```
 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  25/02/22  PAGE   1

#KRSUM    MODULE
```

```
   0000                         1 #KRSUM START 0
                                2        PRINT ON,NODATA
                                3 *      @SYS  EXP-N
                              214+       PRINT ON
                              215 *      @FXD  EXP-N
                              620+       PRINT ON
                              621 *      @CAN  EXP-N
                              724+       PRINT ON
                              725 *      @CY0  EXP-N
                              798+       PRINT ON
                              799 *      @WKA  EXP-N
                              869+       PRINT ON
                              870 *      @DIR  EXP-N
                              990+       PRINT ON
                              991 *      @SPF  EXP-N
                             1454+       PRINT ON
                             1455 *      @ERM  EXP-N
                             2077+       PRINT ON
```

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                    2079 ********************************************************************
                    2080 *  5703-XM1 COPYRIGHT IBM CORP. 1970                              *
                    2081 *          REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083   *
                    2082 *                                                                 *
                    2083 ********************************************************************
                    2084 *STATUS                                                           *
                    2085 *    VERSION 1 MODIFICATION 0                                      *
                    2086 *                                                                 *
                    2087 *FUNCTION                                                         *
                    2088 *    THE FUNCTION OF KRSUME IS TO ACT AS A CONTROL MODULE TO HANDLE *
                    2089 *    THE ISSUANCE OF THE RESUME COMMAND.  IN EFFECT, IT WILL RESTORE *
                    2090 *    THE CURRENTLY SUSPENDED PROGRAM (IF ONE EXISTS), ALONG WITH ITS *
                    2091 *    ASSOCIATED STATUS INFORMATION, TO THE EXECUTION PAUSE STATE, SO *
                    2092 *    THAT EXECUTION CAN BE RESUMED VIA THE ISSUANCE OF THE GO COMMAND. *
                    2093 *    THE MODULE DELETES THE SUSPENDED PROGRAM FILE AND SETS AN       *
                    2094 *    INDICATOR FOR THE SYSTEM ENABLING A USER TO SUSPEND ANOTHER PRO- *
                    2095 *    GRAM. IT ALSO PRINTS THE NAME OF THE PROGRAM RESTORED TO THE    *
                    2096 *    PAUSE STATE.                                                  *
                    2097 *                                                                 *
                    2098 *ENTRY POINTS                                                     *
                    2099 *    THE FIRST EXECUTABLE INSTRUCTION FOLLOWING THE PROGRAM HEADER  *
                    2100 *    INDEX REGISTER 2 (@XR) IS ADDRESSING THE FIRST BYTE IN THE     *
                    2101 *    COMMAND LINE FOLLOWING THE KEYWORD.                           *
                    2102 *                                                                 *
                    2103 *INPUT                                                            *
                    2104 *    INPUT TO THE KEYWORD IS THE ADDRESS WITHIN THE INPUT LINE BUFFER *
                    2105 *    OF THE COMMAND LINE TO BE SYNTAX CHECKED-SAVED IN $XRSAV.       *
                    2106 *                                                                 *
                    2107 *OUTPUT                                                           *
                    2108 *    NONE                                                          *
                    2109 *                                                                 *
                    2110 *EXTERNAL REFERENCES                                              *
                    2111 *        DL2ICS - TWO TRACK LOGICAL DISK IOCS                       *
                    2112 *        DL2RAD - ADDR IN DL2ICS-BASE DISK ADDR FOR LOGICAL USE     *
                    2113 *        DL2PHY - ADDR IN DL2ICS OF CONVERTED PHYSICAL DADDR        *
                    2114 *        DL2SWH - SWITCH IN DL2ICS TO INHIBIT PHYSICAL DISK OPERATION *
                    2115 *        DL4ICS - FOUR TRACK LOGICAL DISK IOCS                      *
                    2116 *        SCANIT - DELIMITER SCAN ROUTINE                           *
                    2117 *        SFINDF - FILE SEARCH CONTROL ROUTINE                      *
                    2118 *        SVODSK - ADDR IN SVOLID - PRIME DISK FILENAME             *
                    2119 *        SVOIOF - ADDR IN SVOLID - PRIME I/O FILENAME              *
                    2120 *        SVOCT2 - ADDR IN SVOLID - COUNTER OF MULTIPLY DEFINED VOL-IDS *
                    2121 *        TSMLES - DATA MANAGEMENT COMMUNICATION REGIONS            *
                    2122 *        $$ZERO - ENTRY POINT TO LOAD ZUTMON IN SYSTEM NUCLEUS      *
                    2123 *        $$KLD1 - PROGRAM LOAD ADDR BEHIND SYSTEM NUCLEUS           *
                    2124 *        $NUCBS - ADDR IN SYSTEM NUCLEUS-BASE ADDR                 *
                    2125 *        $CARPL - ADDRESS IN SYSTEM NUCLEUS-NORMAL RETURN ROUTINE   *
                    2126 *        4CAERR - ADDRESS IN SYSTEM NUCLEUS-ERROR CODE SAVE AREA    *
                    2127 *        $CAERK - ADDRESS IN SYSTEM NUCLEUS-ERROR RETURN ROUTINE    *
                    2128 *        $XRSAV - ADDR IN SYSTEM NUCLEUS?INDEX REGISTER 2 SAVE AREA  *
                    2129 *        $SPRNT - ADDR IN SYSTEM NUCLEUS-ADDR SYSTEM PRINTER IOCR    *
                    2130 *        $DISKN - ADDRESS IN SYSTEM NUCLEUS-PHYSICAL DISK IOCR       *
                    2131 *        $WAITF - ADDRESS IN SYSTEM NUCLEUS-ADDR DISK WAIT DPL       *
                    2132 *        $CIMSK - ADDR IN SYSTEM NUCLEUS-IR MASK 1NDR               *
                    2133 *        $INDR3 - ADDR IN SYSTEM NUCLEUS-SYSTEM INDRS               *
                    2134 *        $CLBFR - MASK IN $INDR3 - CLEAR INPUT BUFFER INDR          *
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                    2135 *        $BSADR - ADDR IN SYSTEM NUCLEUS-DADDR RELOCATION FACTOR     *
                    2136 *        $CSDPL - ADDR IN SYSTEM NUCLEUS-ADDR OF SAVE/RSTR DPL       *
                    2137 *        $PSDBR - ADDR IN SYSTEM NUCLEUS-ADDR SAVED BR FROM NPAUSE   *
                    2138 *        $PSDXR - ADDR IN SYSTEM NUCLEUS-ADDR SAVED XR FROM NPAUSE   *
                    2139 *        $SRTRN - ADDR IN SYSTEM NUCLEUS-ADDR OF RETURN FROM SPAUSD  *
                    2140 *        $INLNO - ADDR IN SYSTEM NUCLEUS-LINE NUMBER PAUSED AT       *
                    2141 *        $EXFTR - ADDR IN SYSTEM NUCLEUS-CORE EXPANSION FACTOR       *
                    2142 *        $DKSIZ - ADDR IN SYSTEM NUCLEUS-DISK SIZE INDR              *
                    2143 *        $CONFG - ADDR IN SYSTEM NUCLEUS-CONFIGURATION INDRS         *
                    2144 *        $KEYBD - ADDR IN SYSTEM NUCLEUS-KEYBOARD TYPE INDR          *
                    2145 *        $IOIND - ADDR IN SYSTEM NUCLEUS-I/O STATUS INDRS            *
                    2146 *        $CRTAV - MASK IN $IOIND - CRT AVAILABILITY                  *
                    2147 *        $LNPTR - MASK IN $IOIND - 50 LPM AVAILABILITY               *
                    2148 *        SDTRDR - MASK IN $IOIND - DATA RECORDER AVAILABILITY        *
                    2149 *        SXINDI - ADDR IN SYSTEM NUCLEUS-PRIMARY EXECUTION MODE INDRS *
                    2150 *        $XIND2 - ADDR IN SYSTEM NUCLEUS-EXECUTION MODE INDRS        *
                    2151 *                                                                    *
                    2152 *EXITS, NORMAL                                                       *
                    2153 *        $CARPL - NORMAL EXIT ADDRESS IN SYSTEM NUCLEUS              *
                    2154 *                                                                    *
                    2155 *EXITS, ERROR                                                        *
                    2156 *        $CAERK - ERROR EXIT ADDRESS IN SYSTEM NUCLEUS               *
                    2157 *                (NOTE ERROR PROCEDURES)                             *
                    2158 *                                                                    *
                    2159 *TABLES/WORK AREAS                                                   *
                    2160 *    ALL CHARACTER CONSTANTS & PPL'S USED TO PRINT MESSAGES FOR THE  *
                    2161 *    INTERACTION WITH THE USER ARE LOCATED AT THE BEGINNING OF THE   *
                    2162 *    MODULE TO ENABLE THEM TO BE MODIFIED FOR WORLD TRADE CONSIDERATION*
                    2163 *    KRSUME'S OTHER CONSTANTS, DPL'S, AND WORK AREAS ARE SEPARATED   *
                    2164 *    INTO TWO GROUPS:                                                *
                    2165 *    * INTERNAL DPL'S, CONSTANTS, AND WORK AREAS USED FOR MAIN       *
                    2166 *      PROCESSING OF COMMAND. (ALL OVERLAID)                         *
                    2167 *    * DPL'S, CONSTANTS, AND WORK AREAS USED DURING CORE AND VM      *
                    2168 *      TRANSFER.                                                     *
                    2169 *      (NOTE: CHARACTER CODE DEPENDENCY)                             *
                    2170 *                                                                    *
                    2171 *ATTRIBUTES                                                          *
                    2172 *    RELOCATABLE                                                     *
                    2173 *                                                                    *
                    2174 *CHARACTER CODE DEPENDENCY                                           *
                    2175 *    CHARACTER CODE DEPENDENCY CLASS - C                             *
                    2176 *    THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA- *
                    2177 *    TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE *
                    2178 *    USED AT ASSEMBLY TIME.  THE CODING HAS BEEN ARRANGED SO THAT RE- *
                    2179 *    DEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN *
                    2180 *    A CORRECT MODULE FOR THE NEW DEFINITIONS.  THE FOLLOWING ARE THE *
                    2181 *    SPECIAL CONSIDERATIONS FOR THIS MODULE:                         *
                    2182 *    * CHARACTER CONSTANT STRINGS WHICH ARE USED AS INFORMATIVE      *
                    2183 *      MESSAGES OR ERROR MESSAGES FOR THE USER ARE LOCATED IN A       *
                    2184 *      GROUP AT THE BEGINNING OF THE MODULE WITH ADEQUATE EXPANSION   *
                    2185 *      AREA INCLUDED FOR WORLD TRADE CONSIDERATIONS FOR TRANSLATION   *
                    2186 *      TO FOREIGN LANGUAGES.                                         *
                    2187 *    * PPL'S USED TO PRINT THE ABOVE MENTIONED CHARACTER CONSTANTS   *
                    2188 *      ARE LOCATED ADJACENT TO THEM FOR LENGTH REVISION              *
                    2189 *    * @SYSEQ TO CONSIDER - USED FOR IMMEDIATE COMPARES ETC.         *
                    2190 *    * @ZERO                                                         *
```

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2191 *   * @EOS                                                          *
2192 *   * @B1                                                           *
2193 *                                                                   *
2194 *NOTES                                                              *
2195 *    ERROR PROCEDURES                                               *
2196 *       THE FOLLOWING CONDITIONS WILL CAUSE AN ERROR CODE TO BE SAVED *
2197 *       IN $CAERR, AND AN ERROR EXIT TO BE MADE TO $CAERK IN THE    *
2198 *       SYSTEM NUCLEUS:                                             *
2199 *       * ANY INVALID SYNTAX IN THE COMMAND LINE; DETECTED BY THE   *
2200 *          MODULE ITSELF.                                           *
2201 *       * THE NON-EXISTENCE OF A PROGRAM IN THE SUSPENDED STATE     *
2202 *          OF EXECUTION.                                            *
2203 *       * THE NON-EXISTENCE OF A FILE WHICH WAS OPEN (IE. IT HAS    *
2204 *          BEEN DELETED).                                           *
2205 *       * THE OPEN INDR FOR A FILE WHICH WAS OPEN HAS BEEN SET      *
2206 *          OFF (IE. THE FILE WAS MODIFIED).                         *
2207 *       * THE MODIFICATION OF THE MACHINE CONFIGURATION SINCE THE   *
2208 *          SUSPENSION OF THE PROGRAM.                               *
2209 *       NOTE: UNDER THE THIRD OR FOURTH CONDITION, THE SUSPENDED    *
2210 *             PROGRAM IS LOST.                                      *
2211 *                                                                   *
2212 *    REGISTER USAGE                                                 *
2213 *       INITIALLY INDEX REGISTER 1 (@BR) IS USED AS A BASE TO ADDRESS *
2214 *       THE CONSTANT AREA, AND INDEX REGISTER 2 (@XR) IS A POINTER  *
2215 *       INTO THE INPUT LINE BUFFER FOR SYNTAX CHECKING.            *
2216 *       SUBSEQUENTLY, INDEX REGISTER 2 (@XR) IS USED AS AN INDEX TO *
2217 *       CHECK THE CONFIGURATION STATUS.  THEN BOTH REGISTERS ARE USED *
2218 *       TO INDEX IN D1 AND D2 IN CORE BUFFERS.  FINALLY, INDEX REG 1 *
2219 *       (@BR) IS AGAIN USED AS A BASE WHEN THE VM TRANSFER IS MADE. *
2220 *                                                                   *
2221 *    SAVED/RESTORED AREAS                                           *
2222 *       NONE                                                        *
2223 *                                                                   *
2224 *    MODIFICATION CONSIDERATIONS                                    *
2225 *       * KRSUME USES MAXIMUM AVAILABLE CORE FOR A BUFFER FOR V.M.  *
2226 *          AND @@CORE TRANSFER.  THE GENERATION OF THIS MAXIMUM     *
2227 *          BUFFER IS AFFECTED BY FORCING THE BEGINNING OF THE BUFFER, *
2228 *          KRSUMR, TO A SECTOR BOUNDARY IN CORE AND THEN ADDING     *
2229 *          (DURING EXECUTION TIME) THE CONTENTS OF THE CORE EXPANSION *
2230 *          FACTOR ($EXFTR) TO THE CONSTANT, KRSBUF, WHICH IS THE BASE *
2231 *          SECTOR COUNT OF CORE MINUS THE ADDRESS OF THE BUFFER.    *
2232 *       * NOTE THAT THE TSMLES COMMUNICATIONS REGION HAS BEEN BROKEN *
2233 *          UP (IE. PART OF THE FIELDS OVERLAY EXECUTABLE CODE) SO    *
2234 *          THAT A BASE REGISTER MAY BE USED TO ADDRESS THE FIELDS OR *
2235 *          SO THAT OPTIMUM USE OF BUFFER SPACE COULD BE MADE.       *
2236 *                                                                   *
2237 *    REQUIRED MODULES                                               *
2238 *       @SYSEQ - COMMON SYSTEM SOFTWARE EQUATES                     *
2239 *       @FXDEQ - FIXED ADDRESSES IN SYSTEM NUCLEUS                  *
2240 *       @CANEQ - FIXED ADDRESSES OUTSIDE SYSTEM NUCLEUS             *
2241 *       @SPFEQ - SYSTEM PROGRAM FILE EQUATES                        *
2242 *       @ERMEQ - ERROR MESSAGE EQUATES                              *
2243 *       @DIREO - SYSTEM LIBRARY DIRECTORY EQUATES                   *
2244 *       @WKAEQ - WORK AREA EQUATES                                  *
2245 *       @VMDEQ - VIRTUAL MEMORY DIRECTORY EQUATES                   *
2246 *       $I$EQU - INTERPRETER FIXED EQUATES                          *
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                      2247 *      DL2ICS - TWO TRACK LOGICAL DISK IOCS                      *
                      2248 *      DL4ICS - FOUR TRACK LOGICAL DISK IOCS                     *
                      2249 *      SCANIT - DELIMITER SCAN ROUTINE                           *
                      2250 *      SFINDF - FILE SEARCH CONTROL ROUTINE                      *
                      2251 *      SGETDB - PASSWORD DIRECTORY SEARCH; USER BLOCK ACCESS     *
                      2252 *      SRCHFN - FILENAME SEARCH ROUTINE                          *
                      2253 *      SVOLID - RESOLVES SPECIFIED VOL-ID PHYSICAL LOCATION      *
                      2254 *      TSMLES - DATA MANAGEMENT COMMON AREAS                     *
                      2255 *                                                                *
                      2256 *   OTHER                                                        *
                      2257 *     SPECIAL NOTES:                                             *
                      2258 *     * THE I/O ROUTINES ARE REQUIRED TO BE CORE RESIDENT FOR    *
                      2259 *       EXECUTION.                                               *
                      2260 *     * THE COMMAND MAY BE ABORTED VIA INQUIRY REQUEST UNTIL     *
                      2261 *       PHYSICAL DISK WRITES ARE STARTED.                        *
                      2262 ****************************************************************************
```

```
          #KRSUM -- RESUME COMMAND PROCESSOR


ERR LOC   OBJECT CODE       ADDR STMT SOURCE STATEMENT           VER 15, MOD 00  25/02/22  PAGE   7
                            2264 ***************************************************************************
                            2265 *                                                                         *
                            2266 *        KRSUME - RESUME PROGRAM                                           *
                            2267 *                                                                         *
                            2268 ***************************************************************************

                            2270 *       HDR   #KRSUM
                            2271 ***************************************************************************
                            2272 * PROGRAM HEADER FOR DISK LOAD                                             *
                            2273 ***************************************************************************
                            2274 *#$KRSU EQU   X'1D24'                       DISK ADDR OF #KRSUM
                            2275 *#$$KRS EQU   X'0C00'                       CORE LOAD ADDRESS OF #KRSUM
                            2276 *#$@KRS EQU   010                           SECTOR CNT OF #KRSUM
    0C00                    2277         ORG   #$$KRS                        CORE LOAD ADDRESS
          0C00 2278 $$$$$$ EQU   *                             FIRST LOCATION IN PROGRAM
    0C00 7BD2D9E2E4D4  0C05 2279         DC    CL6'#KRSUM'                   PROGRAM NAME
    0C06 5E            0C06 2280         DC    IL1'094'                      PROGRAM NUMBER OF ?KRSUM
                       0C07 2281 $KRSUM EQU   *                             ENTRY POINT TO PROGRAM
                            2282 *** END OF EXPANSION ***


                            2284 *
                       0C07 2285 KRSUME EQU   *                             ENTRY POINT
                            2286 *
N04 0C07 00 00 0000         2287         B     KRS100                        START SYNTAX CHECK

                            2289 ***************************************************************************
                            2290 *       MTEXT @@M048=@PRINT,@@M049=@PRINT,@@OM097,@PRINT,@@M300=@PRETR,
                            2291 *       PATCH=025
                            2292 ***************************************************************************
                            2293 * PPL'S AND TEXT FOR MESSAGE
                            2294 ***************************************************************************
                            2295 *
N04 0C0B 00            0C0B 2296 @@M048 DC    AL1(@FRINT)       PRINT CONTROL FUNCTION
P01                         2297         DC    IL1'221           LENGTH OF MESSAGE
    0C0C 0C17          0C0D 2298         DC    AL(@CADDR)(@@T048) ADDR OF MESSAGE
                            2299 *
P01                         2300 @@M049 DC    AL1(@PRINO        PRINT CONTROL FUNCTION
P13                         2301         DC    IL1.24.           LENGTH OF MESSAGE
    0C0E 0C2D          0C0F 2302         DC    AL(@CADDR)(@@T049) ADDR OF MESSAGE
                            2303 *
    0C10 40            0C10 2304 @@M097 DC    AL1(@PRINT)       PRINT CONTROL FUNCTION
P01                         2305         DC    IL1'341           LENGTH OF MESSAGE
P10 0C11 0000          0C12 2306         DC    AL(@CADDR)(9@T097) ADDR OF MESSAGE
                            2307 *
    0C13 C0            0C13 2308 @@M300 DC    AL1(@PRETR)       PRINT CONTROL FUNCTION
    0C14 37            0C14 2309         DC    IL1'55'           LENGTH OF MESSAGE
    0C15 0C67          0C16 2310         DC    AL(@CADDR)(@@T300) ADDR OF MESSAGE
                            2311 *
                       0C17 2312 @@T048 EQU   *                 LEFT BYTE OF MESSAGE
    0C17 40404040C7C5E361 0C2C 2313         DC    CL022'    GET/PUT FILENAME: '
                            2314 *
                       0C2D 2315 @@T049 EQU   *                 LEFT BYTE OF MESSAGE
    0C2D 40404040C4C9E2D2 0C44 2316         DC    CL024'    DISK DATA FILENAME: '
                            2317 *
                       0C45 2318 @@T097 EQU   *                 LEFT BYTE OF MESSAGE
    0C45 D7D9D6C7D9C1D440 0C66 2319         DC    CL034'PROGRAM RESTORED TO PAUSE STATE:  '
```

```
      #KRSUM -- RESUME COMMAND PROCESSOR

ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  25/02/22  PAGE   8
                           2320 *
                      0C67 2321 @@T300 EQU   *                    LEFT BYTE OF MESSAGE
     0C67 C5D9D9D6D940F5F8 0C98 2322        DC    CL050'ERROR 580 DUPLICATE DISK LABELS - SPECIFY DISK LOC'
     0C99 C1E3C9D6D5       0C9D 2323        DC    CL005'ATION'
                           2324 *
                           2325 * PATCH AREA FOR MESSAGES
                           2326 *
     0C9E                  0CB6 2327 $$$001 DS    CL025                 MSG EXPANSION PATCH AREA
```

```
                    2329 ***********************************************************************
                    2330 *                                                                     *
                    2331 *         KRSUME MODULE EQUATES                                        *
                    2332 *                                                                     *
                    2333 ***********************************************************************
                    2334 *
                    2335 *              SUSPENDED PROGRAM NAME
                    2336 *
     0000 2337 KRSIDR EQU   0                           DISPLACEMENT TO SUSPENDED INDR
                    2338 *                                           * - X1001 IF NO SUSPENDED PROG
     0007 2339 KRSFNE EQU   7                           DISP TO RIGHT BYTE OF FILENAME
                    2340 *
                    2341 *              $PAUSD REGISTERS
                    2342 *
     0009 2343 KRSPBR EQU   9                           $PAUSD BR SAVE AREA--RIGHT BYT
     000B 2344 KRSPXR EQU   11                          $PAUSD XR SAVE AREA--RIGHT BYT
     000D 2345 KRSPAR EQU   13                          $PAUSD ARR SAVE AREA--RIGHT BIT
                    2346 *
                    2347 *              EXECUTION STATUS INFORMATION
                    2348 *
     000F 2349 KRSINL EQU   15                          $INLNO
     0010 2350 KRSEXF EQU   16                          EXTENSION FACTOR $EXFTR
     0011 2351 KRSXDI EQU   17                          EXECUTION INDRS $X1ND1
     0012 2352 KRSXD2 EQU   18                          EXECUTION INDRS $XIND2
                    2353 *
                    2354 *              CONFIGURATION RECORD INFORMATION
                    2355 *
     0013 2356 KRSDSZ EQU   19                          $DKSIZ   INDR BYTE - ALL MASKS
     0014 2357 KRSCFG EQU   20                          $CONFG   INDR BYTE - ALL MASKS
     0015 2358 KRSKBG EQU   21                          $KEYBG   INDR BYTE - ALL MASKS
     0016 2359 KRSIOI EQU   22                          $IOIND   INDR BYTE - 3 MASKS
     0002 2360 KRSCRT EQU   $CRTAV                      * - $CRTAV
     0040 2361 KRSDTR EQU   $DTRDR                      * - $DTRDR
     0080 2362 KRSLMP EQU   $LNPTR                      * - $LMPTR
                    2363 *
     0018 2364 KRSPGD EQU   24                          DISP IN ?4,CORE OF D2 IF EXIST
                    2365 *
     00C0 2366 KRSX92 EQU   192                         SECTOR DECREMENT
                    2367 *
                    2368 ***********************************************************************
```

```
                             2370 ***********************************************************************
                             2371 *                                                                     *
                             2372 *        RESUME - CORE & VM TRANSFER                                   *
                             2373 *                                                                     *
                             2374 ***********************************************************************
                             2375 *
N04                          2376          USING KRSB51,@BR
          0CB7 2377 KRSBS1 EQU     *
P16 0CB7 00 00 00            2378 KRS000 MVI    KRSCRS+@DCTRL(,@BR),@DGET MODIFY CONTROL CODE
P01                          2379          MVC    DL2RAN@DADDR),KRSCSA(,@BR) BASE ADDR SUSPENDED CORE
                             2380 *
                             2381 *    DSKL2 KRSCRS,WAIT              READ CORE
    0CBA C0 87 0D5D          2382          B      DL2ICS             PERFORM RELATIVE DISK OP
    0CBE 0D41          0CBF  2383          DC     AL2(KRSCRS)        DPL ADDRESS
    0CC0 C0 87 0025          2384          B      $DISKN             WAIT AND CHECK DISK ERRORS
    0CC4 057F          0CC5  2385          DC     AL2($WAITF)        WAIT DPL ADDRESS
                             2386 *** END OF EXPANSION ***

N04 0CC6 00 00 0000 0000     2388          MVC    DL2RAM(@DADDR),$CSDPL+@DSAD  DADDR ##CORE
P16 0CCC 00 00 00            2389          MVI    KRSCRS+@DCTRL(,@BR),@DPUT MODIFY CONTROL CODE
                             2390 *
                             2391 *    DSKL2 KRSCRS                   WRITE CORE
    0CCF C0 87 0D5D          2392          B      DL2ICS             PERFORM RELATIVE DISK OP
    0CD3 0D41          0CD4  2393          DC     AL2(KRSCRS)        DPL ADDRESS
                             2394 *** END OF EXPANSION ***

    0CD5 F2 80 12            2396 KRS010 JC     KRS020,@NOP          JUMP AFTER COMPLETE TRANSFER
