESSAGE
     0C19 0C6C        0C1A  2019        DC    AL(@CADDR)(@@T183)  ADDR OF MESSAGE
                            2020 *
     0C1B C0          0C1B  2021 @@M184 DC    AL1(@PRETR)         PRINT CONTROL FUNCTION
     0C1C 1B          0C1C  2022        DC    IL1'27'            LENGTH OF MESSAGE
     0C1D 0C7F        0C1E  2023        DC    AL(@CADDR)(@@T184)  ADDR OF MESSAGE
                            2024 *
     0C1F C0          0C1F  2025 @@M190 DC    AL1(@PRETR)         PRINT CONTROL FUNCTION
     0C20 09          0C20  2026        DC    IL1'09'            LENGTH OF MESSAGE
     0C21 0C9A        0C22  2027        DC    AL(@CADDR)(@@T190)  ADDR OF MESSAGE
                            2028 *
     0C23 C0          0C23  2029 @@M191 DC    AL1(@PRETR)         PRINT CONTROL FUNCTION
     0C24 09          0C24  2030        DC    IL1'09'            LENGTH CF MESSAGE
     0C25 0C9F        0C26  2031        DC    AL(@CADDR)(@@T191)  ADDR OF MESSAGE
                            2032 *
     0C27 C0          0C27  2033 @@M193 DC    AL1(@PRETR)         PRINT CONTROL FUNCTION
```

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ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT            VER 15, MOD 00  23/05/20  PAGE   7

    0C28 12               0C28 2034          DC    IL1'18'                    LENGTH OF MESSAGE
    0C29 0CA8             0C2A 2035          DC    AL(@CADDR)(@@T193)         ADDR OF MESSAGE
                               2036 *
    0C2B C0               0C2B 2037 @@M194 DC    AL1(@PRETR)                PRINT CONTROL FUNCTION
    0C2C 2B               0C2C 2038          DC    IL1'43'                    LENGTM OF MESSAGE
    0C2D 0CBA             0C2E 2039          DC    AL(@CADDR)(@@T194)         ADDR OF MESSAGE
                               2040 *
    0C2F C0               0C2F 2041 @@M195 DC    AL1(@PRETR)                PAINT CONTROL FUNCTION
    0C30 21               0C30 2042          DC    IL1'33'                    LENGTH OF MESSAGE
    0C31 0CE5             0C32 2043          DC    AL(@CADDR)(@@T195)         ADDR OF MESSAGE
                               2044 *
    0C33 C0               0C33 2045 @@M196 DC    AL1(@PRETR)                PRINT CONTROL FUNCTION
    0C34 1C               0C34 2046          DC    IL1'28'                    LENGTH OF MESSAGE
    0C35 0D06             0C36 2047          DC    AL(@CADDR)(@@T196)         ADDR OF MESSAGE
                               2048 *
    0C37 40               0C37 2049 @@M198 DC    AL1(@PRINT)                PRINT CONTROL FUNCTION
    0C38 20               0C38 2050          DC    IL1'32'                    LENGTH OF MESSAGE
    0C39 0D22             0C3A 2051          DC    AL(@CADDR)(@@T198)         ADDR OF MESSAGE
                               2052 *
    0C3B 40               0C3B 2053 @@M199 DC    AL1(@PRINT)                PRINT CONTROL FUNCTION
    0C3C 08               0C3C 2054          DC    IL1'08'                    LENGTH OF MESSAGE
    0C3D 0D42             0C3E 2055          DC    AL(@CADDR)(@@T199)         ADDR OF MESSAGE
                               2056 *
                          0C3F 2057 @@T180 EQU   *                          LEFT BYTE OF MESSAGE
    0C3F C4C9E2D240D3C1C2 0C4A 2058          DC    CL012'DISK LABEL: '
                          0C4B 2059 @@T181 EQU   *                          LEFT BYTE OF MESSAGE
    0C4B D6E6D5C5D940C9C4 0C54 2060          DC    CL010'OWNER ID: '
                          0C55 2061 @@T182 EQU   *                          LEFT BYTE OF MESSAGE
    0C55 C9D5C9E3C9C1D3C9 0C6B 2062          DC    CL023'INITIALIZED DISK SIZE: '
                          0C6C 2063 @@T183 EQU   *                          LEFT BYTE OF MESSAGE
    0C6C D5D640C1D3E3C5D9 0C7E 2064          DC    CL019'NO ALTERNATE TRACKS'
                          0C7F 2065 @@T184 EQU   *                          LEFT BYTE OF MESSAGE
    0C7F C1D3E3C5D9D5C1E3 0C99 2066          DC    CL027'ALTERNATE TRACK ASSIGNMENTS'
                          0C9A 2067 @@T190 EQU   *                          LEFT BYTE OF MESSAGE
    0C9A C2C1E2C9C3       0C9E 2068          DC    CL005'BASIC'
                          0C9F 2069 @@T191 EQU   *                          LEFT BYTE OF MESSAGE
    0C9F D5D6D560C2C1E2C9 0CA7 2070          DC    CL009'NON-BASIC'
                          0CA8 2071 @@T193 EQU   *                          LEFT BYTE OR MESSAGE
    0CA8 D5D640C5D5E3D9C9 0CB9 2072          DC    CL018'NO ENTRIES IN VTOC'
                          0CBA 2073 @@T194 EQU   *                          LEFT BYTE OF MESSAGE
    0CBA C6C9D3C5D5C1D4C5 0CE4 2074          DC    CL043'FILENAME      TRACK      SIZE         TYPE'
                          0CE5 2075 @@T195 EQU   *                          LEFT BYTE OF MESSAGE
    0CE5 40404040404040C4 0D05 2076          DC    CL033'       DEFECTIVE     ALTERNATE'
                          0D06 2077 @@T196 EQU   *                          LEFT RITE OR MESSAGE
    0D06 4040404040404040 0D21 2078          DC    CL028'         VTOC ENTRIES'
                          0D22 2079 @@T198 EQU   *                          LEFT BYTE OF MESSAGE
    0D22 E5E3D6C340C5D5E3 0D41 2080          DC    CL032'VTOC ENTRIES AVAILABLE FOR USE: '
                          0D42 2081 @@T199 EQU   *                          LEFT BYTE_CF_MEMAGE
    0D42 E2C3D740C1D9C5C1 0D49 2082          DC    CL008'SCP AREA'
                               2083 *
                               2084 ***    PATCH AREA FOR MESSAGES
                               2085 *
    0D4A                 0D80 2086 @@@001 DS    CL55                       MSG EXPANSION PATCH AREA
                               2087 *** END OF EXPANSION ***
```

UDISPL - DISPAY VTOC UTILITY

```
                                  2089 *
                                  2090 *                    SYNTAX CHECK INPUT LINE
                                  2091 *
                    0EDC 2092          USING UDI430,@BR          ESTABLISH ADDRESSABILITY
    0D81 C2 01 0EDC                    2093 UDI050 LA    UDI430,@BR          INITIALIZE BASE REGISTER
    0D85 35 02 03C7                    2094        L     $XRSAV,@XR          GET POINTER TO FIRST PARAMETER
    0D89 3C 87 119F                    2095        MVI   SDISKP,SDIUCB       GO TO SDISKS WITH INDR SET TO
    0D8D C0 87 1141                    2096        B     SDISKS             * CHECK DISK-DRIVE SPEC ONLY
    0D91 F2 82 0A                      2097        JL    UDI150             ERROR EXIT
    0D94 BD 1E 00                      2098 UDI100 CLI   0(,@XR),@EOS        CHECK FOR END OF INPUT LINE
    0D97 F2 81 08                      2099        JE    UDI200
    0D9A 3C 12 03CD                    2100        MVI   $CAERR,@@E133       ERROR-'TOO MANY PARAMETERS'
    0D9E C0 87 0469                    2101 UDI150 B     $CAERK             TAKE ERROR EXIT
```

```
                                2103 *
                                2104 *                        DISPLAY INFO FROM VOLUME LAREL
                                2105 *
    0DA2 0E 00 0FA9 122B        2106 UDI200 ALC   UDIVOL+@DSAD(1),SDITBL+@CADDR  SET UP DPL DADDR
    0DA8 0E 00 0FAF 122B        2107        ALC   UDIVTI+@DSAD(1),SDITBL+@CADDR  SET UP DPL DADDR
    0DAE D2 02 A4               2108        LA    UDIC25-1(,@BR),@XR         POINT TO FIRST DEFECTIVE TRACK
    0DB1 C0 87 1232             2109        B     MINITL                    READ THE VOLUME LABEL
    0DB5 C0 82 0469             2110        BL    $CAERK                    ERROR--GO TO ERROR PROGRAM
    0DB9 4C 03 B2 1151          2111        MVC   UDISCP(UDIFOR,@BR),UDISOL+UDIBF1  SAVE START/END ADDR
                                2112 *      SPRNT UDIBNK
    0DBE C0 87 0465             2113        B     $SPRNT                    PRINT ON SYSTEM PRINTER
    0DC2 0F8F             0DC3  2114        DC    AL2(UDIBNK)               PPL ADDRESS
                                2115 *** END OF EXPANSION ***
                                2116 *      SPRNT @@M180
    0DC4 C0 87 0465             2117        B     $SPRNT                    PRINT ON SYSTEM PRINTER
    0DC8 0C0B             0DC9  2118        DC    AL2(@@M180)               PPL ADDRESS
                                2119 *** END OF EXPANSION ***
                                2120 *      SPRNT UDILAB                    PRINT DISK LABEL
    0DCA C0 87 0465             2121        B     $SPRNT                    PRINT ON SYSTEM PRINTER
    0DCE 0F93             0DCF  2122        DC    AL2(UDILAB)               PPL ADDRESS
                                2123 *** END OF EXPANSION ***
    0DD0 D0 87 D7               2124        B     UDI800(,@BR)              ENABLE INQUIRY REQUEST
                                2125 *      SPRNT @@M181
    0DD3 C0 87 0465             2126        B     $SPRNT                    PRINT ON SYSTEM PRINTER
    0DD7 0C0F             0DD8  2127        DC    AL2(@@M181)               PPL ADDRESS
                                2128 *** END OF EXPANSION ***
                                2129 *      SPRNT UDIDON                    PRINT OWNER ID
    0DD9 C0 87 0465             2130        B     $SPRNT                    PRINT ON SYSTEM PRINTER
    0DDD 0F97             0DDE  2131        DC    AL2(UDIDON)               PPL ADDRESS
                                2132 *** END OF EXPANSION ***
    0DDF D0 87 D7               2133        B     UDI800(,@BR)              ENABLE INQUIRY REQUEST
    0DE2 4C 00 A5 0FD2          2134        MVC   UDIC25(1,@BR),UDINFL+$#TCYL
    0DE7 C0 87 109F             2135        B     C2DEC5                    GO TO CONVERT TO DECIMAL VALUE
                                2136 *      SPRNT @@M182
    0DEB C0 87 0465             2137        B     $SPRNT                    PRINT ON SYSTEM PRINTER
    0DEF 0C13             0DF0  2138        DC    AL2(@@M182)               PPL ADDRESS
                                2139 *** END OF EXPANSION ***
                                2140 *      SPRNT UDISZE                    PRINT DISK SIZE
    0DF1 C0 87 0465             2141        B     $SPRNT                    PRINT ON SYSTEM PRINTER
    0DF5 0F9B             0DF6  2142        DC    AL2(UDISZE)               PPL ADDRESS
                                2143 *** END OF EXPANSION ***
    0DF7 D0 87 D7               2144        B     UDI800(,@BR)              ENABLE INQUIRY REQUEST
```

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ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT         VER 15, MOD 00  23/05/20  PAGE  10

                           2146 *
                           2147 *                         CONVERT PD PRINT ALTERNATE TRACKS
                           2148 *
   0DFA C2 02 116A          2149 UDI300 LA     UDIBF1+UDIALT,@XR        POINT TO FIRST DEFECTIVE TRACK
   0DFE 9D 01 01 9C         2150 UDI310 CLC    1(@DADDR,@XR),UDINDT(,@BR)  IS THIS TRACK ASSIGNED ?
   0E02 F2 81 6C            2151        JE     UDI390                  ENTER LOOP FOR NO ALTERNATE TRKS
                           2152 *UDI315 SPRNT @@M184                    ALTERNATE TRACK HEADINGS
   0E05 C0 87 0465          2153 UDI315 B      $SPRNT                  PRINT ON SYSTEM PRINTER
   0E09 0C1B          0E0A  2154        DC     AL2(@@M184)             PPL ADDRESS
                           2155 *** END OF EXPANSION ***
   0E0B D0 87 D7            2156        B      UDI800(,@BR)            ENABLE INQUIRY REQUEST
                           2157 *       SPRNT @@M195
   0E0E C0 87 0465          2158        B      $SPRNT                  PRINT ON SYSTEM PRINTER
   0E12 0C3B          0E13  2159        DC     AL2(@@M199)             PPL ADDRESS
                           2160 *** END OF EXPANSION ***
   0E14 D0 87 D7            2161        B      UDI800(,@BR)            ENABLE INQUIRY REQUEST
   0E17 7C 00 A6            2162 UDI320 MVI    UDITSV-1(,@BR),UDICX0   ZERO LEFT BYTE OF SAVE AREA
   0E1A 6C 00 A7 00         2163        MVC    UDITSV(1,@BR),0(,@XR)   SAVE CYLINDER SPEC
   0E1E 5E 01 A7 A7         2164        ALC    UDITSV(@DADDR,@BR),UDITSV(,@BR)  DOUBLE FOR TRACK SPEC
   0E22 B8 80 01            2165        TBN    1(,@XR),UDIMSK          TEST FOR CYLINDER BOUNDARY
   0E25 F2 90 04            2166        JF     UDI330                  YES--SKIP INCREMENT BY 1
   0E28 5E 01 A7 92         2167        ALC    UDITSV(@DADDR,@BR),UDICX1(,@BR)  NO--INCR TRACK SPEC BY 1
   0E2C 9C 01 01 A7         2168 UDI330 MVC    1(,@XR),UDITSV(@DADDR,@BR)  RETURN TRACK SPEC TO BUFFER
   0E30 C0 87 109F          2169        B      C2DEC5                  GO TO CONVERT BINARY TRK SPEC
                           2170 *       SPRNT $WAITF                    WAIT FOR PRINT
   0E34 C0 87 0465          2171        B      $SPRNT                  PRINT ON SYSTEM PRINTER
   0E38 057F          0E39  2172        DC     AL2($WAITF)             PPL ADDRESS
                           2173 *** END OF EXPANSION ***
   0E3A 4C 02 81 10DD       2174        MVC    UDIDTK(UDITHR,@BR),C2DVAL MOVE CONVERTED VALUE TO O/P ARE
   0E3F 5C 02 90 AC         2175        MVC    UDIATA(UDITHR,@BR),UDIAL1(,@BR)  MOVE ALT TRK SPEC TO O/P
                           2176 *       SPRNT UDIATK
   0E43 C0 87 0465          2177        B      $SPRNT                  PRINT ON SYSTEM PRINTER
   0E47 0F9F          0E48  2178        DC     AL2(UDIATK)             PPL ADDRESS
                           2179 *** END OF EXPANSION ***
   0E49 D0 87 D7            2180        B      UDI800(,@BR)            ENABLE INQUIRY REQUEST
   0E4C 5E 00 AC 92         2181 UDI350 ALC    UDIAL1(1,@BR),UDICX1(,@BR)  INCR TO NEXT ALTERNATE TRACK
   0E50 5F 00 A8 92         2182        SLC    UDICTR(1,@BR),UDICX1(,@BR)  SAVE ALL ALTERNATES BEEN CNCKD
   0E54 F2 81 2F            2183        JZ     UDI400                  GO TO PROCESS FILES
   0E57 E2 02 02            2184        LA     @DADDR(,@XR),@XR        INCR TO NEXT DEFECTIVE TRACK
   0E5A 9D 01 01 9C         2185        CLC    1(@DADDR,@XR),UDINDT(,@BR)  IS THIS TRACK ASSIGNED ?
   0E5E C0 81 0E4C          2186        BE     UDI350                  NO--GO CHECK NEXT ONE
   0E62 C0 87 0E17          2187        B      UDI320                  CONVERT & PRINT TRACK SPEC
                           2188 *
   0E66 E2 02 02            2189 UDI380 LA     @DADDR(,@XR),@XR        INCC TO NEXT DEFECTIVE TRACK
   0E69 9D 01 01 9C         2190        CLC    1(@DADDR,@XR),UDINDT(,@BR)  IS THIS ALT TRACK ASSIGNED ?
   0E6D C0 01 0E05          2191        BNE    UDI315                  GO TO CONVERT & PRINT TRK SPEC
   0E71 5E 00 AC 92         2192 UDI390 ALC    UDIAL1(1,@BR),UDICX1(,@BR)  INCC TO NEXT ALTERNATE TRACK
   0E75 5F 00 A8 92         2193        SLC    UDICTR(1,@BR),UDICX1(,@BR)  HAVE ALL ALTS BEEN CHECKED ?
   0E79 C0 01 0E66          2194        BNZ    UDI380                  NO--CONTINUE CHECKING
                           2195 *       SPRNT @@M183                    NO ALTERNATE TRACKS
   0E7D C0 87 0465          2196        B      $SPRNT                  PRINT ON SYSTEM PRINTER
   0E81 0C17          0E82  2197        DC     AL2(@@M183)             PPL ADDRESS
                           2198 *** END OF EXPANSION ***
   0E83 D0 87 D7            2199        B      UDI800(,@BR)            ENABLE INQUIRY REQUEST
```

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                                 2201 *
                                 2202 *                    PRINT INFORMATION ON FILES
                                 2203 *
                                 2204 *UDI400 DISK  UDIVTI,WAIT              GET VTOC
      0E86 C0 87 0025            2205 UDI400 B     $DISKN                    PERFORM PHYSICAL DISK OP
      0E8A 0FAD         0E8B     2206        DC    AL2(UDIVTI)               DPL ADDRESS
      0E8C C0 87 0025            2207        B     $DISKN                    WAIT AND CHECK DISK ERRORS
      0E90 057F         0E91     2208        DC    AL2($WAITF)               WAIT DPL ADDRESS
                                 2209 *** END OF EXPANSION ***
      0E92 1D 00 12FF A9         2210        CLC   UDIBF2+UDIAVL,UDIFCT(1,@BR)  CHECK FOR NO FILES IN VTOC
      0E97 F2 01 0C              2211        JNE   UDI410                    GO TO PRINT FILE ENTRIES
                                 2212 *       $SPRNT @@M193                  PRINT NO ENTRIES IN VTOC
      0E9A C0 87 0465            2213        B     $SPRNT                    PRINT ON SYSTEM PRINTER
      0E9E 0C27         0E9F     2214        DC    AL2(@@M193)               PPL ADDRESS
                                 2215 *** END OF EXPANSION ***
      0EA0 D0 87 D7              2216        B     UDI800(,@BR)              ENABLE INQUIRY REQUEST
      0EA3 F2 87 4F              2217        J     UDI500                    GO TO PRINT VTOC TAGS AVAILABLE

                                 2219 *UDI410 SPRNT @@M196
      0EA6 C0 87 0465            2220 UDI410 B     $SPRNT                    PRINT ON SYSTEM PRINTER
      0EAA 0C33         0EAB     2221        DC    AL2(@@M196)               PPL ADDRESS
                                 2222 *** END OF EXPANSION ***
      0EAC C0 87 0FB3            2223        B     UDI800                    ENABLE INQUIRY REQUEST
                                 2224 *       SPRNT @@M194
      0EB0 C0 87 0465            2225        B     $SPRNT                    PRINT ON SYSTEM PRINTER
      0EB4 0C2B         0EB5     2226        DC    AL2(@@M194)               PPL ADDRESS
                                 2227 *** END OF EXPANSION ***
      0EB6 D0 87 D7              2228        B     UDI800(,@BR)              ENABLE INQUIRY REQUEST
      0EB9 C2 02 1100            2229        LA    UDIBF2,@XR                POINT @XR TO THE FIRST FILE
      0EBD E2 02 0D              2230        LA    $@$FIL(,@XR),@XR          * LABEL
      0EC0 5F 00 A9 92           2231 UDI420 SLC   UDIFCT(,@BR),UDICX1(,@BR) DECREMENT COUNTER BY 1
      0EC4 F2 82 2E              2232        JM    UDI500                    EXIT--END OF VTOC INDEX
      0EC7 9D 07 00 9A           2233        CLC   0($@$LNG,@XR),UDINFL(,@BR)  FILE PRESENT ?
      0ECB F2 81 20              2234        JE    UDI440                    NO--GO CHECK NEXT LOCATION
      0ECE 7C 00 A0              2235        MVI   UDIDDA(,@BR),UDICX0       SET FIELD FOR SWIFT TO ZERO
      0ED1 7C 06 A3              2236        MVI   UDICNT(,@BR),UDISIX       SET COUNTER FOR SHIFT TO 6
      0ED4 6C 01 A2 02           2237        MVC   UDIDAD(,@BR),$@$BYT(@DADDR,@XR)   PASS FILE UDR TO SUER
      0ED8 5F 01 A2 9F           2238        SLC   UDIDAD(,@BR),UDIVTO(@DADDR,@BR)   CALC SECTOR DISP TO FILE
      0EDC 5E 01 A1 A1           2239 UDI430 ALC   UDIDAD-1(@CADDR,@BR),UDIDAD-1(,@BR)   SWIFT LEFT 6 BITS
      0EE0 5F 00 A3 92           2240        SLC   UDICNT(1,@BR),UDICX1(,@BR)  DECREMENT COUNTER BY 1
      0EE4 D0 01 00              2241        BNZ   UDI430(,@BR)              GO TO SWIFT IF NOT FINISHED
      0EE7 5C 00 A1 A0           2242        MVC   UDIDAD-1(1,@BR),UDIDDA(,@BR)   SET UP ADDRESS
      0EEB D0 87 E9              2243        B     UDI900(,@BR)              SUBROUTINE TO PRINT FILE INFO
      0EEE E2 02 0A              2244 UDI440 LA    $@$INC(,@XR),@XR          INCR @XR TO NEXT FILE NAME
      0EF1 C0 87 0EC0            2245        B     UDI420                    GET INFO ON NEXT FILE
                                 2246 *UDI500 SPRNT @@M198                    NO. OF VTOC TAGS LEFT
      0EF5 C0 87 0465            2247 UDI500 B     $SPRNT                    PRINT ON SYSTEM PRINTER
      0EF9 0C37         0EFA     2248        DC    AL2(@@M198)               PPL ADDRESS
                                 2249 *** END OF EXPANSION ***
      0EFB 0C 00 0F8A 12FF       2250        MVC   UDIAVT(1),UDIBF2+UDIAVL   SAVE AVAILABLE TAG SPEC
      0F01 C2 02 0F89            2251        LA    UDIAVT-1,@XR              POINT @XR TO CONVERTED VALUE
      0F05 C0 87 109F            2252        B     C2DEC5                    GO TO CONVERT TO DECIMAL
                                 2253 *       SPRNT UDITAG                    PRINT THE VALUE
      0F09 C0 87 0465            2254        B     $SPRNT                    PRINT ON SYSTEM PRINTER
      0F0D 0FA3         0F0E     2255        DC    AL2(UDITAG)               PPL ADDRESS
                                 2256 *** END OF EXPANSION ***
```

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ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  23/05/20  PAGE  12

   0F0F 3D 00 0F8D        2257         CLI   UDISCP-1,@ZERO          TEST IF SCP AREA EXISTS
   0F13 F2 81 32          2258         JE    UDI600                  BR AROUND AREA TO PRINT SCP INFO
```

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ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  23/05/20  PAGE  13

                                2260 *
                                2261 *                    PRINT LOCATION OF COMMERCIAL SYSTEM LIBRARIES
                                2262 *
     0F16 C2 02 1300            2263         LA    UDIBF3,@XR               SET XR TO BUFFER
     0F1A 76 02 A2              2264         A     UDIDAD(,@BR),@XR         SET XR UP TO PRINT
     0F1D 8C 01 24 0F8C         2265         MVC   UDIXST(@DADDR,@XR),UDISCP-@DADDR   SET START ADDRESS
     0F22 8C 01 22 0F8E         2266         MVC   $@$END(@DADDR,@XR),UDISCP SET START/END DISK ADDRESSES
     0F27 9E 01 22 9D           2267         ALC   $@$END(@DADDR,@XR),UDIX24(,@BR) ADJUST SCP ENDING ADDRESS
     0F2B BC FF 11              2268         MVI   $@$RTN(,@XR),UDIMKB      SET TYPE CODE FOR NON-BASIC  1-5
     0F2E 4C 00 62 0C3C         2269         MVC   UDI550+@Q(,@BR),@@M199+1(1)  SET MOVE LENGTH FROM MTEXT
     0F33 0E 00 0F41 0C3C       2270         ALC   UDI550+@DOP2,@@M199+1(1)  SET DESTINATION ADDR
     0F39 5F 00 62 92           2271         SLC   UDI550+@Q(1,@BR),UDICX1(,@BR)  DECREMENT LEN FOR MOVE
     0F3D 4C 00 0A 0D41         2272 UDI550 MVC   $@$FIN(,@BR),@@T199-1(@VQ)  MOVE MTEXT MSG INTO F1 ENTRY
     0F42 D0 87 D7              2273         B     UDI800(,@BR)             ENABLE INQUIRY REQUEST
     0F45 D0 87 E9              2274         B     UDI900(,@BR)             GO OUTPUT TO PRINTER
     0F48 D0 87 D7              2275 UDI600 B     UDI800(,@BR)             ENABLE INQUIRY REQUEST
     0F4B C0 87 04A1            2276         B     $CARPL                   EXIT
```

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                                2278 *
                                2279 *                    MISCELLANEOUS EQUATES
                                2280 *
                       0000 2281 UDICY0 EQU   0                        CYLINDER 0 EQUATE
                       000F 2282 UDIVTC EQU   15                       SECTOR COUNT FOR VTOC DPL
                       006A 2283 UDIALT EQU   $#TALT-11                LEFT BYTE OF ALT TRK ASSIGNMENTS
                       0000 2284 UDICX0 EQU   0                        CONSTANT FOR ZEROING FIELD
                       0006 2285 UDISIX EQU   6                        NUMBER OF SHIFTS TO GET SECTOR
                       0000 2286 UDIZER EQU   0                        INDICATES NULL OR UNUSED FIELD
                       0002 2287 UDITWO EQU   2                        LENGTH FOR 2-BYTE FIELD
                       0003 2288 UDITHR EQU   3                        LENGTH FOR PRINTING TRACK SPECS
                       0004 2289 UDIFOR EQU   4                        LENGTH, FOR A 4-BYTE FIELD
                       000A 2290 UDITEN EQU   10                       LENGTH OF OWNER ID
                       000F 2291 UDID15 EQU   15                       LENGTH OF ALT OR DT OUTPUT AREA
                       001E 2292 UDID30 EQU   30                       SUM OF LENGTH OF TWO FIELDS
                       01FF 2293 UDIAVL EQU   @SCTSZ+$@$AVL            DISP TO AVAILABLE TAG SPEC
                       0D9E 2294 SALPH6 EQU   UDI150                   CORRECT ASSEMBLY ERRORS CAUSED
                       0F4F 2295 SALPHR EQU   *                        * BY NOT INCLUDING SALPHA
                       0051 2296 UDISOL EQU   81                       DISP TO LAST BYTE OF ENO ADDR
                                2297 *                                 * OF COMM'L SYS IN VOL LABEL
                                2298 *
                                2299 *              CONSTANTS
                                2300 *
                       0F4F 2301 UDIATS EQU   *                        LEFT BYTE OF PRINT LINE
0F4F 4040404040404040  0F5D 2302 UDIDTK DC    CL(UDID15)'          '   DEFECTIVE TRACK
0F5E 4040404040404040  0F6C 2303 UDIATA DC    CL(UDID15)'          '   ALTERNATE TRACK
0F6D 0001              0F6E 2304 UDICX1 DC    XL(UDITWO)'01'           CONSTANT FOR DECREMENT 1N COUNT
0F6F 0000000000000000  0F76 2305 UDINFL DC    XL($@$LNG)'00'           NO FILE INDICATION
0F77 0000              0F78 2306 UDINDT DC    XL(@DADDR)'00'           INDICATION OF NO DEFECTIVE TRACK
0F79 24                0F79 2307 UDIX24 DC    XL1'24'                  SO ENDING ADDR ADJUSTMENT
0F7A 2C3F              0F7B 2308 UDIVTO DC    XL(@DADDR)'2C3F'         BASE SECTOR ADDR OF VTOC
                                2309 *
                                2310 *              WORK AREAS
                                2311 *
                       0F7C 2312 UDIDDA EQU   *                        LEFT BYTE - FILE ADDR SAVE AREA
                                2313 *
0F7C                   0F7E 2314 UDIDAD DS    CL(UDITHR)               SAVE FILE ADDR FROM VTOC
0F7F                   0F7F 2315 UDICNT DS    CL1                      COUNTER FOR SHIFTING SECTOR ADDR
0F80                   0F81 2316 UDIC25 DS    CL(UDITWO)               SAVE AREA--NO. CYLINDERS ON DISK
0F80                        2317        ORG   *-2
0F80 0000              0F81 2318        DC    XL(UDITWO)'00'
0F82                   0F83 2319 UDITSV DS    CL(@CADDR)               SAVE AREA FOR OMR
0F84                   0F84 2320 UDICTR DS    CL1                      COUNTER FOR ALTERNATE TRACK LOOP
0F84                        2321        ORG   *-1
0F84 06                0F84 2322        DC    XL1'06'
0F85                   0F85 2323 UDIFCT DS    CL1                      COUNTER FOR MAX NO. OF FILES
0F85                        2324        ORG   *-1
0F85 32                0F85 2325        DC    XL1'32'
0F86                   0F88 2326 UDIAL1 DS    CL(UDITHR)
0F86                        2327        ORG   *-3
0F86 F0F0F2            0F88 2328        DC    CL(UDITHR)'002'          FIRST ALTERNATE TRACK
0F89                   0F8A 2329 UDIAVT DS    CL(UDITWO)               STORE AREA FOR AVAILABLE TAG
0F89                        2330        ORG   *-2
0F89 0000              0F8A 2331        DC    XL(UDITWO)'00'
0F8B                   0F8E 2332 UDISCP DS    CL4                      SCP SYSTEM ADDR C/S START-END
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                              2334 *
                              2335 *                     PARAMETER LISTS
                              2336 *
                              2337 *UDIBNK PPL    FUNC-@RETRN,CNT-@RTRNC
                    0F8F 2338 UDIBNK EQU    *                      PPL ADDRESS
     0F8F 80        0F8F 2339        DC     AL1(@RETRN)            FUNCTION REQUESTED
     0F90 80        0F90 2340        DC     AL1(@RTRNC)            PRINT COUNT
     0F91 0000      0F92 2341        DC     AL2(*-*)              DATA ADDRESS
                              2342 *** END OF EXPANSION ***
                              2343 *UDILAB PPL    FUNC-@PRETR,CNT-@VOLID,CADDR-UDIDLB
                    0F93 2344 UDILAB EQU    *                      PPL ADDRESS
     0F93 C0        0F93 2345        DC     AL1(@PRETR)            FUNCTION REQUESTED
     0F94 06        0F94 2346        DC     AL1(@VOLID)            PRINT COUNT
     0F95 1103      0F96 2347        DC     AL2(UDIDLB)            DATA ADDRESS
                              2348 *** END OF EXPANSION ***
                              2349 *UDIDON PPL    FUNC-@PRETR,CNT-UDITEN,CADDR-UDIOID
                    0F97 2350 UDIDON EQU    *                      PPL ADD4ESS
     0F97 C0        0F97 2351        DC     AL1(@PRETR)            FUNCTION REQUESTED
     0F98 0A        0F98 2352        DC     AL1(UDITEN)            PRINT COUNT
     0F99 1152      0F9A 2353        DC     AL2(UDIOID)            DATA ADDRESS
                              2354 *** END OF EXPANSION ***
                              2355 *UDISZE PPL    FUNC-@PRETR,CNT-UDITHR,CADDR-C2DVAL-2
                    0F9B 2356 UDISZE EQU    *                      PPL ADDRESS
     0F9B C0        0F9B 2357        DC     AL1(@PRETR)            FUNCTION REQUESTED
     0F9C 03        0F9C 2358        DC     AL1(UDITHR)            DRINT COUNT
     0F9D 10DB      0F9E 2359        DC     AL2(C2DVAL-2)          DATA ADDRESS
                              2360 *** END OF EXPANSION ***
                              2361 *UDIATK PPL    FUNC-@PRETR,CNT-UDID30,CADDR-UDIATS
                    0F9F 2362 UDIATK EQU    *                      PPL ADDRESS
     0F9F C0        0F9F 2363        DC     AL1(@PRETR)            FUNCTION REQUESTED
     0FA0 1E        0FA0 2364        DC     AL1(UDID30)            PRINT COUNT
     0FA1 0F4F      0FA2 2365        DC     AL2(UDIATS)            DATA ADDRESS.
                              2366 *** END OF EXPANSION ***
                              2367 *UDITAG PPL    FUNC-@PRETR,CNT-UDITWO,CADDR-C2DVAL-1
                    0FA3 2368 UDITAG EQU    *                      PPL ADDRESS
     0FA3 C0        0FA3 2369        DC     AL1(@PRETR)            FUNCTION REQUESTED
     0FA4 02        0FA4 2370        DC     AL1(UDITWO)            PRINT COUNT
     0FA5 10DC      0FA6 2371        DC     AL2(C2DVAL-1)          DATA ADDRESS
                              2372 *** END OF EXPANSION ***
                              2373 *UDIVOL DPL    FUNC-@DGET,CYL-UDICY0,SCTR=#VOLR1,CNT-#@VLAB,CADDR-UDIBF1
                    0FA7 2374 UDIVOL EQU    *                      DISK PARAMETER LIST
     0FA7 01        0FA7 2375        DC     AL1(@DGET)             REQUESTED FUNCTION
     0FA8 00        0FA8 2376        DC     AL1(UDICY0)            CYLINDER ADDRESS
     0FA9 08        0FA9 2377        DC     AL1(#VOLR1)            HEAD/SECTOR/DRIVE/DISK SPEC
     0FAA 01        0FAA 2378        DC     AL1(#@VLAB)            SECTOR COUNT
     0FAB 1100      0FAC 2379        DC     AL2(UDIBF1)            BUFFER ADDRESS
                              2380 *** END OF EXPANSION ***
                    0FA7 2381 MINDPL EQU    UDIVOL                 DPL ROR MINITL
                              2382 *UDIVTI DPL    FUNC-@DGET,CYL-UDICY0,SCTR=#VTCR1,CNT-UDIVTC,CADDR-UDIBF2
                    0FAD 2383 UDIVTI EQU    *                      DISK PARAMETER LIST
     0FAD 01        0FAD 2384        DC     AL1(@DGET)             REQUESTED FUNCTION
     0FAE 00        0FAE 2385        DC     AL1(UDICY0)            CYLINDER ADDRESS
     0FAF 24        0FAF 2386        DC     AL1(#VTCR1)            HEAD/SECTOR/DRIVE/DISK SPEC
     0FB0 0F        0FB0 2387        DC     AL1(UDIVTC)            SECTOR COUNT
     0FB1 1100      0FB2 2388        DC     AL2(UDIBF2)            BUFFER ADDRESS
                              2389 *** END OF EXPANSION ***
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                           2391 *
                           2392 *                 INTERNAL   SUBROUTINES
                           2393 *
                           2394 *                     ENABLE INTERRUPTS
                           2395 *
    0FB3 34 08 0FC4        2396 UDI800 ST    UDI850+@OP1,@ARR        SAVE THE RETURN ADDRESS
                           2397 *      SPRNT $WAITF                  WAIT FOR LAST LINE PRINT
    0FB7 C0 87 0465        2398        B     $SPRNT                  PRINT IN SYSTEM PRINTER
    0FBB 057F         0FBC 2399        DC    AL2($WAITF)             PPL ADDRESS
                           2400 *** END OF EXPANSION ***