P16 0CD8 00 00 00 00         2397          SLC    KRSCNT(@B1,@BR),KRSBUF(,@BR)  SECTORS LEFT FOR TRANSFER
N04 0CDC 00 00 00 00         2398          ALC    KRSCRS+@DSAD(@B1,@BR),KRSBUR(,@BR) INCREMENT DISPLACEMENT
P16 0CE0 00 00 00 00         2399          MVC    KRSCRS+@DCNT(@B1,@BR),KRSCNT(,@BR) MODIFY CNT
P16 0CE4 00 00 00            2400          MVI    KRS010+@Q(,@BR),@UCB     SET SWITCH
P16 0CE7 00 00 00            2401          B      KRS000(,@BR)
                             2402 *
N04 0CEA 00 00 0000 00       2403 KRS020 MVC    DL2RAN(@DADDR),KRSSAV(,@BR)  BASE ADDR OF SUSPENDED MM
                             2404 *
                             2405 *KRS050 DSKL2 XRSVMS.WAIT            READ VM
    0CEF C0 87 0D5D          2406 KRS050 B      DL2ICS             PERFORM RELATIVE DISK OP
    0CF3 0D47          0CF4  2407          DC     AL2(KRSVMS)        DPL ADDRESS
N04 0CF5 00 00 0000          2408          B      $D1SKN             WAIT AND CHECK DISK ERRORS
    0CF9 057F          0CFA  2409          DC     AL2($WAITF)        WAIT DPL ADDRESS
                             2410 *** END OF EXPANSION ***

                             2412 *
                             2413 *    DSKL4 KRSVMR                   WRITE VM
    0CFB C0 87 0DF6          2414          B      DL4ICS             PERFORM RELATIVE DISK OP
    0CFF 0D4D          0D00  2415          DC     AL2(KRSVMR)        DPL ADDRESS
                             2416 *** END OF EXPANSION ***
                             2417 *
                             2418 ***********************************************************************:
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```
                             2420 ********************************************************************:
     0D01 F2 80 39           2421 KRS060 JC    KRS090,@NOP                 END OF TRANSFER SWITCH
                             2422 *
P16  0D04 00 00 00           2423        CLI   KRSVMR+@DSAD(,@BR),KRSX92 IS DISP GREATER 192 ?
     0D07 F2 82 12           2424        JL    KRS070                      NO, CONTINUE ON
                             2425 *
P16  0D0A 00 00 00 00        2426        SLC   KRSVMR+@DSAD(@B1,@BR),KRS192(,@BR)  DECREMENT DISP
P16  0D0E 00 00 00 00        2427        SLC   KRSVMS+@DSAD(@B1,@BR),KRS192(,@BR)  DECREMENT DISP
P16  0D12 00 00 00 0000      2428        ALC   KRSVMR+@DCYL(@B1,@BR),KRSCT2  INCREMENT CYLINDER
P16  0D17 00 00 00 0000      2429        ALC   KRSVMS+@DCYL(@B1,@BR),KRSCT4  INCREMENT CYLINDER
                             2430 *
P16  0D1C 00 00 00 00        2431 KRS070 ALC   KRSVMR+@DSAD(@B1,@BR),KRSBUF(,@BR)  INCREMENT DISP
P16  0D20 00 00 00 00        2432        ALC   KRSVMS+@DSAD(@B1,@BR),KRSBUF(,@BR)  INCREMENT DISP
                             2433 *
P16  0D24 00 00 00 00        2434        SLC   KRS#SA(2*@B1,@BR),KRSBUF(,@BR) DECREMENT COUNT OF SECTORS
P16  0D28 00 00 00 00        2435        CLC   KRS#SA(2*@B1,@BR),KRSBUF(,@BR) IS COUNT GREATER 7
P16  0D2C 00 00 00           2436        BH    KRS050(,@BR)                YES, CONTINUE
                             2437 *
P16  0D2F 00 00 00           2438        MVI   KRS060+@Q(,@BR),@UCB    SET END OF TRANSFER SWITCH
P16  0D32 00 00 00 00        2439        MVC   KRSVMR+@DCNT(@B1,@BR),KRS#SA(,@BR)  MODIFY CNT
P16  0D36 00 00 00 00        2440        MVC   KRSVMS+@DCNT(@B1,@BR),KRS#SA(,@BR)  MODIFY CNT
P16  0D3A 00 00 00           2441        B     KRS050(,@BR)                FINISH TRANSFER
                             2442 *
     0D3D C0 87 04A1         2443 KRS090 B     $CARPL                      EXIT
                             2444 *
                             2445 ***********************************************************************
```

```
                        2447 *********************************************************************
                        2448 *                                                                   *
                        2449 *         DATA CONSTANTS, BUFFERS, AND WORK AREAS                    *
                        2450 *                                                                   *
                        2451 *********************************************************************
                        2452 *
                        2453 *KRSCRS DPL FUNC=@DGET,DADDR=*-*,CNT=*-*,CADDR=KRSUMR
                   0D41 2454 KRSCRS EQU   *                       DISK PARAMETER LIST
    0D41 01        0D41 2455        DC    AL1(@DGET)              REQUESTED FUNCTION
    0D42 0000      0D43 2456        DC    AL2(*-*)                DISK ADDRESS
    0D44 00        0D44 2457        DC    AL1(*-*)                SECTOR COUNT
    0D45 0EB2      0D46 2458        DC    AL2(KRSUMR)             BUFFER ADDRESS
                        2459 *** END OF EXPANSION ***

                        2461 *KRSVMS DPL   FUNC=@DGET,DADDR=*-*,CNT=*-*,CADDR=KRSUMR
                   0D47 2462 KRSVMS EQU   *                       DISK PARAMETER LIST
    0D47 01        0D47 2463        DC    AL1(@DGET)              REQUESTED FUNCTION
    0D48 0000      0D49 2464        DC    AL2(*-*)                DISK ADDRESS
    0D4A 00        0D4A 2465        DC    AL1(*-*)                SECTOR COUNT
    0D4B 0EB2      0D4C 2466        DC    AL2(KRSUMR)             BUFFER ADDRESS
                        2467 *** END OF EXPANSION ***

                        2469 *KRSVMR DPL   FUNC=@DPUT,DADDR=#@#VFP,CNT=*-*,CADDR=KRSUMR
                   0D4D 2470 KRSVMR EQU   *                       DISK PARAMETER LIST
    0D4D 02        0D4D 2471        DC    AL1(@DPUT)              REQUESTED FUNCTION
    0D4E 0700      0D4F 2472        DC    AL2(#@#VFP)             DISK ADDRESS
    0D50 00        0D50 2473        DC    AL1(*-*)                SECTOR COUNT
    0D51 0EB2      0D52 2474        DC    AL2(KRSUMR)             BUFFER ADDRESS
                        2475 *** END OF EXPANSION ***

    0D53 1000      0D54 2477 KRSCSA DC    AL2(#$#CSA)             RELATIVE ADDR SUSPENDED CORE
    0D55 1180      0D56 2478 KRSSAV DC    AL2(#$#SAV)             RELATIVE ADDR SUSPENDED VM
    0D57 0108      0D58 2479 KRS#SA DC    AL2(#$@#SA)             COUNT OF VM TRANSFER
                        2480 *
    0D59 04        0D59 2481 KRSCT4 DC    XL1'04'                 CYLINDER INCREMENT
    0D5A 00        0D5A 2482 KRSZRO DC    XL1'00'                 THIS IS COUNT OF SECTORS WHICH
                   0D5B 2483 KRSBUF EQU   *                       * IS GENERATED DYNAMICALLY
    0D5B 114E      0D5C 2484        DC    AL2(@MINCR-KRSUMR+$$ZERO) * IN PROGRAM
    0D5A                2485        ORG   KRSBUF-1                RESET LOCATION COUNTER
    0D5A           0D5A 2486 KRSCNT DS    XL1                     COUNT OF SAVED CORE
                        2487 *
    0D5B C0        0D5B 2488 KRS192 DC    AL1(KRSX92)             SECTOR DECREMENT
    0D5C 02        0D5C 2489 KRSCT2 DC    XL1'02'                 CYLINDER INCREMENT
                        2490 *
                        2491 *********************************************************************1
                        2492 *       $DL2P
```

```
                          2494+*******************************************************************************
                          2495+*  5703-XM1  COPYRIGHT IBM CORP 1970                                          *
                          2496+*              REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE. 120-2083            *
                          2497+*                                                                            *
                          2498+*******************************************************************************
                          2499+*STATUS -                                                                    *
                          2500+*   VERSION 1 MODIFICATION 0                                                 *
                          2501+*                                                                            *
                          2502+*FUNCTION                                                                    *
                          2503+*    * DL2ICS CONVERTS A RELATIVE DISK ADDRESS TO A PHYSICAL DISK            *
                          2504+*      ADDRESS AND COMBINES IT WITH A BASE ADDRESS PLACED IN DL2RAD          *
                          2505+*      BY THE CALLER.                                                        *
                          2506+*    * THE RELATIVE DISK ADDRESS IS A TWO BYTE CYLINDER SECTOR COUNT         *
                          2507+*      IN THE CALLERS DISK PARAMETER LIST (DPL).                             *
                          2508+*    * THE COUNT IS A CYLINDER SECTOR DISPLACEMENT FROM THE BASE             *
                          2509+*      ADDRESS PLACED IN DL2RAD                                              *
                          2510+*    * DL2ICS IS USED TO PROCESS DATA ON THE FIXED OR REMOVABLE DISK         *
                          2511+*      ON EITHER DRIVE AND PROVIDES THE INTERFACE TO $DISKN.                 *
                          2512+*    * THE PHYSICAL DISK ADDRESS IS PLACED IN A COPY OF THE USERS DPL        *
                          2513+*      IN DL2ICS AND A CALL IS MADE TO $DISKN TO PERFORM THE REQUESTED       *
                          2514+*      OPERATION.                                                            *
                          2515+*                                                                            *
                          2516+*ENTRY POINTS                                                                *
                          2517+*    * THE ENTRY IS DL2ICS. THE BASE REGISTER IS SAVED AND RESTORED          *
                          2518+*      ON RETURN. THE INDEX REGISTER IS NOT USED.                            *
                          2519+*    * THE FORMAT OF THE CALLING SEQUENCE IS AS FOLLOWS:                     *
                          2520+*         B   DL2ICS                                                         *
                          2521+*         DC  AL2(PARMLT)                                                    *
                          2522+*      WHERE PARMLT IS THE ADDR OF THE PARAMETER LIST TO BE PROCESSED. *
                          2523+*                                                                            *
                          2524+*INPUT                                                                       *
                          2525+*    * THE INPUT IS A TWO BYTE BASE DISK ADDRESS PLACED IN                   *
                          2526+*      DL2RAD AND A SIX BYTE DPL. THE SAME FORMAT AS THE DPL FOR             *
                          2527+*      $DISKN EXCEPT FOR THE DISK ADDRESS WHICH IS A RELATIVE CYLINDER *
                          2528+*      AND SECTOR DISPLACEMENT FROM THE BASE ADDRESS IN DL2RAD.             *
                          2529+*                                                                            *
                          2530+*OUTPUT                                                                      *
                          2531+*    NONE.                                                                   *
                          2532+*                                                                            *
                          2533+*EXTERNAL REFERENCES                                                         *
                          2534+*     $DISKN - ENTRY TO PHYSICAL DISK ROUTINE IS THE SYSTEM NUCLEUS.   *
                          2535+*                                                                            *
                          2536+*EXITS, NORMAL                                                               *
                          2537+*     NORMAL - EXIT IS TO THE FIRST INSTRUCTION FOLLOWING THE POINTER *
                          2538+*     TO THE DPL. THE BASE REGISTER IS RESTORED. THE RETURN ADDRESS   *
                          2539+*     IS THE ADDRESS RECALL REGISTER (ARR) +2.                         *
                          2540+*                                                                            *
                          2541+*EXITS, ERROR                                                                *
                          2542+*    NONE                                                                    *
                          2543+*                                                                            *
                          2544+*TABLES/WORK AREAS                                                           *
                          2545+*    * THE CONSTANTS AND WORK AREAS RESIDE AT THE END OF THE EXECUTABLE*
                          2546+*      CODE AND ARE REFERENCED BY A DISPLACEMENT RELATIVE TO THE VALUE *
                          2547+*      IN INDEX REGISTER 1 (@BR).                                       *
                          2548+*    * DL2SEC AND DL2SAD ARE EQUATED TO OPERAND LOCATIONS IN THE        *
                          2549+*      EXECUTABLE CODE TO ELIMINATE EXCESS WORKING STORAGE.             *
```

```
                                2550+*                                                            *
                                2551+*ATTRIBUTES                                                  *
                                2552+*    * DL2ICS IS REUSABLE                                    *
                                2553+*                                                            *
                                2554+*CHARACTER CODE DEPENDENCY                                   *
                                2555+*     THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR  *
                                2556+*      INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.    *
                                2557+*                                                            *
                                2558+*NOTES                                                       *
                                2559+*    ERROR PROCEDURES                                        *
                                2560+*      NONE                                                  *
                                2561+*                                                            *
                                2562+*    REGISTER USAGE                                          *
                                2563+*     INDEX REGISTER 1 (@BR) IS SAVED AND RESTORED. THIS REGISTER IS *
                                2564+*     USED DURING EXECUTION. REGISTER 2 (@BR) IS NOT USED.    *
                                2565+*                                                            *
                                2566+*    SAVED/RESTORED AREAS                                     *
                                2567+*      NONE                                                  *
                                2568+*                                                            *
                                2569+*    MODIFICATION CONSIDERATIONS                              *
                                2570+*      NONE                                                  *
                                2571+*                                                            *
                                2572+*    REQUIRED MODULES                                        *
                                2573+*     @SYSEQ - COMMON SYSTEM EQUATES.                         *
                                2574+*     @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATORS VALUES EQUATES *
                                2575+*                                                            *
                                2576+*    OTHER                                                   *
                                2577+*     DL2ICS MAY BE USED TO CONVERT THE DISK ADDRESS ONLY AND NOT TO *
                                2578+*     CALL $DISKN IF THE USER MOVES A UCB CODE TO DL2SWH.      *
                                2579+*     THIS OPTION IS NOT STANDARD USAGE.                      *
                                2580+****************************************************************************
                           0D61 2581+      USING DL2000,@BR               ESTABLISH ADDRESSABILITY
                                2582+*
                           0001 2583+DL2E01 EQU   X'01'                   FIELD LENGTH OF 1
                           0002 2584+DL2E02 EQU   X'02'                   FIELD LENGTH OF 2
                           0018 2585+DL2E18 EQU   X'18'                   HEX TRACK SECTOR COUNT
                           0060 2586+DL2E60 EQU   X'60'                   PHYSICAL SECTOR COUNT
                           0083 2587+DL2TSD EQU   X'83'                   MASK OFF TRACK SPINDLE DISK
                           007C 2588+DL2E7C EQU   X'7C'                   MASK OUT SECTOR COUNT
                           0D5D 2589+DL2ICS EQU   *                       ENTRY POINT
     0D5D 34 01 0DDE            2590+      ST    DL2900+@OP1,@BR          SAVE OLD BASE
                           0D61 2591+DL2000 EQU   *                       START PROCESSING
     0D61 C2 01 0D61           2592+      LA    DL2000,@BR               SET BASE ADDRESS
     0D65 76 08 8A             2593+      A     DL2C01(,@BR),@ARR         BUMP TO RIGHT BYTE OF ADDR
     0D68 74 08 14             2594+      ST    DL2001+@DOP2(,@BR),@ARR   ADDR OF PARAM
     0D6B 76 08 8A             2595+      A     DL2C01(,@BR),@ARR         BUMP TO RETURN ADDR
     0D6E 74 08 81             2596+      ST    DL2910+@OP1(,@BR),@ARR    SAVE RETURN ADDR
                                2597+*
     0D71 4C 01 1D 0000        2598+DL2001 MVC   DL2002+@DOP2(@DADDR,@BR),*-* SETUP ADDR OF DPL
     0D76 5E 01 1D 8C          2599+      ALC   DL2002+@DOP2(@CADDR,@BR),DL2C05(,@BR) DUMP TO RIGHT END
     0D7A 4C 05 92 0000        2600+DL2002 MVC   DL2DPL(@DPLNG,@BR),*-*    MOVE USER DPL TO WORK AREA
     0D7F 5F 00 8F 86          2601+DL2005 SLC   DL2LST+@DSAD(DL2E01,@BR),DL2C48(,@BR) ADJUST SCTR/CYL
     0D83 F2 82 07             2602+      JM    DL2006                   GO TO RESTORE TO CONTINUE
     0D86 5E 00 8E 8A          2603+      ALC   DL2LST+@DCYL(DL2E01,@BR),DL2C01(,@BR) BUMP CYLINDER COUNT
     0D8A D0 87 1E             2604+      B     DL2005(,@BR)             BACK FOR NEXT CYLINDER
     0D8D 5E 00 8F 86          2605+DL2006 ALC   DL2LST+@DSAD(DL2E01,@BR),DL2C48(,@BR) RESTORE POSITIVE
```

```
                                  2606+*
                                  2607+*        GET THE LOGICAL SECTOR FROM THE DPL. THE NUMBER IS LEFT ADJUSTED
                                  2608+*        TO COMAE IT MTN THE POINTER ESTABLISHED PRIOR TO AN ENTRY.
      0D91 5C 00 1D 8F            2609+    MVC   DL2SEC(DL2E01,@BR),DL2LST+@DSAD(,@BR) GET SECTOR NUMBER
      0D95 7C 00 8F               2610+    MVI   DL2LST+@DSAD(,@BR),@ZERO  CLEAR SECTOR BYTE
                                  2611+*
                                  2612+*        MOVE THE RELATIVE START TO THE DFL
                                  2613+*
      0D98 5E 01 8F 94            2614+    ALC   DL2LST+@DSAD(DL2E02,@BR),DL2RAD(,@BR) DL2RAD TO DPL
      0D9C 7D 18 1D               2615+    CLI   DL2SEC(,@BR),DL2E18        IS COUNT OVER A TRACK
      0D9F F2 82 08               2616+    JL    DL2008                     NO GO CHANGE A PHYSICAL ADOR
      0DA2 5E 01 8F 85            2617+    ALC   DL2LST+@DSAD(DL2E02,@BR),DL2K80(,@BR) BUMP TRACK VALUE
      0DA6 5F 00 1D 88            2618+    SLC   DL2SEC(1,@BR),DL2K18(,@BR) DECR BY TRACK VALUE
      0DAA 5E 00 1D 1D            2619+DL2008 ALC  DL2SEC(1,@BR),DL2SEC(,@BR) SHIFT LEFT 1
      0DAE 5E 00 1D 1D            2620+    ALC   DL2SEC(1,@BR),DL2SEC(,@BR) SHIFT LEFT
      0DB2 5C 00 14 8F            2621+    MVC   DL2SAD(DL2E01,@BR),DL2LST+@DSAD(,@BR) GET SECTOR ADDRESS
                                  2622+*
                                  2623+*        ZERO OUT THE SECTOR COUNT AND LEAVE THE DISK. SPINDLE AND
                                  2624+*        TRACK BITS AS IS TO BE RE INSERTED AFTER THE SECTOR HAS BEEN
                                  2625+*        LOCATES.
                                  2626+*
      0DB6 7B 7C 8F               2627+    SBF   DL2LST+@DSAD(,@BR),DL2E7C TURN OFF
      0DB9 7B 83 14               2628+    SBF   DL2SAD(,@BR),DL2TSD        OFF TRACK SPINDLE DISK
      0DBC 5E 00 14 1D            2629+    ALC   DL2SAD(DL2E01,@BR),DL2SEC(,@BR) COMBINE SECTOR COUNTS
      0DC0 7D 60 14               2630+DL2010 CLI  DL2SAD(,@BR),DL2E60       TEST IF TRACK CROSSED
      0DC3 F2 82 08               2631+    JL    DL2100
                                  2632+*
                                  2633+*        INCREMENT TRACK BIT. OVERFLOW INTO THE CYLINDER COUNT.
                                  2634+*
      0DC6 5E 01 8F 85            2635+    ALC   DL2LST+@DSAD(DL2E02,@BR),DL2K80(,@BR)
      0DCA 5F 00 14 83            2636+    SLC   DL2SAD(1,@BR),DL2K60(,@BR) DECR BY TRACK VALUE
                                  2637+*
      0DCE 5E 00 8F 14            2638+DL2100 ALC  DL2LST+@DSAD(1,@BR),DL2SAD(,@BR) INSERT SECTOR COUNT
                                  2639+*
      0DD2 F2 80 06               2640+DL2110 JC   DL2900,@NOP               CONVERSION SWITCH
           0DD3 2641+DL2SWH EQU   DL2110+@Q                  ADDR OF Q CODE FOR SWITCH
      0DD5 C0 87 0025             2642+    B     $DISKN                     GO PROCESS I/O
      0DD9 0DEE      0DDA 2643+   DC    AL2(DL2LST)                ADDRESS OF DPL
      0DDB C2 01 0000             2644+DL2900 LA   *-*,@BR                   RESTORE CALLERS BASE
      0DDF C0 87 0000             2645+DL2910 B    *-*
                                  2646+******************************************************************
                                  2647+*        CONSTANTS
                                  2648+******************************************************************
      0DE3 0060      0DE4 2649+DL2K60 DC    XL2'0060'                  SECTOR COUNT OF 24 LEFT ADJUSTD
      0DE5 0080      0DE6 2650+DL2K80 DC    XL2'0080'                  BIT FOR INCREMENTING TRACK
      0DE7 30        0DE7 2651+DL2C48 DC    IL1'48'                    CYLINDER VALUE FOR 1 DISK
      0DE8 0018      0DE9 2652+DL2K18 DC    XL2'18'                    HEX SECTORS PER TRACK
      0DEA 0001      0DEB 2653+DL2C01 DC    IL2'1'                     CONSTANT FOR REGISTER MODE
      0DEC 0005      0DED 2654+DL2C05 DC    IL2'5'                     DISP TO RIGHT END OF DPL
                                  2655+******************************************************************
                                  2656+*        WORK AREA
                                  2657+******************************************************************
           0DEE 2658+DL2LST EQU   *                          LIST HIGH END
      0DEE      0DF3 2659+DL2DPL DS    CL(@DPLNG)                 WORKING DPL
           0DF0 2660+DL2PHY EQU   DL2LST+@DSAD               POINTER TO PHYSICAL DADDR
           0D75 2661+DL2SAD EQU   DL2001+@DOP2               SAVE SECTOR BYTE FROM DPI
```

```
      DL2ICS - TWO TRACK LOGICAL IOCR
```

```
                          0D7E 2662+DL2SEC EQU   DL2002+@DOP2             WORKING SECTOR ADDRESS FIELD
      0DF4                0DF5 2663+DL2RAD DS    CL(@DADDR)               USER RELATIVE STARTING ADDR.
                          0DF6 2664+DL2END EQU   *                        END OF DL2ICS
                               2665+***                        END OF DL2ICS                        ***
                               2666 *      $DL4P
```

```
                    2668+*******************************************************************************
                    2669+* 5703-XM1  COPYRIGHT IBM CORP. 1970                        *
                    2670+*           REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083    *
                    2671+*                                                          *
                    2672+*******************************************************************************
                    2673+*STATUS                                                    *
                    2674+*    VERSION 1 MODIFICATION 0                               *
                    2675+*                                                          *
                    2676+*FUNCTION                                                  *
                    2677+*    * DL4ICS WILL CONVERT A RELATIVE DISK ADDRESS TO A PHYSICAL    *
                    2678+*      DISK ADDRESS AND CALL $DISKN TO PERFORM THE SPECIFIED FUNCTION *
                    2679+*    * THE DISK ADDRESS IS A ONE BYTE CYLINDER ADDRESS AND A ONE BYTE *
                    2680+*      SECTOR DISPLACEMENT RELATIVE TO SECTOR 0 ON A CYLINDER   *
                    2681+*      BOUNDARY                                             *
                    2682+*    * WHEN MORE THAN 1 SECTOR IS PROCESSED, DL4ICS WILL MAKE MULTIPLE *
                    2683+*      CALLS TO $DISKN TO CROSS CYLINDER BOUNDARIES IF REQUIRED.    *
                    2684+*    * IF 1 SECTOR ONLY IS TO BE PROCESSED, THE USER MAY OVERLAY THE    *
                    2685+*      UNUSED CODE BY ORGING HIS NEXT MODULE AT DL4SPT      *
                    2686+*                                                          *
                    2687+*ENTRY POINTS                                              *
                    2688+*    DL4ICS - ENTRY TO PROCESS A 4 SURFACE FILE. THE CALLING    *
                    2689+*                SEQUENCE IS AS FOLLOWS                     *
                    2690+*                    DSKL4  DPL                             *
                    2691+*                WHERE DPL IS THE LABEL OF A SIX BYTE DISK PARAMETER *
                    2692+*                LIST AS DESCRIBED FOR $DISKN EXCEPT FOR THE SECTOR *
                    2693+*                ADDRESS BYTE.                              *
                    2694+*                                                          *
                    2695+*INPUT                                                     *
                    2696+*    * INPUT TO DL4ICS IS THE ADDRESS OF THE DPL TO BE PROCESSED.    *
                    2697+*                                                          *
                    2698+*OUTPUT                                                    *
                    2699+*    * N/A                                                  *
                    2700+*                                                          *
                    2701+*EXTERNAL REFENECES                                        *
                    2702+*    $DISKN - ENTRY TO SYSTEM DISK ROUTINE                  *
                    2703+*                                                          *
                    2704+*EXITS, NORMAL                                             *
                    2705+*    * NORMAL RETURN IS TO THE 1ST INSTRUCTION FOLLOWING THE TWO BYTE *
                    2706+*      ADDRESS POINTING TO THE DPL.                        *
                    2707+*                                                          *
                    2708+*EXITS, ERROR                                              *
                    2709+*    * N/A                                                  *
                    2710+*                                                          *
                    2711+*TABLES/WORK AREAS                                         *
                    2712+*    * N/A                                                  *
                    2713+*                                                          *
                    2714+*ATTRIBUTES                                                *
                    2715+*    * RELOCATABLE                                          *
                    2716+*    * REUSABLE                                             *
                    2717+*                                                          *
                    2718+*CHARACTER CODE DEPENDENCY                                 *
                    2719+*    * THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR *
                    2720+*      INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.    *
                    2721+*                                                          *
                    2722+*NOTES                                                     *
                    2723+*    ERROR PROCEDURES                                       *
```

```
                              2724+*      N/A                                                    *
                              2725+*                                                             *
                              2726+*   REGISTER USAGE                                            *
                              2727+*      @BR IS SAVED AND RESTORED ON EXIT, @XR IS NOT USED.  @ARR IS *
                              2728+*      USED TO PROVIDE THE ADDRESS OF THE PARAMETER.  THE @ARR IS *
                              2729+*      INCREMENTED BT TWO AND SAVED AS THE RETURN ADDRESS.    *
                              2730+*                                                             *
                              2731+*   SAVED/RESTORED AREAS                                      *
                              2732+*      N/A                                                    *
                              2733+*                                                             *
                              2734+*   MODIFICATION CONSIDERATIONS                               *
                              2735+*      N/A                                                    *
                              2736+*                                                             *
                              2737+*   REQUIRED MODULES                                          *
                              2738+*      @SYSEQ - SYSTEM SOFTWARE EQUATES                        *
                              2739+*      @FXDEQ - SYSTEM NUCLEUS EQUATES                         *
                              2740+*                                                             *
                              2741+*   OTHER                                                     *
                              2742+*      NONE                                                   *
                              2743+*****************************************************************************
```

```
     DL4ICS - FOUR TRACK LOGICAL IOCR


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  25/02/22  PAGE  19

                           0DF6 2745+DL4ICS EQU   *                          ENTRY TO DL4ICS
                           0DFA 2746+        USING DL4010,@BR                 ESTABLISH BASE REGISTER USAGE
    0DF6 34 01 0E66             2747+        ST    DL4900+@OP1,@BR            SAVE BASE REGISTER FOR EXIT
                           0DFA 2748+DL4010 EQU   *                          BASE ADDRESSABILITY
    0DFA C2 01 0DFA             2749+        LA    DL4010,@BR                 ESTABLISH BASE
    0DFE 76 08 78               2750+        A     DL4C01(,@BR),@ARR          BUMP TO HIGH END OF ADDR
    0E01 74 08 14               2751+        ST    DL4020+@DOP2(,@BR),@ARR    SET UP MOVE INSTRUCTION
    0E04 76 08 78               2752+        A     DL4C01(,@BR),@ARR          BUMP TO RETURN ADDR
    0E07 74 08 70               2753+        ST    DL4920+@OP1(,@BR),@ARR     SAVE RETURN ADDR
                                2754+*
    0E0A 4C 01 1D 0000          2755+DL4020 MVC   DL4030+@DOP2(@DADDR,@BR),*-* MOVE DPL ADDR INTO MOVE
    0E0F 5E 01 1D 7A            2756+        ALC   DL4030+@DOP2(@CADDR,@BR),DL4C05(,@BR) BUMP TO RIGHT END
    0E13 4C 05 76 0000          2757+DL4030 MVC   DL4DPL(@DPLNG,@BR),*-*      MOVE USER DPL TO WORK AREA
                                2758+*
    0E18 7C 00 5E               2759+DL4035 MVI   DL4100+@Q(,@BR),@ZERO       CLEAR TRACK, DISK SET INST
    0E1B 7C 80 67               2760+        MVI   DL4200+@Q(,@BR),@NOP        TURN OFF TWICE INDICATOR
                                2761+*
    0E1E 7D 60 73               2762+DL4040 CLI   DL4SCD(,@BR),DL4E96         TEST IF DISPLACEMENT OVER 95 ?
    0E21 F2 82 0B               2763+        JL    DL4050                      JUMP IF NOT OVER 95
    0E24 5E 00 72 78            2764+        ALC   DL4CYL(1,@BR),DL4C01(,@BR)  INCREMENT CYLINDER COUNT
    0E28 5F 00 73 25            2765+        SLC   DL4SCD(1,@BR),DL4C96(,@BR)  DECREMENT DISP BY 96
    0E2C D0 87 24               2766+        B     DL4040(,@BR)                GO BACK CHECK FOR NEXT CYLINDER
                                2767+*
    0E2F 7D 30 73               2768+DL4050 CLI   DL4SCD(,@BR),DL4E48         TEST IF DISP ON NEXT DISK ?
    0E32 F2 82 07               2769+        JL    DL4060                      JUMP IF NOT OVER 48
    0E35 7A 01 5E               2770+        SBN   DL4100+@Q(,@BR),DL4EFD      TURN ON BIT FOR FIXED DISK
    0E38 5F 00 73 36            2771+        SLC   DL4SCD(1,@BR),DL4C48(,@BR)  DECREMENT DISP 1 DISK
    0E3C 7D 01 74               2772+DL4060 CLI   DL4SCT(,@BR),DL4E01         IS SECTOR COUNT GREATER THEN 1 ?
    0E3F F2 84 33               2773+        JH    DL4SPT                      GO TO SPLIT CALL
    0E42 7D 18 73               2774+DL4070 CLI   DL4SCD(,@BR),DL4E24         DISPLACEMENT OVER 23 ?
    0E45 F2 82 07               2775+        JL    DL4080                      JUMP NOT OVER 24
    0E48 7A 80 5E               2776+        SBN   DL4100+@Q(,@BR),DL4ETB      SET TRACK BIT ON
    0E4B 5F 00 73 49            2777+        SLC   DL4SCD(1,@BR),DL4C24(,@BR)  DECR DISP TO NEXT TRACK
    0E4F 5E 00 73 73            2778+DL4080 ALC   DL4SCD(1,@BR),DL4SCD(,@BR)  SHIFT LEFT 1 PLACE
    0E53 5E 00 73 73            2779+        ALC   DL4SCD(1,@BR),DL4SCD(,@BR)  SHIFT LEFT 1 PLACE
    0E57 7A 00 73               2780+DL4100 SBN   DL4SCD(,@BR),*-*            SET TRACK, DISK BIT
                                2781+*
    0E5A C0 87 0025             2782+        B     $DISKN                      GO PERFORM DISK I/O
    0E5E 0E6B              0E5F 2783+        DC    AL2(DL4LST)                 ADDR OF DISK PARAM LIST
                                2784+*
    0E60 F2 00 3C               2785+DL4200 JC    DL4600,*-*                  BRANCH OR NOP IF TWICE SET
                                2786+*
    0E63 C2 01 0000             2787+DL4900 LA    *-*,@BR                     RESTORE OLD BASE TO RETURN
    0E67 C0 87 0000             2788+DL4920 B     *-*                         RETURN TO CALLER

                           0E6B 2790+DL4LST EQU   *                          LEFT END OF DPL
    0E6B                   0E70 2791+DL4DPL DS    CL(@DPLNG)                  DPL SAVE AREA
                           0E6C 2792+DL4CYL EQU   DL4LST+@DCYL                CYLINDER COUNT BYTE
                           0E6D 2793+DL4SCD EQU   DL4LST+@DSAD                DISPLACEMENT SECTOR COUNT
                           0060 2794+DL4E96 EQU   96                          TWO DISK SECTOR COUNT PER CYL
                           0030 2795+DL4E48 EQU   48                          ONE DISK SECTOR COUNT PER CYL
                           0018 2796+DL4E24 EQU   24                          TRACK SECTOR COUNT
                           0001 2797+DL4E01 EQU   01                          VALUE TO TEST SECTOR COUNT
                           0001 2798+DL4EFD EQU   01                          VALUE TO SET FIXED DISK BIT
                           0080 2799+DL4ETB EQU   X'80'                       VALUE TO SET TRACK BIT
    0E71 0001              0E72 2800+DL4C01 DC    IL2'1'                      VALUE TO INCR TO CYLINDER
```

```
   0E73 0005                  0E74 2801+DL4C05 DC    IL2'5'                     DISP TO RIGHT END OF DPL
                              0E1F 2802+DL4C96 EQU   DL4040+@Q                  VALUE TO DECR DISPLACEMENT
                              0E43 2803+DL4C24 EQU   DL4070+@Q                  VALUE OF 1 TRACK
                              0E6E 2804+DL4SCT EQU   DL4LST+@DCNT               POINTER TO DPL SECTOR COUNT
                              0E30 2805+DL4C48 EQU   DL4050+@Q                  VALUE TO DECR DISP BY 1 DISK

   0E75 5C 00 14 74                2807+DL4500 MVC   DL4WRK(1,@BR),DL4SCT(,@BR) PICKUP SECTOR COUNT
                              0E75 2808+DL4SPT EQU   DL4500                     POSSIBLE OVERLAY REFERENCE
   0E79 5E 00 14 73                2809+       ALC   DL4WRK(1,@BR),DL4SCD(,@BR) BUMP BY DISPLACEMENT
   0E7D 7D 30 14                   2810+       CLI   DL4WRK(,@BR),DL4E48        TEST FOR CYLINDER OVERLAP
   0E80 D0 04 48                   2811+       BNH   DL4070(,@BR)               BRANCH BACK IF NO OVERLAY
   0E83 5F 00 14 36                2812+       SLC   DL4WRK(1,@BR),DL4C48(,@BR) DECREMENT WORK BY 48
   0E87 5F 00 74 14                2813+       SLC   DL4SCT(1,@BR),DL4WRK(,@BR) SUBTRACT WORK FROM COUNT
   0E8B 7C 87 67                   2814+       MVI   DL4200+@Q(,@BR),@UCB       SET TWICE SWITCH
   0E8E 5C 00 13 73                2815+       MVC   DL4SAV(1,@BR),DL4SCD(,@BR) SAVE SECTOR DISP IN WORK AREA
   0E92 78 01 5E                   2816+       TBN   DL4100+@Q(,@BR),DL4EFD     DISK BIT ON IN Q CODE ?
   0E95 D0 90 48                   2817+       BF    DL4070(,@BR)               BRANCH NOT ON
   0E98 5E 00 13 36                2818+       ALC   DL4SAV(1,@BR),DL4C48(,@BR) BUMP TO NEXT DISK
   0E9C D0 87 48                   2819+       B     DL4070(,@BR)               RETURN TO CALL I/O
                                   2820+*
   0E9F 5C 00 73 13                2821+DL4600 MVC   DL4SCD(1,@BR),DL4SAV(,@BR) PICKUP NEXT HALF OF I/O
   0EA3 5E 00 75 74                2822+       ALC   DL4LST+@DBFR1(1,@BR),DL4SCT(,@BR) BUMP CORE ADDRESS
   0EA7 5E 00 73 74                2823+       ALC   DL4SCD(1,@BR),DL4SCT(,@BR)
   0EAB 5C 00 74 14                2824+       MVC   DL4SCT(1,@BR),DL4WRK(,@BR) MOVE IN NEW SECTOR COUNT
   0EAF D0 87 1E                   2825+       B     DL4035(,@BR)               RETURN FOR SECOND PASS
                                   2826+*
                              0E0E 2827+DL4WRK EQU   DL4020+@DOP2               1 BYTE WORK AREA FOR SPLIT CALL
                              0E0D 2828+DL4SAV EQU   DL4020+@DOP2-1             1 BYTE WORK AREA FOR SPLIT CALL
                              0EB2 2829+DL4END EQU   *                          DEFINE END OF CODE
                                   2830+***                    END OF DL4ICS                            ***
                                   2831 *         THE FOLLOWING IS DESIGNED TO FORCE THE BUFFER
                                   2832 *         - KRSUMR - TO SECTOR BOUNDARY FOR THE PURPOSE
                                   2833 *         OF DYNAMICALLY GENERATING A BUFFER OF MAXIMUM
                                   2834 *         SECTOR SIZE.
                                   2835 *
                                   2836 *         PATCH
                              0EB2 2837 KRSUMR EQU  *                          BUFFER FOR TRANSFER
                                   2838 *
                                   2839 *         $FIND
```

```
2841+*******************************************************************************
2842+*  5703-XM1    COPYRIGHT IBM CORP. 1970                                      *
2843+*                   REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083      *
2844+*                                                                            *
2845+*******************************************************************************
2846+*STATUS                                                                       *
2847+*    VERSION 1 MODIFICATION 0                                                 *
2848+*                                                                             *
2849+*FUNCTION                                                                     *
2850+*    * SFINDF IS A CONTROL MODULE USED TO LOCATE A SPECIFIED PASSWORD         *
2851+*      AND/OR FILENAME.                                                       *
2852+*    * IF THE FILENAME, PASSWORD, AND VOLUME-ID ARE ALL EXPLICITLY           *
2853+*      SPECIFIED. A CALL IS ISSUED TO SVOLID, SGETDB AND SRCHFN TO           *
2854+*      SEARCH FOR THE REQUIRED FILE IN THE FILE LIBRARY SPECIFIED.           *
2855+*      IF THE PASSWORD OR VOLUME-ID IS NOT EXPLICITLY DEFINED, SFINDF        *
2856+*      WILL DEFAULT TO THE CURRENT USER SPECIFICATIONS, IF THEY EXIST,       *
2857+*      FOR THE MISSING PARAMETERS AND THEN ISSUE THE REQUIRED CALLS          *
2858+*      TO SGETDS AND/OR SRCHFN TO LOCATE THE FILE.                           *
2859+*    * IF A ONE OR TWO-STAR FILENAME IS SPECIFIED, THE SPECIFIED DISK,       *
2860+*      OR ALL DISKS ON THE SYSTEM WILL BE SEARCHED IN AN ATTEMPT TO          *
2861+*      LOCATE THE FILE. THE CALLER MAY SET AN INDICATOR TO TERMINATE         *
2862+*      THE SEARCH AFTER A GIVEN NUMBER OF DISKS HAVE BEEN SEARCHED.          *
2863+*                                                                            *
2864+*ENTRY POINTS                                                                 *
2865+*    THE ENTRY POINT IS SFINDF.                                              *
2866+*    THE CALLING SEQUENCE IS AS FOLLOWS:                                     *
2867+*         B     SFINDF                                                       *
2868+*                                                                            *
2869+*INPUT                                                                        *
2870+*    * THE FOLLOWING INFORMATION MUST BE SET UP IN TSMLES BEFORE             *
2871+*      CALLING SFINDF.                                                       *
2872+*         * SMPSWD  MUST CONTAIN SPECIFIED PASSWORD                          *
2873+*         * SMVOID  MUST CONTAIN SPECIFIED VOLUME                           *
2874+*         * SMFNAM  MUST CONTAIN SPECIFIED FILENAME                         *
2875+*    * THE FOLLOWING SWITCHES ARE PROVIDED TO HANDLE ONE OR TWO-STAR         *
2876+*      FILES:                                                                *
2877+*         * SFIVOL - IF @NOP IS SET SVOLID WILL NOT BE CALLED. SVOLID        *
2878+*                    IS NOT REUSABLE AND THIS SWITCH MUST BE SET BEFORE*
2879+*                    SFINDF IS CALLED A SECOND TIME.                         *
2880+*         * SFISTR - IF @NOP IS SET ONLY 1 DISK WILL BE SEARCHED            *
2881+*         * SFIFND - IF @NOP SET WITH SFIVOL ONLY THE NUMBER OF DISKS       *
2882+*                    SPECIFIED IN SFINTR WILL BE SEARCHED.                   *
2883+*                                                                            *
2884+*OUTPUT                                                                       *
2885+*    * THE OUTPUT FROM SFINDF IS SET IN TSMLES, THE POINTERS AND USER        *
2886+*      DIRECTORIES REQUIRED ARE INITALIZED.                                  *
2887+*                                                                            *
2888+*EXTERNAL REFERENCES                                                          *
2889+*        TSMLES - (SMALES) DATA MANAGEMENT SAVE AREAS AND BUFFERS.           *
2890+*        $VOLID - CORE RESIDENT VOLID TABLE.                                 *
2891+*        $USRDR - DISPLACEMENT TO CURRENT USER DIRECTORY.                    *
2892+*        $FILIB - CURRENT USER FILE LIBRARY DISK ADDRESS.                    *
2893+*        DL2ICS - TWO TRACK LOGICAL IOCS.                                    *
2894+*        SRCHFN - SEARCH USER DIRCTY BLOCK.                                  *
2895+*        SGETDB - SEARCH PASSWORD DIRCTY.                                    *
2896+*        SVOLID - SEARCH VOL-ID TABLE.                                       *
```

```
                              2897+*         $CAERR - SAVE AREA FOR SYSTEM ERROR MESSAGT CODE.            *
                              2898+*                                                                     *
                              2899+*EXITS, NORMAL                                                         *
                              2900+*    * NORMAL RETURN IS TO THE CALLER FOLLOWING THE BRANCH TO SFINDF.  *
                              2901+*                                                                      *
                              2902+*EXITS, ERROR                                                          *
                              2903+*    * THE ERROR RETURN IS TO SFIERR WHICH MUST BE DEFINED BY THE      *
                              2904+*       CALLER.                                                        *
                              2905+*                                                                      *
                              2906+*TABLES/WORKAREAS                                                      *
                              2907+*    * N/A                                                             *
                              2908+*                                                                      *
                              2909+*ATTRIBUTES                                                            *
                              2910+*    * RELOCATABLE                                                     *
                              2911+*    * RE-USABLE                                                       *
                              2912+*                                                                      *
                              2913+*CHARACTER CODE DEPENDENCY                                             *
                              2914+*    * THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR  *
                              2915+*       INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.         *
                              2916+*                                                                      *
                              2917+*NOTES                                                                 *
                              2918+*    ERROR PROCEDURES                                                  *
                              2919+*       IF A FILE-SPEC WAS NOT ENTERED AND A CURRENT USER IS NOT IN    *
                              2920+*        AFFECT.  THE ERROR EXIT TO SFIERR IS TAKEN.                   *
                              2921+*                                                                      *
                              2922+*    REGISTER USAGE                                                    *
                              2923+*       @BR AND @XR ARE SAVED AND RESTORED. DURING EXECUTION @BR IS    *
                              2924+*       USED AS A BASE REGISTER AND @XR IS USED TO POINT TO $NUCBS.    *
                              2925+*                                                                      *
                              2926+*    SAVED/RESTORED AREAS                                              *
                              2927+*       NONE                                                           *
                              2928+*                                                                      *
                              2929+*    MODIFICATION CONSIDERATIONS                                       *
                              2930+*       NONE                                                           *
                              2931+*                                                                      *
                              2932+*    REQUIRED MODULES                                                  *
                              2933+*         @SYSEQ - SYSTEM SOFTWARE EQUATES.                            *
                              2934+*         @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR VALUES.      *
                              2935+*         TSMLES - DATA MANAGEMENT SAVE AREAS AND BUFFERS.             *
                              2936+*         $VOLID - SEARCH VOLUME-ID SUBROUTINE.                        *
                              2937+*         SRCHFN - SEARCH FOR FILENAME SUBROUTINES.                    *
                              2938+*         SGETDB - SEARCH PASSWORD DIRECTORY SUBROUTINE.               *
                              2939+*         DL2ICS - TWO TRACK DISK LOGICAL IOCS.                        *
                              2940+*                                                                      *
                              2941+*    OTHER                                                             *
                              2942+*       NONE                                                           *
                              2943+************************************************************************
```

```
                              2945+*
                              2946+*                    EQUATES USED IN THIS SUBROUTINE
                              2947+*
                         0EB2 2948+SFINDF EQU    *                        START OF MODULE
    0EB2 34 01 0FBF           2949+       ST    SFISBR,@BR               SAVE @BR
    0EB6 C2 01 0EF0           2950+       LA    SFIBSE,@BR               SET LOCAL BASE
                         0EF0 2951+       USING SFIBSE,@BR               *
```

```
      SFINDF - FILE SEARCH CONTROL MODULE


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT           VER 15, MOD 00  25/02/22  PAGE  23

    0EBA 74 08 D3           2952+       ST    SFIEXT(,@BR),@ARR        SAVE RETURN ADDR
    0EBD 74 02 CB           2953+       ST    SFISXR(,@BR),@XR         SAVE @XR
    0EC0 C2 02 03C0         2954+       LA    $NUCBS,@XR              SET NUCLEUS BASE
                      03C0 2955+       USING $NUCBS,@XR              *
N04 0EC4 00 00 0000         2956+       CLI   SMPSWD-##LPEN+@B1,@BLANK  WAS A PASSWD SPECIFIED ?
    0EC8 F2 81 98           2957+       JE    SFI500                   NO, GO CHECK LOGON STATUS
N04 0ECB 00 00 0000         2958+       CLI   SMVOID-$VOLID+@B1,@BLANK  WAS A VOL-ID SPECIFIED ?
    0ECF F2 81 07           2959+       JE    SFI100                   NO, GO CHECK LOGON STATUS
    0ED2 C0 87 110B         2960+SFI050 B    SVOLID                   RESOLVE SPECIFIED VOL-ID
                      0ED3 2961+SFIVOL EQU   SFI050+@Q                SET TO A NOP FOR SUCCESSIVE USE
    0ED6 F2 87 75           2962+       J     SFI350                   GO TO GET DIRECTORY
                           2963+*
                           2964+*               PASSWORD WAS SPECIFIED, BUT VOL-ID WAS NOT
                           2965+*
N04 0ED9 00 00 0000         2966+SFI100 CLI   SMPSWD-##LPEN+@B1,SFIAST IS PASSWORD AN '*' ?
    0EDD F2 01 63           2967+       JNE   SFI320                   NO, GO CHK FOR FILE LIBR DADDR
    0EE0 7C 00 D4           2968+       MVI   SFICTR(,@BR),@ZERO       YES, INITLZ LOOP CTR TO ZERO
    0EE3 7C 00 DB           2969+       MVI   SFITTC(,@BR),@ZERO       INITLZ THIS TIME COUNTER
    0EE6 BD 00 19           2970+       CLI   $FILIB-@B1(,@XR),@ZERO   CURRENT USER IN FORCE ?
    0EE9 F2 01 5D           2971+       JNE   SFI340                   YES, GO TRY THAT FIRST
N04 0EEC 00 00 0000         2972+       SBN   SMIND1,SM1PNF            SET PASSWORD NOT FOUND INDR.
                           2973+*
                           2974+*               THE FOLLOWING ROUTINE WILL SEARCH ALL DISKS ON THE
                           2975+*               SYSTEM FOR THE SPECIFIED ONE OR TWO STAR FILE
                           2976+*
    0EF0 7D 01 D4           2977+SFI200 CLI   SFICTR(,@BR),@B1         CHECK THE DISK POINTER
    0EF3 F2 82 1A           2978+       JL    SFI220                   GO CHECK F1
    0EF6 F2 81 28           2979+       JE    SFI230                   GO CHECK F2
    0EF9 7D 03 D4           2980+       CLI   SFICTR(,@BR),SFIE03
    0EFC F2 82 33           2981+       JL    SFI240                   GO CHECK R1
                           2982+*
    0EFF BD 00 4C           2983+SFI210 CLI   $VOLR2+SFIE06(,@XR),@ZERO DOES R2 CONTAIN A FILE LIBR
    0F02 F2 81 AC           2984+       JE    SFI545                   NO, NO MORE TO CHK, GO RETURN
N04 0F05 00 00 0000 00      2985+       MVC   SMBFDA(@DADDR),$VOLR2+SFIE07(,@XR) SET LIBR DADDR FOR
    0F0A 7C FE D4           2986+       MVI   SFICTR(,@BR),SFIEFE      * SEARCH AND INCR DISK POINTER
    0F0D F2 87 3E           2987+       J     SFI350                   GO TO SEARCH
                           2988+*
    0F10 BD 00 44           2989+SFI220 CLI   $VOLF1+SFIE06(,@XR),@ZERO DOES F1 CONTAIN A FILE LIBR
    0F13 F2 81 0B           2990+       JE    SFI230                   NO, GO CHECK F2
N04 0F16 00 00 0000 00      2991+       MVC   SMBFDA,$VOLF1+SFIE07(@DADDR,@XR) SET LIBR DADDR FOR SEWN
    0F1B 7C 01 D4           2992+       MVI   SFICTR(,@BR),@B1         INCR DISK POINTER
    0F1E F2 87 2D           2993+       J     SFI350                   SO TO SEARCH
                           2994+*
    0F21 BD 00 54           2995+SFI230 CLI   $VOLF2+SFIE06(,@XR),@ZERO DOES F2 CONTAIN A FILE LIBR
    0F24 F2 81 0B           2996+       JE    SFI240                   NO, SO CHECK R1
N04 0F27 00 00 0000 00      2997+       MVC   SMBFDA,$VOLF2+SFIE07(@DADDR,@XR) SET LIBR DADDR FOR SEACH
    0F2C 7C 02 D4           2998+       MVI   SFICTR(,@BR),SFIE02      INCR DISK POINTER
    0F2F F2 87 1C           2999+       J     SFI350                   GO TO SEARCH
                           3000+*
    0F32 BD 00 3C           3001+SFI240 CLI   $VOLR1+SFIE06(,@XR),@ZERO DOES R1 CONTAIN A FILE LIBR
    0F35 D0 81 0F           3002+       BE    SFI210(,@BR)             NO, GO CHECK R2
N04 0F38 00 00 0000 00      3003+       MVC   SMBFDA,$VOLR1+SFIE07(@DADDR,@XR) SET LIB DADDR FOR SEARCH
    0F3D 7C 03 D4           3004+       MVI   SFICTR(,@BR),SFIE03      INCR DISK POINTER
    0F40 F2 87 0B           3005+       J     SFI350                   GO TO SEARCH
                           3006+*
                           3007+*               PASSWORD SPECIFIED, BUT VOLUME ID WAS NOT.
```