    0FBD C0 87 048D        2402        B     $UNMSK                  GO TO ENABLE INTERRUPTS
    0FC1 C0 87 0000        2403 UDI850 B     *-*                     RETURN TO CONTINUE PRINTING
                           2404 *
                           2405 *              SUBROUTINE FOR PRINTING FILE INFO
                           2406 *
                           2407 *UDI900 ENTER BASE-UDI900,EXIT-UDIEX,@BR,@XR,@ARR
                      0FC5 2408        USING UDI900,@BR              BASE ADDRESS SPECIFICATION
                      0FC5 2409 UDI900 EQU *                        MODULE ENTRY POINT
    0FC5 34 01 1066        2410        ST    UDIEX0+@OP1,@BR         SAVE @BR
    0FC9 C2 01 0FC5        2411        LA    UDI900,@BR              LOAD BASE REGISTER
    0FCD 74 02 A5          2412        ST    UDIEX1+@OP1(,@BR),@XR   SAVE @XR
    0FD0 74 08 A9          2413        ST    UDIEX2+@OP1(,@BR),@ARR  SAVE RETURN ADDRESS
                           2414 *** END OF EXPANSION ***

    0FD3 C2 02 1300        2416        LA    UDIBF3,@XR              BASE ADDRESS FOR @XR
    0FD7 36 02 0F7E        2417 UDI920 A     UDIDAD,@XR              INCREMENT TO DESIRED FILE
    0FDB 6C 07 B6 0A       2418        MVC   UDIFIL($@$LNG,@BR),$@$FIN(,@XR)  MOVE FILE NAME TO I/O ARA
    0FDF 7C 00 AA          2419        MVI   UDISRT-1(,@BR),UDICX0   ZERO LEFT BYTE OF SAVE AREA
    0FE2 7C 00 AC          2420        MVI   UDIEND-1(,@BR),UDICX0   ZERO LEFT BYTE OF SAVE AREA
    0FE5 BD 00 11          2421        CLI   $@$RTN(,@XR),@ZERO      BASIC FILE ?
    0FE8 F2 81 04          2422        JE    UDI930                  YES--TAKE JUMP
    0FEB AC 01 20 24       2423        MVC   $@$SRT(@DADDR,@XR),UDIXST(,@XR)   ADJUST STARTING ADDRESS
    0FEF 6C 00 AB 1F       2424 UDI930 MVC   UDISRT(1,@BR),$@$SRT-1(,@XR)  PICK UP STARTINS ADDRESS
    0FF3 5E 01 AB AB       2425        ALC   UDISRT(@DADDR,@BR),UDISRT(,@BR)   2*CYL SPEC = TRACK SPEC
    0FF7 B8 80 20          2426        TBN   $@$SRT(,@XR),UDIMSK     CYLINDER BOUNDARY ?
    0FFA F2 90 05          2427        JF    UDI940                  YES--CONTINUE
    0FFD 4E 01 AB 0F6E     2428        ALC   UDISRT(@DADDR,@BR),UDICX1  NO--ADD 1 TO TRACK SPEC
    1002 6C 00 AD 21       2429 UDI940 MVC   UDIEND(1,@BR),$@$END-1(,@XR)
    1006 5E 01 AD AD       2430        ALC   UDIEND(@DADDR,@BR),UDIEND(,@BR)   2*CYL SPEC = TRACE SPEC
    100A B8 80 22          2431        TBN   $@$END(,@XR),UDIMSK     CYLINDER BOUNDARY ?
    100D F2 90 10          2432        JF    UDI950                  YES--CONTINUE
    1010 BD 00 11          2433        CLI   $@$RTN(,@XR),@ZERO      CHECK IF BASIC FILE        1-5
    1013 F2 01 05          2434        JNE   UDI945                  NO--SKIP NEXT INSTRLCTION
    1016 4E 01 AD 0F6E     2435        ALC   UDIEND(@DADDR,@BR),UDICX1 MOD 0 CORRECTION TO FILE ADDR
    101B 4E 01 AD 0F6E     2436 UDI945 ALC   UDIEND(@DADDR,@BR),UDICX1 NO--ADD 1 TO TRACK SPEC
    1020 6C 00 AE 11       2437 UDI950 MVC   UDINDR(1,@BR),$@$RTN(,@XR)  SAVE FILE TYPE INDR        1-5
    1024 5F 01 AD AB       2438        SLC   UDIEND(@DADDR,@BR),UDISRT(,@BR)   CALCULATE FILE SIZE
    1028 D2 02 AA          2439        LA    UDISRT-1(,@BR),@XR      POINT @XR TO BINARY VALUE
    102B C0 87 109F        2440        B     C2DEC5                  GO CONVERT BINARY VALUE TO DECML
    102F 4C 02 C0 10DD     2441        MVC   UDITKS(UDITHR,@BR),C2DVAL MOVE START ADDRESS TO I/O AREA
    1034 E2 02 02          2442        LA    @DADDR(,@XR),@XR        POINT @XR TO BINARY FILE SIZE
    1037 C0 87 109F        2443        B     C2DEC5                  GO CONVERT BINARY VALUE TO DECML
                           2444 *
    103B 4C 02 CA 10DD     2445        MVC   UDISIZ(UDITHR,@BR),C2DVAL MOVE FILE SIZE TO I/O AREA
                           2446 *      SPRNT UDIFLE                  PRINT INFO ON FILE
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    1040 C0 87 0465          2447       B     $SPRNT                 PRINT ON SYSTEM PRINTER
    1044 109B           1045 2448       DC    AL2(UDIFLE)            PPL ADDRESS
                             2449 *** END OF    EXPANSION ***

    1046 79 FF AE            2451       TBF   UDINDR(,@BR),UDIMKB    TEST FOR BIS OR NON-BIS FILE
    1049 F2 90 0D            2452       JF    UDI960
                             2453 *     SPRNT @@M190
    104C C0 87 0465          2454       B     $SPRNT                 PRINT ON SYSTEM PRINTER
    1050 0C1F           1051 2455       DC    AL2(@@M190)            PPL ADDRESS
                             2456 *** END OF    EXPANSION ***

    1052 C0 87 0FB3          2458       B     UDI800                 ENABLE INQUIRY REQUEST
    1056 F2 87 0A            2459       J     UDIEX0
                             2460 *UDI960 SPRNT @@M191
    1059 C0 87 0465          2461 UDI960 B    $SPRNT                 PRINT ON SYSTEM PRINTER
    105D 0C23           105E 2462       DC    AL2(@@M191)            PPL ADDRESS
                             2463 *** END OF    EXPANSION ***

    105F C0 87 0FB3          2465       B     UDI800                 ENABLE INQUIRY REQUEST
                             2466 *UDIEX  EXIT  @BR,@XR,RETURN
    1063 C2 01 0000          2467 UDIEX0 LA   *-*,@BR                RESTORE @BR
    1067 C2 02 0000          2468 UDIEX1 LA   *-*,@XR                RESTORE @XR
    106B C0 87 0000          2469 UDIEX2 B    *-*                    RETURN TO CALLING PROGRAM
                             2470 *** END OF EXPANSION ***
                             2471 *
                             2472 *           CONSTANTS AND WORK AREAS FOR SUBROUTINE
                             2473 *
                        0024 2474 UDIXST EQU  $@$SRT+2*@DADDR        INDEX START ADDRESS
                        0FDA 2475 UDIDSP EQU  UDI920+@OP1            DISPLACEMENT TO FILE LABEL
                        0027 2476 UDILIN EQU  39                     LENGTH OF LINE TO PRINT
                        0080 2477 UDIMSK EQU  X'80'                  MASK TO TEST FOR CYL BOUNDARY
                        00FF 2478 UDIMKB EQU  X'FF'                  MASK TO TEST FOR BIS FILE
    106F                1070 2479 UDISRT DS   CL(@DADDR)             SAVE AREA FOR FILE START ADDRESS
    1071                1072 2480 UDIEND DS   CL(@DADDR)             SAVE AREA FOR FILE END ADDRESS
    1073                1073 2481 UDINDR DS   CL1                    INDR FOR BIS OR NON-BIS FILE
                        1074 2482 UDIFIE EQU  *
    1074 4040404040404040 107B 2483 UDIFIL DC  CL($@$LNG)'          '    FILE LABEL
    107C 4040404040404040 1085 2484 UDITKS DC  CL(UDITEN)'          '    START ADDRESS
    1086 4040404040404040 108F 2485 UDISIZ DC  CL(UDITEN)'          '    FILE SIZE
    1090 4040404040404040 109A 2486       DC   CL(UDITEN+1)'        '    BLANK FIELD IN PRINT LINE

                             2488 *UDIFLE PPL   FUNC-@PRINT,CNT-UDILIN,CADDR-UDIFIE
                        109B 2489 UDIFLE EQU  *                      PPL ADDRESS
    109B 40             109B 2490       DC    AL1(@PRINT)            FUNCTION REQUESTED
    109C 27             109C 2491       DC    AL1(UDILIN)            PRINT COUNT
    109D 1074           109E 2492       DC    AL2(UDIFIE)            DATA ADDRESS
                             2493 *** END OF EXPANSION ***
                             2494 *     END
                             2495 *     $C2D5
```

```
      C2DEC5 - CONVERT 2 BYTE BIN NR TO 5 BYTE DEC NR
```

```
                              2497+******************************************************************
                              2498+*FUNCTION -                                                      *
                              2499+*   SERIALLY REUSABLE SUBROUTINE TO CONVERT A 2 BYTE BINARY VALUE TO  *
                              2500+*   A 5 BYTE POSITIVE DECIMAL NUMBER.                             *
                              2501+*   ON ENTRY @XR POINTS TO THE LEFT BYTE OF THE BINARY VALUE.     *
                              2502+*   ON RETURN C2DVAL IS THE RIGHT BYTE OF THE 5 BYTES DECIMAL VALUE   *
                              2503+*   WITH LEADING ZEROS WHICH MAY BE MODIFIED BY THE USER IN ANY WAY   *
                              2504+*   IN IT'S LOCATION.                                             *
                              2505+*   THE 2 BYTES BINARY VALUE IS NOT ALTERED.                      *
                              2506+*   @XR IS NOT ALTERED.                                           *
                              2507+*   @BR IS SAVED AND RESTORED AT EXIT.                            *
                              2508+******************************************************************

                    109F 2510+C2DEC5 EQU   *                         MODULE ENTRY POINT
                    109F 2511+       USING C2DEC5,@BR                BASE ADDRESS SPECIFICATION
    109F 34 01 10D3          2512+       ST    C2D050+@OP1,@BR           SAVE @BR
    10A3 C2 01 109F          2513+       LA    C2DEC5,@BR                LOAD BASE REGISTER
    10A7 74 08 38            2514+       ST    C2D052+@OP1(,@BR),@ARR     SAVE RETURN ADDRESS
                              2515+*       INITIALIZE DECIMAL INCREMENTER AND DECIMAL SUM TO 1 AND 0 RESP.
    10AA 54 90 43 39         2516+       ZAZ   C2D903(C2D903-C2D901,@BR),C2D901(C2D902-C2D901,@BR)
    10AE 7C 01 17            2517+       MVI   C2D030+@D1(,@BR),@B1       INITIALIZE DISP TO BYTE 1
    10B1 7C 01 16            2518+C2D020 MVI   C2D030+@Q(,@BR),@B1        INIT TEST TO BIT 7
                              2519+*
    10B4 B8 00 00            2520+C2D030 TBN   *-*(,@XR),*-*              TEST IF THIS BIT IS OFF
    10B7 F2 90 04            2521+       JF    C2D040                    * BR AROUND SUM INCREMENT
                              2522+*       INCREMENT DECIMAL SUM BY DECIMAL VALUE OF THIS TESTED BIT
    10BA 56 04 3E 43         2523+       AZ    C2DVAL(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)
                              2524+*       DOUBLE DECIMAL VALUE OF INCREMENT TO VALUE OF NEXT BIT
    10BE 56 04 43 43         2525+C2D040 AZ    C2D903(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)
    10C2 5E 00 16 16         2526+       ALC   C2D030+@Q(1,@BR),C2D030+@Q(,@BR) SHIFT BIT MASK LEFT ONE
    10C6 D0 20 15            2527+       BNOL  C2D030(,@BR)              CONTINUE LOOP UNLESS ALL BITS
                              2528+*                                     * TESTED
    10C9 5F 00 17 13         2529+       SLC   C2D030+@D1(1,@BR),C2D020+@Q(,@BR) DECR DISP TO BYTE 0
    10CD D0 81 12            2530+       BZ    C2D020(,@BR)              FALL THROUGH IF UNDERFLOW
    10D0 C2 01 0000          2531+C2D050 LA    *-*,@BR                   RESTORE @BR
    10D4 C0 87 0000          2532+C2D052 B     *-*                       RETURN TO CALLING PROGRAM
                              2533+*
                              2534+***    WORK AREA
                              2535+*
    10D8 F1             10D8 2536+C2D901 DC    DL1'1'                    INIT WORK AREA
                        10D9 2537+C2D902 EQU   *                         FIST BYTE OF DECIMAL VALUE
    10D9                10DD 2538+C2DVAL DS    CL5                       5 BYTES DECIMAL VALUE
    10DE                10E2 2539+C2D903 DS    CL5                       DECIMAL INCREMENTER
                              2540+***              END OF C4DEC5                              ***
```

```
                         2542 ******************************************************************
                         2543 * PATCH AREA 1
                         2544 ******************************************************************
                         2545 *
                         2546 * CALCULATE AREA LEFT IN THIS SECTOR
                         2547 *
           10E3 2548 $$$$L1 EQU    *                          START OF PATCH AREA 1
      1100       2549        ORG    *,256,0                    SET LOC CNTR TO NEXT SECTOR
           1100 2550 $$$$T1 EQU    *                          DEFINE UDR OF SCTR SWAY
      10E3       2551        ORG    $$$$L1                     SET LOC CNTR TO START OF
                 2552 *                                        * PATCH AREA
      10E3  10FF 2553 $$$$$1  DS    CL($$$$T1-$$$$L1)          PATCH AREA
                 2554 ******************************************************************
                 2555 *** END OF EXPANSION ***


           1100 2557 UDIBF1 EQU    *                          VOLUME LABEL--END OF PATCH AREA
           1100 2558 UDIBF2 EQU    UDIBF1                     VTOC INDEX--OVERLAY VOLUME LABEL
           1300 2559 UDIBF3 EQU    UDIBF2+2*@SCTSZ            VTOC
           1103 2560 UDIDLB EQU    UDIBF1+$#TLBL-5            LEFT BYTE OF DISK LABEL
           1152 2561 UDIOID EQU    UDIBF1+$#TOID-9            LEFT BYTE OF OWNER ID
                 2562 *        $CANI
```