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      SFINDF - FILE SEARCH CONTROL MODULE


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  25/02/22  PAGE  24

                                3008+*                      CHECK FOR CURRENT USER
                                3009+*
     0F43 BD 00 19             3010+SFI320 CLI    $FILIB-@B1(,@XR),@ZERO    CURRENT USER SPEC IN FORCE
     0F46 F2 81 20             3011+       JE     SFI505                    NO, GO TO ERR ROUTINE
N04  0F49 00 00 0000 00        3012+SFI340 MVC    SMBFDA(@DADDR),$FILIB(,@XR) YES, SET TO USER LIBR
                                3013+*
                                3014+*                   SO SEARCH FOR SPECIFIED PASSWORD
                                3015+*
     0F4E C0 87 0FCE           3016+SFI350 B      SGETDB                    SEARCH FOR PASSWORD
N04  0F52 00 00 0000           3017+       TBN    SMIND1,SM1PNF             WAS PASSWORD FOUND
     0F56 F2 10 3B             3018+       JT     SFI540                    NO, GO TEST STAR COUNTER
N04  0F59 00 00 0000           3019+       TBN    SMIND1,SM1PDS             PASSWORD DIRCTY ONLY REQ'SED
     0F5D F2 10 58             3020+       JT     SFI550                    YES, GO RETURN TO USER
     0F60 F2 87 26             3021+       J      SFI520                    NO, GO SEARCH FOR FILENAME
                                3022+*
                                3023+*              ONLY FILENAME SPECIFIED, CHECK FOR CURRENT USER
                                3024+*
     0F63 BD 00 19             3025+SFI500 CLI    $FILIB-@B1(,@XR),@ZERO    CURRENT USER SPEC IN FORCE
     0F66 F2 01 07             3026+       JNE    SFI510                    YES, BYPASS ERROR MESSAGE
     0F69 BC 21 0D             3027+SFI505 MVI    $CAERR(,@XR),@@E200       SET NO CURRENT USER ERROR CODE
N04  0F6C 00 00 0000           3028+       B      SFIERR                    GO TO ERROR RETURN
                                3029+*
                                3030+*                   GET FIRST USER DIRECTORY BLOCK
                                3031+*
     0F70 2C 01 0DF5 1A        3032+SFI510 MVC    DL2RAD,$FILIB(@DADDR,@XR) SET DL2ICS BASE DADDR
N04  0F75 00 00 0000 00        3033+       MVC    SMBFDA,$FILIB(@DADDR,@XR) SET LIBR DADDR TO COMMON AREA
     0F7A 6C 01 D7 1C          3034+       MVC    SFIRDA(,@BR),$USRDR(@DADDR,@XR) SET DL2ICS RELATIVE DADDR
     0F7E C0 87 0D5D           3035+       B      DL2ICS                    GO READ USER DIRECTORY BLOCK
     0F82 0FC5         0F83    3036+       DC     AL2(SFIDPL)               * CADDR OF DPL
N04  0F84 00 00 0000 00        3037+       MVC    SMFUDA,$USRDR(@DADDR,@XR) PRESERVE 1ST BLOCK REL. DADDR
                                3038+*
                                3039+*              SEARCH USER DIRECTORY BLOCK FOR FILENAME
                                3040+*
     0F89 C0 87 105A           3041+SFI520 B      SRCHFN                    GO TO SEARCH ROUTINE
N04  0F8D 00 00 0000           3042+       TBN    SMIND1,SM1FNE             WAS NAME FOUND
     0F91 F2 10 24             3043+       JT     SFI550                    YES, SO RETURN
                                3044+*
                                3045+*                   PASSWORD OR FILENAME NOT FOUND
                                3046+*
     0F94 7D FE D4             3047+SFI540 CLI    SFICTR(,@BR),SFIEFE       ONE OR TWO STAR FILE WITH MORE
     0F97 F2 84 1E             3048+       JH     SFI550                    * DISKS TO SEARCH ? NO, GET OUT
     0F9A D0 82 00             3049+SFI542 BC     SFI200(,@BR),@BL          * YES, GO SEARCH
               0F9B            3050+SFISTR EQU    SFI542+@Q                 * NOP FOR 1ST * OR ** SEARCHED
     0F9D F2 87 11             3051+SFI543 JC     SFI545,@UCB               BYPASS TRY CONTROL UNLESS
               0F9E            3052+SFIFND EQU    SFI543+@Q                 * Q-CODE CHANGED TO A NOP
     0FA0 7D 06 DC             3053+       CLI    SFINTR(,@BR),SFIETD       IS TRY COUNTER AT MAX ?
     0FA3 F2 02 0B             3054+       JNL    SFI545                    YES, SO SET ERROR CODE
     0FA6 5E 00 DB DD          3055+       ALC    SFITTC(,@BR),SFIONE(,@BR) INCR THIS TRY COUNTER
     0FAA 5D 00 DB DC          3056+       CLC    SFITTC(,@BR),SFINTR(1,@BR) THIS TRY = TRYS REQUIRED ?
     0FAE D0 01 00             3057+       BNE    SFI200(,@BR)              NO, GO TRY THE NEXT DISK
     0FB1 BC 26 0D             3058+SFI545 MVI    $CAERR(,@XR),@@E213       SET * OR ** NOT FOUND CODE
N04  0FB4 00 00 0000           3059+       SBN    SMIND1,SM1FNE             SET ON FILE NOT FOUND INDR.
                                3060+*
                                3061+*                   RETURN TO USER
                                3062+*
     0FB8 C2 02 0000           3063+SFI550 LA     *-*,@XR                   RELOAD @XR
```

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        SFINDF - FILE SEARCH CONTROL MODULE


ERR LOC   OBJECT CODE        ADDR STMT SOURCE STATEMENT              VER 15, MOD 00  25/02/22   PAGE  25

                            0FBB 3064+SFISXR EQU   SFI550+@OP1                   *
     0FBC C2 01 0000              3065+SFI560 LA    *-*,@BR                       RELOAD @BR
                            0FBF 3066+SFISBR EQU   SFI560+@OP1                   *
     0FC0 C0 87 0000              3067+SFI570 B     *-*                          RETURN TO THE USER
                            0FC3 3068+SFIEXT EQU   SFI570+@OP1                   *
                                 3069+*
                                 3070+*                   CONSTANTS AND SAVE AREAS
                                 3071+*
     0FC4                   0FC4 3072+SFICTR DS    XL1                           COUNTER USED TO CONTROL THE
     0FC4                        3073+       ORG   *-1                           * SEARCH FOR A STAR FILE
     0FC4 FF                0FC4 3074+       DC    AL1(SFIEFF)                   INITLZ'D FOR NO SEARCH
     0FC5 01                0FC5 3075+SFIDPL DC    AL1(@DGET)                   DPL TO READ USER DIRCTY BLOCK 1
     0FC6                   0FC7 3076+SFIRDA DS    XL2                           * RELATIVE DISK ADDRESS
     0FC8 02                0FC8 3077+       DC    XL1'02'                       * SECTOR COUNT
     0FC9 10CE              0FCA 3078+       DC    AL2(SMUDB1)                   * CORE BUFFER ADDRESS
     0FCB                   0FCB 3079+SFITTC DS    CL1                           THIS TRY COUNTER
     0FCC                   0FCC 3080+SFINTR DS    CL1                           NUMBER OF TRYS REQUIRED COUNTER
     0FCC                        3081+       ORG   SFINTR                        INITLZ NUMBER CF TRYS REQUIRED
     0FCC 00                0FCC 3082+       DC    XL1'0'                        * COUNTER TO ZERO
     0FCD 01                0FCD 3083+SFIONE DC    XL1'1'                        COUNTER INCREMENT
                                 3084+*
                                 3085+*                   EQUATES
                                 3086+*
N04                              3087+SVOERR EQU   SFIERR                        SVOLID ERROR RETURN ADDRESS
                            005C 3088+SFIAST EQU   C'*'                          STAR LIBR TEST CHARACTER
                            0002 3089+SFIE02 EQU   X'02'                         STAR COUNTER TEST R1 CODE
                            0003 3090+SFIE03 EQU   X'03'                         STAR COUNTER TEST R2 CODE
                            00FE 3091+SFIEFE EQU   X'FE'                         STAR COUNTER COMPLETE CODE
                            00FF 3092+SFIEFF EQU   X'FF'                         NOT A * OR ** FILE COUNTER CODE
                            0006 3093+SFIE06 EQU   X'06'                         DISP TO LIBR DADDR BYTE 0
                            0007 3094+SFIE07 EQU   X'07'                         DISP TO LIBR DADDR BYTE 1
                            0EF0 3095+SFIBSE EQU   SFI200                        LOCAL BASE ADDRESS
                            0FCD 3096+SFIEND EQU   *-1                           LAST BYTE OF SFINDF
                            0006 3097+SFIETD EQU   6                             MAX TRY REQUIRED COUNTER VALUE
                            0001 3098+       DROP  @BR
                            0002 3099+       DROP  @XR
                                 3100+***                   END OF SFINDF                        ***
                                 3101 *      $GETD
```

SGETDB - GET USER DIRECTORY BLOCK ROUTINE

```
                          3103+*****************************************************************************
                          3104+*  5703-XM1 COPYRIGHT IBM CORP. 1970                            *
                          3105+*          REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083 *
                          3106+*                                                              *
                          3107+*****************************************************************************
                          3108+*STATUS                                                        *
                          3109+*   VERSION 1 MODIFICATION 0                                   *
                          3110+*                                                              *
                          3111+*FUNCTION                                                      *
                          3112+*   * SGETDB PROVIDES TWO PRIMARY FUNCTIONS. IT WILL SEARCH THE *
                          3113+*     PASSWORD DIRECTORY FOR A SPECIFIED PASSWORD ONLY, OR IF   *
                          3114+*     INDICATED WILL GO AND READ IN THE FIRST USER BLOCK ASSOCIATED *
                          3115+*     WITH THAT PASSWORD.                                       *
                          3116+*   * IF THE PASSWORD SEARCH ONLY IS REQUESTED A SWITCH IS SET TO *
                          3117+*     INHIBIT READING THE DIRECTORY ON SUBSEQUENT ENTRIES.      *
                          3118+*   * THE ERROR CODE FOR PASSWORD NOT FOUND IS ALWAYS SET IN $CAERR. *
                          3119+*     IF THE PASSWORD IS OR IS NOT FOUND THE INDICATOR IN SMIND1 IS *
                          3120+*     SET APPROPRIATELY.                                        *
                          3121+*                                                              *
                          3122+*ENTRY POINTS                                                  *
                          3123+*   SGETDB - ENTRY TO SEARCH PASSWORD DIRECTORY AND GET        *
                          3124+*              ASSOCIATED USER DIRECTORY. THE CALLING SEQUENCE IS *
                          3125+*              AS FOLLOWS:                                      *
                          3126+*                 B     SGETDB                                 *
                          3127+*                                                              *
                          3128+*INPUT                                                         *
                          3129+*   * THE BASE ADDRESS OF THE LIBRARY MUST BE IN SM1FDA IN TSMLES. *
                          3130+*   * THE PASSWORD MUST BE IN SMPSWD.                           *
                          3131+*   * IF THE PASSWORD DIRECTORY IS TO BE SEARCHED ONLY, THEN SM1PDS *
                          3132+*     IN SMIND1 MUST BE SET TO 1. IF THE FIRST USER DIRECTORY BLOCK *
                          3133+*     ASSOCIATED WITH THE SPECIFIED PASSWORD IS TO BE READ IN THEN *
                          3134+*     THEN SM1PDS MUST BE SET TO 0.                             *
                          3135+*                                                              *
                          3136+*OUTPUT                                                        *
                          3137+*   * IF THE SPECIFIED PASSWORD IS FOUND THE ADDRESS OF THE LEFT BYTE *
                          3138+*     OF THE ENTRY IS PLACED IN SMPEAD, SM1PNF IN SMIND1 IS SET TO 0. *
                          3139+*     AND THE USER DIRECTORY RDADDR IS PLACED IN SMFUDA.        *
                          3140+*   * IF THE USER DIRECTORY WAS REQUESTED, THE READ OPERATION IS *
                          3141+*     STARTED BUT NO WAIT IS PERFORMED. THE USER DIRECTORIES OVERLAY *
                          3142+*     THE PASSWORD DIRECTORIES IN CORE.                         *
                          3143+*   * IF THE SPECIFIED PASSWORD WAS NOT FOUND SM1PNF, IS SET TO 1 AND *
                          3144+*     THE ADDRESS FOR THE NEXT AVAILABLE ENTRY IS IN SMPEAD.    *
                          3145+*                                                              *
                          3146+*EXTERNAL REFERENCES                                           *
                          3147+*         $CAERR - LOCATION FOR SYSTEM ERROR CODE               *
                          3148+*         SMIND1 - DATA MANAGEMENT INDICATOR                    *
                          3149+*         DL2RAD - LOCATION OF FILE PHYSICAL BASE ADDRESS       *
                          3150+*         SMBFDA - LOCATION OF LIBRARY BASE ADDRESS             *
                          3151+*         DL2ICS - ENTRY TO DISK I/O ROUTINE                    *
                          3152+*         $DISKN - ENTRY TO SYSTEM DISK IOCS                    *
                          3153+*         $WAITF - LOCATION OF COMMON I/O WAIT FUNCTION         *
                          3154+*         SMPSWD - LOCATION PASSWORD ARGUMENT                   *
                          3155+*         SMPEAD - LOCATION OF PASSWORD ENTRY ADDRESS           *
                          3156+*         SMFUDA - LOCATION OF USER DIRECTORY RDADDR            *
                          3157+*                                                              *
                          3158+*EXITS, NORMAL                                                 *
```

```
                                    3159+*    NORMAL EXIT IS TO THE FIRST INSTRUCTION FOLLOWING THE BRANCH     *
                                    3160+*    TO SGETDB                                                        *
                                    3161+*                                                                     *
                                    3162+*EXITS, ERROR                                                         *
                                    3163+*    NONE                                                             *
                                    3164+*                                                                     *
                                    3165+*TABLES/WORKAREAS                                                     *
                                    3166+*    NONE                                                             *
                                    3167+*                                                                     *
                                    3168+*ATTRIBUTES                                                           *
                                    3169+*    RELOCATABLE                                                      *
                                    3170+*    REUSABLE                                                         *
                                    3171+*                                                                     *
                                    3172+*CHARACTER CODE DEPENDENCY                                            *
                                    3173+*    THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR   *
                                    3174+*    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.           *
                                    3175+*                                                                     *
                                    3176+*NOTES                                                                *
                                    3177+*    ERROR PROCEDURES                                                 *
                                    3178+*      THE ERROR CODE FOR PASSWORD NOT FOUND IS ALWAYS SET BUT SGETDB *
                                    3179+*      DETECTS NO PARTICULAR ERROR. THE CONDITION AS TO IF THE        *
                                    3180+*      PASSWORD WAS OR WAS NOT FOUND IS INDICATED HOWEVER.            *
                                    3181+*                                                                     *
                                    3182+*    REGISTER USAGE                                                   *
                                    3183+*      @BR AND @XR1 ARS SAVED AND RESTORED. @BR IS USED AS A BASE     *
                                    3184+*      REGISTER AND @XR IS USED AS AN INDEX TO THE PASSWORD DIRCTY.   *
                                    3185+*      @ARR IS USED TO PROVIDE THE RETURN ADDRESS.                    *
                                    3186+*                                                                     *
                                    3187+*    SAVED/RESTORED AREAS                                             *
                                    3188+*      NONE                                                           *
                                    3189+*                                                                     *
                                    3190+*    MODIFICATION CONSIDERATIONS                                      *
                                    3191+*      IN USING SGETDB THE USER MUST TAKE INTO CONSIDERATION THAT     *
                                    3192+*      SGETDB DOES NOT WAIT FOR THE USER DIRECTORY BLOCK TO BE IN     *
                                    3193+*      CORE BEFORE RETURNING.                                         *
                                    3194+*                                                                     *
                                    3195+*    REQUIRED MODULES                                                 *
                                    3196+*      @SYSEQ - SYSTEM SOFTWARE EQUATES                               *
                                    3197+*      @FXDEQ - NUCLEUS EQUATES                                       *
                                    3198+*      @DIREQ - LIBRARY DIRECTORY EQUATES                             *
                                    3199+*      DL2ICS - DISK IOCS                                             *
                                    3200+*      TSMLES - DATA MANAGEMENT COMMUNICATIONS AREA                   *
                                    3201+*                                                                     *
                                    3202+*    OTHER                                                            *
                                    3203+*      NONE                                                           *
                                    3204+*************************************************************************
                                    3205+*SGETDB ENTER BASE,SGETDB,EXIT,SGE90,@BR,@XR,@ARR
                               0FCE 3206+      USING SGETDB,@BR                   BASE ADDRESS SPECIFICATION
                               0FCE 3207+SGETDB EQU    *                         MODULE ENTRY POINT
     0FCE 34 01 1046                3208+      ST     SGE900+@OP1,@BR            SAVE @BR
     0FD2 C2 01 0FCE                3209+      LA     SGETDB,@BR                 LOAD BASE REGISTER
     0FD6 74 02 7C                  3210+      ST     SGE901+@OP1(,@BR),@XR      SAVE @XR
     0FD9 74 08 80                  3211+      ST     SGE902+@OP1(,@BR),@ARR     SAVE RETURN ADDRESS
                                    3212+*** END OF EXPANSION ***

     0FDC 3C 23 03CD                3214+      MVI    $CAERR,@@E210              PASSWORD NOT ON DISK
```

```
      SGETDB - GET USER DIRECTORY BLOCK ROUTINE


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  25/02/22  PAGE  28

N04 0FE0 00 00 0000            3215+          SBF   SMIND1,SM1PNF             INITIALIZE INDICATOR TO FOUND
    0FE4 F2 80 15             3216+SGE050 JC    SGE055,@NOP              SET SWITCH FOR 2ND ENTRY
    0FE7 7C 87 17             3217+          MVI   SGE050+@Q(,@BR),@UCB     TURN SWITCH ON FOR NEXT ENTRY
N04 0FEA 00 00 0000 0000       3218+          MVC   DL2RAD,SMBFDA            STUFF IN THE BASE ADDR
    0FF0 C0 87 0D5D           3219+          B     DL2ICS                  CALL DISK I/O ROUTINE
    0FF4 104F           0FF5 3220+          DC    AL2(SGEDPL)             POINTER TO PARAMETER LIST
    0FF6 C0 87 0025           3221+          B     $DISKN                  WAIT FOR DIRCTY TO LOAD
    0FFA 057F           0FFB 3222+          DC    AL2($WAITF)             WAIT FOR DIRCTY


    0FFC 75 02 86             3224+SGE055 L     SGEDPL+@DBFR2(,@BR),@XR  PASSWORD BUFFER CADDR
    0FFF 6C 00 89 00          3225+          MVC   SGECNT(1,@BR),##DPHC(,@XR) ENTRY COUNT TO WORK
    1003 E2 02 04             3226+          LA    ##DPE1(,@XR),@XR        BUMP TO FIRST PASSWORD
                             3227+*
N04 1006 00 00 0000 00         3228+SGE060 CLC   SMPSWD(##LPEN),##DPEN(,@XR) LOOK AT PSWD ENTRY
    100B F2 81 0E             3229+          JE    SGE070                  FOUND THE PSWD
    100E E2 02 0C             3230+          LA    ##LPE(,@XR),@XR         BUMP TO LOOK AT NEXT ENTRY
    1011 5F 00 89 8B          3231+          SLC   SGECNT(1,@BR),SGEC01(,@BR) DECR ENTRY COUNT
    1015 D0 01 38             3232+          BNE   SGE060(,@BR)           BACK FOR LOOK AT ENTRY
N04 1018 00 00 0000            3233+          SBN   SMIND1,SM1PNF           NOT FOUND INDICATOR
                             3234+*
                             3235+*          THE PASSWORD OR THE END OF THE DIRCTY HAS BEEN FOUND,
                             3236+*          SAVE THE POINTERS.
                             3237+*
N04 101C 00 00 0000            3238+SGE070 ST    SMPEAD,@XR              SAVE ENTRY ADDRESS
N04 1020 00 00 0000 00         3239+          MVC   SMFUDA(@DADDR),##DPEA(,@XR) POSSIBLE USER DADDR OF BLK
N04 1025 00 00 0000            3240+          TBN   SMIND1,SM1PDS           TEST SEARCH BIT ONLY ON
    1029 F2 10 17             3241+          JT    SGE900                  SEARCH ONLY SO EXIT
    102C 7D 00 89             3242+          CLI   SGECNT(,@BR),@ZERO      TEST COUNT IF ENTRY FOUND
    102F F2 81 11             3243+          JE    SGE900                  JUMP IF NOT FOUND
    1032 6C 01 83 09          3244+SGE080 MVC   SGEDPL+@DSAD(@DADDR,@BR),##DPEA(,@XR) BLK ADDR TO DPL
    1036 C0 87 0D5D           3245+          B     DL2ICS                  CALL TO READ USER DIRCTY
    103A 104F           103B 3246+          DC    AL2(SGEDPL)             POINTER TO PARAMETER LIST
                             3247+*
    103C 7C 80 17             3248+          MVI   SGE050+@Q(,@BR),@NOP    TURN OFF SKIP INSTR
    103F 5C 01 83 88          3249+          MVC   SGEDPL+@DSAD(@DADDR,@BR),SGERAD(,@BR) RESTORE DSAD PSWD
                             3250+*
                             3251+*SGE900 EXIT @BR,@XR,,RETURN
    1043 C2 01 0000           3252+SGE900 LA    *-*,@BR                  RESTORE OBR
    1047 C2 02 0000           3253+SGE901 LA    *-*,@XR                  RESTORE OXR
    104B C0 87 0000           3254+SGE902 B     *-*                      RETURN TO CALLING PROGRAM
                             3255+*** END OF EXPANSION ***
                             3256+*
                             3257+*          DPL TO READ IN THE PASSWORD DIRCTY
                             3258+*
                             3259+*SGEDPL $DPL  FUNC-@DGET,DADDR-##RP,CNT-##LP,CADDR-SMPDB1
                        104F 3260+SGEDPL EQU   *                        DISK PARAMETER
    104F 01             104F 3261+          DC    AL1(@DGET)             REQUESTED FUNCTION
    1050 0001           1051 3262+          DC    AL2(##RP)              DISK ADDRESS
    1052 04             1052 3263+          DC    AL1(##LP)              SECTOR COUNT
    1053 10CE           1054 3264+          DC    AL2(SMPDB1)            BUFFER ADDRESS
                             3265+*** END OF EXPANSION ***


    1055 0001           1056 3267+SGERAD DC    AL2(##RP)              RELATIVE DADDR OF DIRCTY
    1057               1057 3268+SGECNT DS    CL1                    SAVE AREA FOR ENTRY COUNT
    1058 0001           1059 3269+SGEC01 DC    IL2'1'                 CONSTANT 1 FOR ADDR MODIFCATION
```

```
                        105A 3271+SGEEND EQU    *                       END ADDR OF SGETDB
                             3272+***                        END OF SGETDB                        ***
                             3273 *        $RCHF
```

```
                         3275+***************************************************************************
                         3276+*  5703-XM1 COPYRIGHT IBM CORP. 1970                                    *
                         3277+*            REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083        *
                         3278+*                                                                       *
                         3279+***************************************************************************
                         3280+*STATUS                                                                 *
                         3281+*    VERSION 1 MODIFICATION 0                                            *
                         3282+*                                                                        *
                         3283+*FUNCTION                                                                *
                         3284+*    * SRCHFN SEARCHES A USER DIRECTORY FOR A SPECIFIED FILENAME. IT     *
                         3285+*      IS ASSUMED THAT THE DIRECTORY TO BE SEARCHED HAS BEEN READ INTO *
                         3286+*      CORE AT SMUDBI IN TSMLES.  IF THE DIRECTORY IS LINKED TO AN       *
                         3287+*      ADDITIONAL BLOCK IT IS READ IN TO THE SECONDARY BUFFER WHILE      *
                         3288+*      THE PRIMARY BLOCK IS SEARCHED.                                    *
                         3289+*    * THE ADDRESS OF THE ENTRY OR THE ADDRESS FOR A NEW ENTRY IS        *
                         3290+*      PLACED IN SMUDEA. THE ADDRESS OF THE ACTIVE DIRECTORY IS PLACED *
                         3291+*      IN SMUDBA.  IF THE NAME WAS NOT FOUND SMIFNE IS SET TO 1 IN       *
                         3292+*      SMIND1.  IF THE NAME WAS FOUND THE INDICATOR IS SET TO 0.         *
                         3293+*                                                                        *
                         3294+*ENTRY POINTS                                                            *
                         3295+*    SRCHFN - ENTRY TO SEARCH FOR A FILENAME. THE CALLING SEQUENCE       *
                         3296+*               IS AS FOLLOWS:                                           *
                         3297+*                  B    SRCHFN                                           *
                         3298+*                                                                        *
                         3299+*INPUT                                                                   *
                         3300+*    THE USER DIRECTORY BLOCK MUST BE READ INTO SMUDB1 IN TSMLES.        *
                         3301+*    THE NAME OF THE ENTRY TO SEARCH FOR MUST BE IN SMFNAM IN TSMLES     *
                         3302+*                                                                        *
                         3303+*OUTPUT                                                                  *
                         3304+*    * IF THE FILE NAME IS FOUND THE ADDRESS OF THE ENTRY IS SET IN      *
                         3305+*      SMUDEA. THE ADDRESS OF THE BUFFER CONTAINING THE ENTRY IS IN      *
                         3306+*      SMUDBA, AND THE INDICATOR BIT SMIFNE IN SMIND1 IS SET TO 0.       *
                         3307+*    * IF THE FILE NAME WAS NOT FOUND SMUDEA CONTAINS THE ADDRESS OF     *
                         3308+*      WHERE THE NEXT ENTRY MAY BE MADE IN THE DIRECTORY. SMUDBA         *
                         3309+*      CONTAINS THE ADDRESS OF THE BUFFER CONTAINING THE LAST BLOCK,     *
                         3310+*      AND SMIFNE IS SET TO 1 IN SMIND1.                                 *
                         3311+*    * SMUDEA CONTAINS THE ADDRESS OF THE LEFTMOST BYTE OF THE FIELD,    *
                         3312+*    * THE ERROR CODE FOR FILE NOT FOUND IS ALWAYS MOVED TO $CAERR,      *
                         3313+*                                                                        *
                         3314+*EXTERNAL REFERENCES                                                     *
                         3315+*        $CAERR - LOCATION OF ERROR CODE INDICATOR.                      *
                         3316+*        $DISKN - ENTRY TO DISK IOCS.                                    *
                         3317+*        $WAITF - ADDRESS OF COMMON I/O WAIT FUNCTION.                   *
                         3318+*        DL2ICS - ENTRY TO DISK LOGICAL IOCS.                            *
                         3319+*        SMFNAM - ADDRESS OF FILENAME SAVE AREA                          *
                         3320+*        SMUDEA - ADDRESS OF USER DIRECTORY ENTRY ADDRESS.               *
                         3321+*        SMUDBA - ADDRESS OF USER DIRECTORY BUFFER ADDRESS.              *
                         3322+*        SMDAAD - LOCATION OF RELATIVE DISK ADDRESS OF ACTIVE BUFFER. *
                         3323+*        SMIFNE - VALUE OF NOT FOUND INDICATOR.                          *
                         3324+*        SMIND1 - LOCATION INDICATOR 1.                                  *
                         3325+*        SMUDB1 - ADDRESS OF DIRECTORY BLOCK BUFFER.                     *
                         3326+*        SMUDB2 - ADDRESS OF DIRECTORY BLOCK BUFFER.                     *
                         3327+*                                                                        *
                         3328+*EXITS, NORMAL                                                           *
                         3329+*    THE REGISTER @BR @XR ARE RESTORED AND THE EXIT IS TO THE            *
                         3330+*    ADDRESS SAVED FROM THE @ARR REGISTER.                               *
```

```
3331+*                                                                      *
3332+*EXITS, ERROR                                                          *
3333+*   NONE.                                                              *
3334+*                                                                      *
3335+*TABLES/WORKAREAS                                                      *
3336+*   NONE                                                               *
3337+*                                                                      *
3338+*ATTRIBUTES                                                            *
3339+*   RELOCATABLE                                                        *
3340+*                                                                      *
3341+*CHARACTER CODE DEPENDENCY                                             *
3342+*   CHARACTER CODE DEPENDENCY CLASS - C                                *
3343+*   THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA- *
3344+*   TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE *
3345+*   USED AT ASSEMBLY TIME.  THE CODING HAS BEEN ARRANGED SO THAT RE-  *
3346+*   DEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN  *
3347+*   A CORRECT MODULE FOR THE NEW DEFINITIONS.                         *
3348+*                                                                      *
3349+*NOTES                                                                 *
3350+*   ERROR PROCEDURES                                                   *
3351+*      NONE                                                            *
3352+*                                                                      *
3353+*   REGISTER USAGE                                                     *
3354+*      @BR AND @XR ARE SAVED ON ENTRY AND RESTORED AT EXIT.            *
3355+*      @ARR IS USED AS THE RETURN ADDRESS.                            *
3356+*                                                                      *
3357+*   SAVED/RESTORED AREAS                                               *
3358+*      NONE                                                            *
3359+*                                                                      *
3360+*   MODIFICATION CONSIDERATIONS                                        *
3361+*      NONE                                                            *
3362+*                                                                      *
3363+*   REQUIRED MODULES                                                   *
3364+*      @SYSEQ - SYSTEM SOFTWARE EQUATES.                               *
3365+*      @DIREQ - LIBRARY DIRECTORY EQUATES.                             *
3366+*      @FXDEQ - SYSTEM NUCLEUS EQUATES.                                *
3367+*      DL2ICS - LOGICAL DISK IOCS.                                     *
3368+*      TSMLES - DATA MANAGEMENT COMMUNICATIONS AREA.                   *
3369+*                                                                      *
3370+*   OTHER                                                              *
3371+*      NONE                                                            *
3372+************************************************************************
```

```
       SRCHFN - SEARCH FOR FILE NAME IN USER DIRECTORY


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  25/02/22  PAGE  32

                          105A 3374+SRCHFN EQU  *                           ENTRY TO SEARCH FILENAME
     105A 34 01 10E4           3375+      ST   SRC900+@OP1,@BR       SAVE BASE REGISTER
                          105E 3376+      USING SRC010,@BR
     105E C2 01 105E           3377+SRC010 LA   SRC010,@BR           SET BASE ADDR
     1062 74 02 8A             3378+      ST   SRC910+@OP1(,@BR),@XR  SAVE INDEX REG
     1065 74 08 8E             3379+      ST   SRC920+@OP1(,@BR),@ARR SAVE RETURN ADDR
     1068 3C 24 03CD           3380+      MVI  $CAERR,@@E211         FILE NOT FOUND
     106C 5C 01 9B A1          3381+      MVC  SRCBF1(@CADDR,@BR),SRCBA1(,@BR) INITIALIZE OLF POINTER
     1070 5C 01 9D A3          3382+      MVC  SRCBF2(@CADDR,@BR),SRCBA2(,@BR) ALTERNATE BUFFER
     1074 5C 01 9F 9B          3383+      MVC  SRCACT(@CADDR,@BR),SRCBF1(,@BR) SET ACTIVE BUFFER

     1078 C0 87 0025           3385+SRC020 B    $DISKN               WAIT FOR USER BLOCK
     107C 057F            107D 3386+      DC   AL2($WAITF)          WAIT OP DPL
                               3387+*
     107E 7C 87 5E             3388+      MVI  SRC055+@Q(,@BR),@UCB  RESET NOP FOR LINKED DIRCTY
     1081 75 02 9F             3389+      L    SRCACT(,@BR),@XR      PICKUP POINTER TO ACTIVE BUFFER
                               3390+*
                               3391+*          BLOCK LINK SHOULD ALWAYS BE GREATER THAN 1 IF IT IS
                               3392+*          PRESENT. IF NOT THE LINK BYTE SHOULD BE ZERO.
                               3393+*
     1084 9D 01 03 A6          3394+      CLC  ##DUHB(@DADDR,@XR),SRCC01(,@BR) TEST LIVE FIELD
     1088 F2 82 11             3395+      JL   SRC030               JUMP NOT LINKED
     108B 5C 01 AC 9D          3396+      MVC  SRCBFR(@DADDR,@BR),SRCBF2(,@BR) GET ALTERNATE BUFFER ADDR
     108F 6C 01 A9 03          3397+      MVC  SRCDAD(@DADDR,@BR),##DUHB(,@XR) SET LINK TO MEXT BLOCK
     1093 C0 87 0D5D           3398+      B    DL2ICS               READ NEXT BLOCK
     1097 1105            1098 3399+      DC   AL2(SRCDPL)          POINTER TO DPL
                               3400+*
     1099 7C 80 5E             3401+      MVI  SRC055+@Q(,@BR),@NOP  SET SWITCH FOR LINKED BLOCK
     109C 6C 00 A4 04          3402+SRC030 MVC  SRCCNT(1,@BR),##DUHC(,@XR) GET ENTRY COUNT
     10A0 E2 02 0C             3403+      LA   ##DUEI(,@XR),@XR      BUMP TO FIRST ENTRY
     10A3 7D 00 A4             3404+      CLI  SRCCNT(,@BR),@ZERO    IS STARTING COUNT ZERO ?
     10A6 D0 81 5D             3405+      BE   SRC055(,@BR)          YES, RETURN NOT FOUND
N04  10A9 00 00 00 0000        3406+SRC035 CLC  ##DUEN(##LUEN,@XR),SMFNAM LOOK AT ENTRY
     10AE F2 81 1C             3407+      JE   SRC040               JUMP IF THE NAME IS FOUND
     10B1 E2 02 32             3408+      LA   ##LUE(,@XR),@XR       BUMP THE POINTER FOR NEXT ENTRY
     10B4 5F 00 A4 A6          3409+      SLC  SRCCNT(1,@BR),SRCC01(,@BR) DECR ENTRY COUNTER
     10B8 D0 01 4B             3410+      BNE  SRC035(,@BR)          BACK TO TEXT NEXT ENTRY
     10BB F2 00 2F             3411+SRC055 JC   SRC060,*-*           LINK SWITCH
     10BE 5C 01 9B 9D          3412+      MVC  SRCBF1(@CADDR,@BR),SRCBF2(,@BR) SWITCH BUFFERS
     10C2 5C 01 9D 9F          3413+      MVC  SRCBF2(@CADDR,@BR),SRCACT(,@BR) *
     10C6 5C 01 9F 9B          3414+      MVC  SRCACT(@CADDR,@BR),SRCBF1(,@BR) SET ACTIVE BUFFER
     10CA D0 87 1A             3415+      B    SRC020(,@BR)         GO BACK TO NEXT BUFFER
                               3416+*
                               3417+*          FILENAME HAS BEEN FOUND.
                               3418+*
N04  10CD 00 00 0000           3419+SRC040 ST   SMUDEA,@XR           SAVE ENTRY ADDR
N04  10D1 00 00 0000           3420+      SBF  SMIND1,SM1FNE         TURN OFF NOT FOUND INDICATOR
     10D5 75 02 9F             3421+SRC050 L    SRCACT(,@BR),@XR      GET CADDR OF ACTIVE BUFFER
N04  10D8 00 00 0000           3422+      ST   SMUDBA,@XR           SAVE CADDR IN SMALES
N04  10DC 00 00 0000 00        3423+      MVC  SMDAAD,##DUHA(@DADDR,@XR) SAVE RDADDR OF ACTIVE DIRCTY
     10E1 C2 01 0000           3424+SRC900 LA   *-*,@BR              RESTORE CALLERS BASE
     10E5 C2 02 0000           3425+SRC910 LA   *-*,@XR              RESTORE INDEX
     10E9 C0 87 0000           3426+SRC920 B    *-*                  RETURN

                               3428+*
                               3429+*          FILENAME WAS NOT FOUND. SAVE ADDR FOR NEXT ENTRY AND
```

```
                               3430+*          SET THE INDICATOR.
                               3431+*
N04 10ED 00 00 0000            3432+SRC060 ST     SMUDEA,@XR          SAVE ADDR FOR NEXT ENTRY
N04 10F1 00 00 0000            3433+       SBN    SMIND1,SM1FNE       TURN ON NOT FOUND INDICATOR
    10F5 D0 87 77              3434+       B      SRC050(,@BR)        GO TO RETURN
```

```
       SRCHFN - SEARCH FOR FILE NAME IN USER DIRECTORY

ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT              VER 15, MOD 00  25/02/22  PAGE  34
                               3436+*
                               3437+*              CONSTANTS AND WORK AREA
                               3438+*
    10F8                  10F9 3439+SRCBF1 DS   CL(@CADDR)                 WORK AREA PRIMARY BUFFER ADDR
    10FA                  10FB 3440+SRCBF2 DS   CL(@CADDR)                 WORK AREA SECONDARY BUFFER ADDR
    10FC                  10FD 3441+SRCACT DS   CL(@CADDR)                 SAVE AREA FOR ACTIVE BUFFER
    10FE 10CE             10FF 3442+SRCBA1 DC   AL2(SMUDB1)                ADDRESS OF USED DIRCTY BLUFFER 1
    1100 12CE             1101 3443+SRCBA2 DC   AL2(SMUDB2)                ADDRESS OF DIRCTY BUFFER 2
    1102                  1102 3444+SRCCNT DS   CL1                        WORK AREA FOR ENTRY COUNT
    1103 0001             1104 3445+SRCC01 DC   IL2'1'                     CONSTANT TO DECR ENTRY COUNT
                          1105 3446+SRCDPL EQU  *                          DEFINE LEFT END OF DPL
    1105 01               1105 3447+SRCGET DC   AL1(@DGET)                 READ OP CODE
    1106                  1107 3448+SRCDAD DS   CL(@DADDR)                 RELATIVE ADDR OF BLOCK
    1108 02               1108 3449+SRCSCT DC   AL1(##LU)                  SECTOR COUNT FOR BLOCK
    1109                  110A 3450+SRCBFR DS   CL(@CADDR)                 BUFFER ADDR OF BLOCK
                               3451+***                    END OF SRCHFN                          ***
                               3452 *       $VOLI
```

```
                          3454+*********************************************************************
                          3455+* 5703-XM1  COPYRIGHT IBM CORP. 1970                                *
                          3456+*           REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE  120-2083      *
                          3457+*                                                                   *
                          3458+*********************************************************************
                          3459+*STATUS                                                             *
                          3460+*   VERSION 1 MODIFICATION 0                                        *
                          3461+*                                                                   *
                          3462+*FUNCTION                                                           *
                          3463+*    THE FUNCTION OF SVOLID IS TO SEARCH THE CORE RESIDENT TABLE OF  *
                          3464+*    VOLUME ID'S ON THE SYSTEM FOR A SPECIFIED VOLUME ID. IF THE     *
                          3465+*    VOLUME IS NOT FOUND, AN ERROR CODE WILL BE PUT IN $CAERR AND AN *
                          3466+*    EXIT TO $VOERR IN THE CALLING ROUTINE WILL BE TAKEN. IF MORE    *
                          3467+*    THAN ONE VOLUME WITH THE SAME VOL-ID IS FOUND ON THE SYSTEM, THE*
                          3468+*    USER OF THE SYSTEM IS REQUESTED TO INDICATE WHICH DRIVE AND DISK *
                          3469+*    IS TO BE USED. IF THE USER IS UNABLE TO RESOLVE THE CONFLICT,    *
                          3470+*    THE COMMAND IS REJECTED. IF THE INPUT SOURCE IS NOT THE KEYBOARD,*
                          3471+*    THE COMMAND IS REJECTED. OTHERWISE THE FILE LIBRARY ADDRESS OF   *
                          3472+*    THE RESOLVED VOLUME IS PLACED IN SMBFDA IN THE TSMLES COMMUNICA- *
                          3473+*    TIONS REGION, AND A NORMAL RETURN IS TAKEN.                     *
                          3474+*                                                                   *
                          3475+*ENTRY POINTS                                                       *
                          3476+*    $VOLID - THE FIRST EXECUTABLE INSTRUCTION. IT IS ASSUMED THAT   *
                          3477+*    SMVOID IN TSMLES HAS BEEN PRIMER. ALSO, IF THE VM OPTION OF     *
                          3478+*    SVOLID HAS BEEN ASSEMBLED FOR EXECUTION TIME USAGE.            *
                          3479+*    THE FIELDS SVOIOF AND SVODSK SHOULD BE PRIMED WITH THE GET/PUT  *
                          3480+*    GET/PUT FILENAME AND DISK FILENAME, RESPETIVELY.               *
                          3481+*                                                                   *
                          3482+*INPUT                                                              *
                          3483+*    INPUT TO SVOLID IS THE SPECIFIED VOL-ID IN THE TSMLES REGION -  *
                          3484+*    SMVOID.                                                         *
                          3485+*                                                                   *
                          3486+*OUTPUT                                                             *
                          3487+*    OUTPUT FROM SVOLID IS THE FILE LIBRARY ADDRESS OF THE RESOLVED  *
                          3488+*    SPECIFIED VOL-ID - PLACED IN SMBFDA.                           *
                          3489+*                                                                   *
                          3490+*EXTERNAL REFERENCES                                                *
                          3491+*        SVOBUF - TEMPORARY SECTOR BUFFER SAVE AREA - USER SUPPLIED  *
                          3492+*        SVOERR - ERROR EXIT ADDR FROM SVOLID                       *
                          3493+*        TSMLES - DATA MANAGEMENT COMMUNICATIONS REGION             *
                          3494+*        $$ILHD - FIRST BYTE OF INPUT LINE HEADER                   *
                          3495+*        $$XIND - EXECUTION INDR PASS AREA                          *
                          3496+*        $$INND - LAST CHARACTER OF INPUT LINE BUFFER               *
                          3497+*        $$INLN - FIRST CHARACTER OF INPUT LINE BUFFER              *
                          3498+*        $$PRES - ENTRY TO ENABLE KEYBOARD                          *
                          3499+*        $VOLID - ADDR IN SYSTEM NUCLEUS - VOLUME ID TABLE          *
                          3500+*        $CAERR - ADDR IN SYSTEM NUCLEUS - ERROR CODE SAVE AREA      *
                          3501+*        $KEYCD - INDR BYTE CONTAINING KEYBOARD INDR IN SYSTEM NUCLEUS *
                          3502+*        $CARDI - MASK IN SKEYCD - CARD INPUT MODE                  *
                          3503+*        $SPRNT - ADDR IN SYSTEM NUCLEUS-SYSTEM PRINTER IOCR INTERFACE *
                          3504+*        $CIMSK - ADDR IN SYSTEM NUCLEUS-IR MASK ROUTINE INDR        *
                          3505+*        $WAITF - ADDR IN SYSTEM NUCLEUS-DISK WAITS DPL             *
                          3506+*        $KYBSY - MASK IN $KEYCD - KEYBOARD BUSY                    *
                          3507+*        $TRUNK - MASK IN $KEYCD - TRUNCATED LINE INDR              *
                          3508+*        $UNHSK - ADDR IN SYSTEM NUCLEUS-ENTRY TO UNMASK IR         *
                          3509+*                                                                   *
```

```
                          3510+*EXITS, NORMAL                                               *
                          3511+*   NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE.             *
                          3512+*                                                            *
                          3513+*EXITS, ERROR                                                *
                          3514+*   $VOERR - ERROR EXIT ROUTINE IN CALL ROUTINE.             *
                          3515+*   (NOTE: ERROR PROCEDURES).                                *
                          3516+*                                                            *
                          3517+*TABLES/WORK AREAS                                           *
                          3518+*   CONSTANTS, PPL'S. AND WORK AREAS WHICH ARE ADDRESSED BY THE BASE *
                          3519+*   REGISTER (@BR) ARE LOCATED TO BE REFERENCED AS SUCH. THOSE *
                          3520+*   WHICH ARE NOT ADDRESSED BY A BASE REGISTER ARE LOCATED AT THE *
                          3521+*   END OF THE MODULE.                                        *
                          3522+*                                                            *
                          3523+*ATTRIBUTES                                                  *
                          3524+*   RELOCATABLE, CONDITIONALLY REUSABLE (SEE OTHER).         *
                          3525+*                                                            *
                          3526+*CHARACTER CODE DEPENDENCY                                   *
                          3527+*   CHARACTER CODE DEPENDENCY CLASS - C                      *
                          3528+*   THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA- *
                          3529+*   TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE *
                          3530+*   USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT RE *
                          3531+*   DEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN *
                          3532+*   A CORRECT MODULE FOR THE NEW DEFINITIONS. THE FOLLOWING ARE THE *
                          3533+*   SPECIAL CONSIDERATIONS FOR THIS MODULE:                   *
                          3534+*   * CHARACTER CONSTANT FOR DECIMAL L(ONE)   INTERNAL EQUATE *
                          3535+*   * CHARACTER CONSTANT FOR DECIMAL 2(TWO)   INTERNAL EQUATE *
                          3536+*   * @BLANK - PART OF @SYSEQ - FOR SYNTAX CHECK             *
                          3537+*   * @CHARR - PART OF @SYSEQ - FOR SYNTAX CHECK             *
                          3538+*   * @CHARF - PART OF @SYSEQ - FOR SYNTAX CHECK             *
                          3539+*   * @EOS   - PART OF @SYSEQ - FOR SYNTAX CHECK             *
                          3540+*                                                            *
                          3541+*NOTES                                                       *
                          3542+*   ERROR PROCEDURES                                         *
                          3543+*      THE FOLLOWING CONDITIONS WILL CAUSE AN ERROR CODE TO BE PLACED *
                          3544+*      IN SCAERR AND AN EXIT BRANCH TO BE TAKEN TO SVOERR:    *
                          3545+*      * THE SPECIFIED VOLUME ID IS NOT ON THE SYSTEM.        *
                          3546+*      * DUPLICATE VOLUME ID'S ARE RTLADO. AND INPUT IS NOT FROM *
                          3547+*        THE KEYBOARD.                                        *
                          3548+*      * THE SPECIFIED PHYSICAL ID FROM THE KEYBOARD DOES NOT CONTAIN *
                          3549+*        ONE OF THE MULTIPLY DEFINED VOLUME ID'S.             *
                          3550+*      * THE SPECIFIEC OR RESOLVED VOLUME DOES NOT CONTAIN A LIBRARY *
                          3551+*        AREA.                                               *
                          3552+*                                                            *
                          3553+*   REGISTER USAGE                                           *
                          3554+*      INDEX REGISTER 1 (@BR) IS USED PRIMARILY AS A BASE REGISTER *
                          3555+*      AND SECONDLY AS AN INDEX IN THE VOL ID TABLE.          *
                          3556+*      INDEX REGISTER 2 (@XR) IS USED PRIMARILY AS AN INDEX REGISTER *
                          3557+*      IN THE VOL-ID TABLE AND SECONDLY AS AN INDEX TO SYNTAX CHECK *
                          3558+*      KEYBOARD INPUT WHEN VOLUMES ARE MULTIPLY DEFINED.      *
                          3559+*                                                            *
                          3560+*   SAVED/RESTORED AREAS                                      *
                          3561+*      NOBE                                                   *
                          3562+*                                                            *
                          3563+*   MODIFICATION CONSIDERATIONS                               *
                          3564+*      VOLID'S SEARCH OF THE VOL-ID TABLE (SVOLID) IS TOTALLY  *
                          3565+*      DEPENDENT ON THE FORMAT OF THE TABLE AS IT EXISTS; ESPECIALLY *
```

```
                          3566+*      THE NUMBER OF ENTRIES WHICH NOW EXIST (IE. FOUR).           *
                          3567+*                                                                  *
                          3568+*    REQUIRED MODULES                                              *
                          3569+*        @CANEQ - COMMON CORE LOCATIONS OUTSIDE SYSTEM NUCLEUS     *
                          3570+*        @DIREQ - SYSTEM LIBRARY DIRECTORY EQUATES                 *
                          3571+*        @ERMEQ - ERROR MESSAGE EQUATES                            *
                          3572+*        @FXDEQ - COMMON CORE LOCATIONS WITHIN THE SYSTEM NUCLEUS  *
                          3573+*        @SYSEQ - COMMON SYSTEM SOFTWARE EQUATES                   *
                          3574+*        TSMLES - DATA MANAGEMENT COMMUNICATION REGIONS            *
                          3575+*                                                                  *
                          3576+*    OTHER                                                         *
                          3577+*      SVOLID MAY BE RE-USED IF THE CALL ROUTINE WILL PRIME 'SVOCT1'  *
                          3578+*      WITH A '4', AND 'SVOCT2' WITH A '0' BEFORE EACH RE-ENTRY.   *
                          3579+*      BOTH OF THESE FIELDS ARE 1 BYTE LONG AND CONTIGUOUS, RESPEC- *
                          3580+*      TIVELY. (IE. CAN BE INITIALIZED WITH 'MVC' OF X'0400').     *
                          3581+**********************************************************************
```

```
                              3583+*******************************************************************************
                              3584+*                                                                             *
                              3585+*                    SVOLID MODULE EQUATES                                    *
                              3586+*                                                                             *
                              3587+*******************************************************************************
                              3588+*
                    0001 3589+SVOLN1 EQU   1                            LENGTH CODE OF ONE
                    00F1 3590+SVO001 EQU   X'F1'                        CONSTANT OF 1 FOR COMPARE
                    00F2 3591+SVO002 EQU   X'F2'                        CONSTANT OF 2 FOR COMPARE
                    0100 3592+SVOINP EQU   $$XIND-$$ILHD+@B1            LENGTH INPUT BUFFER
                    00FF 3593+SVOEND EQU   $$XIND-$$ILHD                DISP TO END OF SVOBUF

                              3595+*******************************************************************************
                              3596+*                                                                             *
                              3597+*                    INITIALIZATION OF MODULE                                 *
                              3598+*                                                                             *
                              3599+*******************************************************************************
                              3600+*
                    110B 3601+SVOLID EQU   *                            ENTRY POINT
                    111D 3602+       USING SVOBSE,@BR                   BASE ADDRESS
    110B 34 01 1157           3603+       ST    SVO274+@OP1,@BR         SAVE BASE CONTENTS
    110F C2 01 111D           3604+       LA    SVOBSE,@BR              LOAD BASE ADDRESS
    1113 74 02 3E             3605+       ST    SVO276+@OP1(,@BR),@XR   SAVE INDEX REGISTER
    1116 74 08 46             3606+       ST    SVO290+@OP1(,@BR),@ARR  SAVE RETURN ADDR

                              3608+*******************************************************************************
                              3609+*                                                                             *
                              3610+*                    SEARCH VOL-ID TABLE                                      *
                              3611+*                                                                             *
                              3612+*******************************************************************************
                              3613+*
    1119 C2 02 03FB           3614+       LA    $VOLID+@VOLID-@B1,@XR   LOAD XR AS POINTER INTO NUCLEUS
                    111D 3615+SVOBSE EQU   *
N04 111D 00 00 00 0000        3616+SVO100 CLC   @ZERO(@VOLID,@XR),SMVOID  IS THIS THE VOL-ID ?
    1122 D0 01 11             3617+       BNE   SVO200(,@BR)            NO, CHECK NEXT ENTRY
N04 1125 00 00 0000 00        3618+       MVC   SMBFDA(@DADDR),@DADDR(,@XR) SAVE DADDR-DUPLICATE CHECK
    112A 5E 00 48 49          3619+       ALC   SVOCT2(SVOLN1,@BR),SVOONE(,@BR) INCREMENT COUNT
    112E E2 02 08             3620+SVO200 LA    @VOLID+@DADDR(,@XR),@XR   INCREMENT XR
    1131 5F 00 47 49          3621+       SLC   SVOCT1(SVOLN1,@BR),SVOONE(,@BR) IS THE LAST ENTRY ?
    1135 D0 01 00             3622+       BNZ   SVO100(,@BR)            NO, CHECK NEXT ONE
```

```
                              3624+******************************************************************************
                              3625+*                                                                            *
                              3626+*               PROCESS ENTRY IF FOUND                                       *
                              3627+*                                                                            *
                              3628+******************************************************************************
                              3629+*
    1138 7D 02 48            3630+        CLI     SVOCT2(,@BR),@D1          WAS AN ID FOUND ?
    113B 3C 29 03CD          3631+        MVI     $CAERR,@@E217            ERROR - NO ID FOUND
    113F D0 82 33            3632+        BL      SVO270(,@BR)            NO, ERROR EXIT
    1142 D0 84 4A            3633+        BH      SVO300(,@BR)            MORE THAN 1 ID

                              3635+******************************************************************************
                              3636+*                                                                            *
                              3637+*               CHECK DISK ADDR OF LIBRARY                                   *
                              3638+*                                                                            *
                              3639+******************************************************************************
                              3640+*
N04 1145 00 00 0000          3641+SVO260 CLI     SMBFDA-@B1,@ZERO         IS THERE A LIBRARY ?
    1149 F2 01 08            3642+        JNE     SVO274                  YES, RETURN
    114C 3C 54 03CD          3643+        MVI     $CAERR,@@E351           ERROR - NO LIBRARY
    1150 3C 87 115D          3644+SVO270 MVI     SVO280+@Q,@UCB          SET ERROR EXIT

                              3646+******************************************************************************
                              3647+*                                                                            *
                              3648+*               END OF MODULE PROCESSING                                     *
                              3649+*                                                                            *
                              3650+******************************************************************************
                              3651+*
    1154 C2 01 0000          3652+SVO274 LA      *-*,@BR                 RESTORE BASE REGISTER
    1158 C2 02 0000          3653+SVO276 LA      *-*,@XR                 RESTORE INDEX REGISTER
                              3654+*
N04 115C 00 00 0000          3655+SVO280 BC      SVOERR,@NOP             ERROR EXIT
    1160 C0 87 0000          3656+SVO290 B       *-*                     RETURN
```

```
         SVOLID - RESOLVE SPECIFIED VOLUME-ID


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT            VER 15, MOD 00  25/02/22  PAGE  40

                            3658+*********************************************************************
                            3659+*                                                                   *
                            3660+*              DATA CONSTANTS, BUFFERS, WORK AREAS AND SAVE AREAS    *
                            3661+*                                                                   *
                            3662+*********************************************************************
                            3663+*
    1164                1164 3664+SVOCT1 DS    CL1                      COUNTER - NUMBER OF DISKS - 4
    1164                     3665+       ORG   SVOCT1                   RESET FOR INITIALIZATION
    1164 04             1164 3666+       DC    XL1'04'                  INITIALIZED TO 4
                            3667+*
    1165                1165 3668+SVOCT2 DS    CL1                      COUNTER - DUPLICATE DISK LABELS
    1165                     3669+       ORG   SVOCT2                   RESET FOR INITIALIZATION
    1165 00             1165 3670+       DC    XL1'00'                  INITIALIZED TO 0
    1166 01             1166 3671+SVOONE DC    XL1'01'                  INITIALIZED TO 1 FOR COUNTER

                            3673+*********************************************************************
                            3674+*                                                                   *
                            3675+*                   PROCESS MULTIPLE ENTRIES                         *
                            3676+*                                                                   *
                            3677+*********************************************************************
                            3678+*
    1167 38 01 03C3           3679+SVO300 TBN   $KEYCD,$CARDI            IS KEYBOARD INPUT MODE ?
    116B 3C 25 03CD           3680+SVO310 MVI   $CAERR,@@E212            KEYBOARD NOT INPUT MODE
    116F D0 10 33             3681+SVO315 BT    SVO270(,@BR)             NO ERROR EXIT
```