```
                           2564+********************************************************************
                           2565+*  5703-XM1    COPYRIGHT IBM CORP. 1970                           *
                           2566+*               REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083 *
                           2567+*                                                                  *
                           2568+********************************************************************
                           2569+*STATUS                                                           *
                           2570+*   VERSION 1 MODIFICATION 0                                      *
                           2571+*                                                                 *
                           2572+*FUNCTION                                                         *
                           2573+*   THE FUNCTION OF SCANIT IS TO SCAN PAST VALID DELIMITERS AND   *
                           2574+*   RETURN A POINTER TO THE FIRST CHARACTER THAT'S NOT A DELIMITER. *
                           2575+*                                                                 *
                           2576+*ENTRY POINTS                                                     *
                           2577+*   * THE ENTRY POINT IS SCANIT.                                  *
                           2578+*   * THE CALLING SEQUENCE IS AS FOLLOWS:                         *
                           2579+*           B    SCANIT                                           *
                           2580+*      WITH REGISTER 2 (@XR) POINTING TO THE FIRST CHARACTER TO BE *
                           2581+*      EXAMINED.                                                  *
                           2582+*                                                                 *
                           2583+*INPUT                                                            *
                           2584+*   NONE                                                          *
                           2585+*                                                                 *
                           2586+*OUTPUT                                                           *
                           2587+*   NONE                                                          *
                           2588+*                                                                 *
                           2589+*EXTERNAL REFERENCES                                              *
                           2590+*   $CAERR - ERROR CODE SAVE AREA                                 *
                           2591+*                                                                 *
                           2592+*EXITS, NORMAL                                                    *
                           2593+*   NORMAL EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO *
                           2594+*   SCANIT IN THE CALLING ROUTINE. THE PSR (REGISTER 4) WILL CONTAIN *
                           2595+*   A ZERO IF NO DELIMITERS WERE FOUND OR A HIGH CONDITION IF ONE OR *
                           2596+*   MORE DELIMITERS WERE SCANNED.                                 *
                           2597+*                                                                 *
                           2598+*EXITS, ERROR                                                     *
                           2599+*   ERROR EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO  *
                           2600+*   SCANIT IN THE CALLING ROUTINE. THE PSR WILL CONTAIN A LOW      *
                           2601+*   CONDITION.                                                    *
                           2602+*                                                                 *
                           2603+*TABLES/WORKAREAS                                                 *
                           2604+*   * SCACNT - AREA CONTAINING NUMBERS OF DELIMITERS SCANNED       *
                           2605+*   * SCAMMA - LOC WHERE SCACOM MAY BE MOVED IF ONE COMMA IS ALSO  *
                           2606+*     TO BE CONSIDERED A DELIMITER. MOVING SCACOF BACK INTO SCAMMA *
                           2607+*     INDICATES THAT ONLY BLANKS SHOULD BE CONSIDERED DELIMITERS.  *
                           2608+*                                                                 *
                           2609+*ATTRIBUTES                                                       *
                           2610+*   RELOCATABLE AND RE-USABLE                                     *
                           2611+*                                                                 *
                           2612+*CHARACTER CODE DEPENDENCY                                        *
                           2613+*   THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR *
                           2614+*   INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.         *
                           2615+*                                                                 *
                           2616+*NOTES                                                            *
                           2617+*   ERROR PROCEDURES                                              *
                           2618+*      THE ONLY ERROR CONDITION DETECTED BY SCANIT IS THE CASE WHERE *
                           2619+*      A CARRIAGE-RETURN CODE FOLLOWS A COMMA.  UPON RETURN TO THE *
```

```
                        2620+*      CALLING ROUTINE, @PSR WILL BE SET TO A LOW CONDITION, THE      *
                        2621+*      ERROR CODE IS SET IN $CAERR, AND MG WILU BE POINTING TO THE    *
                        2622+*      CARRIAGE-RETURN CHARACTER.                                     *
                        2623+*                                                                     *
                        2624+*   REGISTER USAGE                                                    *
                        2625+*      REGISTER 2 (@XR) IS USED AS A POINTER ACROSS THE AREA BEING     *
                        2626+*      SCANNED FOR DELIMETERS.                                        *
                        2627+*                                                                     *
                        2628+*   SAVED/RESTORED AREAS                                              *
                        2629+*      UPON ENTRY TO SCANIT, REGISTER 8 (@ARR) IS SAVED AND USED AS    *
                        2630+*      THE RETURN ADDRESS.                                            *
                        2631+*                                                                     *
                        2632+*   MODIFICATION CONSIDERATIONS                                       *
                        2633+*      NONE                                                           *
                        2634+*                                                                     *
                        2635+*   REQUIRED MODULES                                                  *
                        2636+*      * @SYSEQ - COMMON SYSTEM EQUATES                                *
                        2637+*      * @FXDEQ - FIXED NUCLEUS ADDRESSES EQUATES                      *
                        2638+*                                                                     *
                        2639+*   OTHER                                                             *
                        2640+*      SCANIT IS INITIALIZED TO BYPASS BLANKS ONLY. IF SCACOM IS       *
                        2641+*      MOVED TO SCAMMA, ONE COMMA WILL BE SCANNED ALONG WITH BLANKS.   *
                        2642+*      THE INSTRUCTION TO DO THIS IS AS FOLLOWS:                       *
                        2643+*              MVI    SCAMMA,SCACOM                                    *
                        2644+*                                                                     *
                        2645+*      TO DROP THE COMMA FROM ITS DELIMITER STATUS, SCACOF SHOULD BE   *
                        2646+*      MOVED TO SCAMMA, USING THE FOLLOWING INSTRUCTION:               *
                        2647+*              MVI    SCAMMA,SCACOF                                    *
                        2648+*                                                                     *
                        2649+************************************************************************


                        2651+*
                        2652+*                      EQUATES USED IN THIS SUBROUTINE
                        2653+*
               0001     2654+SCAINC EQU    1                       TO INCREMENT POINTER
               0001     2655+SCACOM EQU    @BNE                    SWITCH TO ALLOW SCANNING COMMA
               0087     2656+SCACOF EQU    @UCB                    SWITCH TO SET OFF THE INDICATON
                        2657+*                                     * FOR SCANNING A COMMA
               1100     2658+SCANIT EQU    *                       ENTRY POINT TO THIS SUBROUTINE
  1100 34 08 113C       2659+       ST     SCA500+@OP1,@ARR        SAVE RETURN ADDRESS
  1104 34 02 113E       2660+       ST     SCASVE,@XR              SAVE POINTER VALUE
  1108 3C 04 03CD       2661+       MVI    $CAERR,@@E110           SET ERROR CODE
  110C F2 87 03         2662+       J      SCA200                  GO TO PROCESS
  110F E2 02 01         2663+SCA100 LA     SCAINC(,@XR),@XR        INCREMENT POINTER TO NEXT CHAR
  1112 BD 40 00         2664+SCA200 CLI    0(,@XR),@BLANK          IS THIS CHAR BLANK ?
  1115 C0 81 110F       2665+       BE     SCA100                  YES, FETCH NEXT ONE
  1119 BD 6B 00         2666+       CLI    0(,@XR),@COMMA          IS IT A COMMA ?
  111C F2 87 10         2667+SCA250 JC     SCA400,@UCB             UCS TO RETURN -- OR NOP IF
                        2668+*                                     * SCAMMA IS ACTIVE AND CHAR
  111F E2 02 01         2669+SCA300 LA     SCAINC(,@XR),@XR        INCREMENT POINTER TO NEXT CHAR
  1122 BD 40 00         2670+       CLI    0(,@XR),@BLANK          IS THIS CHAR A BLANK ?
  1125 C0 81 111F       2671+       BE     SCA300                  YES, FETCH NEXT ONE
  1129 BD 1F 00         2672+       CLI    0(,@XR),@EOS+1          IS THIS EOS ?
  112C F2 82 0A         2673+       JL     SCA500                  IF NOT, SKIP ERROR ROUTINE
  112F 34 02 1140       2674+SCA400 ST     SCACNT,@XR              SAVE NEW POINTER VALUE
```

```
      SCANIT - DELIMETER SCAN MODULE

ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT           VER 15, MOD 00  23/05/20  PAGE  22

    1133 0F 01 1140 113E       2675+        SLC    SCACNT(2),SCASVE           SET PSR TO EQUAL IF POINTER
                               2676+*                                         * NOT ADVANCED
    1139 C0 87 0000            2677+SCA500 B      *-*                         YES, RETURN
                          111D 2678+SCAMMA EQU    SCA250+@Q                   TO SET SCAN COMMA INDICATOR
                               2679+*
                               2680+*             SAVE AREA
                               2681+*
                          113D 2682+SCASV1 EQU    *                           FIRST BYTE OF SCASVE
    113D                  113E 2683+SCASVE DS     CL2                         ORIGINAL POINTER VALUE SAVE
    113F                  1140 2684+SCACNT DS     CL2                         SAVE AREA FOR TOTAL CHAR SCAN
                               2685+***                         END OF SCANIT                      ***
```

```
                         2687 *********************************************************************
                         2688 * 5703-XM1       COPYRIGHT IBM CORP. 1970                          *
                         2689 *                       REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083  *
                         2690 *                                                                 *
                         2691 *********************************************************************
                         2692 *STATUS                                                           *
                         2693 *    VERSION 1 MODIFICATION 0                                      *
                         2694 *                                                                 *
                         2695 *FUNCTION                                                          *
                         2696 *    * SDISKS CHECKS THE INPUT LINE BUFFER FOR A VALID COMPLETE DISK  *
                         2697 *      SPECIFICATION.                                              *
                         2698 *    * THE DISK AND DRIVE BITS ARE SET IN A TWO-BYTE DISK ADDRESS  *
                         2699 *      FIELD IN THE OUTPUT AREA.                                   *
                         2700 *    * THE DISK LABEL IS PLACED IN THE OUTPUT AREA.                *
                         2701 *    * A POINTER TO THE VOL-ID TABLE ENTRY FOR THE SPECIFIED DISK IS  *
                         2702 *      PLACED IN THE OUTPUT AREA.                                  *
                         2703 *                                                                 *
                         2704 *ENTRY POINTS                                                      *
                         2705 *    SDISKS -- THIS IS THE ONLY ENTRY POINT                        *
                         2706 *    THE CALLING SEQUENCES ARE AS FOLLOWS:                         *
                         2707 *    *    B    SDISKS         - CHECK FOR A VALID COMPLETE DISK    *
                         2708 *         MVI SDISKP,SDIUCB   - CHECK FOR A VALID DISK-DRIVE        *
                         2709 *         B   SDISKS             SPECIFICATION ONLY                *
                         2710 *                                SPECIFICATION                     *
                         2711 *    *    MVI SDIBLN,SDIVOF    - DISALLOW A COMMA SCAN FOLLOWING THE  *
                         2712 *         B   SDISKS             DISK LABEL                        *
                         2713 *    *    MVI SDINID,SDIVOF    - CHECK IN THE VOL-ID TABLE FOR THE  *
                         2714 *         B   SDISKS             SPECIFIED DISK LABEL ON THE SPECIFIED  *
                         2715 *                                DISK                              *
                         2716 *                                                                 *
                         2717 *INPUT                                                             *
                         2718 *    * THE INPUT IS A POINTER IN THE INDEX REGISTER TO THE FIRST BYTE  *
                         2719 *      OF THE DISK SPECIFICATION.                                  *
                         2720 *    * UPON EXIT FROM THIS ROUTINE THE INDEX REGISTER IS POINTING  *
                         2721 *      TO THE NEXT PARAMETER IN THE INPUT LINE                     *
                         2722 *    * THE BASE REGISTER IS SAVED AND RESTORED BEFORE RETURNING    *
                         2723 *                                                                 *
                         2724 *OUTPUT                                                            *
                         2725 *    SDITBL - TABLE CONTAINING THE FOLLOWING--LEFT BYTE            *
                         2726 *    *    BYTE DISPLACEMENT INTO THE VOL-ID TABLE OF THE LEFT BYTE OF  *
                         2727 *         THE ENTRY FOR THE SPECIFIED DISK. -- ONE BYTE -- PRECEDED  *
                         2728 *         BY ONE BYTE OF ZERO.                                     *
                         2729 *    *    DISK ADDRESS -- TWO BYTES -- ZERO EXCEPT FOR DISK-DRIVE BITS *
                         2730 *    *    DISK LABEL -- SIX BYTES -- PADDED WITH BLANKS            *
                         2731 *    THE ABOVE ELEMENTS ARE ORDERED IN THE TABLE AS THEY ARE LISTED  *
                         2732 *                                                                 *
                         2733 *EXTERNAL REFERENCES                                               *
                         2734 *        SCANIT   - ENTRY TO SCAN VALID DELIMITERS                 *
                         2735 *        SALPH6   - ENTRY TO SYNTAX CHECK VOL-ID                   *
                         2736 *        $CAERR   - ADDRESS OF ERROR CODE SAVE ARIA                *
                         2737 *        $VOLID   - ADDRESS OF TABLE CONTAINING CURRENT DISK LABELS  *
                         2738 *        $DKSIZ   - ADDRESS OF DISK SIZE INDICATOR                 *
                         2739 *        SALPHR   - ADDRESS OF DISK LABEL IN SALPHA                *
                         2740 *                                                                 *
                         2741 *EXITS, NORMAL                                                     *
                         2742 *    * NORMAL EXIT IS TO THE INSTRUCTION FOLLOWING THE ALL TO SDISKS  *
```

```
                        2743 *    * THE PROGRAM STATUS REGISTER (PSR) IS SET HIGH               *
                        2744 *    * THE INDEX REGISTER IS POINTING TO THE NEXT PARAMETER OR @EOS *
                        2745 *    * THE BASE REGISTER IS RESTORED                               *
                        2746 *                                                                  *
                        2747 *EXITS, ERROR                                                      *
                        2748 *    * ERROR EXIT IS TO THE INSTRUCTION FOLLOWING THE CALL TO SDISKS *
                        2749 *    * THE PROGRAM STATUS REGISTER (PSR) IS SET LOW                *
                        2750 *    * THE INDEX REGISTER IS POINTING TO THE PARAMETER OR DELIMITER IN *
                        2751 *      ERROR FOR SYNTAX ERRORS. FOR NON-SYNTAX ERRORS IT IS POINTING *
                        2752 *      OUTSIDE THE INPUT LINE BUFFER.                              *
                        2753 *    * THE BASE REGISTER IS RESTORED.                              *
                        2754 *    * THE APPROPRIATE ERROR CODE IS SET AT $CAERR                 *
                        2755 *                                                                  *
                        2756 *TABLES/WORKAREAS                                                  *
                        2757 *    SDITBL -- SEE OUTPUT FOR DESCRIPTION                          *
                        2758 *                                                                  *
                        2759 *ATTRIIBUTES                                                       *
                        2760 *    SDISKS IS REUSABLE                                            *
                        2761 *                                                                  *
                        2762 *CHARACTER CODE DEPENDENCY                                         *
                        2763 *    THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL         *
                        2764 *    REPRESENTATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT *
                        2765 *    TO THE ONE USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED *
                        2766 *    SO THAT REDEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL *
                        2767 *    RESULT IN A CORRECT MODULE FOR THE NEW DEFINITIONS.           *
                        2768 *                                                                  *
                        2769 *NOTES                                                             *
                        2770 *    ERROR PROCEDURES                                             *
                        2771 *     * THE INDEX REGISTER IS SET FOR PROCEDURES ON DISPLAYING AN  *
                        2772 *       UP-ARROW.                                                  *
                        2773 *     * THE PROGRAM STATUS REGISTER IS SET LOW.                    *
                        2774 *     * THE APPROPRIATE ERROR CODE IS SET AT $CAERR.               *
                        2775 *                                                                  *
                        2776 *    REGISTER USAGE                                               *
                        2777 *     * THE BASE REGISTER IS SAVED AND RESTORED                    *
                        2778 *     * THE INDEX REGISTER IS SET UP ACCORDING TO THE EXIT FROM SDISKS *
                        2779 *       SEE EXITS,NORMAL AND EYITS,ERROR                           *
                        2780 *     * THE PROGRAM STATUS REGISTER IS SET TO INDICATE WHETHER OR NOT *
                        2781 *       AN ERROR WAS FOUND. HIGH-NO ERROR --- LOW-ERROR            *
                        2782 *     * THE ADDRESS RECALL REGISTER IS STORED IN THE RETURN BRANCH *
                        2783 *       INSTRUCTION UPON ENTRY TO SDISKS                           *
                        2784 *                                                                  *
                        2785 *    SAVED/RESTORED AREAS                                          *
                        2786 *      N/A                                                         *
                        2787 *                                                                  *
                        2788 *    MODIFICATION CONSIDERATIONS                                   *
                        2789 *      SDISKS IS USED BY MOST FUNCTIONS WHICH REQUIRE A COMPLETE DISK *
                        2790 *      SPECIFICATION AND MAY BE USED BY FUNCTIONS REQUIRING A PARTIAL *
                        2791 *      DISK SPECIFICATION (I.E. R1).                               *
                        2792 *                                                                  *
                        2793 *    REQUIRED MODULES                                             *
                        2794 *      SCANIT - SCAN BLANKS AND COMMA                              *
                        2795 *      SALPHA - CHECK VALIDITY OF DISK LABEL                       *
                        2796 *      @SYSEQ - COMMON SYSTEM EQUATES                              *
                        2797 *      @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR EQUATES     *
                        2798 *      @ERMEQ - ERROR MESSAGE EQUATES                              *
```

```
         SDISKS - DISK SPECIFICATION CHECKER


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT           VER 15, MOD 00  23/05/20   PAGE  25

                           2799 *                                                                    *
                           2800 *    OTHER                                                           *
                           2801 *      N/A                                                           *
                           2802 ************************************************************************