                         3683+***
                         3684+*   *
                         3685+*   ASK USER FOR DRIVE CLARIFICATION   *
                         3686+*   *
                         3687+***
                         3688+*
                    1172 3689+SVO320 EQU   *   PRINT MESSAGES
    1172 C0 87 0465   3690+   B $SPRNT   PRINT MESSAGE
    1176 0C13   1177 3691+   DC   AL2(@@M300)   ERROR MESSAGE PPL
                         3692+*
    1178 0C 00 119B 0476   3693+   MVC   SVO335+@VQ(@B1),$CIMSK   OBTAIN CURRENT MASK STATUS
    117E C0 87 0465   3694+   B $SPRNT   WAIT FOR PRINT
    1182 057F   1183 3695+   DC   AL2($WAITF)   ADDR OF PPL

                         3697+***
                         3698+*   *
                         3699+*   MODIFY INPUT BUFFER FOR ACCEPTANCE OF INPUT ANSWER   *
                         3700+*   *
                         3701+***
                         3702+*
                    1184 3703+SVO330 EQU   *   ENABLE INPUT ROUTINE
                         3704+* SET FOR JUMP AFTER INITIAL SAVE OF INPUT BUFFER
    1184 F2 80 09   3705+   JC   SVO333,@NOP   SAVE SWITCH
    1187 0C FF 14CD 06FF 3706+   MVC   SVOBUF+SVOEND(SVOINP),$$XIND SAVE INPUT BUFFER
    118D 7C 87 68   3707+   MVI   SVO330+@Q(,@BR),@UCB SET SWITCH TO BYPASS SAVE
                         3708+*
    1190 3C 40 06FA   3709+SVO333 MVI $$INND,@BLANK   CLEAR INPUT BUFFER
    1194 0C F2 06F9 06FA 3710+   MVC $$INND-@B1($$INND-$$INLN),$$INND
                         3711+*
    119A C0 01 048D   3712+SVO335 BC $UNMSK,@VQ   BRANCH IF UNMASKED
    119E C0 87 0890   3713+   B $$PRES   GET USER'S RESRONSE
    11A2 38 10 03C3   3714+SVO350 TBN $KEYCD,$KYBSY   IS KEYBOARD BUSY ?
    11A6 C0 10 11A2   3715+   BT   SVO350   YES, WAIT
    11AA C0 87 0465   3716+   B $SPRNT   WAIT FOR PRINTER RETURN
    11AE 057F   11AF 3717+   DC   AL2($WAITF)   ADDR OF PPL

```
         SVOLID - RESOLVE SPECIFIED VOLUME-ID


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  25/02/22  PAGE  42

                                 3719+*********************************************************************
                                 3720+*                                                                   *
                                 3721+*                VERIFY VOL-ID ON DRIVE SPECIFIED                    *
                                 3722+*                                                                   *
                                 3723+*********************************************************************
                                 3724+*
    11B0 C2 02 0606              3725+          LA    $$INLN-@B1,@XR              ADDR FIRST RESPONSE BYTE
    11B4 C2 01 03FB              3726+          LA    $VOLID+@VOLID-@B1,@BR       REFERENCE POINT FOR THE VOLID
                                 3727+*
    11B8 E2 02 01               3728+SVO360 LA      @B1(,@XR),@XR                INDEX BY BLANK
    11BB BD 40 00               3729+          CLI   @ZERO(,@XR),@BLANK          IS IT A BLANK ?
    11BE C0 81 11B8              3730+          BE    SVO360                      YES, CHECK NEXT BYTE
                                 3731+*
    11C2 BD F1 01               3732+          CLI   @B1(,@XR),SVO001            IS IT DRIVE 1 ?
    11C5 F2 81 0A               3733+          JE    SVO400                      YES, CHECK DISK TYPE
                                 3734+*
    11C8 BD F2 01               3735+          CLI   @B1(,@XR),SVO002            IS IT DRIVE 2 ?
    11CB C0 01 1172              3736+          BNE   SVO320                      NO, ASK USER AGAIN
    11CF D2 01 10               3737+          LA    2*@VOLID+2*@DADDR(,@BR),@BR SET INDEX FOR DRIVE 2
    11D2 BD D9 00               3738+SVO400 CLI    @ZERO(,@XR),@CHARR           IS IT REMOVABLE ?
    11D5 F2 81 0A               3739+          JE    SVO440
                                 3740+*
    11D8 BD C6 00               3741+          CLI   @ZERO(,@XR),@CHARF          IS IT FIXED ?
    11DB C0 01 1172              3742+          BNE   SVO320                      ASK AGAIN
    11DF D2 01 08               3743+          LA    @VOLID+@DADDR(,@BR),@BR     SET INDEX FOR FIXED
    11E2 E2 02 01               3744+SVO440 LA      @B1(,@XR),@XR                INCREMENT TO NEXT BYTE
    11E5 E2 02 01               3745+SVO445 LA      @B1(,@XR),@XR                INCREMENT TO NEXT BYTE
    11E8 BD 40 00               3746+          CLI   @ZERO(,@XR),@BLANK          IS IT A BLANK ?
    11EB C0 81 11E5              3747+          BE    SVO445                      YES, CHECK NEXT BYTE
                                 3748+*
    11EF BD 1E 00               3749+          CLI   @ZERO(,@XR),@EOS            AT EOS ?
    11F2 C0 01 1172              3750+          BNE   SVO320                      ASK AGAIN
                                 3751+*
    11F6 0C FF 06FF 14CD        3752+          MVC   $$XIND(SVOINP),SVOBUF+SVOEND RESTORE INPUT
N04 11FC 00 00 00 0000          3753+SVO450 CLC    @ZERO(@VOLID,@BR),SMVOID    IS IT THE VOLID ?
    1201 3C 28 03CD             3754+          MVI   $CAERR,@@E216               VOLUME NOT ON THAT DRIVE
    1205 C0 01 1150             3755+          BNE   SVO270                      NO, ERROR EXIT
```

```
                              3757+****************************************************************************
                              3758+*                                                                          *
                              3759+*              SAVE VOL-ID LIBRARY ADDR                                     *
                              3760+*                                                                          *
                              3761+****************************************************************************
                              3762+*
N04 1209 00 00 0000 00        3763+      MVC     SMBFDA(@DADDR),@DADDR(,@BR) SAVE LIBRARY ADDR
    120E 3B 80 03C3           3764+      SBF     $KEYCD,$TRUNK              SET OFF RM EXCEEDED INDR
    1212 C0 87 1145           3765+      B       SVO260                    NORMAL EXIT
                              3766+***                           END OF SVOLID                            ***
                              3767 *      $CANI
```

```
3769+************************************************************************
3770+*  5703-XM1    COPYRIGHT IBM CORP. 1970                               *
3771+*                 REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083 *
3772+*                                                                     *
3773+************************************************************************
3774+*STATUS                                                               *
3775+*   VERSION 1 MODIFICATION 0                                          *
3776+*                                                                     *
3777+*FUNCTION                                                             *
3778+*    THE FUNCTION OF SCANIT IS TO SCAN PAST VALID DELIMITERS AND      *
3779+*    RETURN A POINTER TO THE FIRST CHARACTER THAT'S NOT A DELIMITER.  *
3780+*                                                                     *
3781+*ENTRY POINTS                                                         *
3782+*    * THE ENTRY POINT IS SCANIT.                                     *
3783+*    * THE CALLING SEQUENCE IS AS FOLLOWS:                            *
3784+*            B     SCANIT                                             *
3785+*      WITH REGISTER 2 (@XR) POINTING TO THE FIRST CHARACTER TO BE    *
3786+*      EXAMINED.                                                      *
3787+*                                                                     *
3788+*INPUT                                                                *
3789+*   NONE                                                              *
3790+*                                                                     *
3791+*OUTPUT                                                               *
3792+*   NONE                                                              *
3793+*                                                                     *
3794+*EXTERNAL REFERENCES                                                  *
3795+*   $CAERR - ERROR CODE SAVE AREA                                     *
3796+*                                                                     *
3797+*EXITS, NORMAL                                                        *
3798+*    NORMAL EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO   *
3799+*    SCANIT IN THE CALLING ROUTINE. THE PSR (REGISTER 4) WILL CONTAIN *
3800+*    A ZERO IF NO DELIMITERS WERE FOUND OR A HIGH CONDITION IF ONE OR *
3801+*    MORE DELIMITERS WERE SCANNED.                                    *
3802+*                                                                     *
3803+*EXITS, ERROR                                                         *
3804+*    ERROR EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO    *
3805+*    SCANIT IN THE CALLING ROUTINE. THE PSR WILL CONTAIN A LOW        *
3806+*    CONDITION.                                                       *
3807+*                                                                     *
3808+*TABLES/WORKAREAS                                                     *
3809+*    * SCACNT - AREA CONTAINING NUMBERS OF DELIMITERS SCANNED         *
3810+*    * SCAMMA - LOC WHERE SCACOM MAY BE MOVED IF ONE COMMA IS ALSO    *
3811+*      TO BE CONSIDERED A DELIMITER. MOVING SCACOF BACK INTO SCAMMA   *
3812+*      INDICATES THAT ONLY BLANKS SHOULD BE CONSIDERED DELIMITERS.    *
3813+*                                                                     *
3814+*ATTRIBUTES                                                           *
3815+*   RELOCATABLE AND RE-USABLE                                         *
3816+*                                                                     *
3817+*CHARACTER CODE DEPENDENCY                                            *
3818+*    THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR   *
3819+*    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.           *
3820+*                                                                     *
3821+*NOTES                                                                *
3822+*    ERROR PROCEDURES                                                 *
3823+*        THE ONLY ERROR CONDITION DETECTED BY SCANIT IS THE CASE WHERE*
3824+*        A CARRIAGE-RETURN CODE FOLLOWS A COMMA.  UPON RETURN TO THE  *
```

```
                               3825+*       CALLING ROUTINE, @PSR WILL BE SET TO A LOW CONDITION, THE       *
                               3826+*       ERROR CODE IS SET IN $CAERR, AND MG WILU BE POINTING TO THE     *
                               3827+*       CARRIAGE-RETURN CHARACTER.                                      *
                               3828+*                                                                       *
                               3829+*    REGISTER USAGE                                                     *
                               3830+*       REGISTER 2 (@XR) IS USED AS A POINTER ACROSS THE AREA BEING     *
                               3831+*       SCANNED FOR DELIMETERS.                                         *
                               3832+*                                                                       *
                               3833+*    SAVED/RESTORED AREAS                                               *
                               3834+*       UPON ENTRY TO SCANIT, REGISTER 8 (@ARR) IS SAVED AND USED AS    *
                               3835+*       THE RETURN ADDRESS.                                             *
                               3836+*                                                                       *
                               3837+*    MODIFICATION CONSIDERATIONS                                        *
                               3838+*       NONE                                                            *
                               3839+*                                                                       *
                               3840+*    REQUIRED MODULES                                                   *
                               3841+*       * @SYSEQ - COMMON SYSTEM EQUATES                                *
                               3842+*       * @FXDEQ - FIXED NUCLEUS ADDRESSES EQUATES                      *
                               3843+*                                                                       *
                               3844+*    OTHER                                                              *
                               3845+*       SCANIT IS INITIALIZED TO BYPASS BLANKS ONLY. IF SCACOM IS       *
                               3846+*       MOVED TO SCAMMA, ONE COMMA WILL BE SCANNED ALONG WITH BLANKS.   *
                               3847+*       THE INSTRUCTION TO DO THIS IS AS FOLLOWS:                       *
                               3848+*            MVI    SCAMMA,SCACOM                                        *
                               3849+*                                                                       *
                               3850+*       TO DROP THE COMMA FROM ITS DELIMITER STATUS, SCACOF SHOULD BE   *
                               3851+*       MOVED TO SCAMMA, USING THE FOLLOWING INSTRUCTION:               *
                               3852+*            MVI    SCAMMA,SCACOF                                        *
                               3853+*                                                                       *
                               3854+**********************************************************************************


                               3856+*
                               3857+*                      EQUATES USED IN THIS SUBROUTINE
                               3858+*
                          0001 3859+SCAINC EQU    1                        TO INCREMENT POINTER
                          0001 3860+SCACOM EQU    @BNE                     SWITCH TO ALLOW SCANNING COMMA
                          0087 3861+SCACOF EQU    @UCB                     SWITCH TO SET OFF THE INDICATON
                               3862+*                                      * FOR SCANNING A COMMA
                          1216 3863+SCANIT EQU    *                        ENTRY POINT TO THIS SUBROUTINE
   1216 34 08 1252            3864+       ST     SCA500+@OP1,@ARR          SAVE RETURN ADDRESS
   121A 34 02 1254            3865+       ST     SCASVE,@XR                SAVE POINTER VALUE
   121E 3C 04 03CD            3866+       MVI    $CAERR,@@E110             SET ERROR CODE
   1222 F2 87 03              3867+       J      SCA200                    GO TO PROCESS
   1225 E2 02 01              3868+SCA100 LA     SCAINC(,@XR),@XR          INCREMENT POINTER TO NEXT CHAR
   1228 BD 40 00              3869+SCA200 CLI    0(,@XR),@BLANK            IS THIS CHAR BLANK ?
   122B C0 81 1225            3870+       BE     SCA100                    YES, FETCH NEXT ONE
   122F BD 6B 00              3871+       CLI    0(,@XR),@COMMA            IS IT A COMMA ?
   1232 F2 87 10              3872+SCA250 JC     SCA400,@UCB               UCS TO RETURN -- OR NOP IF
                               3873+*                                      * SCAMMA IS ACTIVE AND CHAR
   1235 E2 02 01              3874+SCA300 LA     SCAINC(,@XR),@XR          INCREMENT POINTER TO NEXT CHAR
   1238 BD 40 00              3875+       CLI    0(,@XR),@BLANK            IS THIS CHAR A BLANK ?
   123B C0 81 1235            3876+       BE     SCA300                    YES, FETCH NEXT ONE
   123F BD 1F 00              3877+       CLI    0(,@XR),@EOS+1            IS THIS EOS ?
   1242 F2 82 0A              3878+       JL     SCA500                    IF NOT, SKIP ERROR ROUTINE
   1245 34 02 1256            3879+SCA400 ST     SCACNT,@XR                SAVE NEW POINTER VALUE
```

```
      SCANIT - DELIMETER SCAN MODULE


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  25/02/22  PAGE  46

    1249 0F 01 1256 1254      3880+      SLC   SCACNT(2),SCASVE         SET PSR TO EQUAL IF POINTER
                              3881+*                                    * NOT ADVANCED
    124F C0 87 0000           3882+SCA500 B    *-*                      YES, RETURN
                         1233 3883+SCAMMA EQU  SCA250+@Q                TO SET SCAN COMMA INDICATOR
                              3884+*
                              3885+*               SAVE AREA
                              3886+*
                         1253 3887+SCASV1 EQU  *                        FIRST BYTE OF SCASVE
    1253                 1254 3888+SCASVE DS   CL2                      ORIGINAL POINTER VALUE SAVE
    1255                 1256 3889+SCACNT DS   CL2                      SAVE AREA FOR TOTAL CHAR SCAN
                              3890+***                 END OF SCANIT                        ***
                         0FCE 3891 KLOBUF EQU   SGETDB                  CORE ADDR NULL DIRECTORY
                         0FCE 3892 SUPBUF EQU   KLOBUF                  ERROR UPDATE BUFFER


                              3894 *********************************************************************
                              3895 * SMALES- SYSTEM DATA MANAGEMENT COMMON SAVE AREAS AND EQUATES     *
                              3896 *         USED TO PROVIDE COMMUNICATION BETWEEN SUBROUTINES USED    *
                              3897 *         BY THE VARIOUS KEYWORDS INVOLVED WITH FILE MANIPULATION   *
                              3898 *********************************************************************
                              3899 *
N04                           3900 SMALES EQU   KLO050                  START OF MANAGEMENT AREA
N04                           3901 SMVOID EQU   SMALES+5                SPECIFIED VOLUME ID SAVE AREA
N04                           3902 SMFNAM EQU   SMVOID+8                SPECIFIED FILENAME SAVE AREA
N04                           3903 SMIND1 EQU   SMFNAM+1                INDICATOR BYTE 1
N04                           3904 SMUDEA EQU   SMIND1+2                FILENAME DIRCTY ENTRY ADDR
N04                           3905 SMUDBA EQU   SMUDEA+2                CADDR OF ACTIVE BUFFER ADDR
N04                           3906 SMNULT EQU   SMUDBA+2                TOTAL OF NULL SECTORS AVAILABLE
N04                           3907 SMNSCT EQU   SMNULT+2                COUNT OF NULL SECTORS REQUIRED
N04                           3908 SMNETD EQU   SMNSCT+2                CADDR NEW ENTRY TO NULL DIRCTY
N04                           3909 SMUPEN EQU   SMNETD+2                CADDR NEW USER DIRCTY ENTRY
N04                           3910 SMPEAD EQU   SMUPEN+2                CADDR PASSWORD ENTRY
                         0080 3911 SM1FNE EQU   X'80'                   SRCHFN INDR NAME NOT FOUND
                         0040 3912 SM1NPD EQU   X'40'                   PACK INDR NULL DIRCTY FULL
                         0020 3913 SM1STN EQU   X'20'                   STORIN PACK INDICATOR BIT
                         0010 3914 SM1PDS EQU   X'10'                   SGETDB SEARCH ONLY FLAG
                         0008 3915 SM1PNF EQU   X'08'                   SGETDB PASSWORD NOT FOUND
N04                           3916 SMPSWD EQU   KLOSMP                  SPECIFIED PASSWORD SAVE AREA
N04                           3917 SMBFDA EQU   KLOSMB                  DADDR OF FILE LIBRARY
N04                           3918 SMNDEA EQU   KLOSMN                  NULL DIRCTY ENTRY ADDR
N04                           3919 SMFUDA EQU   SMNDEA                  REL DADDR FIRST USER DIRCTY BLK
N04                           3920 SMNDBA EQU   KLONUL+@DBFR2           NULL DIRCTY BUFFER CORE ADOR
                         10CE 3921 SMPDB1 EQU   SGETDB+256              USER DIRCTY BLOCK 1 BUFFER
                         10CE 3922 SMUDB1 EQU   SMPDB1                  USER DIRCTY BLOCK 1 BUFFER
                         12CE 3923 SMUDB2 EQU   SMUDB1+512              USER DIRCTY BLOCK 2 BUFFER
                         13CE 3924 SVOBUF EQU   SMUDB2+256              SVOLID TEMPORARY BUFFER
                         14CE 3925 SMAEND EQU   SMUDB2+512              END OF SMALLS AREA

                         14CE 3927 KRSFXD EQU   SMAEND                  BUFFER - FIXED STATUS SECTOR
                         15CE 3928 KRSVM0 EQU   KRSFXD+@SCTSZ           BUFFER - VM PAGE 0
                         16CE 3929 KRSVM1 EQU   KRSVM0+@SCTSZ           BUFFER - VM PAGE 1

                         FFFF 3931        END
```

```
2287      N04           REFERENCE TO UNDEFINED SYMBOL
2296      N04           REFERENCE TO UNDEFINED SYMBOL
2296      P10           INVALID CONSTANT
2297      P01           INVALID OPERAND DELIMITER
2300      P01           INVALID OPERAND DELIMITER
2301      P13           INVALID LENGTH SPECIFICATION
2305      P01           INVALID OPERAND DELIMITER
2306      P10           INVALID CONSTANT
2306      P18           INVALID SELF-DEFINING TERM
2376      N04           REFERENCE TO UNDEFINED SYMBOL
2378      P16           RELOCATABILITY ERROR
2379      P01           INVALID OPERAND DELIMITER
2388      N04           REFERENCE TO UNDEFINED SYMBOL
2389      P16           RELOCATABILITY ERROR
2397      P16           RELOCATABILITY ERROR
2398      N04           REFERENCE TO UNDEFINED SYMBOL
2399      P16           RELOCATABILITY ERROR
2400      P16           RELOCATABILITY ERROR
2401      P16           RELOCATABILITY ERROR
2403      N04           REFERENCE TO UNDEFINED SYMBOL
2408      N04           REFERENCE TO UNDEFINED SYMBOL
2423      P16           RELOCATABILITY ERROR
2426      P16           RELOCATABILITY ERROR
2427      P16           RELOCATABILITY ERROR
2428      P16           RELOCATABILITY ERROR
2429      P16           RELOCATABILITY ERROR
2431      P16           RELOCATABILITY ERROR
2432      P16           RELOCATABILITY ERROR
2434      P16           RELOCATABILITY ERROR
2435      P16           RELOCATABILITY ERROR
2436      P16           RELOCATABILITY ERROR
2438      P16           RELOCATABILITY ERROR
2439      P16           RELOCATABILITY ERROR
2440      P16           RELOCATABILITY ERROR
2441      P16           RELOCATABILITY ERROR
2956      N04           REFERENCE TO UNDEFINED SYMBOL
2958      N04           REFERENCE TO UNDEFINED SYMBOL
2966      N04           REFERENCE TO UNDEFINED SYMBOL
2972      N04           REFERENCE TO UNDEFINED SYMBOL
2985      N04           REFERENCE TO UNDEFINED SYMBOL
2991      N04           REFERENCE TO UNDEFINED SYMBOL
2997      N04           REFERENCE TO UNDEFINED SYMBOL
3003      N04           REFERENCE TO UNDEFINED SYMBOL
3012      N04           REFERENCE TO UNDEFINED SYMBOL
3017      N04           REFERENCE TO UNDEFINED SYMBOL
3019      N04           REFERENCE TO UNDEFINED SYMBOL
3028      N04           REFERENCE TO UNDEFINED SYMBOL
3033      N04           REFERENCE TO UNDEFINED SYMBOL
3037      N04           REFERENCE TO UNDEFINED SYMBOL
3042      N04           REFERENCE TO UNDEFINED SYMBOL
3059      N04           REFERENCE TO UNDEFINED SYMBOL
3087      N04           REFERENCE TO UNDEFINED SYMBOL
3215      N04           REFERENCE TO UNDEFINED SYMBOL
3218      N04           REFERENCE TO UNDEFINED SYMBOL
3228      N04           REFERENCE TO UNDEFINED SYMBOL
3233      N04           REFERENCE TO UNDEFINED SYMBOL
```

```
                              DIAGNOSTICS

STMT      ERROR CODE    MESSAGE                       VER 15, MOD 00  25/02/22  PAGE  48

3238        N04        REFERENCE TO UNDEFINED SYMBOL
3239        N04        REFERENCE TO UNDEFINED SYMBOL
3240        N04        REFERENCE TO UNDEFINED SYMBOL
3406        N04        REFERENCE TO UNDEFINED SYMBOL
3419        N04        REFERENCE TO UNDEFINED SYMBOL
3420        N04        REFERENCE TO UNDEFINED SYMBOL
3422        N04        REFERENCE TO UNDEFINED SYMBOL
3423        N04        REFERENCE TO UNDEFINED SYMBOL
3432        N04        REFERENCE TO UNDEFINED SYMBOL
3433        N04        REFERENCE TO UNDEFINED SYMBOL
3616        N04        REFERENCE TO UNDEFINED SYMBOL
3618        N04        REFERENCE TO UNDEFINED SYMBOL
3641        N04        REFERENCE TO UNDEFINED SYMBOL
3655        N04        REFERENCE TO UNDEFINED SYMBOL
3753        N04        REFERENCE TO UNDEFINED SYMBOL
3763        N04        REFERENCE TO UNDEFINED SYMBOL
3900        N04        REFERENCE TO UNDEFINED SYMBOL
3901        N04        REFERENCE TO UNDEFINED SYMBOL
3902        N04        REFERENCE TO UNDEFINED SYMBOL
3903        N04        REFERENCE TO UNDEFINED SYMBOL
3904        N04        REFERENCE TO UNDEFINED SYMBOL
3905        N04        REFERENCE TO UNDEFINED SYMBOL
3906        N04        REFERENCE TO UNDEFINED SYMBOL
3907        N04        REFERENCE TO UNDEFINED SYMBOL
3908        N04        REFERENCE TO UNDEFINED SYMBOL
3909        N04        REFERENCE TO UNDEFINED SYMBOL
3910        N04        REFERENCE TO UNDEFINED SYMBOL
3916        N04        REFERENCE TO UNDEFINED SYMBOL
3917        N04        REFERENCE TO UNDEFINED SYMBOL
3918        N04        REFERENCE TO UNDEFINED SYMBOL
3919        N04        REFERENCE TO UNDEFINED SYMBOL
3920        N04        REFERENCE TO UNDEFINED SYMBOL

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =     86
```

```
$$$$$$  001  0C00 2278
$$$CMD  001  0020 0659
$$$DAT  001  0040 0658
$$$EPL  001  0091 0655
$$$ERN  001  0080 0709
$$$FUN  001  0010 0660
$$$NLN  001  00A0 0705
$$$STD  001  0081 0654
$$$001  025  0CB6 2327
$$BNLN  001  0605 0635   0637
$$CDBS  001  08C0 0685
$$CDND  001  0666 0644
$$CDRD  001  0890 0683   0685
$$CKEY  001  0603 0633
$$CKFF  001  0B3D 0665
$$COFF  001  0B44 0664
$$CSNS  001  209C 0694
$$DATB  001  0BBF 0666
$$EOSA  001  0AFE 0663
$$ERSK  001  1C00 0704
$$FITS  001  1D00 0712
$$FLIB  001  06FF 0711
$$ILEN  001  0601 0629   0631   0635
$$ILHD  001  0600 0627   0629   3592   3593
$$INLN  001  0607 0642   0644   0646   3710   3725
$$INND  001  06FA 0646   3709*  3710   3710   3710*
$$KBDT  001  09E1 0653   0657
$$KBSN  001  09E2 0657   0662
$$KLD1  001  0600 0717
$$KLD2  001  0700 0719
$$KLD3  001  0C00 0721
$$LPOS  001  09EB 0662
$$PCNT  001  07E9 0678
$$PLYN  001  2004 0692
$$PRES  001  0890 0651   0653   0663   0664   0665   0666   0683   3713
$$PRFL  001  2143 0696
$$PRNT  001  0707 0672   0673   0677   0678
$$PRTN  001  0782 0673
$$PSIO  001  07CE 0677
$$PYCD  001  2200 0698
$$PYMP  001  2000 0690   0692   0694   0696   0698
$$SLIB  001  1C00 0707
$$TPCD  001  0606 0637   0642
$$UPAR  001  0602 0631   0633
$$WSPB  001  1E00 0710
$$XIND  001  06FF 0708   0711   3592   3593   3706   3752*
$$ZERO  001  0000 0223   0224   0226   0227   0228   0232   0690   2484
$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
$CAERR   001  03CD 0287   0289   3027* 3058* 3214* 3380* 3631* 3643* 3680* 3754* 3866*
$CAIPL   001  049D 0558   0560
$CALLI   001  0008 0479
$CARDI   001  0001 0250   3679
$CARPL   001  04A1 0560   0562   2443
$CIENT   001  0483 0549   0550
$CIEXT   001  0480 0548   0549
$CIMSK   001  0476 0545   0548   3693
$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   2360
$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   2388
$C0001   001  0464 0531   0537
$DATE    001  043A 0512   0513
$DBGUF   001  03E0 0474   0483
$DBLOK   001  0001 0424
$DFDET   001  03E8 0495   0496
$DISKN   001  0025 0226   2384   2642   2782   3221   3385
$DKERR   001  0008 0405
$DKSIZ   001  03D7 0449   0457   0498
$DK100   001  0001 0451
$DK200   001  0002 0452
$DK400   001  0004 0453
$DK600   001  0008 0454
$DK800   001  0010 0455
$DPLSV   001  0449 0523   0525
$DTNMB   001  0040 0270
$DTRDR   001  0040 0358   2361
$D1SKN   UNDEFINED SYMBOL  2408
$ENDNU   001  0600 0617   0627   0651   0672   0708   0717   0719   0721
$ERDPL   001  046F 0542   0544
$ERFIL   001  0040 0297
$ERHRD   001  0004 0429
$ERKEY   001  0080 0301
$ERLOG   001  0345 0231
$ERMAD   001  0472 0544   0545
$ERPND   001  0004 0402
$ERRCT   001  03CF 0303
$ERRPG   001  03CE 0291
$ERSFL   001  0035 0296
$ERSTK   001  0030 0294
```

```
$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  2970  3010  3012  3025  3032  3033
$FITIN   001  0010 0385
$FUIND   001  0020 0414
$GUFIO   001  0583 0607   0608
$GUFIR   001  0008 0259
$HISTE   001  042E 0510   0511
$HIST1   001  0435 0511   0512
$HRDER   001  0020 0355
$INDR1   001  03D4 0371   0397
$INDR2   001  03D5 0397   0422
$INDR3   001  03D6 0422   0449
$INLNO   001  03CF 0289   0291  0303  0310
$INRPT   001  0020 0267
$IOIND   001  03D2 0338   0364
$IOPGS   001  0010 0478
$IOYES   001  0002 0253
$IPLDV   001  05FF 0614   0617
$IRKEY   001  0020 0477
$KEYBD   001  03E1 0483   0488
$KEYCD   001  03C3 0247   0281  3679  3714  3764*
$KEYDT   001  0040 0391
$KE090   001  00DE 0227
$KE130   001  01D5 0228
$KRSUM   001  0C07 2281
$KYBSY   001  0010 0264   3714
$LDRTN   001  0571 0602
$LEVEL   001  03DF 0472   0474
$LIST    001  0002 0426
$LMRGN   001  03C1 0242   0244
$LNPTR   001  0080 0361   2362
$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  2954  2955
$NWRKF   001  0080 0445
$NWRKR   001  0040 0442
$PASWD   001  042D 0509   0510
$PAUSD   001  04BA 0563   0565
$PAUSE   001  0002 0333
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```
$PGMDT  001  0020 0388
$PGMST  001  0010 0352
$PKERT  001  0419 0507    0509
$PLST1  001  0454 0528    0529
$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  3690  3694  3716
$SRTRN  001  04FE 0569    0570
$STEPT  001  0002 0313
$SWPCR  001  0511 0575    0577
$TABLN  001  03CB 0284    0287
$TFLOW  001  0008 0319
$TRACE  001  0004 0314
$TRALL  001  0010 0320
$TROVR  001  054E 0589    0592
$TRUNK  001  0080 0272    3764
$TRVAR  001  0020 0321
$UNMSK  001  048D 0550    0553  3712
$USRDR  001  03DC 0461    0462  3034  3037
$VMDEF  001  0080 0325
$VOLF1  001  03FE 0504    0505  2989  2991
$VOLF2  001  040E 0506    2995  2997
$VOLID  001  03F6 0502    0503  0507  2958  3614  3726
$VOLR1  001  03F6 0503    0504  3001  3003
$VOLR2  001  0406 0505    0506  2983  2985
$WAITF  001  057F 0605    0607  2385  2409  3222  3386  3695  3717
$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
$ZTRAD  001  05A2 0611
$12K    001  0004 0466
$16CKY  001  0008 0468
$16K    001  0002 0465
$22IMP  001  0001 0463
```