                           2804 ************************************************************************
                           2805 *
                           2806 *                        INITIALIZATION
                           2807 *
                           2808 ************************************************************************
                           2809 *SDISKS ENTER BASE,SDISKS,EXIT,SDIEX, RW?PARR
                      1141 2810          USING SDISKS,@BR              BASE ADDRESS SPECIFICATION
                      1141 2811 SDISKS EQU   *                        MODULE ENTRY POINT
    1141 34 01 1217       2812          ST    SDIEX0+@OP1,@BR         SAVE PAR
    1145 C2 01 1141       2813          LA    SDISKS,@BR              LOAD BASE REGISTER
    1149 74 08 DA         2814          ST    SDIEX2+@OP1(,@BR),@ARR  SAVE RETURN ADDRESS
                           2815 *** END OF EXPANSION ***
    114C 74 02 C4         2816          ST    SDI550+@OP1(,@BR),@XR   SAVE THE VALUE IN THE INDEX MEG
    114F 5F 08 F0 F0      2817          SLC   SDIRBL(,@BR),SDIRBL(SDILN9,@BR)  CLEAR OUTPUT FIELD
                           2818 *
                           2819 *                     DETERMINE DISK AND DRIVE
                           2820 *
    1153 BD D9 00         2821          CLI   0(,@XR),@CHARR          IS THE REMOV. DISK SPECIFIED ?
    1156 F2 81 09         2822          JE    SDI100                  IF SO GO TO DETERMINE DRIVE
    1159 BD C6 00         2823          CLI   0(,@XR),@CHARF          IS THE FIXED DISK SPECIFIED ?
    115C F2 01 0C         2824          JNE   SDI150                  RETURN TO CALLING PROGRAM
    115F 7A 01 EA         2825 SDI050 SBN   SDIDRK(,@BR),SDIMK1       SET BIT ON FOR FIXED DISK
    1162 BD F1 01         2826 SDI100 CLI   1(,@XR),SDI001            IS DRIVE 1 SPECIFIED ?
    1165 F2 81 28         2827          JE    SDI200                  IF $O INCREMENT POINTER
    1168 BD F2 01         2828          CLI   1(,@XR),SDI002          IS DRIVE 2 SPECIFIED ?
    116B 3C 11 03CD       2829 SDI150 MVI   $CAERR,@@E131             SET ERROR CODE FOR INVALID
                           2830 *                                    DISK-DRIVE SPECIFICATION
    116F F2 01 94         2831          JNE   SDI600                  EXIT TO CALLING PROGRAM
    1172 7A 02 EA         2832          SBN   SDIDRK(,@BR),SDIMK2     SET BIT FOR DRIVE 2
                           2833 *
                           2834 * TEST IF DRIVE REQUESTED IS WITHIN THE SYSTEM CONFIGURATION
                           2835 *
    1175 3C 39 03CD       2836          MVI   $CAERR,@@E242           SET ERROR CODE
    1179 78 01 EA         2837          TBN   SDIDRK(,@BR),SDIMK1     TEST OF FIXED DISK
    117C F2 90 0A         2838          JF    SDI160                  NO - TAKE JUMP
    117F 38 10 03D7       2839          TBN   $DKSIZ,$DK800           TEST IF F2 IS IN SYSTEM
    1183 F2 10 0A         2840          JT    SDI200                  JUMP IF F2 ON SYSTEM
    1186 F2 87 75         2841          J     SDI530                  F2 NOT PRESENT - TAKE ERR EXIT
    1189 39 18 03D7       2842 SDI160 TBF   $DKSIZ,$DK600+$DK800      TEST IF R2 IS ON SYSTEM
    118D F2 10 6E         2843          JT    SDI530                  NO - TAKE ERROR EXIT

                           2845 ************************************************************************
                           2846 *
                           2847 *                     CHECK VOLID SPECIFIED
                           2848 *
                           2849 ************************************************************************
    1190 E2 02 02         2850 SDI200 LA    SDIX02(,@XR),@XR          INCREMENT @XR BY 2
    1193 3C 01 111D       2851          MVI   SCAMMA,SCACOM           SET INDICATOR TO ALLOW SCANNING
                           2852 *                                    * OF COMMAS
    1197 C0 87 1100       2853          B     SCANIT                  SCAN PAST BLANKS AND COMMAS
```

```
     119B F2 82 76          2854            JL     SDIEX0                  IF DANGLING COMMA -- RETURN
     119E F2 80 7B          2855 SDI255 JC     SDI800,@NOP             JUMP IF ONLY DISK-DRIVE SPEC
     11A1 F2 01 11          2856            JNZ    SDI270                  IF THERE IS NO ERROR GOTO SALPHA
     11A4 3C 10 03CD        2857            MVI    $CAERR,@@E130           SET ERROR CODE - 'MISSING PARM'
     11A8 BD 1E 00          2858            CLI    0(,@XR),@EOS            CHECK FOR EOS DIRECTLY FOLLOWING
                            2859 *                                      * DISK-DRIVE SPEC
     11AB F2 81 58          2860            JE     SDI600                  TAKE ERROR EXIT
     11AE 3C 11 03CD        2861 SDI260 MVI    $CAERR,@@E131           SET ERROR CODE - 'INV PARAMETER'
     11B2 F2 87 4D          2862            J      SDI550                  GO TO SET UP INDEX REGISTER
     11B5 F2 87 0B          2863 SDI270 JC     SDI300,@UCB             UNLESS RESET ALLOW COMMA SCAN
     11B8 3C 87 11B6        2864            MVI    SDIBLN,@UCB             RESET INDR TO ALLOW COMMA SCAN
     11BC 3C 87 111D        2865            MVI    SCAMMA,SCACOF           SCAN BLANKS ONLY
     11C0 74 02 C4          2866            ST     SDI550+@OP1(,@BR),@XR   SAVE POINTER TO VOLUME LABEL
     11C3 C0 87 0D9E        2867 SDI300 B      SALPH6                  GO TO SALPHA TO CHECK SYNTAX OR
                            2868 *                                      * VOLID
     11C7 4C 05 F0 0F54     2869            MVC    SDIRBL(@VOLID,@BR),SALPHR+@VOLID-@B1 PLACE VALID FROM
                            2870 *                                              * SALPHA INTO SDITBK
     11CC F2 82 45          2871            JL     SDIEX0                  IF ERROR WAS FOUND BY SALPHA
                            2872 *                                      * RETURN TO CALLING ROUTINE
     11CF F2 01 06          2873 SDI350 JNZ    SDI400                  IF THERE IS NO ERROR FROM SALPHA
                            2874 *                                      * FIND DISPLACEMENT INTO TABLE
     11D2 BD 1E 00          2875            CLI    0(,@XR),@EOS            TEST FOR EOS
     11D5 D0 01 6D          2876            BNE    SDI260(,@BR)            IF OTHER THAN EOS TAKE ERR EXIT
                            2877 *
                            2878 *              DISPLACEMENT INTO VALID TABLE
                            2879 *
     11D8 5C 00 E8 EA       2880 SDI400 MVC    SDITBL(1,@BR),SDIDRK(,@BR)  MOVE DISK DRIVE SPECIFICATION
                            2881 *                                      * TO FIRST BYTE OF TABLE
     11DC 5E 00 E8 E8       2882            ALC    SDITBL(,@BR),SDITBL(1,@BR)  ADD THIS SPECIFICATION TO
     11E0 5E 00 E8 E8       2883            ALC    SDITBL(,@BR),SDITBL(1,@BR)  * ITSELF 3 TIMES WHICH GIVES
     11E4 5E 00 E8 E8       2884            ALC    SDITBL(,@BR),SDITBL(1,@BR)  * THE DISPLACEMENT INTO THE
                            2885 *                                      * VOLID TABLE
                            2886 *
                            2887 *              CHECK VOL-ID TABLE
                            2888 *
     11E8 F2 87 25          2889 SDI450 JC     SDI750,@UCB             IF INDICATOR IS NOT SET,SKIP
                            2890 *                                      ROUTINE FOR CHECKING VALID
     11EB 5E 01 B1 E8       2891            ALC    SDI500+@OP1(,@BR),SDITBL(@CADDR,@BR)  ADD DISPLACEMENT
                            2892 *                                      * INTO VALID TABLE
     11EF 1D 05 03FB F0     2893 SDI500 CLC    SDIID5,SDIRBL(@VOLID,@BR) IS VALID GIVEN IN VALID TABLE ?
     11F4 3C 28 03CD        2894            MVI    $CAERR,@@E216           SET ERROR CODE FOR ENTRY NOT IN
                            2895 *                                      VALID IN CASE NEEDED
     11F8 7C 87 A8          2896            MVI    SDINID(,@BR),SDIUCB     RESET INDICATOR FOR CHECKING
                            2897 *                                      * VOLID
     11FB F2 81 12          2898            JE     SDI750                  RETURN TO CALLING ROUTINE
     11FE 5C 01 C4 00       2899 SDI530 MVC    SDI550+@OP1(@CADDR,@BR),SDISKS(,@BR)  INCREMENT POINTER
                            2900 *                                      * PAST BUFFER

                            2902 *
                            2903 *              EXIT ROUTINE
                            2904 *
     1202 C2 02 0000        2905 SDI550 LA     *-*,@XR                 RESTORE INDEX REGISTER
     1206 7D F2 E7          2906 SDI600 CLI    SDITBL-1(,@BR),SDI002   SET @PSR TO BRANCH LOW -- ERROR
     1209 F2 87 08          2907            J      SDIEX0                  RETURN TO CALLER
     120C 3C 80 119F        2908 SDI650 MVI    SDISKP,@NOP             RESET INDR TO CHECK VOLID
     1210 5F 01 B1 E8       2909 SDI750 SLC    SDI500+@OP1(,@BR),SDITBL(@CADDR,@BR)  REINITIALIZE POINTER
```

```
                              2910 *SDIEX0 EXIT  @BR,,RETURN
     1214 C2 01 0000          2911 SDIEX0 LA    *-*,@BR                    RESTORE @BR
     1218 C0 87 0000          2912 SDIEX2 B     *-*                        RETURN TO CALLING PROGRAM
                              2913 *** END OF EXPANSION ***

                              2915 *
                              2916 *                    SYNTAX CHECK FOR DISK-DRIVE SPEC
                              2917 *
     121C D0 01 CB            2918 SDI800 BNZ   SDI650(,@BR)               NO ERROR -- RETURN TO CALLER
     121F BD 1E 00            2919        CLI   0(,@XR),@EOS               CHECK FOR @EOS
     1222 D0 81 CB            2920        BE    SDI650(,@BR)               TAKE THE NORMAL EXIT
     1225 D0 87 6D            2921        B     SDI260(,@BR)               GO TO SET THE ERROR CODE
                              2922 *
                              2923 *
                              2924 *                    EQUATED CONSTANTS
                              2925 *
          0009                2926 SDILN9 EQU   9                          LENGTH OF OUTPUT FIELD
          0002                2927 SDIX02 EQU   X'02'                      LENGTH FOR INCREMENTING @XR
                              2928 *
                              2929 *                    CONSTANTS AND WORK AREAS
                              2930 *
     1228 00            1228  2931        DC    XL1'00'                    BYTE FOR ADDING DISPLACEMENT TO
                              2932 *                                       * A TWO BYTE FIELD
     1229              1231   2933 SDIRBL DS    CL(SDILN9)                 SPACE ALLOCATED FOR OUTPUT TABLE
                              2934 *
                              2935 *                    EQUATES
                              2936 *
          1229                2937 SDITBL EQU   SDIRBL-8                   LEFTMOST BYTE OF OUTPUT TABLE
          122B                2938 SDIDRK EQU   SDITBL+2                   BYTE CONTAINING DISK-DRIVE BITS
          122C                2939 SDIVID EQU   SDITBL+3                   AREA CONTAINING VOLID
          00F1                2940 SDI001 EQU   C'1'                       SYMBOL FOR DRIVE 1
          00F2                2941 SDI002 EQU   C'2'                       SYMBOL FOR DRIVE 2
          03FB                2942 SDIID5 EQU   $VOLID+5                   RIGHT BYTE OF VOLID IN TABLE
          0087                2943 SDIUCB EQU   @UCB                       INDICATOR FOR NOT CHECKING VOLID
          0080                2944 SDIVOF EQU   @NOP                       INDICATOR FOR CHECKING VOLID
          119F                2945 SDISKP EQU   SDI255+@Q                  Q-CODE OF AN INSTRUCTION
          11B6                2946 SDIBLN EQU   SDI270+@Q                  INDR TO SET FOR SCANNING BLANKS
          11D0                2947 SDISLH EQU   SDI350+@Q                  INDR TO SET TO ALLOW SLASH
                              2948 *                                       * FOLLOWING VOLID
          0001                2949 SDIMK1 EQU   X'01'                      MASK FOR FIXED DISK
          0002                2950 SDIMK2 EQU   X'02'                      MASK FOR DRIVE 2
          11E9                2951 SDINID EQU   SDI450+@Q                  Q-CODE OF AN INSTRUCTION
```

```
                         2953 *********************************************************************
                         2954 * 5703-XM1      COPYRIGHT IBM CORP. 1970                           *
                         2955 *                 REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083  *
                         2956 *                                                                  *
                         2957 *********************************************************************
                         2958 *STATUS                                                           *
                         2959 *    VERSION 1 MODIFICATION 0                                      *
                         2960 *                                                                  *
                         2961 *FUNCTION                                                          *
                         2962 *    *                                                             *
                         2963 *    * MINITL IS USE FOR ACCESSING THE VOLUME LABEL SECTOR OF AN   *
                         2964 *      UNKNOWN DISK.                                               *
                         2965 *    * HARD DISK ERRORS ARE TRAPPED SO THAT AN UNINITIALIZED DISK  *
                         2966 *      WILL NOT RESULT IN SYSTEM FAILURE.                          *
                         2967 *    * IF THE DISK HAS BEEN INITIALIZED, THE VOLUME LABEL SECTOR IS *
                         2968 *      CHECKED FOR VALIDITY. AN INVALID VOLUME LABEL WILL RESULT IN *
                         2969 *      THE DISK BEING CONSIDERED UNINITIALIZED.                    *
                         2970 *                                                                  *
                         2971 *ENTRY POINTS                                                      *
                         2972 *    THE ONLY ENTRY POINT IS AT LOCATION MINITL.  A DPL FOR READING *
                         2973 *    THE VOLUME LABEL MUST BE PROVIDED.  THE CALLING SEQUENCE IS   *
                         2974 *         B     MINITL                                             *
                         2975 *INPUT                                                             *
                         2976 *    * A SIX BYTE DPL FOR READING THE VOLUME LABEL MUST BE PROVIDED  *
                         2977 *      BY THE CALLING PROGRAM AT LOCATION MINDPL.  SINCE A CHECK    *
                         2978 *      FOR VOLUME LABEL INTEGRITY IS PERFORMED BY MINITL, THE DPL   *
                         2979 *      SHOULD SPECIFY VOLUME LABEL DISK ADDRESS ONLY.              *
                         2980 *    * A 256 BYTE SECTOR I/O BUFFER MUST BE PROVIDED BY THE CALLING  *
                         2981 *      PROGRAM AT LOCATION MINBUF.  UPON NORMAL RETURN FROM MINITL, *
                         2982 *      THE VOLUME LABEL SECTOR WILL BE PRESENT IN THE BUFFER.      *
                         2983 *                                                                  *
                         2984 *OUTPUT                                                            *
                         2985 *    * AN INDICATOR IN THE PSR WILL BE SET INDICATING DISK          *
                         2986 *      INITIALIZATTON STATUS.  A 'LOW' PSR CONDITION INDICATES THAT *
                         2987 *      THE DISK HAS NOT BEEN INITIALIZED.                          *
                         2988 *    * THE VOLUME LABEL SECTOR WILL BE PRESENT AT LOCATION MINBUF   *
                         2989 *      UPON RETURN UNLESS THE PSR IS SET 'LOW'.                    *
                         2990 *                                                                  *
                         2991 *EXTERNAL REFERENCES                                               *
                         2992 *    $KE130 - ADDRESS OF DKDISK HARD ERROR EMIT.  THIS INSTRUCTION  *
                         2993 *             IS MODIFIED TO EFFECT RETURN TO MINITL ON HARD        *
                         2994 *             DISK ERRORS.                                         *
                         2995 *    MINDPL - LOCATION OF REQUIRED DPL,                            *
                         2996 *    MINBUF - LOCATION OF SECTOR I/O BUFFER.                       *
                         2997 *    $IOIND - I/O STATUS INDICATORS.                               *
                         2998 *    $INDR2 - CONTAINS I/O ERROR INDICATOR.                        *
                         2999 *    $CAERR - LOCATION OF ERRPG4 ERROR MESSAGE CODE.               *
                         3000 *    $WAITF - CHECK ERRORS DPL.                                    *
                         3001 *    $C0001 - LOCATION OF 2 BYTE CONSTANT OF 1.                    *
                         3002 *    $ERLOG - ADDRESS OF ERROR LOGGING ENTRY. THIS ADDRESS IS       *
                         3003 *             RESTORED TO THE INSTRUCTION REFERENCED BY $KE130      *
                         3004 *             UPON EXIT.                                           *
                         3005 *                                                                  *
                         3006 *EXITS,NORMAL                                                      *
                         3007 *    NORMAL EXIT IS TO THE INSTRUCTION FOLLOWING THE CALLING        *
                         3008 *    INSTRUCTION.  THE PSR WILL RE SET 'HIGH'.                     *
```

```
                          3009 *                                                              *
                          3010 *EXITS, ERROR                                                  *
                          3011 *    ERROR EXIT IS THE SAME AS FOR NORMAL EXCEPT THAT THE PSR WILL   *
                          3012 *    BE SET 'LOW' AND THE CORRESPONDING ERROR CODE WILL BE SET AT    *
                          3013 *    $CAERR,                                                   *
                          3014 *                                                              *
                          3015 *TABLES/WORK AREAS                                             *
                          3016 *    N/A                                                       *
                          3017 *                                                              *
                          3018 *ATTRIBUTES                                                    *
                          3019 *    RELOCATABLE                                               *
                          3020 *    ASSEMBLED WITH CALLING PROGRAM.                           *
                          3021 *                                                              *
                          3022 *CHARACTER CODE DEPENDENCY                                     *
                          3023 *    N/A                                                       *
                          3024 *                                                              *
                          3025 *NOTES                                                         *
                          3026 *    ERROR PROCEDURES                                          *
                          3027 *       MINITL MODIFIES THE HARD ERROR EXIT IN DKDISK TO EFFECT A    *
                          3028 *       RETURN WHEN A DISK IS UNITIALIZED.  IN ADDITION, IF THE VOLUME *
                          3029 *       LABEL IS SUCESSFULLY READ, 'VOL' IS CHECKED FOR PRESENCE IN   *
                          3030 *       THE FIRST THREE BYTES OF THE SECTOR.  IF 'VOL' IS MISSING, OR  *
                          3031 *       THE HARD ERROR EXIT IS TAKEN, THE CORRESPONDING ERROR MESSAGE *
                          3032 *       INDICATOR (@@E543-@@E546) IS PLACED AT $CAERR AND THE PSR     *
                          3033 *       SET 'LOW'.                                             *
                          3034 *                                                              *
                          3035 *    REGISTER USAGE                                            *
                          3036 *       N/A                                                    *
                          3037 *                                                              *
                          3038 *    SAVED/RESTORED AREAS                                      *
                          3039 *       N/A                                                    *
                          3040 *                                                              *
                          3041 *    MODIFICATION CONSIDERATIONS                               *
                          3042 *       MINITL ASSUMES THAT THE INSTRUCTION AT $KE130 IS AN UNBASED,  *
                          3043 *       UNCONDITIONAL BRANCH TO $ERLOG AND THAT THIS INSTRUCTION IS   *
                          3044 *       THE TERMINAL EXIT FROM DKDISK UPON DETECTING A HARD DISK ERROR.*
                          3045 *       MODIFICATIONS TO THIS INSTRUCTION IN DKDISK WILL REQUIRE A    *
                          3046 *       CHANGE OR REWRITE OF THE ERROR DETECTING PORTION OF MINITL.   *
                          3047 *       ERROR CODES @@E543-@@E545 WERE ASSUMED TO BE CONTIGUOUS IN    *
                          3048 *       VALUE AND MEANING.  CHANGES IN THIS AREA WILL REQUIRE CODE    *
                          3049 *       CHANGES TO MINITL.                                      *
                          3050 *                                                              *
                          3051 *    REQUIRED MODULES                                          *
                          3052 *       @SYSEQ - GENERAL SYSTEM EQUATES.                        *
                          3053 *       @FXDEQ - NUCLEUS LOCATION EQUATES.                      *
                          3054 *       @@M543,@@E544,@@E545,@@E546 - ERROR MESSAGE EQUATES.    *
                          3055 *                                                              *
                          3056 *    OTHER                                                     *
                          3057 *       N/A                                                    *
                          3058 ***************************************************************************
```

```
      SDISKS - DISK SPECIFICATION CHECKER


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT              VER 15, MOD 00  23/05/20  PAGE  30

                          3060 **************************************************************************
                          3061 *MINITL ENTER EXIT-MIN20,@BR,@XR,@ARR
                     1232 3062 MINITL EQU    *                        MODULE ENTRY POINT
     1232 34 01 1294       3063        ST    MIN200+@OP1,@BR          SAVE @BR
     1236 34 02 1298       3064        ST    MIN201+@OP1,@XR          SAVE @XR
     123A 34 08 129C       3065        ST    MIN202+@OP1,@ARR         SAVE RETURN ADDRESS
                          3066 *** END OF EXPANSION ***

     123E 0C 01 01D8 12A0  3068        MVC   $KE130+@OP1,MINERP(@CADDR)  SET HARD ERROR TRAP
                          3069 *       DISK  MINDPL,WAIT
     1244 C0 87 0025       3070        B     $DISKN                   PERFORM PHYSICAL DISK OP
     1248 0FA7        1249 3071        DC    AL2(MINDPL)              DPL ADDRESS
     124A C0 87 0025       3072        B     $DISKN                   WAIT AND CHECK DISK ERRORS
     124E 057F        124F 3073        DC    AL2($WAITF)             WAIT DPL ADDRESS
                          3074 *** END OF EXPANSION ***

     1250 35 02 0FAC       3076        L     MINDPL+@DBFR2,@XR        POINT TO VOL-LABEL BUFFER
     1254 8D 02 02 12A3    3077        CLC   2(3,@XR),MINVOL          CHECK FOR VALID VOL LABEL
     1259 F2 01 07         3078        JNE   MIN100                   ASSUME UNINITIALIZED IF BAD -
     125C 3D 00 0464       3079        CLI   $C0001,@ZERO            SET HIGH PSR
     1260 F2 87 28         3080        J     MIN150                   GO EXIT
                          3081 *
                          3082 *       ENTRY FROM DISK HARD ERROR ROUTINE
                          3083 *
     1263 3B 20 03D2       3084 MIN100 SBF   $IOIND,$HRDER            TURN OFF HARD ERROR INDQ
     1267 3B 04 03D5       3085        SBF   $INDR2,$ERPND           DON'T LOG THE ERROR
     126B 3C 91 03CD       3086        MVI   $CAERR,@@E543           SET POSSIBLE R1 NOT INITIALIZED
     126F 38 01 0FA9       3087        TBN   MINDPL+@DSAD,MINMKR      IS IT THE FIXED DISK ?
     1273 F2 90 04         3088        JF    MIN110                   TEST FOR DRIVE 2 IF NO
     1276 3C 93 03CD       3089        MVI   $CAERR,@@E545           SET F1 ERROR MSG
     127A 38 01 0FA9       3090 MIN110 TBN   MINDPL+@DSAD,MINMKR      IS IT DRIVE 2 ?
     127E F2 90 06         3091        JF    MIN120                   GO EXIT IF NO
     1281 0E 00 03CD 0464  3092        ALC   $CAERR(1),$C0001        SET DRIVE 2 MSGS
     1287 3D FF 0464       3093 MIN120 CLI   $C0001,@DWAIT           SET LOW PSR
     128B 0C 01 01D8 129E  3094 MIN150 MVC   $KE130+@OP1(@CADDR),MINAC1  RESTORE DKDISK HARD ERROR

                          3096 *MIN20  EXIT  @BR,@XR,RETURN
     1291 C2 01 0000       3097 MIN200 LA    *-*,@BR                  RESTORE @BR
     1295 C2 02 0000       3098 MIN201 LA    *-*,@XR                  RESTORE @XR
     1299 C0 87 0000       3099 MIN202 B     *-*                      RETURN TO CALLING PROGRAM
                          3100 *** END OF EXPANSION ***

     129D 0345        129E 3102 MINAC1 DC    AL2($ERLOG)             NORMAL DKDISK HARD ERROR EXIT
     129F 1263        12A0 3103 MINERP DC    AL2(MIN100)             SPECIAL HARD ERROR TRAP ENTRY
                     0002 3104 MINMK2 EQU    X'02'                   DRIVE 2 DISK BIT
                     0001 3105 MINMKR EQU    X'01'                   REMOVABLE/FINED DISK BIT
     12A1 E5D6D3      12A3 3106 MINVOL DC    CL3'VOL'                VOL LABEL INDR
                          3107 **************************************************************************
                          3108        PRINT ON
                     FFFF 3109        END

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =      0
```

```
$$$$$$  001  0C00 1860
$$$$$1  029  10FF 2553
$$$$L1  001  10E3 2548   2551   2553
$$$$T1  001  1100 2550   2553
$$ZERO  001  0000 0223   0224   0226   0227   0228   0232
$#TALT  001  0075 0707   2283
$#TBIS  001  00FC 0719
$#TCET  001  0069 0706
$#TCYL  001  005C 0705   2134
$#THAD  001  00F2 0711
$#THEL  001  0004 0731
$#THVT  001  00F0 0710
$#TIDR  001  00FF 0721
$#TLAD  001  00FE 0720
$#TLBL  001  0008 0702   2560
$#TLIB  001  00F8 0716
$#TLIF  001  0010 0729
$#TLSZ  001  00F7 0715
$#TOID  001  005B 0704   2561
$#TPAD  001  00F6 0714
$#TPFL  001  0008 0730
$#TPSZ  001  00F4 0713
$#TPTF  001  00F3 0712
$#TRES  001  00D7 0723
$#TSUS  001  00EF 0709
$#TSYM  001  0080 0726
$#TSYS  001  00FA 0718
$#TUSE  001  00A8 0708
$#TVOL  001  0002 0701
$#TVTC  001  000A 0703
$#TWAL  001  00D7 0722
$#TWF1  001  0020 0728
$#TWRK  001  00F9 0717
$#TWR1  001  0040 0727
$@$AVL  001  00FF 1223   2293
$@$BYT  001  0002 1209   2237
$@$END  001  0022 1225   2266*  2267*  2429   2431
$@$FIL  001  000D 1205   2230
$@$FIN  001  000A 1219   2272*  2418
$@$INC  001  000A 1211   2244
$@$LNG  001  0008 1206   2233   2305   2418   2483
$@$LTH  001  0040 1218
$@$LUE  001  0006 1213
$@$RTN  001  0011 1220   2268*  2421   2433   2437
$@$SCT  001  0001 1207
$@$SRT  001  0020 1222   2423*  2424   2426   2474
$@$TGS  001  0032 1212
$@$TYP  001  0012 1221
$ABORT  001  0010 0336
$BASIC  001  0080 0394
$BIGCD  001  0080 0470
$BLDPL  001  0579 0603   0605
$BLNOE  001  0569 0593
$BLOAD  001  0522 0584   0586   0589   0602   0603
$BLRTN  001  0550 0592   0593
$BRSAV  001  03C5 0281   0282
```

```
$BSADR  001  0587 0608   0610
$BUFPT  001  03E3 0489   0490
$CABLD  001  04B4 0562   0563
$CAERK  001  0469 0539   0542  2101  2110
$CAERR  001  03CD 0287   0289  2100* 2661* 2829* 2836* 2857* 2861* 2894* 3086* 3089* 3092*
$CAIPL  001  049D 0558   0560
$CALLI  001  0008 0479
$CARDI  001  0001 0250
$CARPL  001  04A1 0560   0562  2276
$CIENT  001  0483 0549   0550
$CIEXT  001  0480 0548   0549
$CIMSK  001  0476 0545   0548
$CISUS  001  0496 0553   0558
$CLBFR  001  0010 0437
$CMDKY  001  0008 0349
$CMODE  001  0002 0399
$CONFG  001  03DD 0462   0472
$CRPOS  001  03E2 0488   0489
$CRTAD  001  044D 0527   0528
$CRTAV  001  0002 0343
$CRTDN  001  0002 0367
$CRTIN  001  03D3 0364   0371
$CRTNO  001  0004 0346
$CRTPU  001  0004 0368
$CRTSP  001  0008 0369
$CRTUP  001  0001 0366
$CRUSH  001  0080 0475
$CSDPL  001  050E 0574   0575
$C0001  001  0464 0531   0537  3079  3092  3093
$DATE   001  043A 0512   0513
$DBGUF  001  03E0 0474   0483
$DBLOK  001  0001 0424
$DFDET  001  03E8 0495   0496
$DISKN  001  0025 0226   2205  2207  3070  3072
$DKERR  001  0008 0405
$DKSIZ  001  03D7 0449   0457  0498  2839  2842
$DK100  001  0001 0451
$DK200  001  0002 0452
$DK400  001  0004 0453
$DK600  001  0008 0454   2842
$DK800  001  0010 0455   2839  2842
$DPLSV  001  0449 0523   0525
$DTNMB  001  0040 0270
$DTRDR  001  0040 0358
$ENDNU  001  0600 0617
$ERDPL  001  046F 0542   0544
$ERFIL  001  0040 0297
$ERHRD  001  0004 0429
$ERKEY  001  0080 0301
$ERLOG  001  0345 0231   3102
$ERMAD  001  0472 0544   0545
$ERPND  001  0004 0402   3085
$ERRCT  001  03CF 0303
$ERRPG  001  03CE 0291
$ERSFL  001  0035 0296
$ERSTK  001  0030 0294
```

```
                          CROSS REFERENCE


SYMBOL   LEN VALUE DEFN   REFERENCES                    VER 15, MOD 00  23/05/20  PAGE  33

$ER050   001  0363 0232
$ER1N2   001  0050 0299
$EXADR   001  0517 0577    0579
$EXCMD   001  0001 0331
$EXFTR   001  043B 0513    0518
$FCIND   001  0010 0409
$FDIND   001  0040 0416
$FEARR   001  0004 0224
$FEMAP   001  0588 0610    0611
$FILIB   001  03DA 0460    0461
$FITIN   001  0010 0385
$FUIND   001  0020 0414
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$GUFIR   001  0008 0259
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$HRDER   001  0020 0355    3084
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$INDR2   001  03D5 0397    0422   3085*
$INDR3   001  03D6 0422    0449
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$INRPT   001  0020 0267
$IOIND   001  03D2 0338    0364   3084*
$IOPGS   001  0010 0478
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$IRKEY   001  0020 0477
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$KEYCD   001  03C3 0247    0281
$KEYDT   001  0040 0391
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$KE130   001  01D5 0228    3068* 3094*
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$LIST    001  0002 0426
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$LNPTR   001  0080 0361
$LOADB   001  054A 0586
$LOADR   001  051A 0579    0582
$LPRIO   001  03EA 0496
$LPROS   001  03E5 0491    0493
$LPRP3   001  03E4 0490    0491
$MOUNT   001  0020 0440
$MPDWN   001  0001 0340
$NEXTB   001  03E6 0493    0494
$NEXTL   001  03E7 0494    0495
$NOENB   001  0008 0432
$NOLST   001  0004 0256
$NUCBS   001  03C0 0239    0240
$NWRKF   001  0080 0445
$NWRKR   001  0040 0442
$PASWD   001  042D 0509    0510
$PAUSD   001  04BA 0563    0565
$PAUSE   001  0002 0333
$PGMDT   001  0020 0388
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$PLST2  001  045B 0529   0530
$PLST3  001  0462 0530   0531
$PRDEV  001  044B 0525   0527
$PRESN  001  0002 0376
$PROCI  001  0001 0373
$PRPOS  001  03C2 0244   0247
$PSDBR  001  04FA 0568
$PSDXR  001  04F2 0567   0568
$PSTEP  001  0004 0334
$PSTMT  001  0008 0335
$PTCH1  001  03F5 0498   0502
$READY  001  0080 0418
$REORD  001  0040 0476
$RLOAD  001  051E 0582   0584
$RMRGN  001  03C0 0240   0242
$RSTR   001  04D6 0565   0567  0569  0574
$RUNIT  001  0001 0312
$SFAID  001  050D 0570
$SPRNT  001  0465 0537   0539  2113  2117  2121  2126  2130  2137  2141  2153  2158  2171  2177
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$TFLOW  001  0008 0319
$TRACE  001  0004 0314
$TRALL  001  0010 0320
$TROVR  001  054E 0589   0592
$TRUNK  001  0080 0272
$TRVAR  001  0020 0321
$UNMSK  001  048D 0550   0553  2402
$USRDR  001  03DC 0461   0462
$VMDEF  001  0080 0325
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$VOLF2  001  040E 0506
$VOLID  001  03F6 0502   0503  0507  2942
$VOLR1  001  03F6 0503   0504
$VOLR2  001  0406 0505   0506
$WAITF  001  057F 0605   0607  2172  2208  2399  3073
$WFDEF  001  0040 0519
$WFLOK  001  0008 0382
$WFNME  001  0443 0518   0523
$WSIND  001  0004 0379
$XIND1  001  03D0 0310   0329
$XIND2  001  03D1 0329   0338
$XIND3  001  03D8 0457   0460
$XPREC  001  0040 0322
$XRSAV  001  03C7 0282   0284  2094
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$12K    001  0004 0466
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#$$#VU	001	0600	0970	
#$$#0T	001	0700	0742	
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#$$DPR	001	0700	0766	
#$$DRE	001	0889	0782	
#$$DSP	001	2800	0802	
#$$ECM	001	0C00	1062	
#$$EFK	001	0C00	1082	
#$$ERR	001	0C00	1054	
#$$EXM	001	0C00	0942	
#$$FIL	001	0E00	1022	
#$$FIS	001	0E00	1018	
#$$FML	001	0200	1150	
#$$FMS	001	0200	0990	
#$$GRA	001	0889	0914	
#$$GUF	001	0C00	1050	
#$$INL	001	0600	1130	
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#$$KOV	001	0E00	0818	
#$$KPA	001	0C00	0794	

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SYMBOL   LEN VALUE DEFN   REFERENCES                          VER 15, MOD 00  23/05/20  PAGE  36

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#$$KRM   001  0C00 0790
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#$$KSS   001  0C00 0894
#$$KSV   001  0980 0890
#$$KSY   001  0C00 0902
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#$$KWR   001  0C00 0822
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#$$SPA   001  0C00 0874
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#$$STR   001  1600 1042
#$$TDC   001  1000 0846
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#$$TVK   001  0FC0 0982
#$$UAL   001  0C00 0998
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#$$UCD   001  0900 1102
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#$$UDE   001  0C00 1106
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#$$UEX   001  0C00 0994
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#$$ZDU   001  1100 1118
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#$#INV	001	212C	1189
#$#PWR	001	2300	1193
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#$@#CS	001	003A	1007
#$@#DR	001	0008	0751
#$@#ER	001	0032	0951
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#$@#PW	001	00C0	1195
#$@#RS	001	0030	1027
#$@#SA	001	0108	1015
#$@#SS	001	0001	1011
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#$@#1T	001	0018	0747
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#$@BOV	001	0018	1031
#$@DPR	001	0005	0767
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                              CROSS REFERENCE