SYMBOL	LEN	VALUE	DEFN	REFERENCES
#$$#BL	001	0000	1315	
#$$#CK	001	0000	1443	
#$$#CN	001	0000	1411	
#$$#CO	001	0000	1203	
#$$#CS	001	0000	1263	
#$$#DR	001	0000	1007	
#$$#ER	001	0000	1207	
#$$#FS	001	0000	1303	
#$$#IN	001	0000	1447	
#$$#PW	001	0000	1451	
#$$#RS	001	0000	1283	
#$$#SA	001	0000	1271	
#$$#SS	001	0000	1267	
#$$#VU	001	0600	1227	
#$$#0T	001	0700	0999	
#$$#1T	001	0000	1003	
#$$BCO	001	0600	1015	
#$$BOV	001	0800	1287	
#$$DPR	001	0700	1023	
#$$DRE	001	0889	1039	
#$$DSP	001	2800	1059	
#$$ECM	001	0C00	1319	
#$$EFK	001	0C00	1339	
#$$ERR	001	0C00	1311	
#$$EXM	001	0C00	1199	
#$$FIL	001	0E00	1279	
#$$FIS	001	0E00	1275	
#$$FML	001	0200	1407	
#$$FMS	001	0200	1247	
#$$GRA	001	0889	1171	
#$$GUF	001	0C00	1307	
#$$INL	001	0600	1387	
#$$INS	001	0600	1011	
#$$KAL	001	0C00	1175	
#$$KCA	001	0C00	1391	
#$$KCH	001	0C00	1143	
#$$KCN	001	0C00	1259	
#$$KCT	001	0C00	1111	
#$$KDE	001	0C00	1107	
#$$KDI	001	0D00	1187	
#$$KDN	001	0C00	1095	
#$$KDO	001	0E00	1191	
#$$KED	001	0C00	1031	
#$$KEN	001	0C00	1035	
#$$KEX	001	0C00	1055	
#$$KGO	001	0C00	1027	
#$$KHE	001	0C00	1211	
#$$KKE	001	0C00	1439	
#$$KLI	001	0C00	1115	
#$$KLL	001	0920	1415	
#$$KLO	001	0C00	1119	
#$$KME	001	0D00	1099	
#$$KMO	001	0C00	1043	
#$$KNA	001	0C00	1155	
#$$KOV	001	0E00	1075	
#$$KPA	001	0C00	1051	

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SYMBOL  LEN VALUE DEFN   REFERENCES                              VER 15, MOD 00  25/02/22  PAGE  54

#$$KPO  001  0C00 1139
#$$KPR  001  0C00 1163
#$$KRE  001  0C00 1083
#$$KRL  001  0700 1179
#$$KRM  001  0C00 1047
#$$KRN  001  0700 1067
#$$KRO  001  0D00 1071
#$$KRS  001  0C00 1395   2277
#$$KRU  001  0C00 1091
#$$KRV  001  0800 1183
#$$KSA  001  0C00 1127
#$$KSE  001  0E00 1167
#$$KSO  001  0C20 1219
#$$KSS  001  0C00 1151
#$$KSV  001  0980 1147
#$$KSY  001  0C00 1159
#$$KWI  001  0C00 1087
#$$KWR  001  0C00 1079
#$$LOA  001  0600 1019
#$$MIP  001  0C00 1215
#$$SDS  001  0C00 1327
#$$SFF  001  0E00 1331
#$$SFL  001  0F00 1323
#$$SFO  001  1500 1295
#$$SFS  001  0C00 1291
#$$SPA  001  0C00 1131
#$$SPO  001  0806 1135
#$$SPS  001  0C00 1123
#$$STR  001  1600 1299
#$$TDC  001  1000 1103
#$$TSY  001  1000 1063
#$$TVK  001  0FC0 1239
#$$UAL  001  0C00 1255
#$$UAT  001  0900 1351
#$$UCD  001  0900 1359
#$$UCN  001  0C00 1343
#$$UCP  001  0700 1347
#$$UDE  001  0C00 1363
#$$UDI  001  0C00 1367
#$$UEX  001  0C00 1251
#$$UIN  001  0C00 1355
#$$UPA  001  0C00 1335
#$$UPO  001  0C00 1403
#$$UPT  001  0C00 1399
#$$VCR  001  2000 1195
#$$VLO  001  0600 1231
#$$VOD  001  0600 1235
#$$VVM  001  0000 1243
#$$VXI  001  0600 1223
#$$ZDU  001  1100 1375
#$$ZLB  001  1100 1419
#$$ZLO  001  1100 1379
#$$ZLV  001  0F00 1435
#$$ZL1  001  0F00 1423
#$$ZL2  001  0F00 1427
#$$ZL3  001  0C00 1431
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                                    CROSS REFERENCE

SYMBOL  LEN VALUE DEFN  REFERENCES                        VER 15, MOD 00  25/02/22  PAGE  55

#$$ZTR  001  1000 1371
#$$ZUT  001  0C00 1383
#$#BLN  001  18D4 1314
#$#CKT  001  2118 1442
#$#CNF  001  2000 1410
#$#COR  001  0800 1202
#$#CSA  001  1000 1262  2477
#$#DRT  001  0000 1006
#$#ERM  001  0928 1206
#$#FSP  001  1880 1302
#$#INV  001  212C 1446
#$#PWR  001  2300 1450
#$#RSP  001  1780 1282
#$#SAV  001  1180 1270  2478
#$#SSA  001  1128 1266
#$#VUF  001  0B08 1226
#$#0TR  001  0000 0998
#$#1TR  001  0080 1002
#$@#BL  001  0001 1316
#$@#CK  001  0004 1444
#$@#CN  001  0001 1412
#$@#CO  001  003A 1204
#$@#CS  001  003A 1264
#$@#DR  001  0008 1008
#$@#ER  001  0032 1208
#$@#FS  001  0030 1304
#$@#IN  001  003A 1448
#$@#PW  001  00C0 1452
#$@#RS  001  0030 1284
#$@#SA  001  0108 1272  2479
#$@#SS  001  0001 1268
#$@#VU  001  0002 1228
#$@#0T  001  0018 1000
#$@#1T  001  0018 1004
#$@BCO  001  0018 1016
#$@BOV  001  0018 1288
#$@DPR  001  0005 1024
#$@DRE  001  0001 1040
#$@DSP  001  0004 1060
#$@ECM  001  0006 1320
#$@EFK  001  0002 1340
#$@ERR  001  0003 1312
#$@EXM  001  0003 1200
#$@FIL  001  0009 1280
#$@FIS  001  0009 1276
#$@FML  001  0052 1408
#$@FMS  001  0052 1248
#$@GRA  001  0003 1172
#$@GUF  001  0010 1308
#$@INL  001  0010 1388
#$@INS  001  0010 1012
#$@KAL  001  000F 1176
#$@KCA  001  000C 1392
#$@KCH  001  000C 1144
#$@KCN  001  0010 1260
#$@KCT  001  0009 1112
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                              CROSS REFERENCE

SYMBOL  LEN VALUE DEFN   REFERENCES                         VER 15, MOD 00  25/02/22  PAGE  56

#$@KDE  001  0010 1108
#$@KDI  001  0005 1188
#$@KDN  001  0010 1096
#$@KDO  001  000C 1192
#$@KED  001  000E 1032
#$@KEN  001  0006 1036
#$@KEX  001  0003 1056
#$@KGO  001  0002 1028
#$@KHE  001  000C 1212
#$@KKE  001  0006 1440
#$@KLI  001  0011 1116
#$@KLL  001  0001 1416
#$@KLO  001  0008 1120
#$@KME  001  0003 1100
#$@KMO  001  0004 1044
#$@KNA  001  0008 1156
#$@KOV  001  0009 1076
#$@KPA  001  0005 1052
#$@KPO  001  000D 1140
#$@KPR  001  0009 1164
#$@KRE  001  0002 1084
#$@KRL  001  0004 1180
#$@KRM  001  0003 1048
#$@KRN  001  0003 1068
#$@KRO  001  000A 1072
#$@KRS  001  000A 1396
#$@KRU  001  0003 1092
#$@KRV  001  000D 1184
#$@KSA  001  0011 1128
#$@KSE  001  0004 1168
#$@KSO  001  0005 1220
#$@KSS  001  000B 1152
#$@KSV  001  0002 1148
#$@KSY  001  000F 1160
#$@KWI  001  0002 1088
#$@KWR  001  0002 1080
#$@LOA  001  0013 1020
#$@MIP  001  000D 1216
#$@SDS  001  0004 1328
#$@SFF  001  0008 1332
#$@SFL  001  0005 1324
#$@SFO  001  0003 1296
#$@SFS  001  0011 1292
#$@SPA  001  0004 1132
#$@SPO  001  0003 1136
#$@SPS  001  0001 1124
#$@STR  001  0002 1300
#$@TDC  001  0003 1104
#$@TSY  001  0003 1064
#$@TVK  001  0001 1240
#$@UAL  001  0011 1256
#$@UAT  001  000C 1352
#$@UCD  001  000B 1360
#$@UCN  001  0009 1344
#$@UCP  001  000F 1348
#$@UDE  001  000E 1364
```

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#$@UDI  001  0008 1368
#$@UEX  001  000E 1252
#$@UIN  001  000F 1356
#$@UPA  001  0004 1336
#$@UPO  001  0005 1404
#$@UPT  001  0012 1400
#$@VCR  001  0008 1196
#$@VLO  001  0002 1232
#$@VOD  001  0016 1236
#$@VVM  001  0030 1244
#$@VXI  001  0002 1224
#$@ZDU  001  0008 1376
#$@ZLB  001  0002 1420
#$@ZLO  001  000C 1380
#$@ZLV  001  0006 1436
#$@ZL1  001  0007 1424
#$@ZL2  001  000D 1428
#$@ZL3  001  000A 1432
#$@ZTR  001  0001 1372
#$@ZUT  001  0014 1384
#$BCOM  001  0080 1014
#$BOLV  001  1780 1286
#$DPRI  001  014C 1022
#$DREA  001  0200 1038
#$DSPL  001  0240 1058
#$ECMA  001  1900 1318
#$EFKE  001  1990 1338
#$ERRP  001  18C0 1310
#$EXMS  001  07D4 1198
#$FILN  001  1724 1278
#$FIST  001  1700 1274
#$FMLN  001  1E00 1406
#$FMST  001  0D00 1246
#$GRAP  001  0690 1170
#$GUFU  001  1880 1306
#$INLN  001  1C84 1386
#$INST  001  0020 1010
#$KALL  001  06A4 1174
#$KCAL  001  1CC4 1390
#$KCHA  001  053C 1142
#$KCND  001  0F80 1258
#$KCTL  001  03BC 1110
#$KDEL  001  035C 1106
#$KDIS  001  0744 1186
#$KDNT  001  0300 1094
#$KDOV  001  0780 1190
#$KEDI  001  0188 1030
#$KENA  001  01C4 1034
#$KEXT  001  0234 1054
#$KGOS  001  0180 1026
#$KHEL  001  0A30 1210
#$KKEY  001  2100 1438
#$KLIS  001  0400 1114
#$KLLA  001  2004 1414
#$KLOG  001  0444 1118
#$KMER  001  030C 1098
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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#$KMOU	001	0204	1042	
#$KNAM	001	05C0	1154	
#$KOVM	001	0290	1074	
#$KPAS	001	0220	1050	
#$KPOO	001	0508	1138	
#$KPRT	001	063C	1162	
#$KREA	001	02BC	1082	
#$KRLA	001	0700	1178	
#$KRMO	001	0214	1046	
#$KRNU	001	0280	1066	
#$KROV	001	028C	1070	
#$KRSU	001	1D24	1394	
#$KRUN	001	02CC	1090	
#$KRVL	001	0710	1182	
#$KSAV	001	0488	1126	
#$KSET	001	0680	1166	
#$KSOV	001	0AC8	1218	
#$KSSP	001	0594	1150	
#$KSVL	001	058C	1146	
#$KSYM	001	0600	1158	
#$KWID	001	02C4	1086	
#$KWRI	001	02B4	1078	
#$LOAD	001	0100	1018	
#$MIPP	001	0A80	1214	
#$SDSY	001	192C	1326	
#$SFFI	001	193C	1330	
#$SFLO	001	1918	1322	
#$SFOV	001	1844	1294	
#$SFSY	001	1800	1290	
#$SPAC	001	04CC	1130	
#$SPOV	001	04DC	1134	
#$SPSY	001	0484	1122	
#$STRO	001	1850	1298	
#$TDCK	001	0350	1102	
#$TSYK	001	0250	1062	
#$TVKB	001	0BAC	1238	
#$UALL	001	0F00	1254	
#$UATR	001	1A38	1350	
#$UCDI	001	1AD8	1358	
#$UCNF	001	19B8	1342	
#$UCPL	001	19DC	1346	
#$UDEL	001	1B24	1362	
#$UDIS	001	1B5C	1366	
#$UEXL	001	0EA8	1250	
#$UINI	001	1A88	1354	
#$UPAC	001	1980	1334	
#$UPOV	001	1D24	1402	
#$UPTF	001	1D5C	1398	
#$VCRT	001	07B4	1194	
#$VLOA	001	0B80	1230	
#$VODK	001	0B88	1234	
#$VVMR	001	0C00	1242	
#$VXIT	001	0B00	1222	
#$ZDUM	001	1BA4	1374	
#$ZLBM	001	2008	1418	
#$ZLOA	001	1BC4	1378	

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#$ZLVR   001  20B0  1434
#$ZL1M   001  2010  1422
#$ZL2M   001  2030  1426
#$ZL3M   001  2088  1430
#$ZTRA   001  1B9C  1370
#$ZUTM   001  1C14  1382
##DNEA   001  0001  0920
##DNEF   001  0003  0921
##DNER   001  0005  0922
##DNE1   001  0004  0919
##DNHC   001  0000  0916
##DNHR   001  0003  0918
##DNHY   001  0001  0917
##DPEA   001  0009  0894    3239   3244
##DPEN   001  0007  0893    3228
##DPER   001  000B  0895
##DPE1   001  0004  0892    3226
##DPHC   001  0000  0890    3225
##DPHR   001  0003  0891
##DUEA   001  0009  0905
##DUED   001  0012  0910
##DUEF   001  000B  0906
##DUEH   001  002B  0911
##DUEI   001  000C  0907    3403
##DUEL   001  000F  0909
##DUEN   001  0007  0904    3406
##DUER   001  0031  0912
##DUES   001  000D  0908
##DUE1   001  000C  0903
##DUHA   001  0001  0899    3423
##DUHB   001  0003  0900    3394   3397
##DUHC   001  0004  0901    3402
##DUHR   001  000B  0902
##LAAA   001  0002  0931
##LAHC   001  0001  0930
##LN     001  0001  0959
##LNE    001  0006  0965
##LNEF   001  0002  0963
##LNEZ   001  0002  0964
##LNH    001  0004  0962
##LNHY   001  0001  0960
##LNHZ   001  0002  0961
##LP     001  0004  0935    3263
##LPE    001  000C  0940    3230
##LPEN   001  0008  0937    2956   2966   3228
##LPEZ   001  0002  0938
##LPH    001  0004  0939
##LPHZ   001  0003  0936
##LU     001  0002  0944    3449
##LUE    001  0032  0955    3408
##LUED   001  0003  0952
##LUEF   001  0002  0948
##LUEH   001  0019  0953
##LUEI   001  0001  0949
##LUEL   001  0002  0951
##LUEN   001  0008  0947    3406
```

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##LUES  001  0001 0950
##LUEZ  001  0006 0954
##LUH   001  000C 0946
##LUHZ  001  0007 0945
##MNHM  001  002A 0988
##MPHM  001  0055 0973
##MUEG  001  0020 0980
##MUEK  001  0040 0979
##MUEO  001  0004 0983
##MUEP  001  0080 0978
##MUER  001  0008 0982
##MUEV  001  0002 0984
##MUEX  001  0010 0981
##MUHM  001  000A 0977
##RN    001  0000 0879
##RP    001  0001 0880    3262   3267
##R1    001  0007 0882
##R2    001  0005 0881
#@#BAD  001  0455 0823
#@#IO1  001  0459 0831
#@#IO2  001  045D 0832
#@#TAT  001  0941 0859
#@#TBA  001  09A1 0863
#@#TFS  001  0941 0857
#@#TSY  001  0941 0861
#@#VFP  001  0700 0849    2472
#@#VLP  001  093D 0852
#@#WDB  001  050C 0844
#@#WFT  001  0500 0842
#@@#BA  001  0001 0824
#@@#IO  001  0001 0836
#@@#SC  001  0002 0833
#@@#TA  001  0010 0860
#@@#TB  001  0010 0864
#@@#TS  001  0005 0862
#@@#TW  001  0020 0858
#@@#VM  001  0100 0853
#@@#WD  001  00BD 0845
#@@#WF  001  0003 0843
#@@#04  001  0004 0835
#@@#08  001  0008 0834
#@@BOV  001  0018 0812
#@@ECM  001  0006 0826
#@@ERR  001  0003 0820
#@@GUF  001  0010 0816
#@@LDS  001  0002 0822
#@@SDS  001  0004 0818
#@@SFF  001  0008 0830
#@@SFL  001  0005 0828
#@@SFO  001  0005 0838
#@@SFS  001  0011 0814
#@@VSF  001  0010 0866
#@@VSL  001  000F 0867
#@@VTR  001  0001 0851
#@BOVL  001  0400 0811
#@CORS  001  0005 0773
```

SYMBOL	LEN	VALUE	DEFN	REFERENCES
#@ECMA	001	0481	0825	
#@ERRP	001	0441	0819	
#@GUFU	001	0401	0815	
#@LDSV	001	044D	0821	
#@MVSD	001	0001	0781	
#@NERO	001	0003	0775	
#@OBRA	001	0002	0777	
#@PTFL	001	0006	0796	
#@PTFS	001	0001	0795	
#@SDSY	001	04AD	0817	
#@SFFI	001	04BD	0829	
#@SFLO	001	0499	0827	
#@SFOV	001	04C4	0837	
#@SFSY	001	0480	0813	
#@VCNT	001	0002	0793	
#@VLAB	001	0001	0788	
#@VLSD	001	0001	0779	
#@VSFI	001	09A1	0865	
#@VTRL	001	0708	0850	
#@WAF1	001	0401	0810	
#@WAR1	001	0400	0809	
#CNDIS	001	0001	0748	
#CNFIG	001	0005	0784	
#CORSV	001	0010	0772	
#DKEXT	001	0002	0755	
#FIGSC	001	0001	0785	
#HISCT	001	0006	0762	
#HISDX	001	0003	0757	
#HISLN	001	0008	0754	0755
#HISN1	001	0003	0760	
#HISN2	001	0005	0761	
#HISTC	001	0007	0764	
#HISTN	001	0009	0766	
#HISTQ	001	0000	0758	
#HISTR	001	0001	0759	
#HISTS	001	0008	0765	
#HISTV	001	000F	0767	
#HSEND	001	0007	0763	
#HSENT	001	0001	0756	
#IOSDR	001	0019	0783	
#KRSUM	001	0000	0001	
#MVSDR	001	000D	0780	
#NEROV	001	009C	0774	
#OBRAD	001	001D	0776	
#PKCNT	001	0002	0741	
#PKMRW	001	002B	0742	
#PKRDD	001	0003	0739	
#PKRTD	001	0003	0738	
#PKRTL	001	0004	0745	
#PKVRD	001	000B	0743	
#PKVWD	001	0007	0744	
#PKWTD	001	0001	0740	
#PTFDA	001	00DC	0794	
#RDWTL	001	0004	0746	
#SDRDK	001	0011	0782	
#VLSDR	001	000C	0778	

```
                                CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                    VER 15, MOD 00  25/02/22  PAGE  62

#VLTBE   001  0008 0733
#VOLF1   001  0009 0786
#VOLNG   001  0006 0731   0733   0755
#VOLOC   001  0005 0732
#VOLR1   001  0008 0787
#VTCF1   001  0025 0790
#VTCF2   001  0027 0792
#VTCR1   001  0024 0789
#VTCR2   001  0026 0791
@@E001   001  0000 1989   1991
@@E003   001  0001 1991   1993
@@E004   001  0002 1993   1995
@@E005   001  0003 1995   1997
@@E006   001  0004 1997   1999
@@E007   001  0005 1999   2001
@@E008   001  0006 2001   2003
@@E009   001  0007 2003   2005
@@E010   001  0008 2005   2007
@@E011   001  0009 2007   2009
@@E012   001  000A 2009   2011
@@E013   001  000B 2011   2013
@@E014   001  000C 2013   2015
@@E015   001  000D 2015   2017
@@E016   001  000E 2017   2019
@@E017   001  000F 2019   2021
@@E018   001  0010 2021   2023
@@E019   001  0011 2023   2025
@@E020   001  0012 2025   2027
@@E021   001  0013 2027   2029
@@E023   001  0014 2029   2031
@@E024   001  0015 2031   2033
@@E025   001  0016 2033   2035
@@E026   001  0017 2035   2037
@@E027   001  0018 2037   2039
@@E028   001  0019 2039   2041
@@E029   001  001A 2041   2043
@@E030   001  001B 2043   2045
@@E031   001  001C 2045   2047
@@E032   001  001D 2047   2049
@@E035   001  001E 2049   2051
@@E036   001  001F 2051   2053
@@E037   001  0020 2053   2055
@@E038   001  0021 2055   2057
@@E039   001  0022 2057   2059
@@E040   001  0023 2059   2061
@@E041   001  0024 2061   2063
@@E042   001  0025 2063   2065
@@E043   001  0026 2065   2067
@@E044   001  0027 2067   2069
@@E045   001  0028 2069   2071
@@E046   001  0029 2071   2073
@@E060   001  002A 2073   2075
@@E080   001  002B 2075
@@E100   001  0000 1461   1463
@@E101   001  0001 1463   1465
@@E102   001  0002 1465   1467
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SYMBOL	LEN	VALUE	DEFN	REFERENCES	
@@E103	001	0003	1467	1469	
@@E110	001	0004	1469	1471	3866
@@E112	001	0005	1471	1473	
@@E113	001	0006	1473	1475	
@@E114	001	0007	1475	1477	
@@E115	001	0008	1477	1479	
@@E116	001	0009	1479	1481	
@@E117	001	000A	1481	1483	
@@E120	001	000B	1483	1485	
@@E122	001	000C	1485	1487	
@@E123	001	000D	1487	1489	
@@E124	001	000E	1489	1491	
@@E129	001	000F	1491	1493	
@@E130	001	0010	1493	1495	
@@E131	001	0011	1495	1497	
@@E133	001	0012	1497	1499	
@@E134	001	0013	1499	1501	
@@E135	001	0014	1501	1503	
@@E136	001	0015	1503	1505	
@@E137	001	0016	1505	1507	
@@E138	001	0017	1507	1509	
@@E139	001	0018	1509	1511	
@@E142	001	0019	1511	1513	
@@E143	001	001A	1513	1515	
@@E150	001	001B	1515	1517	
@@E151	001	001C	1517	1519	
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@@T097  001  0C45 2318
@@T300  001  0C67 2321   2310
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@BCRDL  001  0050 0088
@BE     001  0081 0043
@BF     001  0090 0052
@BH     001  0084 0041
@BL     001  0082 0042   3049
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@BM     001  0082 0054
@BNE    001  0001 0046   3860
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@BNOL    001 0020 0050
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@CHARA   001 00C1 0072
@CHARF   001 00C6 0073   3741
@CHARR   001 00D9 0074   3738
@CHARZ   001 00E9 0075
@CLOFF   001 0010 0094
@CLON    001 0011 0093
@COMMA   001 006B 0066   3871
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@DBFR1   001 0004 0129   2822*
@DBFR2   001 0005 0130   3224  3920
@DCALK   001 0001 0081
@DCBCY   001 0009 0115
@DCBT1   001 0050 0117
@DCNT    001 0003 0128   2399* 2439* 2440* 2804
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@DCTRL  001  0000 0125   2378* 2389*
@DCYL   001  0001 0126   2428* 2429* 2603* 2792
@DD2    001  0003 0030
@DGET   001  0001 0134   2378  2455  2463  3075  3261  3447
@DOLAR  001  005B 0068
@DOP2   001  0004 0028   2594* 2598* 2599* 2661  2662  2751* 2755* 2756* 2827  2828
@DPLNG  001  0006 0132   2600  2659  2757  2791
@DPOS   001  0000 0133
@DPUT   001  0002 0135   2389  2471
@DSAD   001  0002 0127   2388  2398* 2423  2426* 2427* 2431* 2432* 2601* 2605* 2609  2610* 2614*
                         2617* 2621  2627* 2635* 2638* 2660  2793  3244* 3249*
@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
@DWBCY  001  0005 0103
@DWSIZ  001  00C0 0105
@DWTB1  001  0003 0104
@DZERO  001  00F0 0064
@D1     001  0002 0026   3630
@EOF    001  001C 0077
@EOFTC  001  0075 0162
@EOS    001  001E 0076   3749  3877
@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
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@IAR    001  0010 0017
@INDEX  001  0001 0156   0157
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@INST4  001  0004 0033
@INST5  001  0005 0034
@INST6  001  0006 0035
@I1IAR  001  00C0 0020
@LINSZ  001  00F4 0084   0646
@MAPEN  001  0005 0089
@MINCR  001  2000 0083   2484
@MINUS  001  0060 0080
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                          CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                          VER 15, MOD 00  25/02/22  PAGE  70

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@NUMBR   001 007B 0070
@OPD2    001 0004 0029
@OP1     001 0003 0027    2590* 2596* 2747* 2753* 3064  3066  3068  3208* 3210* 3211* 3375* 3378*
                         3379* 3603* 3605* 3606* 3864*
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@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    2308
@PRINT   001 0040 0152    0154  2304
@PSR     001 0004 0015
@PWAIT   001 00FF 0158
@P1IAR   001 0020 0018
@P2IAR   001 0040 0019
@Q       001 0001 0024    2400* 2438* 2641  2759* 2760* 2770* 2776* 2802  2803  2805  2814* 2816
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@RTRNC   001 0080 0161
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@SBLNL   001 0002 0184
@SCTSZ   001 0100 0100    3928  3929
@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
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@TBLEF   001 0010 0155    0157
@TBLIX   001 0011 0157
@UCB     001 0087 0039    2400  2438  2814  3051  3217  3388  3644  3707  3861  3872
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@VMFD2   001 0001 0110
@VMRS3   001 0002 0112
@VMTRL   001 0001 0111
@VOLID   001 0006 0091    3614  3616  3620  3726  3737  3743  3753
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@WSTBL   001 0503 0102
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DL2C05    002  0DED 2654   2599
DL2C48    001  0DE7 2651   2601   2605
DL2DPL    006  0DF3 2659   2600*
DL2END    001  0DF6 2664
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DL2E18    001  0018 2585   2615
DL2E60    001  0060 2586   2630
DL2E7C    001  007C 2588   2627
DL2ICS    001  0D5D 2589   2382   2392   2406   3035   3219   3245   3398
DL2K18    002  0DE9 2652   2618
DL2K60    002  0DE4 2649   2636
DL2K80    002  0DE6 2650   2617   2635
DL2LST    001  0DEE 2658   2601*  2603*  2605*  2609   2610*  2614*  2617*  2621   2627*  2635*  2638*  2643
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DL2RAD    002  0DF5 2663   2614   3032*  3218*
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DL2RAN  UNDEFINED SYMBOL   2403*
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DL2SEC    005  0D7E 2662   2609*  2615   2618*  2619   2619*  2620   2620*  2629
DL2SWH    003  0DD3 2641
DL2TSD    001  0083 2587   2628
DL2000    001  0D61 2591   2581   2592
DL2001    005  0D71 2598   2594*  2661
DL2002    005  0D7A 2600   2598*  2599*  2662
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DL2006    004  0D8D 2605   2602
DL2008    004  0DAA 2619   2616
DL2010    003  0DC0 2630
DL2100    004  0DCE 2638   2631
DL2110    003  0DD2 2640   2641
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DL2910    004  0DDF 2645   2596*
DL4CYL    001  0E6C 2792   2764*
DL4C01    002  0E72 2800   2750   2752   2764
DL4C05    002  0E74 2801   2756
DL4C24    003  0E43 2803   2777
DL4C48    003  0E30 2805   2771   2812   2818
DL4C96    003  0E1F 2802   2765
DL4DPL    006  0E70 2791   2757*
DL4EFD    001  0001 2798   2770   2816
DL4END    001  0EB2 2829
DL4ETB    001  0080 2799   2776
DL4E01    001  0001 2797   2772
DL4E24    001  0018 2796   2774
```

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DL4E48   001  0030 2795   2768  2810
DL4E96   001  0060 2794   2762
DL4ICS   001  0DF6 2745   2414
DL4LST   001  0E6B 2790   2783  2792  2793  2804  2822*
DL4SAV   005  0E0D 2828   2815* 2818* 2821
DL4SCD   001  0E6D 2793   2762  2765* 2768  2771* 2774  2777* 2778  2778* 2779  2779* 2780* 2809
                          2815  2821* 2823*
DL4SCT   001  0E6E 2804   2772  2807  2813* 2822  2823  2824*
DL4SPT   004  0E75 2808   2773
DL4WRK   005  0E0E 2827   2807* 2809* 2810  2812* 2813  2824
DL4010   001  0DFA 2748   2746  2749
DL4020   005  0E0A 2755   2751* 2827  2828
DL4030   005  0E13 2757   2755* 2756*
DL4035   003  0E18 2759   2825
DL4040   003  0E1E 2762   2766  2802
DL4050   003  0E2F 2768   2763  2805
DL4060   003  0E3C 2772   2769
DL4070   003  0E42 2774   2803  2811  2817  2819
DL4080   004  0E4F 2778   2775
DL4100   003  0E57 2780   2759* 2770* 2776* 2816
DL4200   003  0E60 2785   2760* 2814*
DL4500   004  0E75 2807   2808
DL4600   004  0E9F 2821   2785
DL4900   004  0E63 2787   2747*
DL4920   004  0E67 2788   2753*
KLOBUF   001  0FCE 3891   3892
KRS#SA   002  0D58 2479   2434* 2435  2439  2440
KRSBS1   001  0CB7 2377
KRSBUF   001  0D5B 2483   2397  2431  2432  2434  2435  2485
KRSBUR UNDEFINED SYMBOL   2398
KRSB51 UNDEFINED SYMBOL   2376
KRSCFG   001  0014 2357
KRSCNT   001  0D5A 2486   2397* 2399
KRSCRS   001  0D41 2454   2378* 2383  2389* 2393  2398* 2399*
KRSCRT   001  0002 2360
KRSCSA   002  0D54 2477
KRSCT2   001  0D5C 2489   2428
KRSCT4   001  0D59 2481   2429
KRSDSZ   001  0013 2356
KRSDTR   001  0040 2361
KRSEXF   001  0010 2350
KRSFNE   001  0007 2339
KRSFXD   001  14CE 3927   3928
KRSIDR   001  0000 2337
KRSINL   001  000F 2349
KRSIOI   001  0016 2359
KRSKBG   001  0015 2358
KRSLMP   001  0080 2362
KRSPAR   001  000D 2345
KRSPBR   001  0009 2343
KRSPGD   001  0018 2364
KRSPXR   001  000B 2344
KRSSAV   002  0D56 2478   2403
KRSUME   001  0C07 2285
KRSUMR   001  0EB2 2837   2458  2466  2474  2484
KRSVMR   001  0D4D 2470   2415  2423  2426* 2428* 2431* 2439*
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                              CROSS REFERENCE

SYMBOL    LEN VALUE DEFN    REFERENCES                    VER 15, MOD 00  25/02/22  PAGE  73

KRSVMS    001  0D47 2462    2407   2427* 2429* 2432* 2440*
KRSVM0    001  15CE 3928    3929
KRSVM1    001  16CE 3929
KRSXDI    001  0011 2351
KRSXD2    001  0012 2352
KRSX92    001  00C0 2366    2423   2488
KRSZRO    001  0D5A 2482
KRS000    003  0CB7 2378    2401
KRS010    003  0CD5 2396    2400*
KRS020    005  0CEA 2403    2396
KRS050    004  0CEF 2406    2436   2441
KRS060    003  0D01 2421    2438*
KRS070    004  0D1C 2431    2424
KRS090    004  0D3D 2443    2421
KRS100  UNDEFINED SYMBOL    2287
KRS192    001  0D5B 2488    2426   2427
SCACNT    002  1256 3889    3879*  3880*
SCACOF    001  0087 3861
SCACOM    001  0001 3860
SCAINC    001  0001 3859    3868   3874
SCAMMA    003  1233 3883
SCANIT    001  1216 3863
SCASVE    002  1254 3888    3865*  3880
SCASV1    001  1253 3887
SCA100    003  1225 3868    3870
SCA200    003  1228 3869    3867
SCA250    003  1232 3872    3883
SCA300    003  1235 3874    3876
SCA400    004  1245 3879    3872
SCA500    004  124F 3882    3864*  3878
SFIAST    001  005C 3088    2966
SFIBSE    003  0EF0 3095    2950   2951
SFICTR    001  0FC4 3072    2968*  2977   2980   2986* 2992* 2998* 3004* 3047
SFIDPL    001  0FC5 3075    3036
SFIEFE    001  00FE 3091    2986   3047
SFIEFF    001  00FF 3092    3074
SFIEND    001  0FCD 3096
SFIERR  UNDEFINED SYMBOL    3028
SFIETD    001  0006 3097    3053
SFIEXT    004  0FC3 3068    2952*
SFIE02    001  0002 3089    2998
SFIE03    001  0003 3090    2980   3004
SFIE06    001  0006 3093    2983   2989   2995   3001
SFIE07    001  0007 3094    2985   2991   2997   3003
SFIFND    003  0F9E 3052
SFINDF    001  0EB2 2948
SFINTR    001  0FCC 3080    3053   3056   3081
SFIONE    001  0FCD 3083    3055
SFIRDA    002  0FC7 3076    3034*
SFISBR    004  0FBF 3066    2949*
SFISTR    003  0F9B 3050
SFISXR    004  0FBB 3064    2953*
SFITTC    001  0FCB 3079    2969*  3055*  3056
SFIVOL    004  0ED3 2961
SFI050    004  0ED2 2960    2961
SFI100    004  0ED9 2966    2959
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                              CROSS REFERENCE

SYMBOL   LEN VALUE DEFN    REFERENCES                      VER 15, MOD 00  25/02/22  PAGE  74

SFI200   003  0EF0 2977    3049   3057   3095
SFI210   003  0EFF 2983    3002
SFI220   003  0F10 2989    2978
SFI230   003  0F21 2995    2979   2990
SFI240   003  0F32 3001    2981   2996
SFI320   003  0F43 3010    2967
SFI340   005  0F49 3012    2971
SFI350   004  0F4E 3016    2962   2987   2993   2999   3005
SFI500   003  0F63 3025    2957
SFI505   003  0F69 3027    3011
SFI510   005  0F70 3032    3026
SFI520   004  0F89 3041    3021
SFI540   003  0F94 3047    3018
SFI542   003  0F9A 3049    3050
SFI543   003  0F9D 3051    3052
SFI545   003  0FB1 3058    2984   3051   3054
SFI550   004  0FB8 3063    3020   3043   3048   3064
SFI560   004  0FBC 3065    3066
SFI570   004  0FC0 3067    3068
SGECNT   001  1057 3268    3225*  3231*  3242
SGEC01   002  1059 3269    3231
SGEDPL   001  104F 3260    3220   3224   3244*  3246   3249*
SGEEND   001  105A 3271
SGERAD   002  1056 3267    3249
SGETDB   001  0FCE 3207    3016   3206   3209   3891   3921
SGE050   003  0FE4 3216    3217*  3248*
SGE055   003  0FFC 3224    3216
SGE060   005  1006 3228    3232
SGE070   004  101C 3238    3229
SGE080   004  1032 3244
SGE900   004  1043 3252    3208*  3241   3243
SGE901   004  1047 3253    3210*
SGE902   004  104B 3254    3211*
SMAEND   001  14CE 3925    3927
SMBFDA UNDEFINED SYMBOL    2985*  2991*  2997*  3003*  3012*  3033*  3218   3618*  3641   3763*
SMDAAD UNDEFINED SYMBOL    3423*
SMFNAM UNDEFINED SYMBOL    3406
SMFUDA UNDEFINED SYMBOL    3037*  3239*
SMIND1 UNDEFINED SYMBOL    2972*  3017   3019   3042   3059*  3215*  3233*  3240   3420*  3433*
SMPDB1   001  10CE 3921    3264   3922
SMPEAD UNDEFINED SYMBOL    3238*
SMPSWD UNDEFINED SYMBOL    2956   2966   3228
SMUDBA UNDEFINED SYMBOL    3422*
SMUDB1   001  10CE 3922    3078   3442   3923
SMUDB2   001  12CE 3923    3443   3924   3925
SMUDEA UNDEFINED SYMBOL    3419*  3432*
SMVOID UNDEFINED SYMBOL    2958   3616   3753
SM1FNE   001  0080 3911    3042   3059   3420   3433
SM1NPD   001  0040 3912
SM1PDS   001  0010 3914    3019   3240
SM1PNF   001  0008 3915    2972   3017   3215   3233
SM1STN   001  0020 3913
SRCACT   002  10FD 3441    3383*  3389   3413   3414*  3421
SRCBA1   002  10FF 3442    3381
SRCBA2   002  1101 3443    3382
SRCBFR   002  110A 3450    3396*
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                        CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                           VER 15, MOD 00  25/02/22  PAGE  75

SRCBF1   002 10F9 3439    3381* 3383   3412* 3414
SRCBF2   002 10FB 3440    3382* 3396   3412  3413*
SRCCNT   001 1102 3444    3402* 3404   3409*
SRCC01   002 1104 3445    3394  3409
SRCDAD   002 1107 3448    3397*
SRCDPL   001 1105 3446    3399
SRCGET   001 1105 3447
SRCHFN   001 105A 3374    3041
SRCSCT   001 1108 3449
SRC010   004 105E 3377    3376  3377
SRC020   004 1078 3385    3415
SRC030   004 109C 3402    3395
SRC035   005 10A9 3406    3410
SRC040   004 10CD 3419    3407
SRC050   003 10D5 3421    3434
SRC055   003 10BB 3411    3388* 3401* 3405
SRC060   004 10ED 3432    3411
SRC900   004 10E1 3424    3375*
SRC910   004 10E5 3425    3378*
SRC920   004 10E9 3426    3379*
SUPBUF   001 0FCE 3892
SVOBSE   001 111D 3615    3602  3604
SVOBUF   001 13CE 3924    3706* 3752
SVOCT1   001 1164 3664    3621* 3665
SVOCT2   001 1165 3668    3619* 3630   3669
SVOEND   001 00FF 3593    3706* 3752
SVOERR  UNDEFINED SYMBOL  3655
SVOINP   001 0100 3592    3706  3752
SVOLID   001 110B 3601    2960
SVOLN1   001 0001 3589    3619  3621
SVOONE   001 1166 3671    3619  3621
SVO001   001 00F1 3590    3732
SVO002   001 00F2 3591    3735
SVO100   005 111D 3616    3622
SVO200   003 112E 3620    3617
SVO260   004 1145 3641    3765
SVO270   004 1150 3644    3632  3681   3755
SVO274   004 1154 3652    3603* 3642
SVO276   004 1158 3653    3605*
SVO280   004 115C 3655    3644*
SVO290   004 1160 3656    3606*
SVO300   004 1167 3679    3633
SVO310   004 116B 3680
SVO315   003 116F 3681
SVO320   001 1172 3689    3736  3742   3750
SVO330   001 1184 3703    3707*
SVO333   004 1190 3709    3705
SVO335   004 119A 3712    3693*
SVO350   004 11A2 3714    3715
SVO360   003 11B8 3728    3730
SVO400   003 11D2 3738    3733
SVO440   003 11E2 3744    3739
SVO445   003 11E5 3745    3747
SVO450   005 11FC 3753
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TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =   86