SYMBOL  LEN VALUE DEFN   REFERENCES                        VER 15, MOD 00  23/05/20  PAGE  38

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#$@KSY  001  000F 0903
#$@KWI  001  0002 0831
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#$@SFF  001  0008 1075
#$@SFL  001  0005 1067
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#$@TVK  001  0001 0983
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#$@UCN  001  0009 1087
#$@UCP  001  000F 1091
#$@UDE  001  000E 1107
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#$@UPO	001	0005	1147	
#$@UPT	001	0012	1143	
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#$@VOD	001	0016	0979	
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#$@VXI	001	0002	0967	
#$@ZDU	001	0008	1119	
#$@ZLB	001	0002	1163	
#$@ZLO	001	000C	1123	
#$@ZLV	001	0006	1179	
#$@ZL1	001	0007	1167	
#$@ZL2	001	000D	1171	
#$@ZL3	001	000A	1175	
#$@ZTR	001	0001	1115	
#$@ZUT	001	0014	1127	
#$BCOM	001	0080	0757	
#$BOLV	001	1780	1029	
#$DPRI	001	014C	0765	
#$DREA	001	0200	0781	
#$DSPL	001	0240	0801	
#$ECMA	001	1900	1061	
#$EFKE	001	1990	1081	
#$ERRP	001	18C0	1053	
#$EXMS	001	07D4	0941	
#$FILN	001	1724	1021	
#$FIST	001	1700	1017	
#$FMLN	001	1E00	1149	
#$FMST	001	0D00	0989	
#$GRAP	001	0690	0913	
#$GUFU	001	1880	1049	
#$INLN	001	1C84	1129	
#$INST	001	0020	0753	
#$KALL	001	06A4	0917	
#$KCAL	001	1CC4	1133	
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#$KCND	001	0F80	1001	
#$KCTL	001	03BC	0853	
#$KDEL	001	035C	0849	
#$KDIS	001	0744	0929	
#$KDNT	001	0300	0837	
#$KDOV	001	0780	0933	
#$KEDI	001	0188	0773	
#$KENA	001	01C4	0777	
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#$KGOS	001	0180	0769	
#$KHEL	001	0A30	0953	
#$KKEY	001	2100	1181	
#$KLIS	001	0400	0857	
#$KLLA	001	2004	1157	
#$KLOG	001	0444	0861	
#$KMER	001	030C	0841	

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#$KPRT  001  063C 0905
#$KREA  001  02BC 0825
#$KRLA  001  0700 0921
#$KRMO  001  0214 0789
#$KRNU  001  0280 0809
#$KROV  001  028C 0813
#$KRSU  001  1D24 1137
#$KRUN  001  02CC 0833
#$KRVL  001  0710 0925
#$KSAV  001  0488 0869
#$KSET  001  0680 0909
#$KSOV  001  0AC8 0961
#$KSSP  001  0594 0893
#$KSVL  001  058C 0889
#$KSYM  001  0600 0901
#$KWID  001  02C4 0829
#$KWRI  001  02B4 0821
#$LOAD  001  0100 0761
#$MIPP  001  0A80 0957
#$SDSY  001  192C 1069
#$SFFI  001  193C 1073
#$SFLO  001  1918 1065
#$SFOV  001  1844 1037
#$SFSY  001  1800 1033
#$SPAC  001  04CC 0873
#$SPOV  001  04DC 0877
#$SPSY  001  0484 0865
#$STRO  001  1850 1041
#$TDCK  001  0350 0845
#$TSYK  001  0250 0805
#$TVKB  001  0BAC 0981
#$UALL  001  0F00 0997
#$UATR  001  1A38 1093
#$UCDI  001  1AD8 1101
#$UCNF  001  19B8 1085
#$UCPL  001  19DC 1089
#$UDEL  001  1B24 1105
#$UDIS  001  1B5C 1109
#$UEXL  001  0EA8 0993
#$UINI  001  1A88 1097
#$UPAC  001  1980 1077
#$UPOV  001  1D24 1145
#$UPTF  001  1D5C 1141
#$VCRT  001  07B4 0937
#$VLOA  001  0B80 0973
#$VODK  001  0B88 0977
#$VVMR  001  0C00 0985
#$VXIT  001  0B00 0965
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#$ZLBM  001  2008 1161
#$ZLOA  001  1BC4 1121
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#$ZLVR  001  20B0 1177
#$ZL1M  001  2010 1165
#$ZL2M  001  2030 1169
#$ZL3M  001  2088 1173
#$ZTRA  001  1B9C 1113
#$ZUTM  001  1C14 1125
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#@MVSD  001  0001 0677
#@NERO  001  0003 0671
#@OBRA  001  0002 0673
#@PTFL  001  0006 0692
#@PTFS  001  0001 0691
#@VCNT  001  0002 0689
#@VLAB  001  0001 0684   2378
#@VLSD  001  0001 0675
#CNDIS  001  0001 0644
#CNFIG  001  0005 0680
#CORSV  001  0010 0668
#DKEXT  001  0002 0651
#FIGSC  001  0001 0681
#HISCT  001  0006 0658
#HISDX  001  0003 0653
#HISLN  001  0008 0650   0651
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#HISN2  001  0005 0657
#HISTC  001  0007 0660
#HISTN  001  0009 0662
#HISTQ  001  0000 0654
#HISTR  001  0001 0655
#HISTS  001  0008 0661
#HISTV  001  000F 0663
#HSEND  001  0007 0659
#HSENT  001  0001 0652
#IOSDR  001  0019 0679
#MVSDR  001  000D 0676
#NEROV  001  009C 0670
#OBRAD  001  001D 0672
#PKCNT  001  0002 0637
#PKMRW  001  002B 0638
#PKRDD  001  0003 0635
#PKRTD  001  0003 0634
#PKRTL  001  0004 0641
#PKVRD  001  000B 0639
#PKVWD  001  0007 0640
#PKWTD  001  0001 0636
#PTFDA  001  00DC 0690
#RDWTL  001  0004 0642
#SDRDK  001  0011 0678
#UDIS   001  0C07 1863
#UDISV  001  0000 0001
#VLSDR  001  000C 0674
#VLTBE  001  0008 0629
#VOLF1  001  0009 0682
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                                CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                          VER 15, MOD 00  23/05/20  PAGE  42

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#VTCR2   001  0026 0687
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@@E004   001  0002 1766    1768
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@@E006   001  0004 1770    1772
@@E007   001  0005 1772    1774
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@@E009   001  0007 1776    1778
@@E010   001  0008 1778    1780
@@E011   001  0009 1780    1782
@@E012   001  000A 1782    1784
@@E013   001  000B 1784    1786
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@@E015   001  000D 1788    1790
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@@E027   001  0018 1810    1812
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@@E029   001  001A 1814    1816
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@@E031   001  001C 1818    1820
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@@E037   001  0020 1826    1828
@@E038   001  0021 1828    1830
@@E039   001  0022 1830    1832
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@@E041   001  0024 1834    1836
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@@E131   001  0011 1268   1270  2829  2861
@@E133   001  0012 1270   1272  2100
@@E134   001  0013 1272   1274
@@E135   001  0014 1274   1276
@@E136   001  0015 1276   1278
@@E137   001  0016 1278   1280
@@E138   001  0017 1280   1282
@@E139   001  0018 1282   1284
@@E142   001  0019 1284   1286
@@E143   001  001A 1286   1288
@@E150   001  001B 1288   1290
@@E151   001  001C 1290   1292
@@E160   001  001D 1292   1294
@@E162   001  001E 1294   1296
@@E163   001  001F 1296   1298
@@E164   001  0020 1298   1300
@@E200   001  0021 1300   1302
@@E205   001  0022 1302   1304
@@E210   001  0023 1304   1306
@@E211   001  0024 1306   1308
@@E212   001  0025 1308   1310
@@E213   001  0026 1310   1312
@@E215   001  0027 1312   1314
@@E216   001  0028 1314   1316  2894
@@E217   001  0029 1316   1318
@@E220   001  002A 1318   1320
@@E221   001  002B 1320   1322
@@E222   001  002C 1322   1324
@@E223   001  002D 1324   1326
@@E225   001  002E 1326   1328
@@E226   001  002F 1328   1330
@@E227   001  0030 1330   1332
@@E228   001  0031 1332   1334
@@E229   001  0032 1334   1336
@@E230   001  0033 1336   1338
@@E232   001  0034 1338   1340
@@E234   001  0035 1340   1342
@@E237   001  0036 1342   1344
@@E240   001  0037 1344   1346
@@E241   001  0038 1346   1348
@@E242   001  0039 1348   1350  2836
@@E248   001  003A 1350   1352
@@E249   001  003B 1352   1354
@@E250   001  003C 1354   1356
@@E251   001  003D 1356   1358
@@E252   001  003E 1358   1360
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                              CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                    VER 15, MOD 00  23/05/20  PAGE  44

@@E253   001  003F 1360   1362
@@E254   001  0040 1362   1364
@@E255   001  0041 1364   1366
@@E256   001  0042 1366   1368
@@E300   001  0043 1368   1370
@@E301   001  0044 1370   1372
@@E302   001  0045 1372   1374
@@E303   001  0046 1374   1376
@@E304   001  0047 1376   1378
@@E305   001  0048 1378   1380
@@E308   001  0049 1380   1382
@@E310   001  004A 1382   1384
@@E315   001  004B 1384   1386
@@E316   001  004C 1386   1388
@@E320   001  004D 1388   1390
@@E325   001  004E 1390   1392
@@E330   001  004F 1392   1394
@@E335   001  0050 1394   1396
@@E338   001  0051 1396   1398
@@E340   001  0052 1398   1400
@@E350   001  0053 1400   1402
@@E351   001  0054 1402   1404
@@E352   001  0055 1404   1406
@@E360   001  0056 1406   1408
@@E361   001  0057 1408   1410
@@E362   001  0058 1410   1412
@@E371   001  0059 1412   1414
@@E380   001  005A 1414   1416
@@E390   001  005B 1416   1418
@@E400   001  005C 1418   1420
@@E410   001  005D 1420   1422
@@E415   001  005E 1422   1424
@@E417   001  005F 1424   1426
@@E420   001  0060 1426   1428
@@E430   001  0061 1428   1430
@@E432   001  0062 1430   1432
@@E433   001  0063 1432   1434
@@E450   001  0064 1434   1436
@@E451   001  0065 1436   1438
@@E460   001  0066 1438   1440
@@E461   001  0067 1440   1442
@@E464   001  0068 1442   1444
@@E465   001  0069 1444   1446
@@E466   001  006A 1446   1448
@@E467   001  006B 1448   1450
@@E469   001  006C 1450   1452
@@E470   001  006D 1452   1454
@@E471   001  006E 1454   1456
@@E473   001  006F 1456   1458
@@E474   001  0070 1458   1460
@@E475   001  0071 1460   1462
@@E476   001  0072 1462   1464
@@E477   001  0073 1464   1466
@@E478   001  0074 1466   1468
@@E479   001  0075 1468   1470
@@E480   001  0076 1470   1472
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SYMBOL	LEN	VALUE	DEFN	REFERENCES	
@@E481	001	0077	1472	1474	
@@E482	001	0078	1474	1476	
@@E483	001	0079	1476	1478	
@@E484	001	007A	1478	1480	
@@E485	001	007B	1480	1482	
@@E486	001	007C	1482	1484	
@@E487	001	007D	1484	1486	
@@E488	001	007E	1486	1488	
@@E489	001	007F	1488	1490	
@@E490	001	0080	1490	1492	
@@E491	001	0081	1492	1494	
@@E492	001	0082	1494	1496	
@@E493	001	0083	1496	1498	
@@E494	001	0084	1498	1500	
@@E495	001	0085	1500	1502	
@@E496	001	0086	1502	1504	
@@E497	001	0087	1504	1506	
@@E498	001	0088	1506	1508	
@@E500	001	0089	1508	1510	
@@E501	001	008A	1510	1512	
@@E530	001	008B	1512	1514	
@@E531	001	008C	1514	1516	
@@E535	001	008D	1516	1518	
@@E540	001	008E	1518	1520	
@@E541	001	008F	1520	1522	
@@E542	001	0090	1522	1524	
@@E543	001	0091	1524	1526	3086
@@E544	001	0092	1526	1528	
@@E545	001	0093	1528	1530	3089
@@E546	001	0094	1530	1532	
@@E547	001	0095	1532	1534	
@@E548	001	FFFF	1738		
@@E549	001	0096	1534	1536	
@@E550	001	0097	1536	1538	
@@E551	001	0098	1538	1540	
@@E552	001	0099	1540	1542	
@@E553	001	009A	1542	1544	
@@E554	001	009B	1544	1546	
@@E555	001	009C	1546	1548	
@@E556	001	009D	1548	1550	
@@E558	001	009E	1550	1552	
@@E570	001	009F	1552	1554	
@@E571	001	00A0	1554	1556	
@@E572	001	00A1	1556	1558	
@@E573	001	00A2	1558	1560	
@@E574	001	00A3	1560	1562	
@@E575	001	FFFF	1740		
@@E578	001	00A4	1562	1564	
@@E579	001	FFFF	1742		
@@E580	001	FFFF	1744		
@@E585	001	00A5	1564	1566	
@@E595	001	FFFF	1746		
@@E597	001	FFFF	1748		
@@E598	001	FFFF	1750		
@@E600	001	00A6	1566	1568	
@@E601	001	00A7	1568	1570	

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SYMBOL   LEN VALUE DEFN   REFERENCES                         VER 15, MOD 00  23/05/20  PAGE  46

@@E602   001  00A8 1570   1572
@@E603   001  00A9 1572   1574
@@E604   001  00AA 1574   1576
@@E606   001  00AB 1576   1578
@@E607   001  00AC 1578   1580
@@E608   001  00AD 1580   1582
@@E609   001  00AE 1582   1584
@@E610   001  00AF 1584   1586
@@E611   001  00B0 1586   1588
@@E612   001  00B1 1588   1590
@@E613   001  00B2 1590   1592
@@E614   001  00B3 1592   1594
@@E700   001  00B4 1594   1596
@@E701   001  00B5 1596   1598
@@E710   001  00B6 1598   1600
@@E712   001  00B7 1600   1602
@@E713   001  00B8 1602   1604
@@E714   001  00B9 1604   1606
@@E715   001  00BA 1606   1608
@@E716   001  00BB 1608   1610
@@E717   001  00BC 1610   1612
@@E718   001  00BD 1612   1614
@@E720   001  00BE 1614   1616
@@E721   001  00BF 1616   1618
@@E723   001  00C0 1618   1620
@@E724   001  00C1 1620   1622
@@E725   001  00C2 1622   1624
@@E726   001  00C3 1624   1626
@@E727   001  00C4 1626   1628
@@E728   001  00C5 1628   1630
@@E729   001  00C6 1630   1632
@@E730   001  00C7 1632   1634
@@E732   001  00C8 1634   1636
@@E752   001  00C9 1636   1638
@@E753   001  00CA 1638   1640
@@E754   001  00CB 1640   1642
@@E755   001  00CC 1642   1644
@@E756   001  00CD 1644   1646
@@E757   001  00CE 1646   1648
@@E758   001  00CF 1648   1650
@@E759   001  00D0 1650   1652
@@E760   001  00D1 1652   1654
@@E761   001  00D2 1654   1656
@@E762   001  00D3 1656   1658
@@E763   001  00D4 1658   1660
@@E764   001  00D5 1660   1662
@@E765   001  00D6 1662   1664
@@E766   001  00D7 1664   1666
@@E767   001  00D8 1666   1668
@@E768   001  00D9 1668   1670
@@E769   001  00DA 1670   1672
@@E770   001  00DB 1672   1674
@@E771   001  00DC 1674   1676
@@E772   001  00DD 1676   1678
@@E773   001  00DE 1678   1680
@@E774   001  00DF 1680   1682
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SYMBOL	LEN	VALUE	DEFN	REFERENCES		
@@E775	001	00E0	1682	1684		
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@@E777	001	00E2	1686	1688		
@@E778	001	00E3	1688	1690		
@@E779	001	00E4	1690	1692		
@@E780	001	00E5	1692	1694		
@@E781	001	00E6	1694	1696		
@@E782	001	00E7	1696	1698		
@@E783	001	00E8	1698	1700		
@@E784	001	00E9	1700	1702		
@@E785	001	00EA	1702	1704		
@@E786	001	00EB	1704	1706		
@@E790	001	00EC	1706	1708		
@@E791	001	00ED	1708	1710		
@@E792	001	00EE	1710	1712		
@@E793	001	00EF	1712	1714		
@@E794	001	00F0	1714	1716		
@@E795	001	00F1	1716	1718		
@@E796	001	00F2	1718	1720		
@@E797	001	00F3	1720	1722		
@@E798	001	00F4	1722	1724		
@@E800	001	FFFF	1752			
@@E801	001	FFFF	1754			
@@E802	001	FFFF	1756			
@@E803	001	FFFF	1758			
@@E804	001	FFFF	1760			
@@E900	001	00F5	1724	1726		
@@E901	001	00F6	1726	1728		
@@E902	001	00F7	1728	1730		
@@E903	001	00F8	1730	1732		
@@E905	001	00F9	1732	1734		
@@E906	001	00FA	1734	1736		
@@E910	001	00FB	1736			
@@M180	001	0C0B	2005	2118		
@@M181	001	0C0F	2009	2127		
@@M182	001	0C13	2013	2138		
@@M183	001	0C17	2017	2197		
@@M184	001	0C1B	2021	2154		
@@M190	001	0C1F	2025	2455		
@@M191	001	0C23	2029	2462		
@@M193	001	0C27	2033	2214		
@@M194	001	0C2B	2037	2226		
@@M195	001	0C2F	2041			
@@M196	001	0C33	2045	2221		
@@M198	001	0C37	2049	2248		
@@M199	001	0C3B	2053	2159	2269	2270
@@T180	001	0C3F	2057	2007		
@@T181	001	0C4B	2059	2011		
@@T182	001	0C55	2061	2015		
@@T183	001	0C6C	2063	2019		
@@T184	001	0C7F	2065	2023		
@@T190	001	0C9A	2067	2027		
@@T191	001	0C9F	2069	2031		
@@T193	001	0CA8	2071	2035		
@@T194	001	0CBA	2073	2039		
@@T195	001	0CE5	2075	2043		

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                                    CROSS REFERENCE

SYMBOL  LEN VALUE DEFN   REFERENCES                       VER 15, MOD 00  23/05/20  PAGE  48

@@T196  001  0D06 2077   2047
@@T198  001  0D22 2079   2051
@@T199  001  0D42 2081   2055   2272
@ARR    001  0008 0016   2396   2413   2514   2659   2814   3065
@ASIGN  001  007C 0071
@ASTER  001  005C 0069
@BCRDL  001  0050 0088
@BE     001  0081 0043
@BF     001  0090 0052
@BH     001  0084 0041
@BL     001  0082 0042
@BLANK  001  0040 0065   2664   2670
@BM     001  0082 0054
@BNE    001  0001 0046   2655
@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   2092   2093*  2108   2111   2124   2133   2134   2144   2150   2156   2161   2162
                         2163   2164   2164   2167   2167   2168   2174   2175   2175   2180   2181   2181
                         2182   2182   2185   2190   2192   2192   2193   2193   2199   2210   2216   2228
                         2231   2231   2233   2235   2236   2237   2238   2238   2239   2239   2240   2240
                         2241   2242   2242   2243   2264   2267   2269   2271   2271   2272   2273   2274
                         2275   2408   2410   2411*  2412   2413   2418   2419   2420   2424   2425   2425
                         2428   2429   2430   2430   2435   2436   2437   2438   2438   2439   2441   2445
                         2451   2467*  2511   2512   2513*  2514   2516   2516   2517   2518   2523   2523
                         2525   2525   2526   2526   2527   2529   2529   2530   2531*  2810   2812   2813*
                         2814   2816   2817   2817   2825   2832   2837   2866   2869   2876   2880   2880
                         2882   2882   2883   2883   2884   2884   2891   2891   2893   2896   2899   2899
                         2906   2909   2909   2911*  2918   2920   2921   3063   3097*
@BT     001  0010 0051
@BZ     001  0081 0055
@B1     001  0001 0063   2517   2518   2869
@CADDR  001  0002 0142   2007   2011   2015   2019   2023   2027   2031   2035   2039   2043   2047   2051
                         2055   2106   2107   2239   2319   2891   2899   2909   3068   3094
@CARDL  001  0060 0087
@CHARA  001  00C1 0072
@CHARF  001  00C6 0073   2823
@CHARR  001  00D9 0074   2821
@CHARZ  001  00E9 0075
@CLOFF  001  0010 0094
@CLON   001  0011 0093
@COMMA  001  006B 0066   2666
@CPLUS  001  004E 0079
@DADDR  001  0002 0140   2150   2164   2167   2168   2184   2185   2189   2190   2237   2238   2265   2265
                         2266   2267   2306   2308   2423   2425   2428   2430   2435   2436   2438   2442
                         2474   2479   2480
@DBFR1  001  0004 0129
@DBFR2  001  0005 0130   3076
@DCALK  001  0001 0081
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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@DCBCY	001	0009	0115	
@DCBT1	001	0050	0117	
@DCNT	001	0003	0128	
@DCST1	001	0040	0116	
@DCTRL	001	0000	0125	
@DCYL	001	0001	0126	
@DD2	001	0003	0030	
@DGET	001	0001	0134	2375 2384
@DOLAR	001	005B	0068	
@DOP2	001	0004	0028	2270*
@DPLNG	001	0006	0132	
@DPOS	001	0000	0133	
@DPUT	001	0002	0135	
@DSAD	001	0002	0127	2106* 2107* 3087 3090
@DSBCY	001	0004	0106	
@DSCS1	001	0000	0107	
@DSIVF	001	0003	0138	
@DSPIN	001	0002	0131	
@DTRSZ	001	0018	0085	
@DVBCY	001	0007	0108	
@DVRFY	001	0031	0136	
@DWAIT	001	00FF	0137	3093
@DWBCY	001	0005	0103	
@DWSIZ	001	00C0	0105	
@DWTB1	001	0003	0104	
@DZERO	001	00F0	0064	
@D1	001	0002	0026	2517* 2529*
@EOF	001	001C	0077	
@EOFTC	001	0075	0162	
@EOS	001	001E	0076	2098 2672 2858 2875 2919
@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	
@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	
@IAR	001	0010	0017	
@INDEX	001	0001	0156	0157
@INST3	001	0003	0032	
@INST4	001	0004	0033	
@INST5	001	0005	0034	
@INST6	001	0006	0035	
@I1IAR	001	00C0	0020	
@LINSZ	001	00F4	0084	
@MAPEN	001	0005	0089	
@MINCR	001	2000	0083	

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@MINUS  001  0060 0080
@NOP    001  0080 0040    2855  2908  2944
@NUMBR  001  007B 0070
@OPD2   001  0004 0029
@OP1    001  0003 0027    2396* 2410* 2412* 2413* 2475  2512* 2514* 2659* 2812* 2814* 2816* 2866*
                         2891* 2899* 2909* 3063* 3064* 3065* 3068* 3094*
@OP2    001  0005 0031
@PCTRL  001  0000 0149
@PDATA  001  0003 0151
@PGCSZ  001  0020 0082    0083
@PPLNG  001  0004 0148
@PRCNT  001  0001 0150
@PRETR  001  00C0 0154    2017  2021  2025  2029  2033  2037  2041  2045  2345  2351  2357  2363
                         2369
@PRINT  001  0040 0152    0154  2005  2009  2013  2049  2053  2490
@PSR    001  0004 0015
@PWAIT  001  00FF 0158
@P1IAR  001  0020 0018
@P2IAR  001  0040 0019
@Q      001  0001 0024    2269* 2271* 2518* 2526  2526* 2529  2678  2945  2946  2947  2951
@REGL   001  0002 0012
@RETRN  001  0080 0153    0154  2339
@RLDWN  001  004F 0159
@RTRNC  001  0080 0161    2340
@SBLN   001  0005 0170
@SBLNL  001  0002 0184
@SCTSZ  001  0100 0100    2293  2559
@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
@SLASH  001  0061 0067
@SLAST  001  0002 0183
@SMIDL  001  0003 0182
@SNULL  001  0080 0173
@SONLY  001  0000 0180
@STEXT  001  0007 0172
@STYPE  001  0006 0171
@TBCNT  001  0000 0160
@TBLEF  001  0010 0155    0157
@TBLIX  001  0011 0157
@UCB    001  0087 0039    2656  2667  2863  2864  2889  2943
@UPARW  001  005A 0078
@VADDR  001  0002 0141
@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    2346  2869  2869  2893
@VQ     001  0001 0025    2272
@WSFIT  001  0500 0101
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                                 CROSS REFERENCE

SYMBOL  LEN VALUE DEFN   REFERENCES                        VER 15, MOD 00  23/05/20  PAGE  51

@WSTBL  001 0503 0102
@XR     001 0002 0014    2094* 2098  2108* 2149* 2150  2163  2165  2168  2184  2184* 2185  2189
                         2189* 2190  2229* 2230  2230* 2233  2237  2244  2244* 2251* 2263* 2264*
                         2265  2266  2267  2268  2412  2416* 2417* 2418  2421  2423  2423  2424
                         2426  2429  2431  2433  2437  2439* 2442  2442* 2468* 2520  2660  2663
                         2663* 2664  2666  2669  2669* 2670  2672  2674  2816  2821  2823  2826
                         2828  2850  2850* 2858  2866  2875  2905* 2919  3064  3076* 3077  3098*
@ZERO   001 0000 0062    2257  2421  2433  3079
C2DEC5  001 109F 2510    2135  2169  2252  2440  2443  2511  2513
C2DVAL  005 10DD 2538    2174  2359  2371  2441  2445  2523  2523  2523* 2525  2525
C2D020  003 10B1 2518    2529  2530
C2D030  003 10B4 2520    2517* 2518* 2526  2526* 2527  2529*
C2D040  004 10BE 2525    2521
C2D050  004 10D0 2531    2512*
C2D052  004 10D4 2532    2514*
C2D901  001 10D8 2536    2516  2516  2516
C2D902  001 10D9 2537    2516
C2D903  005 10E2 2539    2516  2516* 2523  2523  2523  2525  2525  2525  2525*
MINAC1  002 129E 3102    3094
MINDPL  001 0FA7 2381    3071  3076  3087  3090
MINERP  002 12A0 3103    3068
MINITL  001 1232 3062    2109
MINMKR  001 0001 3105    3087  3090
MINMK2  001 0002 3104
MINVOL  003 12A3 3106    3077
MIN100  004 1263 3084    3078  3103
MIN110  004 127A 3090    3088
MIN120  004 1287 3093    3091
MIN150  006 128B 3094    3080
MIN200  004 1291 3097    3063*
MIN201  004 1295 3098    3064*
MIN202  004 1299 3099    3065*
SALPHR  001 0F4F 2295    2869
SALPH6  004 0D9E 2294    2867
SCACNT  002 1140 2684    2674* 2675*
SCACOF  001 0087 2656    2865
SCACOM  001 0001 2655    2851
SCAINC  001 0001 2654    2663  2669
SCAMMA  003 111D 2678    2851* 2865*
SCANIT  001 1100 2658    2853
SCASVE  002 113E 2683    2660* 2675
SCASV1  001 113D 2682
SCA100  003 110F 2663    2665
SCA200  003 1112 2664    2662
SCA250  003 111C 2667    2678
SCA300  003 111F 2669    2671
SCA400  004 112F 2674    2667
SCA500  004 1139 2677    2659* 2673
SDIBLN  003 11B6 2946    2864*
SDIDRK  009 122B 2938    2825* 2832* 2837  2880
SDIEX0  004 1214 2911    2812* 2854  2871  2907
SDIEX2  004 1218 2912    2814*
SDIID5  001 03FB 2942    2893
SDILN9  001 0009 2926    2817  2933
SDIMK1  001 0001 2949    2825  2837
SDIMK2  001 0002 2950    2832
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                                  CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                            VER 15, MOD 00  23/05/20  PAGE  52

SDINID   003  11E9 2951   2896*
SDIRBL   009  1231 2933   2817  2817* 2869* 2893  2937
SDISKP   003  119F 2945   2095* 2908*
SDISKS   001  1141 2811   2096  2810  2813  2899
SDISLH   003  11D0 2947
SDITBL   009  1229 2937   2106  2107  2880* 2882  2882* 2883  2883* 2884  2884* 2891  2906  2909
                         2938  2939
SDIUCB   001  0087 2943   2095  2896
SDIVID   009  122C 2939
SDIVOF   001  0080 2944
SDIX02   001  0002 2927   2850
SDI001   001  00F1 2940   2826
SDI002   001  00F2 2941   2828  2906
SDI050   003  115F 2825
SDI100   003  1162 2826   2822
SDI150   004  116B 2829   2824
SDI160   004  1189 2842   2838
SDI200   003  1190 2850   2827  2840
SDI255   003  119E 2855   2945
SDI260   004  11AE 2861   2876  2921
SDI270   003  11B5 2863   2856  2946
SDI300   004  11C3 2867   2863
SDI350   003  11CF 2873   2947
SDI400   004  11D8 2880   2873
SDI450   003  11E8 2889   2951
SDI500   005  11EF 2893   2891* 2909*
SDI530   004  11FE 2899   2841  2843
SDI550   004  1202 2905   2816* 2862  2866* 2899*
SDI600   003  1206 2906   2831  2860
SDI650   004  120C 2908   2918  2920
SDI750   004  1210 2909   2889  2898
SDI800   003  121C 2918   2855
UDIALT   001  006A 2283   2149
UDIAL1   003  0F88 2326   2175  2181* 2192*
UDIATA   015  0F6C 2303   2175*
UDIATK   001  0F9F 2362   2178
UDIATS   001  0F4F 2301   2365
UDIAVL   001  01FF 2293   2210  2250
UDIAVT   002  0F8A 2329   2250* 2251
UDIBF1   001  1100 2557   2111  2149  2379  2558  2560  2561
UDIBF2   001  1100 2558   2210  2229  2250  2388  2559
UDIBF3   001  1300 2559   2263  2416
UDIBNK   001  0F8F 2338   2114
UDICNT   001  0F7F 2315   2236* 2240*
UDICTR   001  0F84 2320   2182* 2193*
UDICX0   001  0000 2284   2162  2235  2419  2420
UDICX1   002  0F6E 2304   2167  2181  2182  2192  2193  2231  2240  2271  2428  2435  2436
UDICY0   001  0000 2281   2376  2385
UDIC25   002  0F81 2316   2108  2134*
UDIDAD   003  0F7E 2314   2237* 2238* 2239  2239* 2242* 2264  2417
UDIDDA   001  0F7C 2312   2235* 2242
UDIDLB   001  1103 2560   2347
UDIDON   001  0F97 2350   2131
UDIDSP   004  0FDA 2475
UDIDTK   015  0F5D 2302   2174*
UDID15   001  000F 2291   2302  2303
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UDID30   001  001E 2292    2364
UDIEND   002  1072 2480    2420* 2429* 2430   2430* 2435* 2436* 2438*
UDIEX0   004  1063 2467    2410* 2459
UDIEX1   004  1067 2468    2412*
UDIEX2   004  106B 2469    2413*
UDIFCT   001  0F85 2323    2210  2231*
UDIFIE   001  1074 2482    2492
UDIFIL   008  107B 2483    2418*
UDIFLE   001  109B 2489    2448
UDIFOR   001  0004 2289    2111
UDILAB   001  0F93 2344    2122
UDILIN   001  0027 2476    2491
UDIMKB   001  00FF 2478    2268  2451
UDIMSK   001  0080 2477    2165  2426  2431
UDINDR   001  1073 2481    2437* 2451
UDINDT   002  0F78 2306    2150  2185  2190
UDINFL   008  0F76 2305    2134  2233
UDIOID   001  1152 2561    2353
UDISCP   004  0F8E 2332    2111* 2257  2265  2266
UDISIX   001  0006 2285    2236
UDISIZ   010  108F 2485    2445*
UDISOL   001  0051 2296    2111
UDISRT   002  1070 2479    2419* 2424* 2425  2425* 2428* 2438  2439
UDISZE   001  0F9B 2356    2142
UDITAG   001  0FA3 2368    2255
UDITEN   001  000A 2290    2352  2484  2485  2486
UDITHR   001  0003 2288    2174  2175  2314  2326  2328  2358  2441  2445
UDITKS   010  1085 2484    2441*
UDITSV   002  0F83 2319    2162* 2163* 2164  2164* 2167* 2168
UDITWO   001  0002 2287    2304  2316  2318  2329  2331  2370
UDIVOL   001  0FA7 2374    2106* 2381
UDIVTC   001  000F 2282    2387
UDIVTI   001  0FAD 2383    2107* 2206
UDIVTO   002  0F7B 2308    2238
UDIXST   001  0024 2474    2265* 2423
UDIX24   001  0F79 2307    2267
UDIZER   001  0000 2286
UDI050   004  0D81 2093    1996
UDI100   003  0D94 2098
UDI150   004  0D9E 2101    2097  2294
UDI200   006  0DA2 2106    2099
UDI300   004  0DFA 2149
UDI310   004  0DFE 2150
UDI315   004  0E05 2153    2191
UDI320   003  0E17 2162    2187
UDI330   004  0E2C 2168    2166
UDI350   004  0E4C 2181    2186
UDI380   003  0E66 2189    2194
UDI390   004  0E71 2192    2151
UDI400   004  0E86 2205    2183
UDI410   004  0EA6 2220    2211
UDI420   004  0EC0 2231    2245
UDI430   004  0EDC 2239    2092  2093  2241
UDI440   003  0EEE 2244    2234
UDI500   004  0EF5 2247    2217  2232
UDI550   005  0F3D 2272    2269* 2270* 2271*
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                              CROSS REFERENCE

SYMBOL   LEN VALUE DEFN    REFERENCES                           VER 15, MOD 00  23/05/20  PAGE  54

UDI600   003  0F48 2275    2258
UDI800   004  0FB3 2396    2124   2133   2144   2156   2161   2180   2199   2216   2223   2228   2273   2275
                           2458   2465
UDI850   004  0FC1 2403    2396*
UDI900   001  0FC5 2409    2243   2274   2408   2411
UDI920   004  0FD7 2417    2475
UDI930   004  0FEF 2424    2422
UDI940   004  1002 2429    2427
UDI945   005  101B 2436    2434
UDI950   004  1020 2437    2432
UDI960   004  1059 2461    2452

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =      0

OL105 I   THE CODE LENGTH OF #UDISV IS  4772 DECIMAL.
OL103 I   TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS     9
          NAME-#UDISV,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000
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        OVERLAY LINKAGE EDITOR CORE USAGE MAP     23/05/20


   START      CATEGORY   NAME AND        CODE LENGTH
  ADDRESS                 ENTRY     HEXADECIMAL DECIMAL

   0C00          0      #UDISV         12A4    4772


 OL100 I   THE TOTAL CORE USED BY #UDISV IS  4772 DECIMAL.
 OL101 I   THE START CONTROL ADDRESS OF THIS MODULE IS 0C00.
 OL104 I   TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS    19
           NAME-#UDISV,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O
```